

SMD/BLOCK Type EMI Suppression Filters

EMIFIL[®]



*Innovator
in Electronics*

**Murata
Manufacturing Co., Ltd.**















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Mar.28,2011

Introduction

Murata Manufacturing Co., Ltd. has been developed the EMI suppression device market since the invention of 3 terminal capacitor DS310 series in 1979. Also, we have been struggling to develop and popularize new noise countermeasure technologies as well as new products in the concept of "Develop unique products", as the best solution partner of customers. We hope you can find your key device to your noise problem.

Explanation of symbols in this catalog

	Features of each series	Features of each item
All Products	 Flow Flow soldering available	 New New product
	 Reflow Reflow soldering available	 Kit Exist in design kit
	 Hi Power Meet large current lines	 ≥1A Rated current 1A or more
Chip Ferrite Bead	 GHz Meet high frequency noise up to 1-2GHz	 ≥3A Rated current 3A or more
	 Hi-GHz Meet ultra high frequency noise up to 10GHz	 ≥10A Rated current 10A or more
LC Combined Type Filter		 DTV Low cut off frequency type for UHF band noise which affects to digital TV tuner
Chip Common Mode Choke Coil		 HD for high speed differential signal lines (USB2.0/LVDS/IEEE1394 etc.)
		 UD for ultra high speed differential signal lines (HDMI/DVI/Display Port/USB3.0 etc.)
		 Imp Match Line impedance has been matched to transmission lines

for EU RoHS Compliant

- All the products in this catalog comply with EU RoHS.
- EU RoHS is "the European Directive 2002/95/EC on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment".
- For more details, please refer to our website 'Murata's Approach for EU RoHS' (<http://www.murata.com/info/rohs.html>).

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BNX Block Type EMIFIL®




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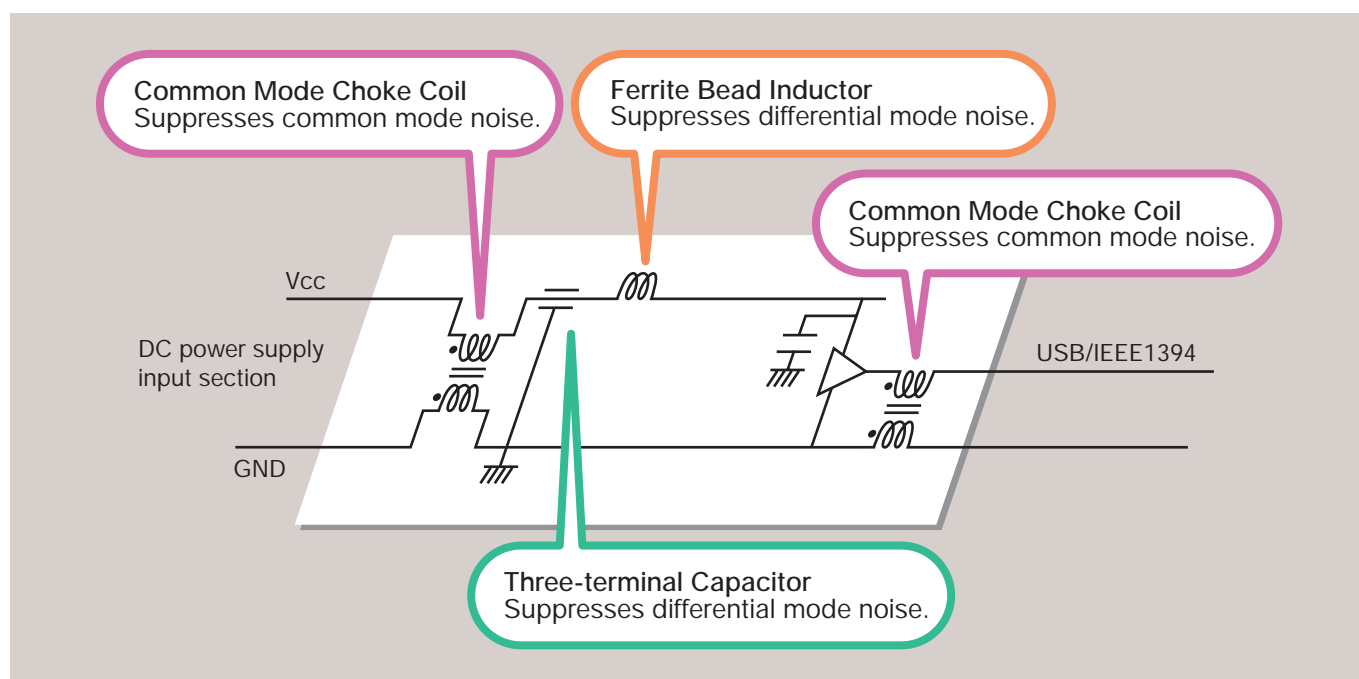
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Selection Guide for Noise Suppression Filter

●Features & Suitable Circuits

Type	Features	Suitable Circuits
Ferrite Bead BLM/BLA Series 	<ul style="list-style-type: none"> · Miniaturized · Unnecessary of GND connection · Effective at low impedance line 	<ul style="list-style-type: none"> · Application set with less noise radiation · Low impedance line
Capacitor Type NFM/NFA/NFE/NFR/NFL/NFW Series 	<ul style="list-style-type: none"> · Great noise suppression effect · With effect as By-Pass capacitor (Lineup for Power) · Good noise separation from signal (LC filter for Signal) · Effective at high impedance line 	<ul style="list-style-type: none"> · Application set with higher noise radiation · High impedance line · Circuit with By-Pass capacitor · Circuit driven by high frequency
Common Mode Choke Coil 	<ul style="list-style-type: none"> · Possible to suppress noise with less affect of ultra high speed signal · Great effect for common mode noise · Less magnetic saturation by current 	<ul style="list-style-type: none"> · High speed differential signal line · I/F cable driver · Power line

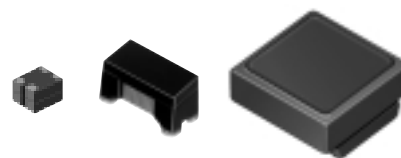
●Example



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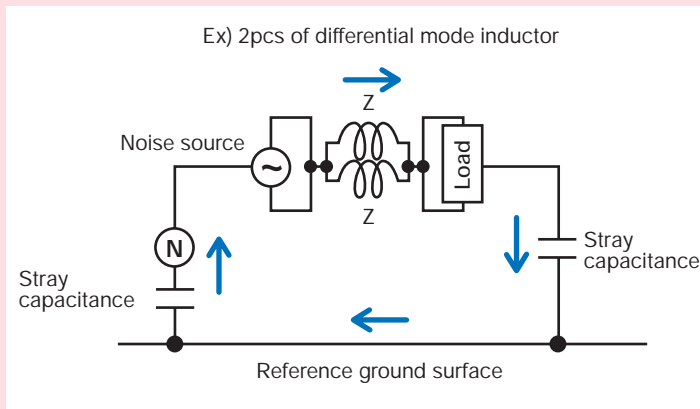
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● Advantages to Use Common Mode Choke Coils



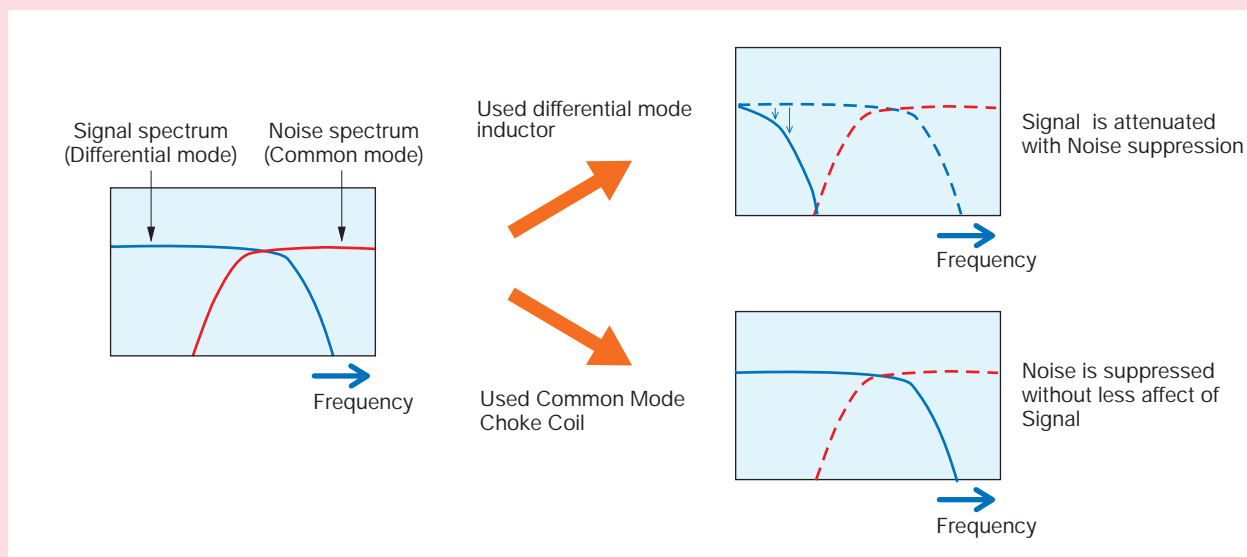
1. Great Effect for Common Mode Noise

Differential mode inductors work as a half impedance for common mode noise. Common Mode Choke Coils are effective for common mode noise.



2. Possible to Suppress Noise with Less Affect of Ultra High Speed Signal

Common Mode Choke Coils can suppress Noise with less affect of Signal, even if the frequency range of Signal and Noise are same, because of they separate each conductive mode of current.

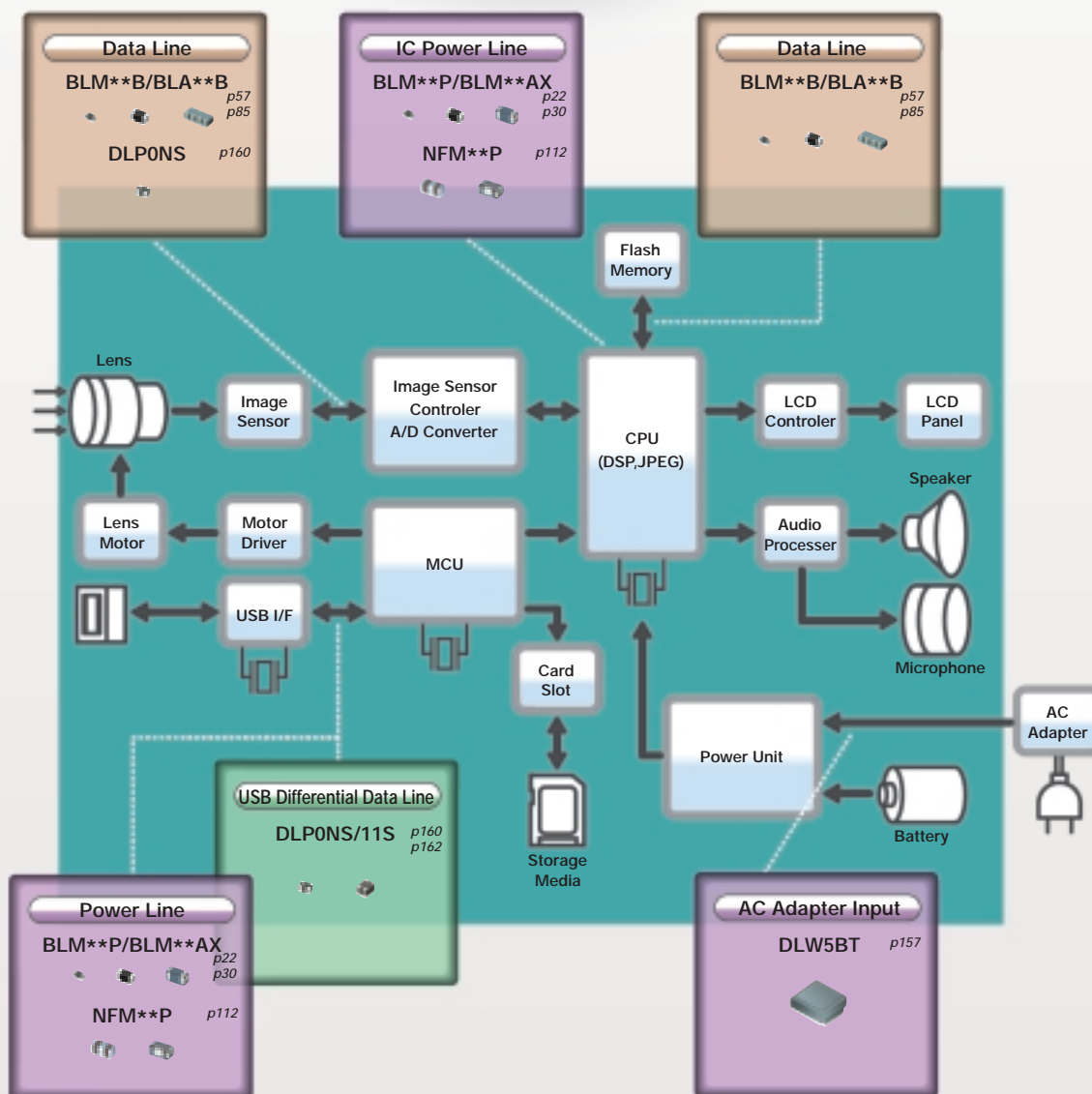


3. Less Magnetic Saturation by Current

Common Mode Choke Coils are effective for noise suppression of DC power lines, due to their less magnetic saturation at high power current, that comes from their construction of cancelling magnetic flux of differential mode current at each coils.

Digital Still Camera

Application Sample

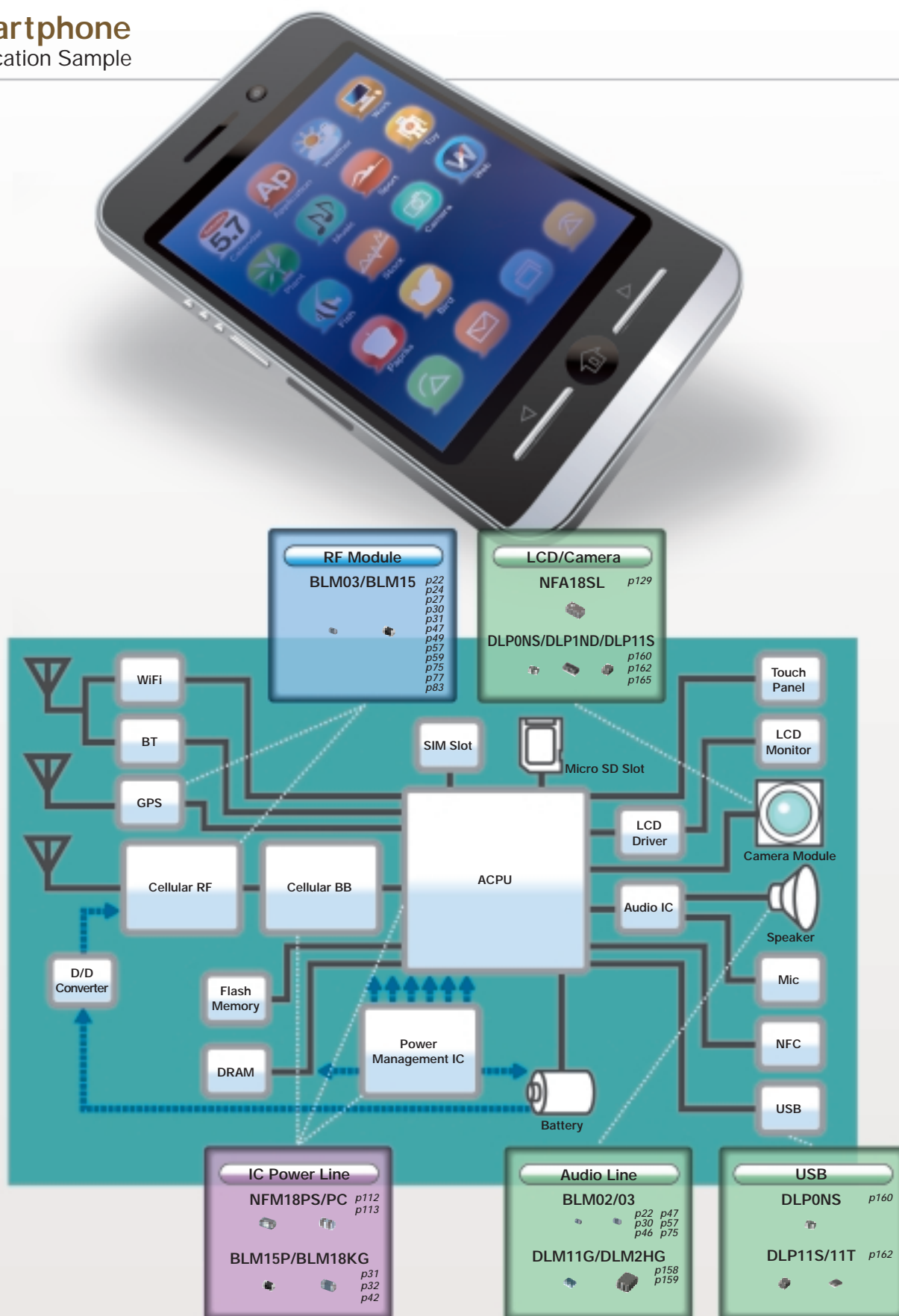


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Smartphone

Application Sample

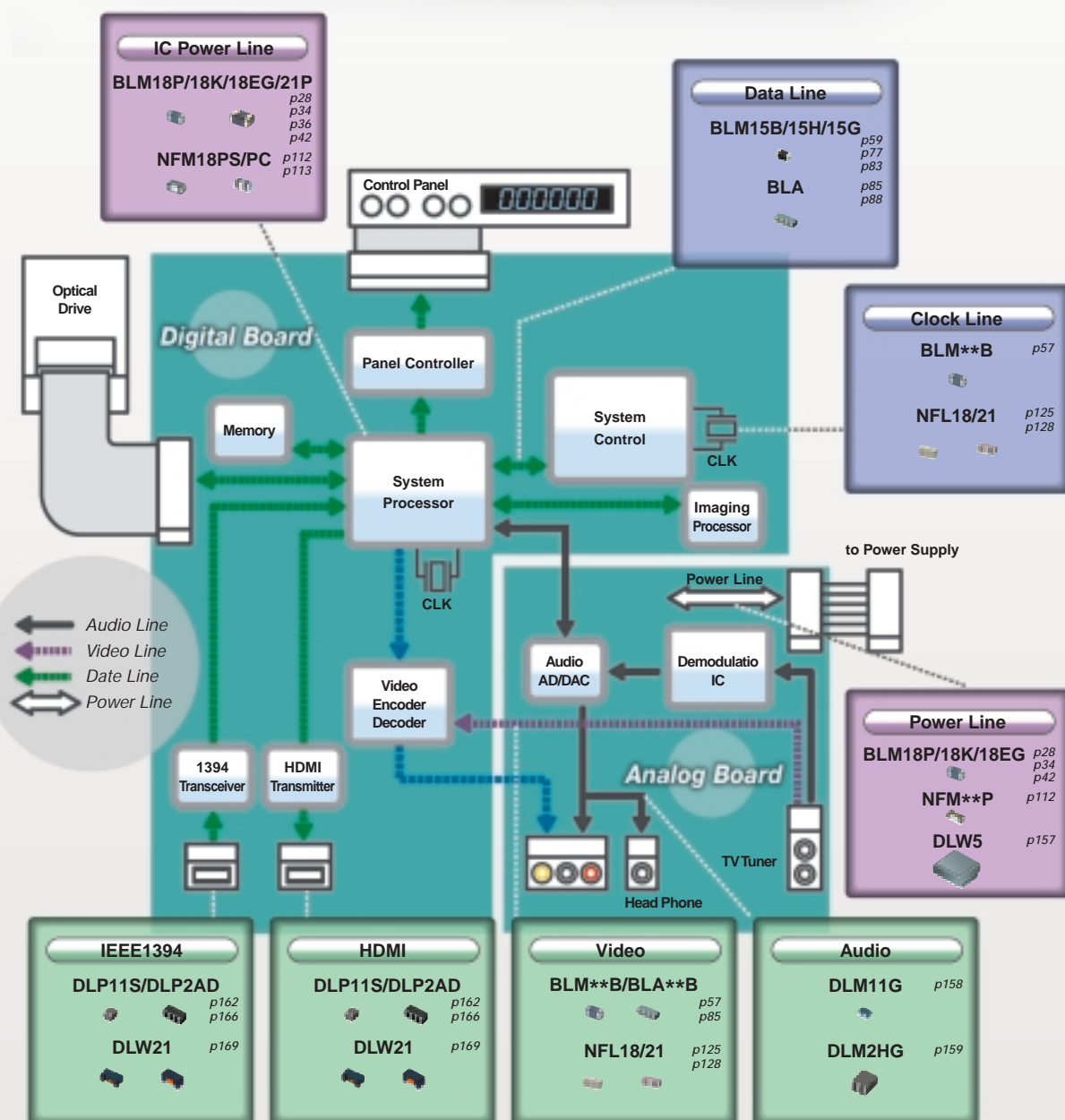


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Blu-ray/DVD

Application Sample



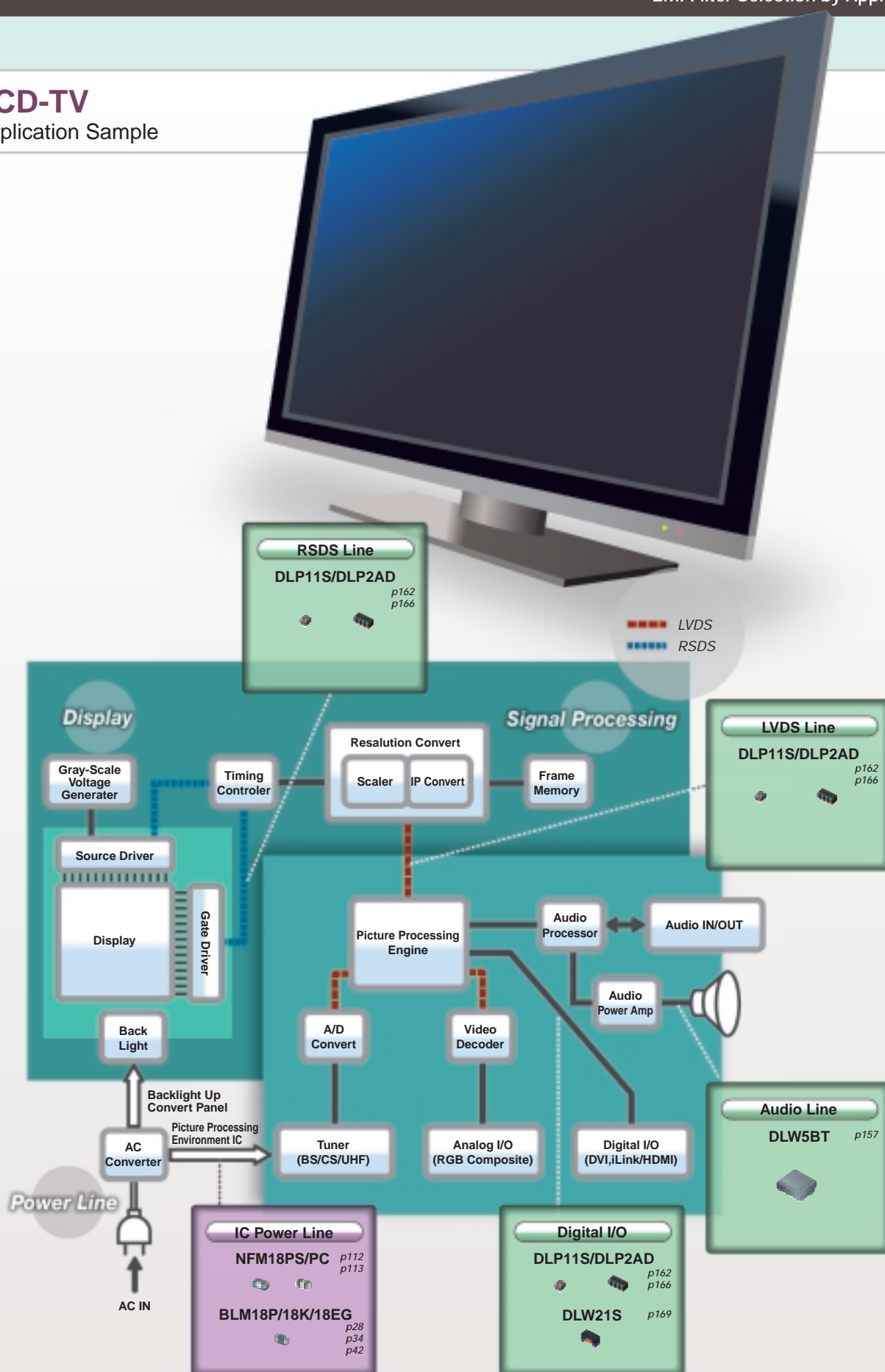
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LCD-TV

Application Sample



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EMI Filter Selection by Circuits and Noise Frequency

●Chip Ferrite Bead / Chip EMIFIL®

Noise Frequency?

Noise Frequency: Under 1GHz

Noise Frequency: GHz Band

Noise Frequency: High-GHz Band

Circuit Type?

Power Line

General Signal Line
Under 10MHz

High Speed Signal Line
Over 10MHz

Inductor Type
(Suppression Effect: Normal)

Capacitor Type
(Suppression Effect: High)

Inductor Type
(Suppression Effect: Normal)

Capacitor Type
(Suppression Effect: High)

Inductor Type

BLM03AX
0201/0.2-1A/Imp.10-1000Ω
p22

BLM03P
0201/0.75-0.9A/Imp.22-33Ω
p30

BLM15AX
0402/0.35-1.74A/Imp.10-1000Ω
p24

BLM15PX
0402/1.8A/Imp.120Ω
p31

BLM15PG/PD
0402/1-2.2A/Imp.10-120Ω
p32

BLM18P
0603/0.5-3A/Imp.30-470Ω
p34

BLM21P
0805/1.5-6A/Imp.22-330Ω
p36

BLM31P
1206/1.5-6A/Imp.33-600Ω
p38

BLM41P
1806/1.5-6A/Imp.60-1000Ω
p40

Low DC Resistance Type

BLM18K
0603/1.3-6A/Imp.26-600Ω
p42

BLM18S
0603/1.5-6A/Imp.26-330Ω
p44

NFM18PC
0603/2-4A/Cap.0.1-2.2μF
p113

NFM21P
0805/2-6A/Cap.0.1-4.7μF
p115

NFM3DP
1205/2A/Cap.0.022μF
p116

NFM31P
1206/6A/Cap.27μF
p117

NFM41P
1806/2-6A/Cap.0.2-1.5μF
p118

NFM55P
2220/6A/Cap.1.5μF
p119

T Circuit Filter Feed Through Type

NFE31P
1206/6A/Cap.22-2200pF
p110

NFE61P
2706/2A/Cap.33-4700pF
p111

Block Type

BNX022/023
10-15A/Range1MHz-2GHz
p191

BLM15EG
0402/0.7-1.5A/Imp.120-220Ω
p27

BLM18HE
0603/0.5-0.8A/Imp.600-1500Ω
p79

BLM18EG
0603/0.5-2A/Imp.100-600Ω
p28

NFM18PS
0603/2A/Cap.0.47-1.0μF
p112

BLM03HG
0201/Imp.600-1000Ω
p75

BLM15HG
0402/Imp.600-1000Ω
p77

BLM15EG
0402/Imp.120-220Ω
p27

BLM18HG
0603/Imp.470-1000Ω
p79

BLM18HK
0603/Imp.330-1000Ω
p79

BLM18EG
0603/Imp.100-600Ω
p28

BLM03HD
0201/Imp.330-1000Ω
p75

BLM15HD
0402/Imp.600-1800Ω
p77

BLM15HB
0402/Imp.120-220Ω
p77

BLM18HD
0603/Imp.470-1000Ω
p79

BLM18HB
0603/Imp.120-330Ω
p79

BLM18HE
0603/Imp.600-1500Ω
p79

NFL18ST
0603/Cut off 200-500MHz
p125

NFA18S
0603/Cut off 50-480MHz
p131

NFA21S
0805/Cut off 50-330MHz
p132

BLM15GG
0402/Imp.220-470Ω
p83

BLM18GG
0603/Imp.470Ω
p84

BLM15GA
0402/Imp.75Ω
p83

BLM02A
01005/Imp.10-120Ω
p46

BLM03A
0201/Imp.10-1000Ω
p47

BLM15A
0402/Imp.10-1000Ω
p49

BLM18A
0603/Imp.120-1000Ω
p52

BLM18T
0603/Imp.120-1000Ω
p56

BLM18R
0603/Imp.120-1000Ω
p70

BLM21A
0805/Imp.120-1000Ω
p54

BLM21R
0805/Imp.120-1000Ω
p72

Array Type

BLA2AA
0804/Imp.120-1000Ω
p85

BLA31A
1206/Imp.30-1000Ω
p88

BLM03B
0201/Imp.10-600Ω
p57

BLM15B
0402/Imp.5-1800Ω
p59

BLM18B
0603/Imp.5-2500Ω
p63

BLM21B
0805/Imp.5-2700Ω
p67

Array Type

BLA2AB
0804/Imp.10-1000Ω
p85

BLA31B
1206/Imp.120-1000Ω
p88

NFL18ST
0603/Cut off 50-500MHz
p125

NFL18SP
0603/Cut off 150-500MHz
p127

NFL21S
0805/Cut off 10-500MHz
p128

NFW31S
1206/Cut off 10-500MHz
p134

RC Combined

NFR21G
0805/22-100Ω/Cap.10-100pF
p136

Array Type (RC/LC Combined)

NFA31G
1206/6.8-100Ω/Cap.10-100pF
p137

NFA18S
0603/Cut off 50-480MHz
p129




















NFA21S
0805/Cut off 50-330MHz
p132

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●Chip Common Mode Choke Coil

Circuit Type?

DC Power Line	High Speed Differential Signal Line		Audio Line
	High Speed Signal Line (USB/LVDS/IEEE1394 etc.)	Ultra High Speed Signal Line (HDMI/DVI/Display Port etc.)	
 DLW5AH <small>p156</small> 2014/0.2A/Imp.4000Ω	 DLP0NS <small>p160</small> 03025/Imp.15-120Ω	 DLP11SA <small>p162</small> 0504/Imp.35-90Ω	 DLM11G <small>p158</small> 0504/Imp.600Ω
 DLW5BS <small>p156</small> 2020/0.5-5A/Imp.190-3000Ω	 DLP11SN <small>p162</small> 0504/Imp.35-330Ω	 DLP11TB <small>p162</small> 0504/Imp.80Ω	 DLM2HG <small>p159</small> 1008/Imp.600Ω
 DLW5BT <small>p157</small> 2020/1.5-6A/Imp.100-1400Ω	 DLW21H <small>p171</small> 0805/Imp.67-180Ω	 DLW21S_HQ <small>p169</small> 0805/Imp.67-120Ω	 DLW5BT <small>p157</small> 2020/1.5-6A/Imp.100-1400Ω
High Current Type Automotive Available	 DLW21S_SQ <small>p169</small> 0805/Imp.67-370Ω		
 PLT10HH <small>p173</small> 12.9mmx6.6mm /6-10A/Imp.400-1000Ω	 DLP31S <small>p164</small> 1206/Imp.120-550Ω		
	 DLW31S <small>p172</small> 1206/Imp.90-2200Ω		
	Array Type		
	 DLP1ND <small>p165</small> 05025/Imp.35-90Ω		
	 DLP2AD <small>p166</small> 0804/Imp.35-280Ω		
	 DLP31D <small>p168</small> 1206/Imp.90-440Ω		

Guide of Digits in this Chart:

●for BLM03P

0201/0.75-0.9A/Imp.22-33Ω

Size (inch) Rated Current Impedance

●for BNX022/023

10-15A/Range1MHz-2GHz

Rated Current Effective Frequency Range

●for NFR21G

0805/22-100Ω/Cap.10-100pF

Size (inch) Resistance Capacitance

●for NFA18S

0603/Cut off 50-480MHz

Size (inch) Cut-off Frequency

●for DLW5BS

2020/0.5-5A/Imp.190-3000Ω

Size (inch) Rated Current Impedance



BL

Inductor Type

Inductor Type		Series	Size Code Inch (mm)	Impedance (Ω) at 100MHz						Effective Frequency Range								
				10	100			1000			10kHz	100kHz	1MHz	10MHz	100MHz	1GHz	10GHz	
For General Band Noise	Universal Type [Power Lines / Signal Lines]	BLM03AX ^{p22}	0201 (0603)	10	80 120 240			600 1000										
		BLM15AX ^{p24}	0402 (1005)	10	30	70 120 220	600 1000											
	Signal Lines Type	For General Signal Lines	BLM02A ^{p46}	01005 (0402)	10	70 120												
			BLM03AG ^{p47}	0201 (0603)	10	80 70 120 240			600 1000									
			BLM15AG ^{p49}	0402 (1005)	10	70 120 220			600 1000									
			BLM18A ^{p52}	0603 (1608)	220 120 150 330			470 600 1000										
			BLM21A ^{p54}	0805 (2012)	220 120 150 330			470 600 1000										
			BLM18T ^{p56}	0603 (1608)	120 220			600 1000										
			BLA2AA (4 circuits array) ^{p85}	0804 (2010)	120 220			600 1000										
			BLA31A (4 circuits array) ^{p88}	1206 (3216)	30 60 120 220			600 1000										
		For High Speed Signal Lines	BLM03B ^{p57}	0201 (0603)	10	22	33 56 80 47 75	120 240	470 600 1800									
			BLM15B ^{p59}	0402 (1005)	5 10	22	33 47 75	120 220	470 600 1000									
			BLM18B ^{p63}	0603 (1608)	5 10	22	47 60 75 140	220 120 150 330	470 600 1000 1500 2200									
			BLM21B ^{p67}	0805 (2012)	5	75 60 200 120 150 220			330 470 750 1500 2200 2700									
			BLA2AB (4 circuits array) ^{p85}	0804 (2010)	10	22	47 75 120 220	470 600 1000										
			BLA31B (4 circuits array) ^{p88}	1206 (3216)	120 220			470 600 1000										
			BLM18R ^{p70}	0603 (1608)	120 220			470 600 1000										
			BLM21R ^{p72}	0805 (2012)	120 220			470 600 1000										
	Power Lines Type	BLM03P ^{p30}	0201 (0603)	33 (0.75A) 22 (0.9A)														
		BLM15P* ^{p31}	0402 (1005)	30 (2.2A) 60 (1.7A) 80 (1.5A) 120 (1.3A/1.8A)														
		BLM18P* ^{p34}	0603 (1608)	33 (3A) 30 (1A) 60 (0.5A) 120 (3A) 220 (1.4A) 180 (1.5A) 470 (1A) 330 (1.2A)														
		BLM21P* ^{p36}	0805 (2012)	30 (3A) 22 (6A) 60 (3A) 120 (3A) 220 (2A) 330 (1.5A)														
		BLM31P* ^{p38}	1206 (3216)	50 (3A) 33 (6A) 120 (3A) 390 (2A) 600 (1.5A)														
		BLM41P* ^{p40}	1806 (4516)	75 (3A) 60 (6A) 180 (3A) 470 (2A) 1000 (1.5A)														
		BLM18K* (Low DC Resistance Type) ^{p42}	0603 (1608)	30 (5A) 26 (6A) 70 (3.5A) 100 (3A) 220 (2.2A) 330 (1.7A) 470 (1.5A) 600 (1.3A)														
		BLM18S* (Low DC Resistance Type) ^{p44}	0603 (1608)	70 (4A) 26 (6A) 120 (3A) 220 (2.5A) 330 (1.5A)														
For GHz Band Noise	Universal Type [Power Lines / Signal Lines]	BLM15EG* ^{p27}	0402 (1005)	220 (0.7A) 120 (1.5A)														
		BLM18EG* ^{p28}	0603 (1608)	120 (2A) 100 (2A) 330 (0.5A) 220 (2A/1A) 470 (0.5A) 390 (0.5A) 600 (0.5A)														
	Signal Lines Type	BLM03HG ^{p75}	0201 (0603)	600 1000														
		BLM03HD ^{p75}	0201 (0603)	600 330 470			1000											
		BLM15HG ^{p77}	0402 (1005)	600 1000														
		BLM15HD ^{p77}	0402 (1005)	600 1000 1800														
		BLM15HB ^{p77}	0402 (1005)	120 220														
		BLM18HG ^{p79}	0603 (1608)	600 470			1000											
		BLM18HE* ^{p79}	0603 (1608)	1000 (0.6A) 600 (0.8A) 1500 (0.5A)														
		BLM18HD ^{p79}	0603 (1608)	600 470			1000											
		BLM18HB ^{p79}	0603 (1608)	120 220 330														
		BLM18HK ^{p79}	0603 (1608)	600 330 470			1000											
For High-GHz Band Noise	Signal Lines Type	BLM15GG ^{p83}	0402 (1005)	220 470														
		BLM15GA ^{p83}	0402 (1005)	75														
		BLM18GG ^{p84}	0603 (1608)	470														

* The derating of rated current is required for some items according to the operating temperature on the each product page.

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Capacitor Type	Series	Size Code Inch (mm)	Capacitance (F)							Effective Frequency Range						
			10p	100p	1000p	10000p	0.1μ	1μ	10μ	10kHz	100kHz	1MHz	10MHz	100MHz	1GHz	10GHz
Signal Lines Type	NFM18C ^{p120}	0603 (1608)	22	47	100	220	470	2200	22000							
	NFM21C ^{p121}	0805 (2012)	22	47	100	220	470	2200	22000							
	NFM3DC ^{p122}	1205 (3212)	22	47	100	220	470	2200	22000							
	NFM41C ^{p123}	1806 (4516)	22	47	100	220	470	2200	22000							
	NFA31C (4 circuits array) ^{p124}	1206 (3216)	22	47	100	220	470	2200	22000							
Power Lines Type	NFM18P ^{p112}	0603 (1608)					0.22	1.0								
	NFM21P ^{p115}	0805 (2012)					0.1	0.47	2.2							
	NFM3DP* ^{p116}	1205 (3212)					22000									
	NFM31P ^{p117}	1206 (3216)							27							
	NFM41P ^{p118}	1806 (4516)					0.2	1.5								
	NFM55P ^{p119}	2220 (5750)						1.5								
Universal Type [Power Lines / Signal Lines]	NFE31P ^{p110}	1206 (3216)	22	47	100	220	470	2200	1500							
	NFE61P ^{p111}	2706 (6816)	33	68	180	680	1000	4700								

NF□

LC(RC) Combined Type	Series	Size Code Inch (mm)	Cut-off Frequency (MHz)							Effective Frequency Range						
			10	100	100	100	100	100	500	10kHz	100kHz	1MHz	10MHz	100MHz	1GHz	10GHz
Signal Lines Type	NFL18ST ^{p125}	0603 (1608)			50	70	100	200	300	500						
	NFL18SP ^{p127}	0603 (1608)					150	200	300	500						
	NFL21S ^{p128}	0805 (2012)	10	20	50	70	100	150	200	300	400					
	NFA18S (4 circuits array) ^{p129}	0603 (1608)						200	400							
	NFA21S (4 circuits array) ^{p132}	0805 (2012)			50		130	180	220	300	350	480				
	NFW31S ^{p134}	1206 (3216)	10	20	50		100	150	200	300	400	500				
	NFR21G ^{p136}	0805 (2012)														
	NFA31G (4 circuits array) ^{p137}	1206 (3216)														

* The derating of rated current is required for some items according to the operating temperature on the each product page.

DL□/PL□

Common Mode Choke Coils
Large Current Common Mode Choke Coil
for Automotive Available

Signal Lines Type	Series	Size Code Inch (mm)	Common Mode Impedance (Ω) at 100MHz			Effective Frequency Range						
			100	500	1000	10kHz	100kHz	1MHz	10MHz	100MHz	1GHz	10GHz
Signal Lines Type	For Audio Lines	DLM11G <small>p158</small>	0504 (1210)		600							
		DLM2HG <small>p159</small>	1008 (2520)		600							
	For Ultra High Speed Signal Lines	DLP0NS <small>p160</small>	03025 (0806)	28 90 15 67 120								
		DLP11S <small>p162</small>	0504 (1210)	67 240 35 90 120 160 200 280 330								
		DLP11TB <small>p163</small>	0504 (1210)	80								
		DLP31S <small>p164</small>	1206 (3216)	120 220 550								
		DLP1ND <small>p165</small>	05025 (1506)	35 90 67								
		DLP2AD <small>p166</small> (2 circuits array)	0804 (2010)	35 90 240 67 120 160 200 280								
		DLP31D <small>p168</small> (2 circuits array)	1206 (3216)	90 130 200 320 440								
		DLW21S <small>p169</small>	0805 (2012)	90 260 370 67 120 180								
		DLW21H <small>p171</small>	0805 (2012)	90 180 67 120								
		DLW31S <small>p172</small>	1206 (3216)	90 160 260 600 1000 2200								
Universal Type [Power Lines / Signal Lines]		DLW5BS*/DLW5AH <small>p156</small>	2020 / 2014 (5050) / (5036)	190 350 1000 3000 1500 4000								
		DLW5BT* <small>p157</small>	2020 (5050)	100 250 500 1000 1400								
Large Current Type for Automotive Available		PLT10HH <small>p173</small>		400 500 900 1000 (at 10MHz)								

BNX

Block EMIFIL®

Power Lines Type	Series	Height (mm)	Rated Voltage (Vdc)	Rated Current (A)	Effective Frequency Range						
					10kHz	100kHz	1MHz	10MHz	100MHz	1GHz	10GHz
Power Lines Type	SMD Type	BNX022* <small>p191</small>	3.1	50	10						
		BNX023* <small>p191</small>	3.1	100	15						
		BNX024 <small>p191</small>	3.5	50	15						
		BNX025 <small>p191</small>	3.5	25	15						
	Lead Type	BNX002 <small>p193</small>	18 max.	50	10						
		BNX003 <small>p193</small>	18 max.	150	10						
		BNX005 <small>p193</small>	18.5 max.	50	15						
		BNX012* <small>p194</small>	12.0	50	15						
		BNX016* <small>p194</small>	12.0	25	15						

* The derating of rated current is required for some items according to the operating temperature on the each product page.

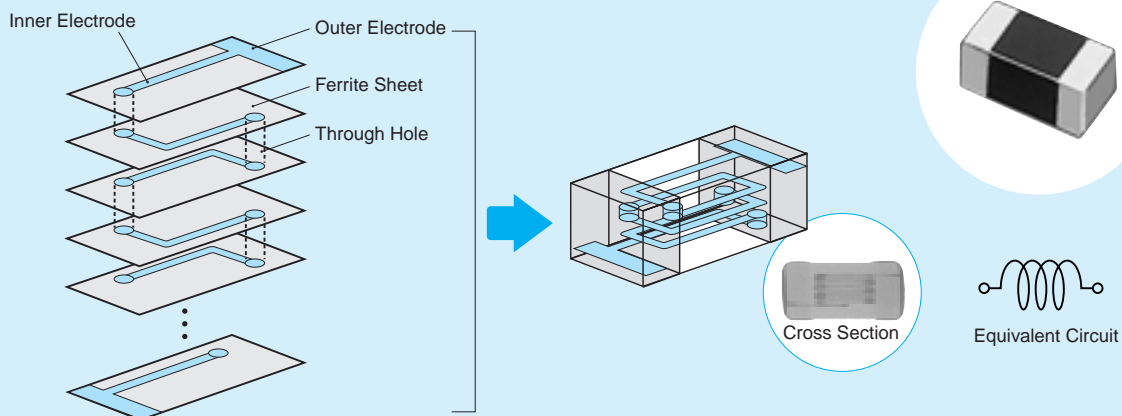


Chip Ferrite Bead

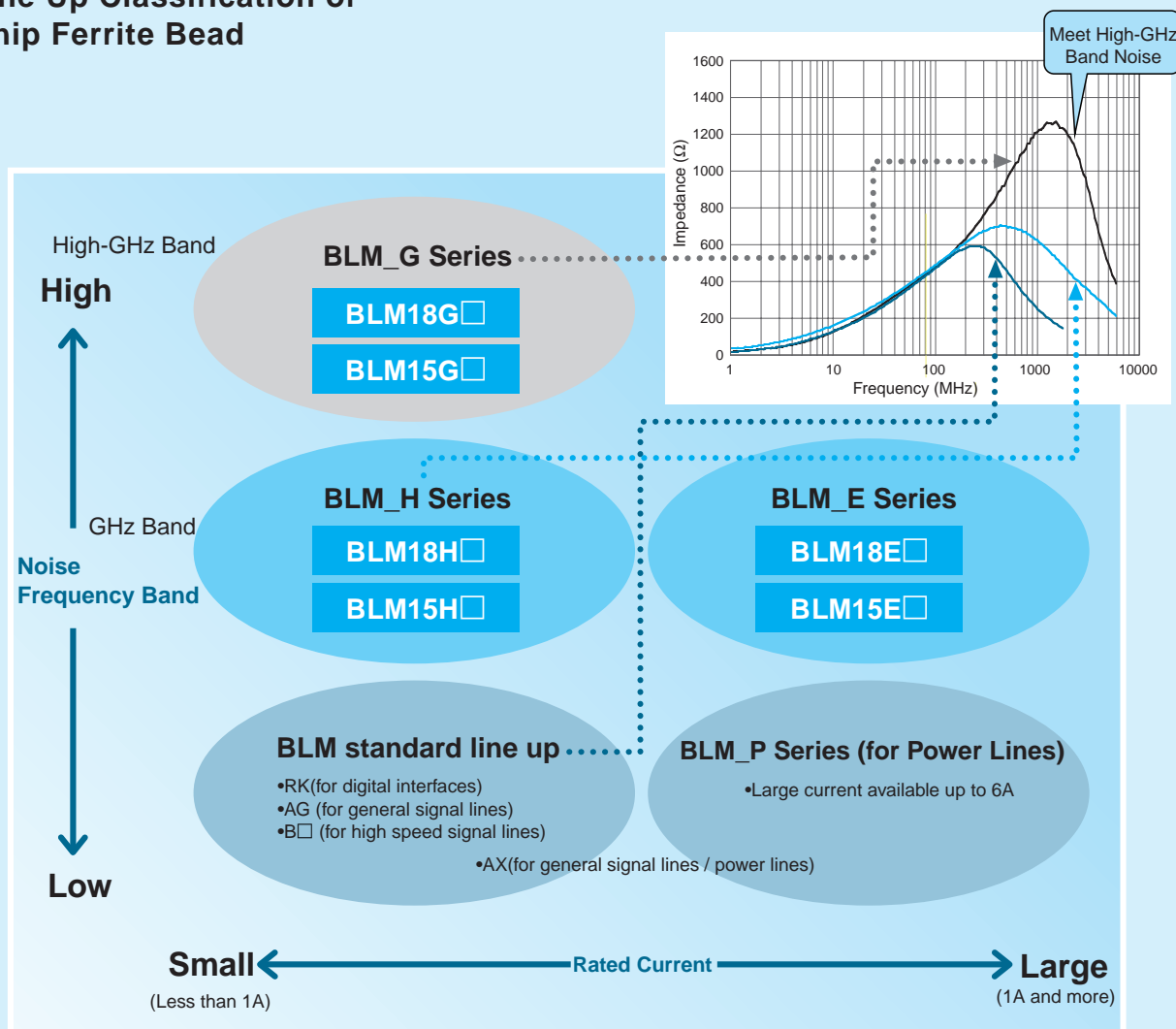
Series Introduction	14
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BL Series Introduction

●Example of Chip Ferrite Bead BLM Series Structure



●Line Up Classification of Chip Ferrite Bead



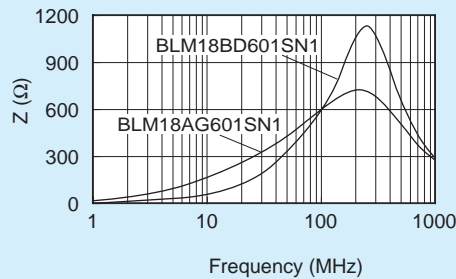
△Note • Please read rating and △CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
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●Difference between BLM A type and B type (HG type vs HD/HB type)

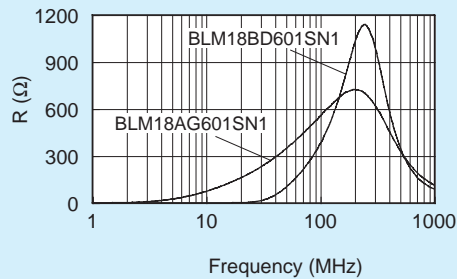
A type: Impedance curve rises from low frequency range. Suppress noise in wide frequency range.

B type: Impedance curve rises sharply. Less damage to signal waveforms.

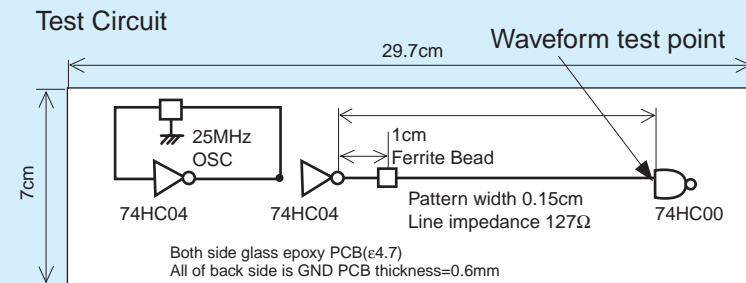
■Comparison of Impedance Curve



■Comparison of Resistance Element



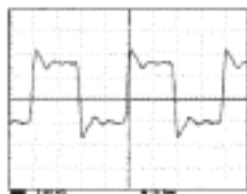
■Comparison of Test Effect (25MHz)



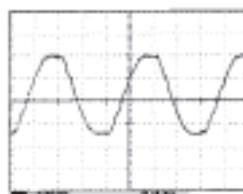
BLM_B Series has less damage to high speed signal waveform.

Waveform

No filter



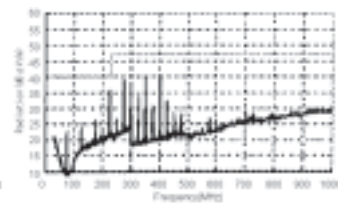
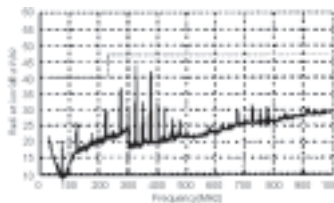
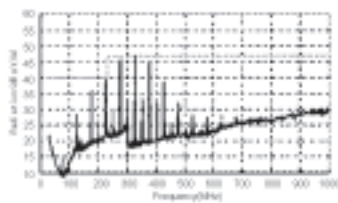
BLM18AG601SN1



BLM18BD601SN1



Spectrum



Spectrum has been reduced from low frequency range.

Noise frequency has been reduced without reducing signals of low frequency.

BL Chip Ferrite Bead Part Numbering

(Part Number)

BL	M	18	AG	102	S	N	1	D
①	②	③	④	⑤	⑥	⑦	⑧	⑨

① Product ID

Product ID	
BL	Chip Ferrite Beads

② Type

Code	Type
A	Array Type
M	Ferrite Bead Single Type

③ Dimensions (L×W)

Code	Dimensions (L×W)	EIA
02	0.4×0.2mm	01005
03	0.6×0.3mm	0201
15	1.0×0.5mm	0402
18	1.6×0.8mm	0603
2A	2.0×1.0mm	0804
21	2.0×1.25mm	0805
31	3.2×1.6mm	1206
41	4.5×1.6mm	1806

④ Characteristics/Applications

Code ^{*1}	Characteristics/Applications	Series
AG	for General Use	BLM02/03/15/18/21, BLA2A/31
AX		BLM03/15
TG		BLM18
BA		BLM15/18
BB	for High-speed Signal Lines	BLM03/15/18/21, BLA2A
BC		BLM03/15
BD		BLM03/15/18/21, BLA2A/31
PD		BLM15
PG	for Power Supplies	BLM03/15/18/21/31/41
PX		BLM15
KG		BLM18
SG	for Power Supplies (Low DC Resistance Type)	BLM18
RK	for Digital Interface	BLM18/21
HG	for GHz Band General Use	BLM03/15/18
EG	for GHz Band General Use (Low DC Resistance Type)	BLM15/18
HB	for GHz Band High-speed Signal Lines	BLM15/18
HD		BLM03/15/18
HE		BLM18
HK	for GHz Band Digital Interface	BLM18
GA	for High-GHz Band High-speed Signal Lines	BLM15
GG	for High-GHz Band General Use	BLM15/18

^{*1} Frequency characteristics vary with each code.

⑨ Packaging

Code	Packaging	Series
K	Embossed Taping (ø330mm Reel)	BLM21 ^{*1} /31/41
L	Embossed Taping (ø180mm Reel)	
B	Bulk	All Series
J	Paper Taping (ø330mm Reel)	BLM03/15/18 ^{*3} /21 ^{*2} , BLA2A/31
D	Paper Taping (ø180mm Reel)	BLM02/03/15/18/21 ^{*2} , BLA2A/31

^{*1} BLM21BD222SN1/BLM21BD272SN1 only. ^{*2} Except BLM21BD222SN1/BLM21BD272SN1

^{*3} Except BLM18T

⑤ Impedance

Expressed by three figures. The unit is in ohm (Ω) at 100MHz. The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

⑥ Electrode

Expressed by a letter.

Code	Electrode
S/T	Sn Plating
A	Au Plating

⑦ Category

Code	Category
N	Standard Type

⑧ Number of Circuits


Code	Number of Circuits
1	1 Circuit
4	4 Circuits

[△]Note • Please read rating and [△]CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

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Mar.28,2011


Size Code (Inch)	Thickness (mm)	Type	Part Number	Impedance		Rated Current	New	Kit	$\geq 1A$	$\geq 3A$	GHz	Flow	ReFlow
				at 100MHz/20°C	at 1GHz/20°C								
01005	0.2	For General Signal Lines	BLM02AG100SN1	10ohm(Typ.)	-	500mA		Kit					ReFlow
	0.2		BLM02AG700SN1	70ohm $\pm 25\%$	-	250mA		Kit					ReFlow
	0.2		BLM02AG121SN1	120ohm $\pm 25\%$	-	200mA		Kit					ReFlow
0201	0.3	For General Signal Lines	BLM03AG100SN1	10ohm(Typ.)	-	500mA		Kit					ReFlow
	0.3		BLM03AG700SN1	70ohm(Typ.)	-	200mA		Kit					ReFlow
	0.3		BLM03AG800SN1	80ohm $\pm 25\%$	-	200mA		Kit					ReFlow
	0.3		BLM03AG121SN1	120ohm $\pm 25\%$	-	200mA		Kit					ReFlow
	0.3		BLM03AG241SN1	240ohm $\pm 25\%$	-	200mA		Kit					ReFlow
	0.3		BLM03AG601SN1	600ohm $\pm 25\%$	-	100mA		Kit					ReFlow
	0.3		BLM03AG102SN1	1000ohm $\pm 25\%$	-	100mA		Kit					ReFlow
	0.3		BLM03AX100SN1	10ohm(Typ.)	-	1000mA		Kit	$\geq 1A$				ReFlow
	0.3	Universal Type [Power lines/Signal lines]	BLM03AX800SN1	80ohm $\pm 25\%$	-	500mA		Kit					ReFlow
	0.3		BLM03AX121SN1	120ohm $\pm 25\%$	-	450mA		Kit					ReFlow
	0.3		BLM03AX241SN1	240ohm $\pm 25\%$	-	350mA		Kit					ReFlow
	0.3		BLM03AX601SN1	600ohm $\pm 25\%$	-	250mA		Kit					ReFlow
	0.3		BLM03AX102SN1	1000ohm $\pm 25\%$	-	200mA		Kit					ReFlow
	0.3		BLM03BD750SN1	75ohm $\pm 25\%$	-	300mA		Kit					ReFlow
	0.3	For High Speed Signal Lines (Sharp Impedance Curve)	BLM03BD121SN1	120ohm $\pm 25\%$	-	250mA		Kit					ReFlow
	0.3		BLM03BD241SN1	240ohm $\pm 25\%$	-	200mA		Kit					ReFlow
	0.3		BLM03BD471SN1	470ohm $\pm 25\%$	-	215mA		Kit					ReFlow
	0.3		BLM03BD601SN1	600ohm $\pm 25\%$	-	200mA		Kit					ReFlow
	0.3		BLM03BB100SN1	10ohm $\pm 25\%$	-	300mA		Kit					ReFlow
	0.3		BLM03BB220SN1	22ohm $\pm 25\%$	-	200mA		Kit					ReFlow
	0.3		BLM03BB470SN1	47ohm $\pm 25\%$	-	200mA		Kit					ReFlow
	0.3		BLM03BB750SN1	75ohm $\pm 25\%$	-	200mA		Kit					ReFlow
	0.3		BLM03BB121SN1	120ohm $\pm 25\%$	-	100mA		Kit					ReFlow
	0.3		BLM03BC330SN1	33ohm $\pm 25\%$	-	150mA	New	Kit					ReFlow
	0.3		BLM03BC560SN1	56ohm $\pm 25\%$	-	100mA	New	Kit					ReFlow
	0.3		BLM03BC800SN1	80ohm $\pm 25\%$	-	100mA	New	Kit					ReFlow
	0.3	For Power Lines	BLM03PG220SN1	22ohm $\pm 25\%$	-	900mA		Kit					ReFlow
	0.3		BLM03PG330SN1	33ohm $\pm 25\%$	-	750mA		Kit					ReFlow
	0.3	For GHz Band Noise	BLM03HG601SN1	600ohm $\pm 25\%$	1000ohm $\pm 40\%$	150mA		Kit			GHz		ReFlow
	0.3		BLM03HG102SN1	1000ohm $\pm 25\%$	1800ohm $\pm 40\%$	125mA		Kit			GHz		ReFlow
	0.3		BLM03HD331SN1	330ohm $\pm 25\%$	-	200mA	New	Kit			GHz		ReFlow
	0.3		BLM03HD471SN1	470ohm $\pm 25\%$	-	175mA	New	Kit			GHz		ReFlow
	0.3		BLM03HD601SN1	600ohm $\pm 25\%$	-	150mA	New	Kit			GHz		ReFlow
	0.3		BLM03HD102SN1	1000ohm $\pm 25\%$	-	120mA	New	Kit			GHz		ReFlow
0402	0.5	For General Signal Lines	BLM15AG100SN1	10ohm(Typ.)	-	1000mA		Kit	$\geq 1A$				ReFlow
	0.5		BLM15AG700SN1	70ohm(Typ.)	-	500mA		Kit					ReFlow
	0.5		BLM15AG121SN1	120ohm $\pm 25\%$	-	500mA		Kit					ReFlow
	0.5		BLM15AG221SN1	220ohm $\pm 25\%$	-	300mA		Kit					ReFlow
	0.5		BLM15AG601SN1	600ohm $\pm 25\%$	-	300mA		Kit					ReFlow
	0.5		BLM15AG102SN1	1000ohm $\pm 25\%$	-	200mA		Kit					ReFlow
	0.5		BLM15AG601AN1	600ohm $\pm 25\%$	-	300mA							
	0.5	Universal Type [Power lines/Signal lines]	BLM15AG102AN1	1000ohm $\pm 25\%$	-	200mA							
	0.5		BLM15AX100SN1	10ohm(Typ.)	-	1740mA		Kit	$\geq 1A$				ReFlow
	0.5		BLM15AX300SN1	30ohm $\pm 25\%$	-	1100mA	New	Kit	$\geq 1A$				ReFlow
	0.5		BLM15AX700SN1	70ohm $\pm 25\%$	-	780mA		Kit					ReFlow
	0.5		BLM15AX121SN1	120ohm $\pm 25\%$	-	680mA		Kit					ReFlow
	0.5		BLM15AX221SN1	220ohm $\pm 25\%$	-	580mA		Kit					ReFlow
	0.5		BLM15AX601SN1	600ohm $\pm 25\%$	-	420mA		Kit					ReFlow
	0.5		BLM15AX102SN1	1000ohm $\pm 25\%$	-	350mA		Kit					ReFlow

Continued on the following page. 

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Size Code (Inch)	Thickness (mm)	Type	Part Number	Impedance		Rated Current	New	Kit	$\geq 1A$ $\geq 3A$	GHz Hi-GHz	Flow	ReFlow
				at 100MHz/20°C	at 1GHz/20°C							
0402	0.5	For High Speed Signal Lines (Sharp Impedance Curve)	p59 BLM15BD750SN1	75ohm \pm 25%	-	300mA		Kit				ReFlow
	0.5		BLM15BD121SN1	120ohm \pm 25%	-	300mA		Kit				ReFlow
	0.5		BLM15BD221SN1	220ohm \pm 25%	-	300mA		Kit				ReFlow
	0.5		BLM15BD471SN1	470ohm \pm 25%	-	200mA		Kit				ReFlow
	0.5		BLM15BD601SN1	600ohm \pm 25%	-	200mA		Kit				ReFlow
	0.5		BLM15BD102SN1	1000ohm \pm 25%	-	200mA		Kit				ReFlow
	0.5		BLM15BD182SN1	1800ohm \pm 25%	-	100mA		Kit				ReFlow
	0.5		BLM15BB050SN1	5ohm \pm 25%	-	500mA		Kit				ReFlow
	0.5		BLM15BB100SN1	10ohm \pm 25%	-	300mA		Kit				ReFlow
	0.5		BLM15BB220SN1	22ohm \pm 25%	-	300mA		Kit				ReFlow
	0.5		BLM15BB470SN1	47ohm \pm 25%	-	300mA		Kit				ReFlow
	0.5		BLM15BB750SN1	75ohm \pm 25%	-	300mA		Kit				ReFlow
	0.5		BLM15BB121SN1	120ohm \pm 25%	-	300mA		Kit				ReFlow
	0.5		BLM15BB221SN1	220ohm \pm 25%	-	200mA		Kit				ReFlow
	0.5		BLM15BC121SN1	120ohm \pm 25%	-	350mA		Kit				ReFlow
	0.5		BLM15BC241SN1	240ohm \pm 25%	-	250mA		Kit				ReFlow
	0.5		BLM15BA050SN1	5ohm \pm 25%	-	300mA		Kit				ReFlow
	0.5		BLM15BA100SN1	10ohm \pm 25%	-	300mA		Kit				ReFlow
	0.5		BLM15BA220SN1	22ohm \pm 25%	-	300mA		Kit				ReFlow
	0.5		BLM15BA330SN1	33ohm \pm 25%	-	300mA		Kit				ReFlow
	0.5		BLM15BA470SN1	47ohm \pm 25%	-	200mA		Kit				ReFlow
	0.5		BLM15BA750SN1	75ohm \pm 25%	-	200mA		Kit				ReFlow
	0.5	For Power Lines	p31 BLM15PX121SN1	120ohm \pm 25%	-	1800mA	New	Kit	$\geq 1A$			ReFlow
	0.5		p32 BLM15PG100SN1	10ohm(Typ.)	-	1000mA		Kit	$\geq 1A$			ReFlow
	0.5		BLM15PD300SN1	30ohm \pm 25%	-	2200mA		Kit	$\geq 1A$			ReFlow
	0.5		BLM15PD600SN1	60ohm \pm 25%	-	1700mA		Kit	$\geq 1A$			ReFlow
	0.5		BLM15PD800SN1	80ohm \pm 25%	-	1500mA		Kit	$\geq 1A$			ReFlow
	0.5		BLM15PD121SN1	120ohm \pm 25%	-	1300mA		Kit	$\geq 1A$			ReFlow
	0.5	For GHz Band Noise	p77 BLM15HG601SN1	600ohm \pm 25%	1000ohm \pm 40%	300mA		Kit		GHz		ReFlow
	0.5		BLM15HG102SN1	1000ohm \pm 25%	1400ohm \pm 40%	250mA		Kit		GHz		ReFlow
	0.5		p77 BLM15HD601SN1	600ohm \pm 25%	1400ohm \pm 40%	300mA		Kit		GHz		ReFlow
	0.5		BLM15HD102SN1	1000ohm \pm 25%	2000ohm \pm 40%	250mA		Kit		GHz		ReFlow
	0.5		BLM15HD182SN1	1800ohm \pm 25%	2700ohm \pm 40%	200mA		Kit		GHz		ReFlow
	0.5		BLM15HB121SN1	120ohm \pm 25%	500ohm \pm 40%	300mA		Kit		GHz		ReFlow
	0.5		BLM15HB221SN1	220ohm \pm 25%	900ohm \pm 40%	250mA		Kit		GHz		ReFlow
	0.5		p27 BLM15EG121SN1	120ohm \pm 25%	145ohm(Typ.)	1500mA		Kit	$\geq 1A$	GHz		ReFlow
	0.5		BLM15EG221SN1	220ohm \pm 25%	270ohm(Typ.)	700mA		Kit		GHz		ReFlow
	0.5	For High-GHz Band Noise	p83 BLM15GG221SN1	220ohm \pm 25%	600ohm \pm 40%	300mA		Kit		Hi-GHz		ReFlow
	0.5		BLM15GG471SN1	470ohm \pm 25%	1200ohm \pm 40%	200mA		Kit		Hi-GHz		ReFlow
	0.5	For High Speed Signal Lines	p83 BLM15GA750SN1	75ohm \pm 25%	1000ohm \pm 40%	200mA		Kit		Hi-GHz		ReFlow
0603	0.8	For General Signal Lines	p52 BLM18AG121SN1	120ohm \pm 25%	-	500mA		Kit			Flow	ReFlow
	0.8		BLM18AG151SN1	150ohm \pm 25%	-	500mA		Kit			Flow	ReFlow
	0.8		BLM18AG221SN1	220ohm \pm 25%	-	500mA		Kit			Flow	ReFlow
	0.8		BLM18AG331SN1	330ohm \pm 25%	-	500mA		Kit			Flow	ReFlow
	0.8		BLM18AG471SN1	470ohm \pm 25%	-	500mA		Kit			Flow	ReFlow
	0.8		BLM18AG601SN1	600ohm \pm 25%	-	500mA		Kit			Flow	ReFlow
	0.8		BLM18AG102SN1	1000ohm \pm 25%	-	400mA		Kit			Flow	ReFlow
	0.6		p56 BLM18TG121TN1	120ohm \pm 25%	-	200mA					Flow	ReFlow
	0.6		BLM18TG221TN1	220ohm \pm 25%	-	200mA					Flow	ReFlow
	0.6		BLM18TG601TN1	600ohm \pm 25%	-	200mA					Flow	ReFlow
	0.6		BLM18TG102TN1	1000ohm \pm 25%	-	100mA					Flow	ReFlow

Continued on the following page. 

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Size Code (Inch)	Thickness (mm)	Type	Part Number	Impedance		Rated Current	New	Kit	$\geq 1A$ $\geq 3A$	GHz Hz	Flow	Reflow
				at 100MHz/20°C	at 1GHz/20°C							
0603	0.8	For High Speed Signal Lines (Sharp Impedance Curve)	p63 BLM18BD470SN1	47ohm \pm 25%	-	500mA		Kit			Flow	Reflow
	0.8		BLM18BD121SN1	120ohm \pm 25%	-	200mA		Kit			Flow	Reflow
	0.8		BLM18BD151SN1	150ohm \pm 25%	-	200mA		Kit			Flow	Reflow
	0.8		BLM18BD221SN1	220ohm \pm 25%	-	200mA		Kit			Flow	Reflow
	0.8		BLM18BD331SN1	330ohm \pm 25%	-	200mA		Kit			Flow	Reflow
	0.8		BLM18BD421SN1	420ohm \pm 25%	-	200mA		Kit			Flow	Reflow
	0.8		BLM18BD471SN1	470ohm \pm 25%	-	200mA		Kit			Flow	Reflow
	0.8		BLM18BD601SN1	600ohm \pm 25%	-	200mA		Kit			Flow	Reflow
	0.8		BLM18BD102SN1	1000ohm \pm 25%	-	100mA		Kit			Flow	Reflow
	0.8		BLM18BD152SN1	1500ohm \pm 25%	-	50mA		Kit			Flow	Reflow
	0.8		BLM18BD182SN1	1800ohm \pm 25%	-	50mA		Kit			Flow	Reflow
	0.8		BLM18BD222SN1	2200ohm \pm 25%	-	50mA		Kit			Flow	Reflow
	0.8		BLM18BD252SN1	2500ohm \pm 25%	-	50mA		Kit			Flow	Reflow
	0.8		BLM18BB050SN1	5ohm \pm 25%	-	700mA		Kit			Flow	Reflow
	0.8		BLM18BB100SN1	10ohm \pm 25%	-	700mA		Kit			Flow	Reflow
	0.8		BLM18BB220SN1	22ohm \pm 25%	-	600mA		Kit			Flow	Reflow
	0.8		BLM18BB470SN1	47ohm \pm 25%	-	550mA		Kit			Flow	Reflow
	0.8		BLM18BB600SN1	60ohm \pm 25%	-	550mA		Kit			Flow	Reflow
	0.8		BLM18BB750SN1	75ohm \pm 25%	-	500mA		Kit			Flow	Reflow
	0.8		BLM18BB121SN1	120ohm \pm 25%	-	500mA		Kit			Flow	Reflow
	0.8		BLM18BB141SN1	140ohm \pm 25%	-	450mA					Flow	Reflow
	0.8		BLM18BB151SN1	150ohm \pm 25%	-	450mA		Kit			Flow	Reflow
	0.8		BLM18BB221SN1	220ohm \pm 25%	-	450mA		Kit			Flow	Reflow
	0.8		BLM18BB331SN1	330ohm \pm 25%	-	400mA		Kit			Flow	Reflow
	0.8		BLM18BB471SN1	470ohm \pm 25%	-	300mA		Kit			Flow	Reflow
	0.8		BLM18BA050SN1	5ohm \pm 25%	-	500mA		Kit			Flow	Reflow
	0.8		BLM18BA100SN1	10ohm \pm 25%	-	500mA		Kit			Flow	Reflow
	0.8		BLM18BA220SN1	22ohm \pm 25%	-	500mA					Flow	Reflow
	0.8		BLM18BA470SN1	47ohm \pm 25%	-	300mA		Kit			Flow	Reflow
	0.8		BLM18BA750SN1	75ohm \pm 25%	-	300mA		Kit			Flow	Reflow
	0.8		BLM18BA121SN1	120ohm \pm 25%	-	200mA		Kit			Flow	Reflow
	0.8	For Digital Interface Lines	p70 BLM18RK121SN1	120ohm \pm 25%	-	200mA		Kit			Flow	Reflow
	0.8		BLM18RK221SN1	220ohm \pm 25%	-	200mA					Flow	Reflow
	0.8		BLM18RK471SN1	470ohm \pm 25%	-	200mA		Kit			Flow	Reflow
	0.8		BLM18RK601SN1	600ohm \pm 25%	-	200mA		Kit			Flow	Reflow
	0.8		BLM18RK102SN1	1000ohm \pm 25%	-	200mA		Kit			Flow	Reflow
	0.8	For Power Lines	p34 BLM18PG300SN1	30ohm(Typ.)	-	1000mA		Kit	$\geq 1A$		Flow	Reflow
	0.8		BLM18PG330SN1	33ohm \pm 25%	-	3000mA		Kit	$\geq 3A$		Flow	Reflow
	0.8		BLM18PG600SN1	60ohm(Typ.)	-	500mA		Kit			Flow	Reflow
	0.8		BLM18PG121SN1	120ohm \pm 25%	-	2000mA		Kit	$\geq 1A$		Flow	Reflow
	0.8		BLM18PG181SN1	180ohm \pm 25%	-	1500mA		Kit	$\geq 1A$		Flow	Reflow
	0.8		BLM18PG221SN1	220ohm \pm 25%	-	1400mA		Kit	$\geq 1A$		Flow	Reflow
	0.8		BLM18PG331SN1	330ohm \pm 25%	-	1200mA		Kit	$\geq 1A$		Flow	Reflow
	0.8		BLM18PG471SN1	470ohm \pm 25%	-	1000mA		Kit	$\geq 1A$		Flow	Reflow
	0.6		p42 BLM18KG260TN1	26ohm \pm 25%	-	6000mA		Kit	$\geq 3A$		Flow	Reflow
	0.6		BLM18KG300TN1	30ohm \pm 25%	-	5000mA		Kit	$\geq 3A$		Flow	Reflow
	0.6		BLM18KG700TN1	70ohm \pm 25%	-	3500mA		Kit	$\geq 3A$		Flow	Reflow
	0.6		BLM18KG101TN1	100ohm \pm 25%	-	3000mA		Kit	$\geq 3A$		Flow	Reflow
	0.6		BLM18KG121TN1	120ohm \pm 25%	-	3000mA		Kit	$\geq 3A$		Flow	Reflow
	0.8		BLM18KG221SN1	220ohm \pm 25%	-	2200mA		Kit	$\geq 1A$		Flow	Reflow
	0.8		BLM18KG331SN1	330ohm \pm 25%	-	1700mA		Kit	$\geq 1A$		Flow	Reflow
	0.8		BLM18KG471SN1	470ohm \pm 25%	-	1500mA		Kit	$\geq 1A$		Flow	Reflow
	0.8		BLM18KG601SN1	600ohm \pm 25%	-	1300mA		Kit	$\geq 1A$		Flow	Reflow
	0.5		p44 BLM18SG260TN1	26ohm \pm 25%	-	6000mA		Kit	$\geq 3A$		Flow	Reflow
	0.5		BLM18SG700TN1	70ohm \pm 25%	-	4000mA		Kit	$\geq 3A$		Flow	Reflow
	0.5		BLM18SG121TN1	120ohm \pm 25%	-	3000mA		Kit	$\geq 3A$		Flow	Reflow
	0.5		BLM18SG221TN1	220ohm \pm 25%	-	2500mA		Kit	$\geq 1A$		Flow	Reflow
	0.5		BLM18SG331TN1	330ohm \pm 25%	-	1500mA		Kit	$\geq 1A$		Flow	Reflow

Continued on the following page. 

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Size Code (Inch)	Thickness (mm)	Type	Part Number	Impedance		Rated Current	New Kit $\geq 1A$ GHz $\geq 3A$ H _{OH} Flow R _{Flow}			
				at 100MHz/20°C	at 1GHz/20°C					
0603	0.8	For General Signal Lines	BLM18HG471SN1 ^{p79}	470ohm \pm 25%	600ohm(Typ.)	200mA	Kit	GHz	Flow	R _{Flow}
	0.8		BLM18HG601SN1	600ohm \pm 25%	700ohm(Typ.)	200mA	Kit	GHz	Flow	R _{Flow}
	0.8		BLM18HG102SN1	1000ohm \pm 25%	1000ohm(Typ.)	100mA	Kit	GHz	Flow	R _{Flow}
	0.8	For High Speed Signal Lines (Sharp Impedance Curve)	BLM18HE601SN1 ^{p79}	600ohm \pm 25%	600ohm(Typ.)	800mA	Kit	GHz	Flow	R _{Flow}
	0.8		BLM18HE102SN1	1000ohm \pm 25%	1000ohm(Typ.)	600mA	Kit	GHz	Flow	R _{Flow}
	0.8		BLM18HE152SN1	1500ohm \pm 25%	1500ohm(Typ.)	500mA	Kit	GHz	Flow	R _{Flow}
	0.8		BLM18HD471SN1	470ohm \pm 25%	1000ohm(Typ.)	100mA	Kit	GHz	Flow	R _{Flow}
	0.8		BLM18HD601SN1	600ohm \pm 25%	1200ohm(Typ.)	100mA	Kit	GHz	Flow	R _{Flow}
	0.8		BLM18HD102SN1	1000ohm \pm 25%	1700ohm(Typ.)	50mA	Kit	GHz	Flow	R _{Flow}
	0.8		BLM18HB121SN1	120ohm \pm 25%	500ohm \pm 40%	200mA	Kit	GHz	Flow	R _{Flow}
	0.8		BLM18HB221SN1	220ohm \pm 25%	1100ohm \pm 40%	100mA	Kit	GHz	Flow	R _{Flow}
	0.8		BLM18HB331SN1	330ohm \pm 25%	1600ohm \pm 40%	50mA	Kit	GHz	Flow	R _{Flow}
	0.8		BLM18HK331SN1 ^{p79}	330ohm \pm 25%	400ohm \pm 40%	200mA	Kit	GHz	Flow	R _{Flow}
	0.8	For Digital Interface Lines	BLM18HK471SN1	470ohm \pm 25%	600ohm \pm 40%	200mA	Kit	GHz	Flow	R _{Flow}
	0.8		BLM18HK601SN1	600ohm \pm 25%	700ohm \pm 40%	100mA	Kit	GHz	Flow	R _{Flow}
	0.8		BLM18HK102SN1	1000ohm \pm 25%	1200ohm \pm 40%	50mA	Kit	GHz	Flow	R _{Flow}
	0.5	Universal Type [Power lines/Signal lines]	BLM18EG101TN1 ^{p28}	100ohm \pm 25%	140ohm(Typ.)	2000mA	Kit $\geq 1A$	GHz	Flow	R _{Flow}
	0.8		BLM18EG121SN1	120ohm \pm 25%	145ohm(Typ.)	2000mA	Kit $\geq 1A$	GHz	Flow	R _{Flow}
	0.8		BLM18EG221SN1	220ohm \pm 25%	260ohm(Typ.)	2000mA	Kit $\geq 1A$	GHz	Flow	R _{Flow}
	0.5		BLM18EG221TN1	220ohm \pm 25%	300ohm(Typ.)	1000mA	Kit $\geq 1A$	GHz	Flow	R _{Flow}
	0.5		BLM18EG331TN1	330ohm \pm 25%	450ohm(Typ.)	500mA	Kit	GHz	Flow	R _{Flow}
	0.5		BLM18EG391TN1	390ohm \pm 25%	520ohm(Typ.)	500mA	Kit	GHz	Flow	R _{Flow}
	0.8		BLM18EG471SN1	470ohm \pm 25%	550ohm(Typ.)	500mA	Kit	GHz	Flow	R _{Flow}
	0.8		BLM18EG601SN1	600ohm \pm 25%	700ohm(Typ.)	500mA	Kit	GHz	Flow	R _{Flow}
	0.8		BLM18GG471SN1 ^{p84}	470ohm \pm 25%	1800ohm \pm 30%	200mA	Kit	GHz	Flow	R _{Flow}
	0.8	For High-GHz Band Noise	BLM18GG471SN1 ^{p84}	470ohm \pm 25%	1800ohm \pm 30%	200mA	Kit	GHz	Flow	R _{Flow}
0805	0.85	For General Signal Lines	BLM21AG121SN1 ^{p54}	120ohm \pm 25%	-	200mA	Kit	Flow	R _{Flow}	
	0.85		BLM21AG151SN1	150ohm \pm 25%	-	200mA	Kit	Flow	R _{Flow}	
	0.85		BLM21AG221SN1	220ohm \pm 25%	-	200mA	Kit	Flow	R _{Flow}	
	0.85		BLM21AG331SN1	330ohm \pm 25%	-	200mA	Kit	Flow	R _{Flow}	
	0.85		BLM21AG471SN1	470ohm \pm 25%	-	200mA	Kit	Flow	R _{Flow}	
	0.85		BLM21AG601SN1	600ohm \pm 25%	-	200mA	Kit	Flow	R _{Flow}	
	0.85		BLM21AG102SN1	1000ohm \pm 25%	-	200mA	Kit	Flow	R _{Flow}	
	0.85		BLM21BD121SN1 ^{p67}	120ohm \pm 25%	-	200mA	Kit	Flow	R _{Flow}	
	0.85	For High Speed Signal Lines (Sharp Impedance Curve)	BLM21BD151SN1	150ohm \pm 25%	-	200mA		Flow	R _{Flow}	
	0.85		BLM21BD221SN1	220ohm \pm 25%	-	200mA	Kit	Flow	R _{Flow}	
	0.85		BLM21BD331SN1	330ohm \pm 25%	-	200mA		Flow	R _{Flow}	
	0.85		BLM21BD421SN1	420ohm \pm 25%	-	200mA	Kit	Flow	R _{Flow}	
	0.85		BLM21BD471SN1	470ohm \pm 25%	-	200mA	Kit	Flow	R _{Flow}	
	0.85		BLM21BD601SN1	600ohm \pm 25%	-	200mA	Kit	Flow	R _{Flow}	
	0.85		BLM21BD751SN1	750ohm \pm 25%	-	200mA		Flow	R _{Flow}	
	0.85		BLM21BD102SN1	1000ohm \pm 25%	-	200mA	Kit	Flow	R _{Flow}	
	0.85		BLM21BD152SN1	1500ohm \pm 25%	-	200mA	Kit	Flow	R _{Flow}	
	0.85		BLM21BD182SN1	1800ohm \pm 25%	-	200mA	Kit	Flow	R _{Flow}	
	0.85		BLM21BD222TN1	2200ohm \pm 25%	-	200mA	Kit	Flow	R _{Flow}	
	1.25		BLM21BD222SN1	2250ohm(Typ.)	-	200mA	Kit	Flow	R _{Flow}	
	1.25		BLM21BD272SN1	2700ohm \pm 25%	-	200mA	Kit	Flow	R _{Flow}	
	0.85		BLM21BB050SN1	5ohm \pm 25%	-	500mA	Kit	Flow	R _{Flow}	
	0.85		BLM21BB600SN1	60ohm \pm 25%	-	200mA	Kit	Flow	R _{Flow}	
	0.85		BLM21BB750SN1	75ohm \pm 25%	-	200mA	Kit	Flow	R _{Flow}	
	0.85		BLM21BB121SN1	120ohm \pm 25%	-	200mA	Kit	Flow	R _{Flow}	
	0.85		BLM21BB151SN1	150ohm \pm 25%	-	200mA		Flow	R _{Flow}	
	0.85		BLM21BB201SN1	200ohm \pm 25%	-	200mA		Flow	R _{Flow}	
	0.85		BLM21BB221SN1	220ohm \pm 25%	-	200mA	Kit	Flow	R _{Flow}	
	0.85		BLM21BB331SN1	330ohm \pm 25%	-	200mA	Kit	Flow	R _{Flow}	
	0.85		BLM21BB471SN1	470ohm \pm 25%	-	200mA	Kit	Flow	R _{Flow}	
	0.85	For Digital Interface Lines	BLM21RK121SN1 ^{p72}	120ohm \pm 25%	-	200mA		Flow	R _{Flow}	
	0.85		BLM21RK221SN1	220ohm \pm 25%	-	200mA		Flow	R _{Flow}	
	0.85		BLM21RK471SN1	470ohm \pm 25%	-	200mA		Flow	R _{Flow}	
	0.85		BLM21RK601SN1	600ohm \pm 25%	-	200mA		Flow	R _{Flow}	
	0.85		BLM21RK102SN1	1000ohm \pm 25%	-	200mA		Flow	R _{Flow}	
	0.85		BLM21RK102SN1	1000ohm \pm 25%	-	200mA		Flow	R _{Flow}	

Continued on the following page.

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Size Code (Inch)	Thickness (mm)	Type	Part Number	Impedance		Rated Current	New Kit $\geq 1A$ GHz $\geq 3A$ H _{OHG} Flow R _{efflow}			
				at 100MHz/20°C	at 1GHz/20°C					
0805	0.85	For Power Lines	BLM21PG220SN1	22ohm±25%	-	6000mA	K _{it}	$\geq 3A$	Flow	R _{efflow}
	0.85		BLM21PG300SN1	30ohm(Typ.)	-	3000mA	K _{it}	$\geq 3A$	Flow	R _{efflow}
	0.85		BLM21PG600SN1	60ohm±25%	-	3000mA	K _{it}	$\geq 3A$	Flow	R _{efflow}
	0.85		BLM21PG121SN1	120ohm±25%	-	3000mA	K _{it}	$\geq 3A$	Flow	R _{efflow}
	0.85		BLM21PG221SN1	220ohm±25%	-	2000mA	K _{it}	$\geq 1A$	Flow	R _{efflow}
	0.85		BLM21PG331SN1	330ohm±25%	-	1500mA	K _{it}	$\geq 1A$	Flow	R _{efflow}
1206	1.1	For Power Lines	BLM31PG330SN1	33ohm±25%	-	6000mA	K _{it}	$\geq 3A$	Flow	R _{efflow}
	1.1		BLM31PG500SN1	50ohm(Typ.)	-	3000mA	K _{it}	$\geq 3A$	Flow	R _{efflow}
	1.1		BLM31PG121SN1	120ohm±25%	-	3000mA	K _{it}	$\geq 3A$	Flow	R _{efflow}
	1.1		BLM31PG391SN1	390ohm±25%	-	2000mA	K _{it}	$\geq 1A$	Flow	R _{efflow}
	1.1		BLM31PG601SN1	600ohm±25%	-	1500mA	K _{it}	$\geq 1A$	Flow	R _{efflow}
	1.1		BLM31PG102SN1	1000ohm±25%	-	1500mA	K _{it}	$\geq 1A$	Flow	R _{efflow}
1806	1.6	For Power Lines	BLM41PG600SN1	60ohm(Typ.)	-	6000mA	K _{it}	$\geq 3A$	Flow	R _{efflow}
	1.6		BLM41PG750SN1	75ohm(Typ.)	-	3000mA	K _{it}	$\geq 3A$	Flow	R _{efflow}
	1.6		BLM41PG181SN1	180ohm±25%	-	3000mA	K _{it}	$\geq 3A$	Flow	R _{efflow}
	1.6		BLM41PG471SN1	470ohm±25%	-	2000mA	K _{it}	$\geq 1A$	Flow	R _{efflow}
	1.6		BLM41PG102SN1	1000ohm±25%	-	1500mA	K _{it}	$\geq 1A$	Flow	R _{efflow}
	1.6		BLM41PG102SN1	1000ohm±25%	-	1500mA	K _{it}	$\geq 1A$	Flow	R _{efflow}
0804	0.5	For General Signal Lines	BLA2AAG121SN4	120ohm±25%	-	100mA				R _{efflow}
	0.5		BLA2AAG221SN4	220ohm±25%	-	50mA				R _{efflow}
	0.5		BLA2AAG601SN4	600ohm±25%	-	50mA				R _{efflow}
	0.5		BLA2AAG102SN4	1000ohm±25%	-	50mA				R _{efflow}
	0.5	For High Speed Signal Lines	BLA2ABB100SN4	10ohm±25%	-	200mA				R _{efflow}
	0.5		BLA2ABB220SN4	22ohm±25%	-	200mA				R _{efflow}
	0.5		BLA2ABB470SN4	47ohm±25%	-	200mA				R _{efflow}
	0.5		BLA2ABB121SN4	120ohm±25%	-	50mA				R _{efflow}
	0.5		BLA2ABB221SN4	220ohm±25%	-	50mA				R _{efflow}
	0.5		BLA2ABD750SN4	75ohm±25%	-	200mA				R _{efflow}
	0.5		BLA2ABD121SN4	120ohm±25%	-	200mA				R _{efflow}
	0.5		BLA2ABD221SN4	220ohm±25%	-	100mA				R _{efflow}
	0.5		BLA2ABD471SN4	470ohm±25%	-	100mA				R _{efflow}
	0.5		BLA2ABD601SN4	600ohm±25%	-	100mA				R _{efflow}
	0.5		BLA2ABD102SN4	1000ohm±25%	-	50mA				R _{efflow}
	0.5		BLA2ABD102SN4	1000ohm±25%	-	50mA				R _{efflow}
	0.5		BLA2ABD102SN4	1000ohm±25%	-	50mA				R _{efflow}
	0.5		BLA2ABD102SN4	1000ohm±25%	-	50mA				R _{efflow}
	0.5		BLA2ABD102SN4	1000ohm±25%	-	50mA				R _{efflow}
	0.5		BLA2ABD102SN4	1000ohm±25%	-	50mA				R _{efflow}
	0.5		BLA2ABD102SN4	1000ohm±25%	-	50mA				R _{efflow}
1206	0.8	For General Signal Lines	BLA31AG300SN4	30ohm±25%	-	200mA			Flow	R _{efflow}
	0.8		BLA31AG600SN4	60ohm±25%	-	200mA			Flow	R _{efflow}
	0.8		BLA31AG121SN4	120ohm±25%	-	150mA			Flow	R _{efflow}
	0.8		BLA31AG221SN4	220ohm±25%	-	150mA			Flow	R _{efflow}
	0.8		BLA31AG601SN4	600ohm±25%	-	100mA			Flow	R _{efflow}
	0.8		BLA31AG102SN4	1000ohm±25%	-	50mA			Flow	R _{efflow}
	0.8	For High Speed Signal Lines	BLA31BD121SN4	120ohm±25%	-	150mA			Flow	R _{efflow}
	0.8		BLA31BD221SN4	220ohm±25%	-	150mA			Flow	R _{efflow}
	0.8		BLA31BD471SN4	470ohm±25%	-	100mA			Flow	R _{efflow}
	0.8		BLA31BD601SN4	600ohm±25%	-	100mA			Flow	R _{efflow}
	0.8		BLA31BD102SN4	1000ohm±25%	-	50mA			Flow	R _{efflow}
	0.8		BLA31BD102SN4	1000ohm±25%	-	50mA			Flow	R _{efflow}

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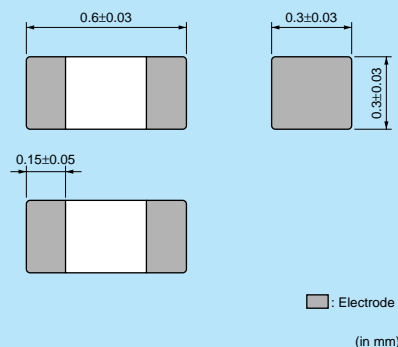
BLM03AX Series (0201 Size)



High Spec Ferrite Bead Ultra low dc resistance and wide impedance line up. Fit for both power lines and signal lines.



■ Dimensions



■ Equivalent Circuit



(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	15000
J	330mm Reel Paper Tape	50000
B	Bulk(Bag)	1000

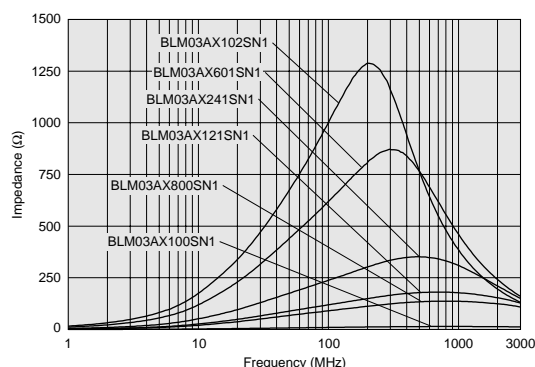
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

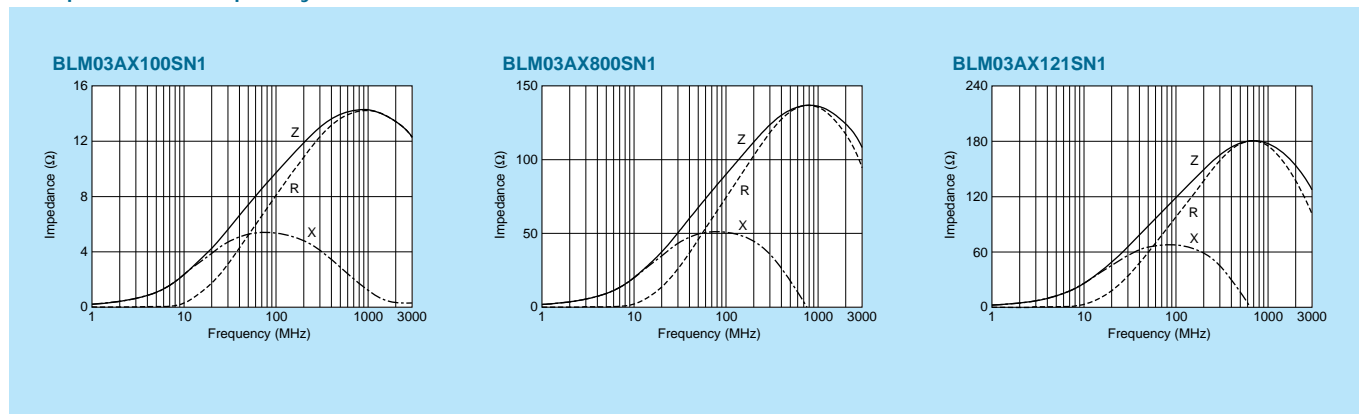
Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM03AX100SN1□	10ohm(Typ.)	1000mA	0.05ohm max.	-55°C to +125°C	Kit $\geq 1A$
BLM03AX800SN1□	80ohm±25%	500mA	0.18ohm max.	-55°C to +125°C	Kit
BLM03AX121SN1□	120ohm±25%	450mA	0.23ohm max.	-55°C to +125°C	Kit
BLM03AX241SN1□	240ohm±25%	350mA	0.38ohm max.	-55°C to +125°C	Kit
BLM03AX601SN1□	600ohm±25%	250mA	0.85ohm max.	-55°C to +125°C	Kit
BLM03AX102SN1□	1000ohm±25%	200mA	1.25ohm max.	-55°C to +125°C	Kit

Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)



■ Impedance-Frequency Characteristics



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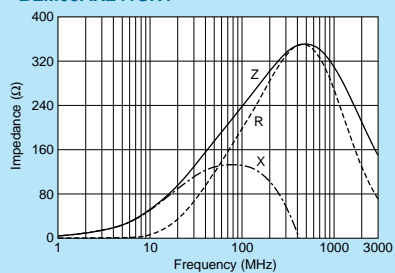
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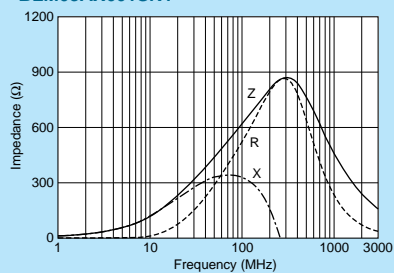
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Mar.28,2011

■ Impedance-Frequency Characteristics

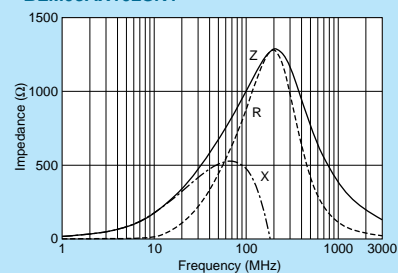
BLM03AX241SN1



BLM03AX601SN1



BLM03AX102SN1



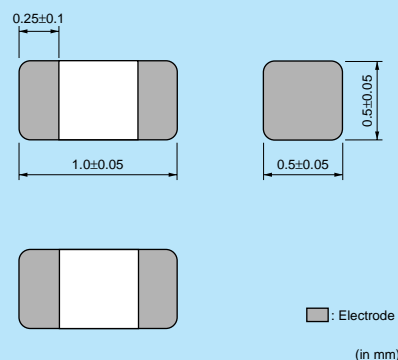
BLM15AX Series (0402 Size)



High Spec Ferrite Bead Ultra low dc resistance and wide impedance line up. Fit for both power lines and signal lines.



■ Dimensions



■ Equivalent Circuit



(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	10000
J	330mm Reel Paper Tape	50000
B	Bulk(Bag)	1000

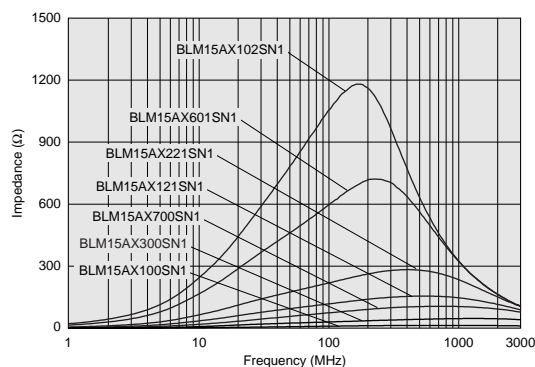
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM15AX100SN1□	10ohm(Typ.)	1740mA	0.015ohm max.	-55°C to +125°C	Kit ≥1A
BLM15AX300SN1□	30ohm±25%	1100mA	0.06ohm max.	-55°C to +125°C	New Kit ≥1A
BLM15AX700SN1□	70ohm±25%	780mA	0.1ohm max.	-55°C to +125°C	Kit
BLM15AX121SN1□	120ohm±25%	680mA	0.13ohm max.	-55°C to +125°C	Kit
BLM15AX221SN1□	220ohm±25%	580mA	0.18ohm max.	-55°C to +125°C	Kit
BLM15AX601SN1□	600ohm±25%	420mA	0.34ohm max.	-55°C to +125°C	Kit
BLM15AX102SN1□	1000ohm±25%	350mA	0.49ohm max.	-55°C to +125°C	Kit

Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)



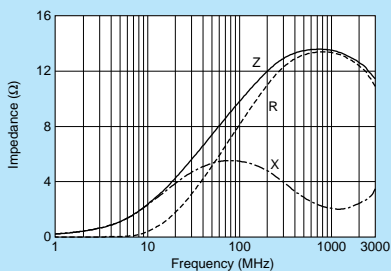
Continued on the following page.

△Note • Please read rating and △CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

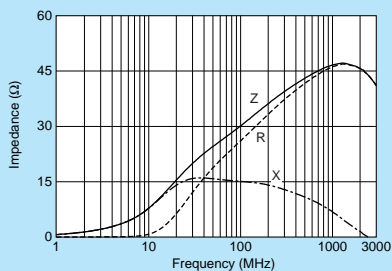
• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

■ Impedance-Frequency Characteristics

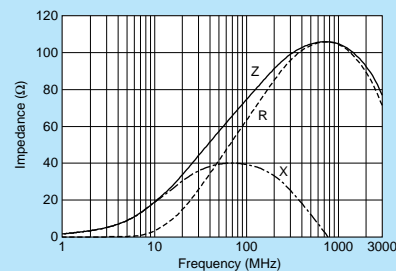
BLM15AX100SN1



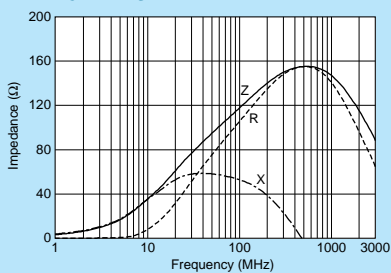
BLM15AX300SN1



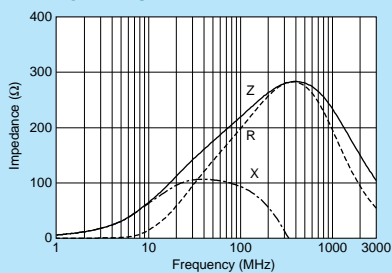
BLM15AX700SN1



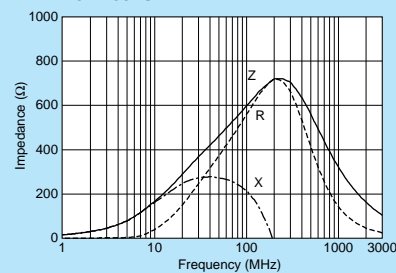
BLM15AX121SN1



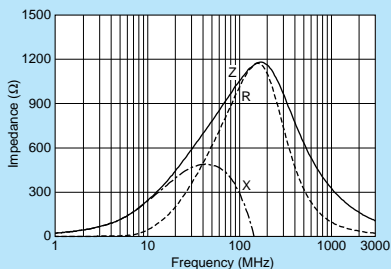
BLM15AX221SN1



BLM15AX601SN1



BLM15AX102SN1



Excellent for Both of Signal and Power Lines! Multi Function Chip Ferrite Bead BLM□□AX Series

Feature

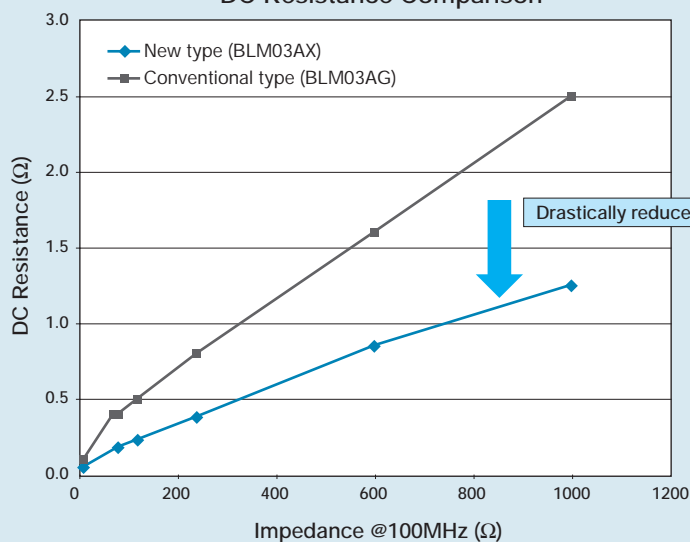
- 1/2 DC resistance than conventional type by latest technology
 - New ferrite material
 - Optimum ferrite firing condition
 - Fine piling technology
 - Advanced coil pattern design technology
- Improved stability of performance at heat shock
- Wide line-up from 10 to 1000ohm(@100MHz) useful for signal line

Advantage

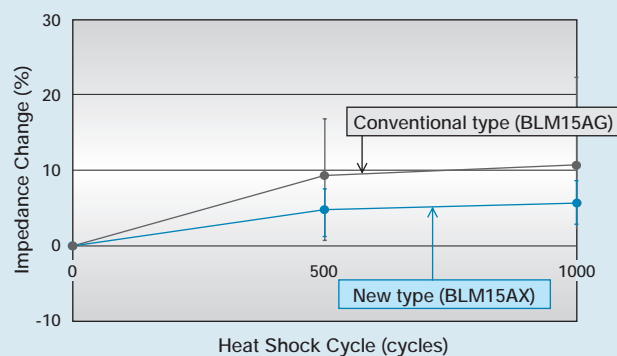
- High Rated Current
 - Good for Miniaturize of high power equipment
- Lower Voltage down at Ferrite bead
 - Good for Battery driven equipment by saving running voltage margin
- Higher Reliability

Drastically Reduced DC Resistance

DC Resistance Comparison



Test Result - Heat Shock



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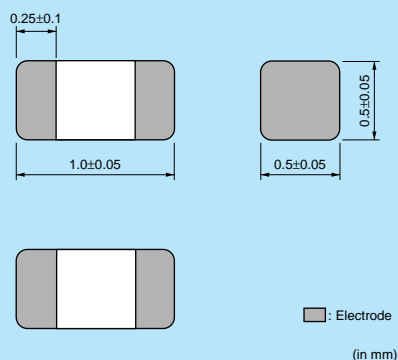
BLM15E Series (0402 Size)



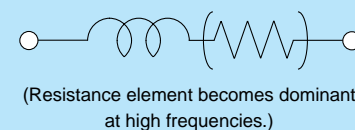
For GHz band noise, also capable to large current.



Dimensions



Equivalent Circuit



Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	10000
J	330mm Reel Paper Tape	50000
B	Bulk(Bag)	1000

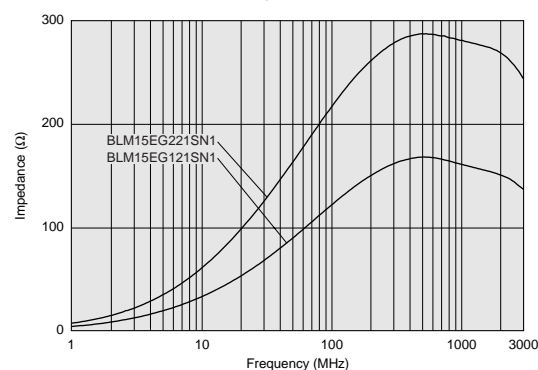
Refer to pages from p.91 to p.94 for mounting information.

Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Impedance (at 1GHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM15EG121SN1□	120ohm±25%	145ohm(Typ.)	1500mA	0.095ohm max.	-55°C to +125°C	Kit $\geq 1A$
BLM15EG221SN1□	220ohm±25%	270ohm(Typ.)	700mA	0.28ohm max.	-55°C to +125°C	Kit

Number of Circuits: 1

Impedance-Frequency Characteristics (Main Items)

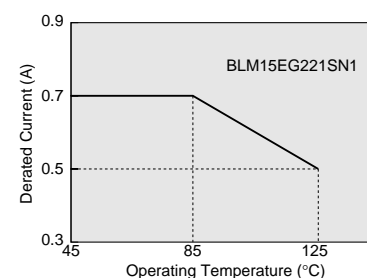
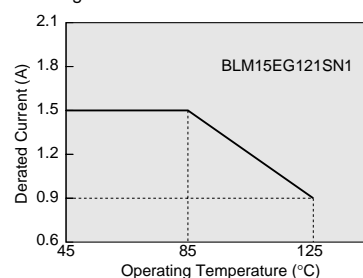


Notice (Rating)

In operating temperature exceeding +85°C, derating of current is necessary for BLM15E series.

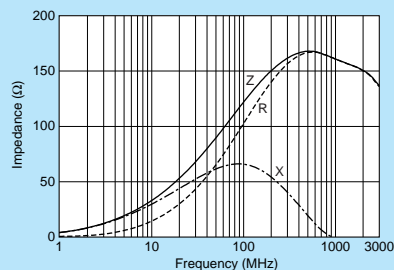
Please apply the derating curve shown in chart according to the operating temperature.

Derating

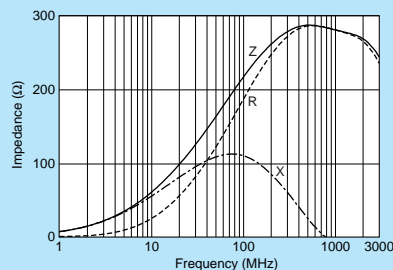


Impedance-Frequency Characteristics

BLM15EG121SN1



BLM15EG221SN1



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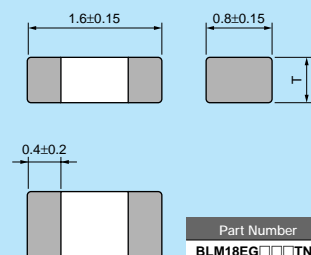
BLM18E Series (0603 Size)



For GHz band noise, also capable to large current.



■ Dimensions



□: Electrode

(in mm)

■ Equivalent Circuit



(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
J	330mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

Refer to pages from p.91 to p.94 for mounting information.

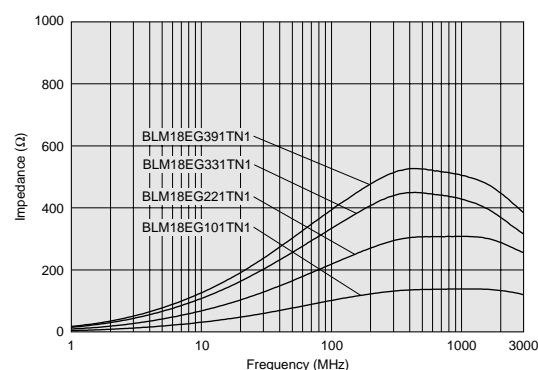
■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Impedance (at 1GHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM18EG101TN1□	100ohm±25%	140ohm(Typ.)	2000mA	0.045ohm max.	-55°C to +125°C	Kit ≥1A
BLM18EG121SN1□	120ohm±25%	145ohm(Typ.)	2000mA	0.04ohm max.	-55°C to +125°C	Kit ≥1A
BLM18EG221SN1□	220ohm±25%	260ohm(Typ.)	2000mA	0.05ohm max.	-55°C to +125°C	Kit ≥1A
BLM18EG221TN1□	220ohm±25%	300ohm(Typ.)	1000mA	0.15ohm max.	-55°C to +125°C	Kit ≥1A
BLM18EG331TN1□	330ohm±25%	450ohm(Typ.)	500mA	0.21ohm max.	-55°C to +125°C	Kit
BLM18EG391TN1□	390ohm±25%	520ohm(Typ.)	500mA	0.3ohm max.	-55°C to +125°C	Kit
BLM18EG471SN1□	470ohm±25%	550ohm(Typ.)	500mA	0.21ohm max.	-55°C to +125°C	Kit
BLM18EG601SN1□	600ohm±25%	700ohm(Typ.)	500mA	0.35ohm max.	-55°C to +125°C	Kit

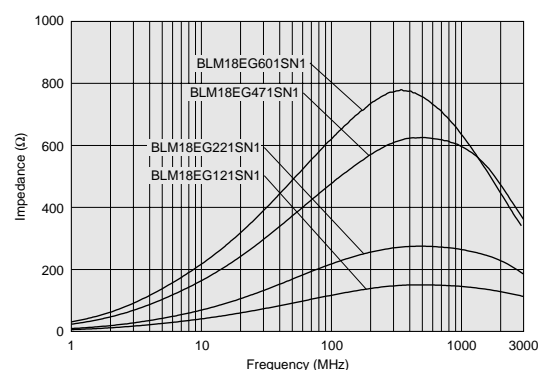
Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

BLM18EG_TN Series



BLM18EG_SN Series

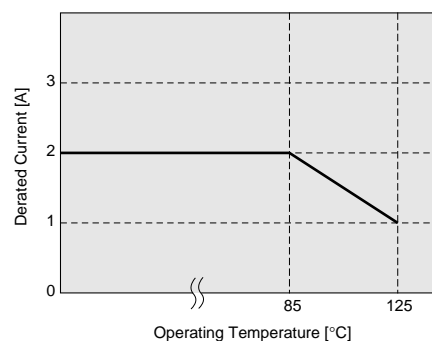


■ Notice (Rating)

In operating temperature exceeding +85°C, derating of current is necessary for BLM18EG series.

Please apply the derating curve shown in chart according to the operating temperature.

Derating



Continued on the following page.

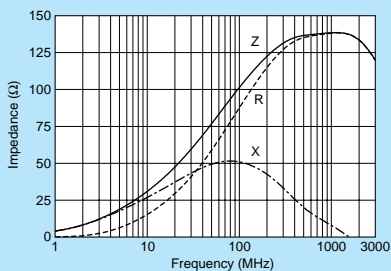
△Note • Please read rating and △CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

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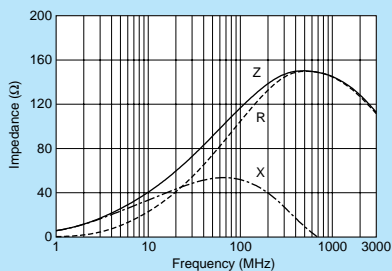
C31E.pdf
Mar.28,2011

■ Impedance-Frequency Characteristics

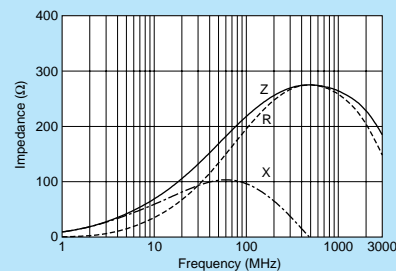
BLM18EG101TN1



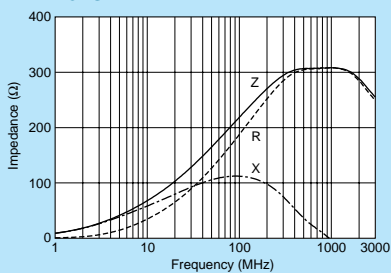
BLM18EG121SN1



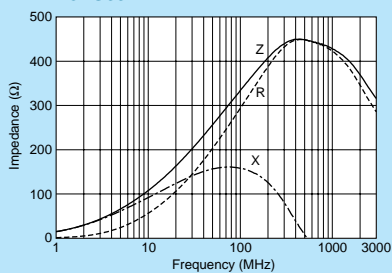
BLM18EG221SN1



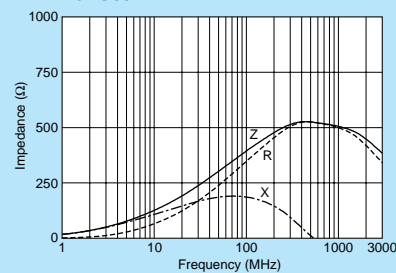
BLM18EG221TN1



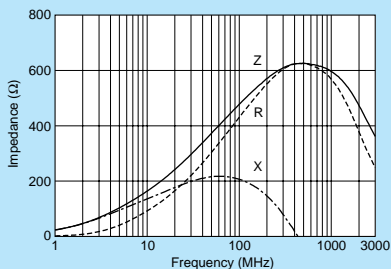
BLM18EG331TN1



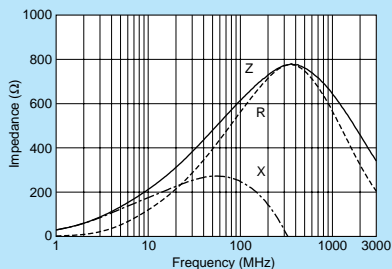
BLM18EG391TN1



BLM18EG471SN1



BLM18EG601SN1



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BLM03P Series (0201 Size)

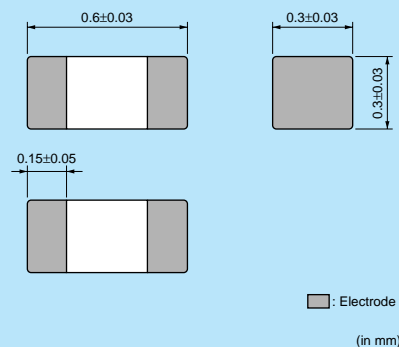


0201 size for power lines.

*Please refer to the products which are designed for both power lines and signal lines.



■ Dimensions



■ Equivalent Circuit



(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	15000
J	330mm Reel Paper Tape	50000
B	Bulk(Bag)	1000

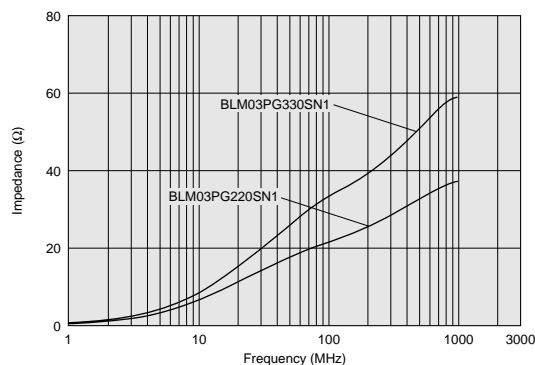
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM03PG220SN1□	22ohm±25%	900mA	0.065ohm max.	-55°C to +125°C	Kit
BLM03PG330SN1□	33ohm±25%	750mA	0.090ohm max.	-55°C to +125°C	Kit

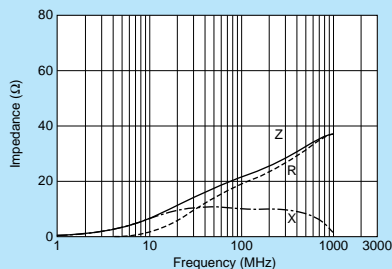
Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

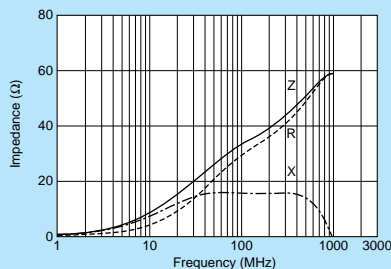


■ Impedance-Frequency Characteristics

BLM03PG220SN1



BLM03PG330SN1



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BLM15PX Series (0402 Size)

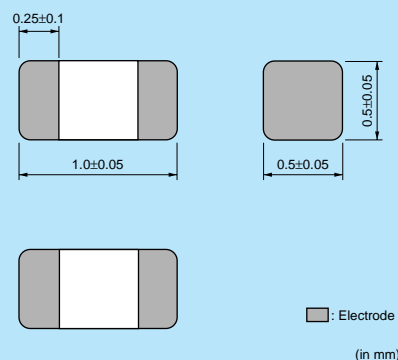


Improved DC resistance, meet larger current.

*Please refer to the products which are designed for both power lines and signal lines.



■ Dimensions



■ Equivalent Circuit



(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	10000
J	330mm Reel Paper Tape	50000
B	Bulk(Bag)	1000

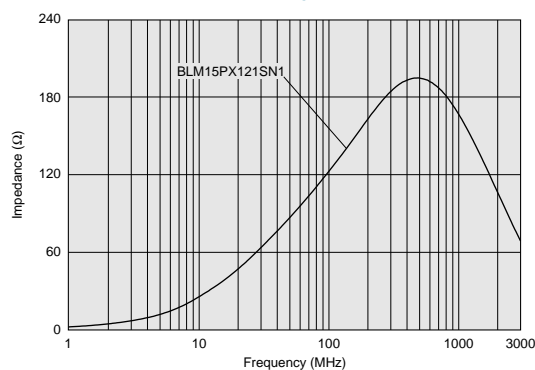
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM15PX121SN1□	120ohm±25%	1800mA	0.06ohm max.	-55°C to +125°C	New Kit ≥1A

Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

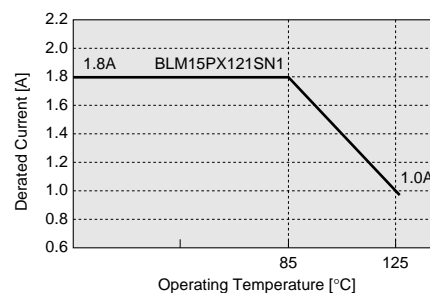


■ Notice (Rating)

In operating temperature exceeding +85°C, derating of current is necessary for BLM15PX series.

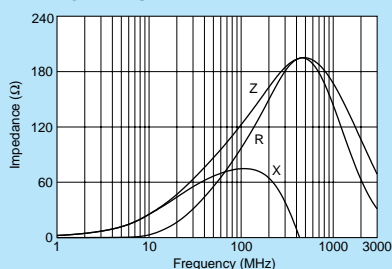
Please apply the derating curve shown in chart according to the operating temperature.

Derating



■ Impedance-Frequency Characteristics

BLM15PX121SN1



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BLM15PG/BLM15PD Series (0402 Size)

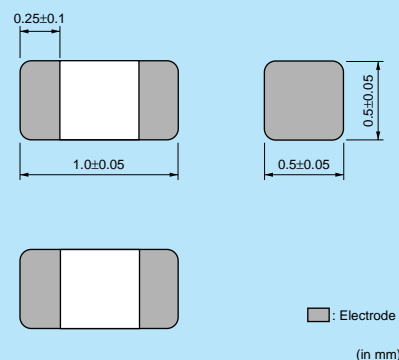


0402 size for power lines.

*Please refer to the products which are designed for both power lines and signal lines.



■ Dimensions



■ Equivalent Circuit



(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	10000
J	330mm Reel Paper Tape	50000
B	Bulk(Bag)	1000

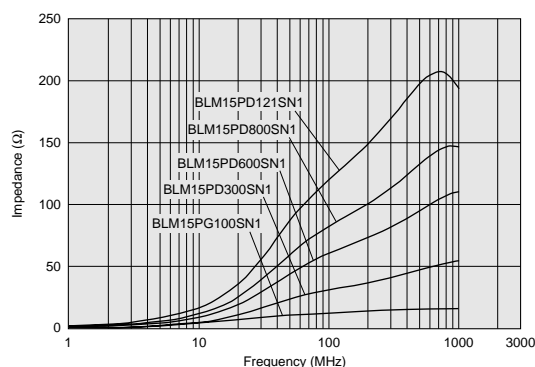
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM15PG100SN1□	10ohm(Typ.)	1000mA	0.05ohm max.	-55°C to +125°C	Kit ≥1A
BLM15PD300SN1□	30ohm±25%	2200mA	0.035ohm max.	-55°C to +125°C	Kit ≥1A
BLM15PD600SN1□	60ohm±25%	1700mA	0.06ohm max.	-55°C to +125°C	Kit ≥1A
BLM15PD800SN1□	80ohm±25%	1500mA	0.07ohm max.	-55°C to +125°C	Kit ≥1A
BLM15PD121SN1□	120ohm±25%	1300mA	0.09ohm max.	-55°C to +125°C	Kit ≥1A

Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

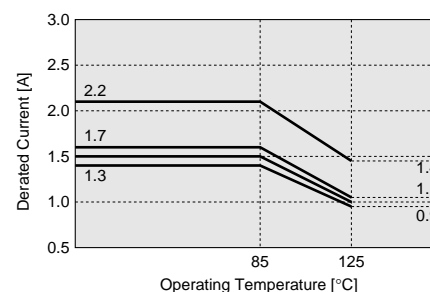


■ Notice (Rating)

In operating temperature exceeding +85°C, derating of current is necessary for BLM15PD series.

Please apply the derating curve shown in chart according to the operating temperature.

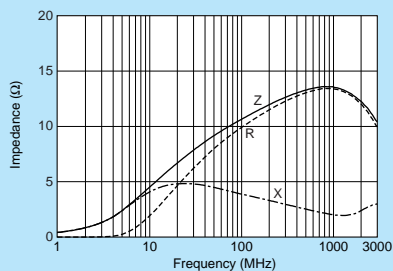
Derating



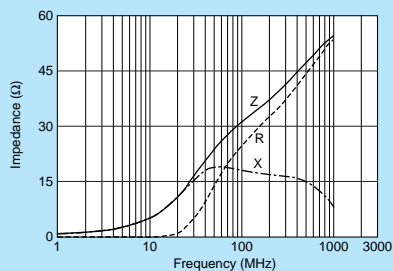
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■ Impedance-Frequency Characteristics

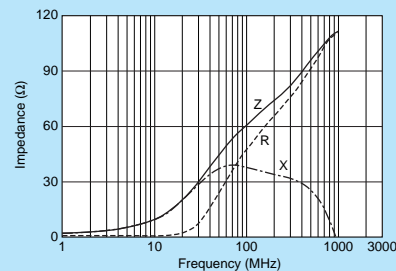
BLM15PG100SN1



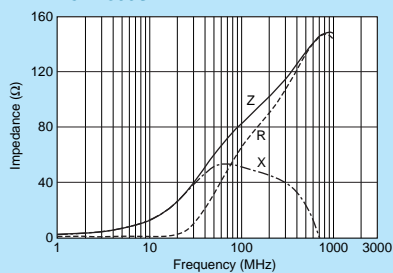
BLM15PD300SN1



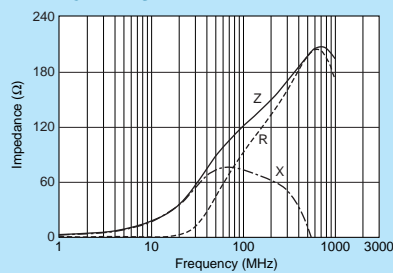
BLM15PD600SN1



BLM15PD800SN1



BLM15PD121SN1



BLM18P Series (0603 Size)

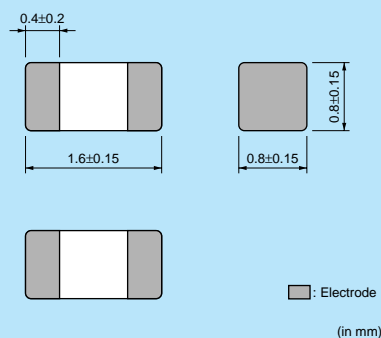


0603 size for power lines.

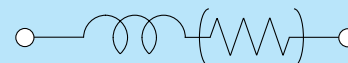
*Please refer to the products which are designed for both power lines and signal lines.



■ Dimensions



■ Equivalent Circuit



(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
J	330mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

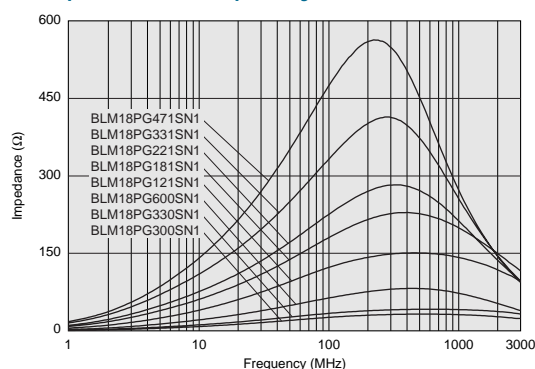
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM18PG300SN1□	30ohm(Typ.)	1000mA	0.05ohm max.	-55°C to +125°C	Kit $\geq 1A$
BLM18PG330SN1□	33ohm±25%	3000mA	0.025ohm max.	-55°C to +125°C	Kit $\geq 3A$
BLM18PG600SN1□	60ohm(Typ.)	500mA	0.10ohm max.	-55°C to +125°C	Kit
BLM18PG121SN1□	120ohm±25%	2000mA	0.05ohm max.	-55°C to +125°C	Kit $\geq 1A$
BLM18PG181SN1□	180ohm±25%	1500mA	0.09ohm max.	-55°C to +125°C	Kit $\geq 1A$
BLM18PG221SN1□	220ohm±25%	1400mA	0.10ohm max.	-55°C to +125°C	Kit $\geq 1A$
BLM18PG331SN1□	330ohm±25%	1200mA	0.15ohm max.	-55°C to +125°C	Kit $\geq 1A$
BLM18PG471SN1□	470ohm±25%	1000mA	0.20ohm max.	-55°C to +125°C	Kit $\geq 1A$

Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

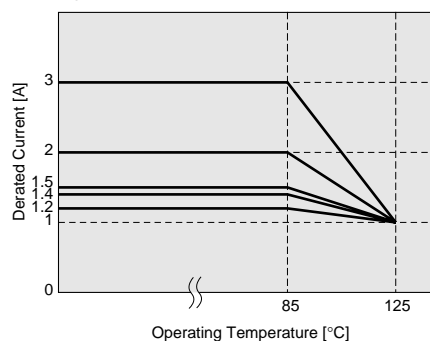


■ Notice (Rating)

In operating temperature exceeding +85°C, derating of current is necessary for BLM18PG series.

Please apply the derating curve shown in chart according to the operating temperature.

Derating



Continued on the following page.

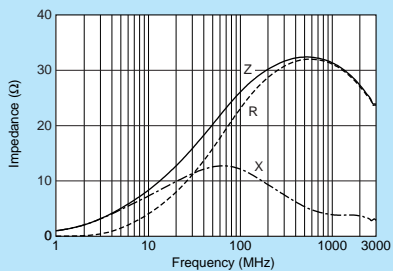
△Note • Please read rating and △CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

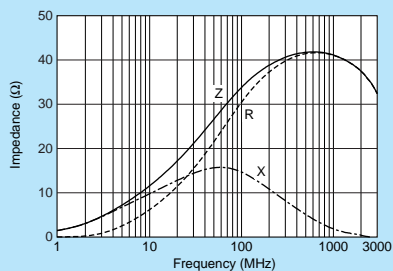
C31E.pdf
Mar.28,2011

Impedance-Frequency Characteristics

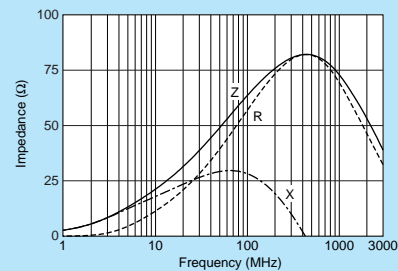
BLM18PG300SN1



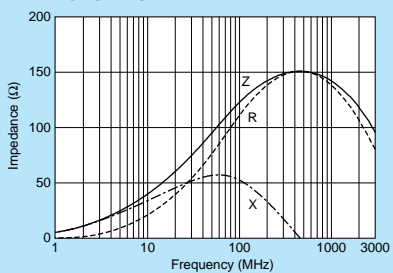
BLM18PG330SN1



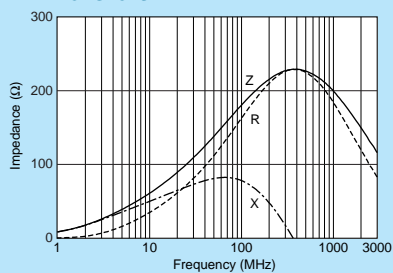
BLM18PG600SN1



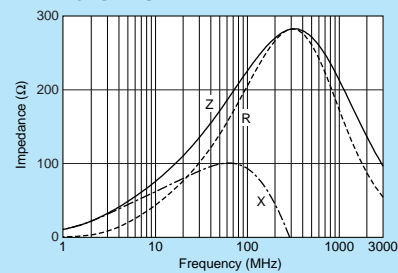
BLM18PG121SN1



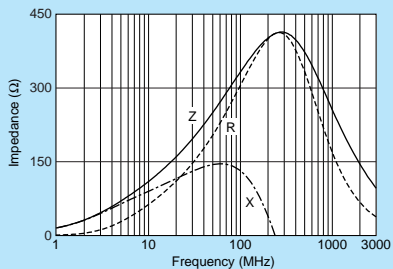
BLM18PG181SN1



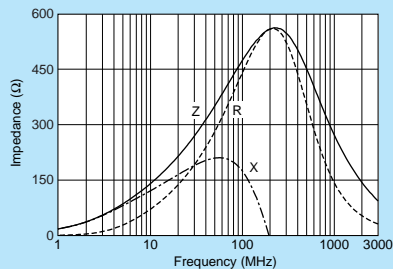
BLM18PG221SN1



BLM18PG331SN1



BLM18PG471SN1

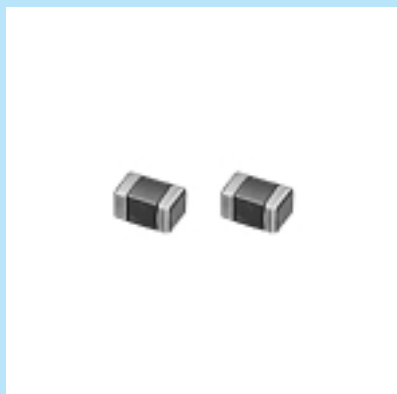


BLM21P Series (0805 Size)

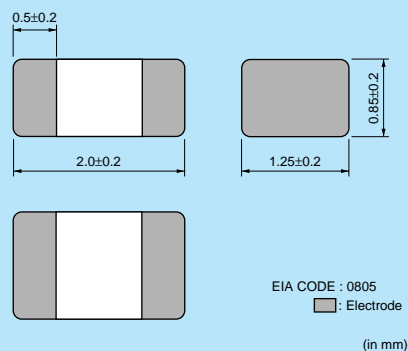


0805 size for power lines.

*Please refer to the products which are designed for both power lines and signal lines. *Please refer to BLM18K for downsizing.



■ Dimensions



■ Equivalent Circuit



(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
J	330mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

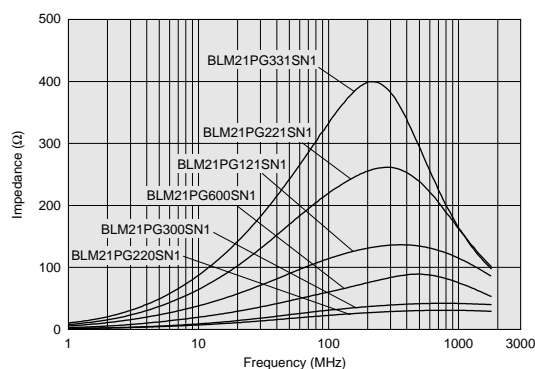
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range		
BLM21PG220SN1□	22ohm±25%	6000mA	0.01ohm max.	-55°C to +125°C	Kit	≥3A
BLM21PG300SN1□	30ohm(Typ.)	3000mA	0.015ohm max.	-55°C to +125°C	Kit	≥3A
BLM21PG600SN1□	60ohm±25%	3000mA	0.025ohm max.	-55°C to +125°C	Kit	≥3A
BLM21PG121SN1□	120ohm±25%	3000mA	0.03ohm max.	-55°C to +125°C	Kit	≥3A
BLM21PG221SN1□	220ohm±25%	2000mA	0.050ohm max.	-55°C to +125°C	Kit	≥1A
BLM21PG331SN1□	330ohm±25%	1500mA	0.09ohm max.	-55°C to +125°C	Kit	≥1A

Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

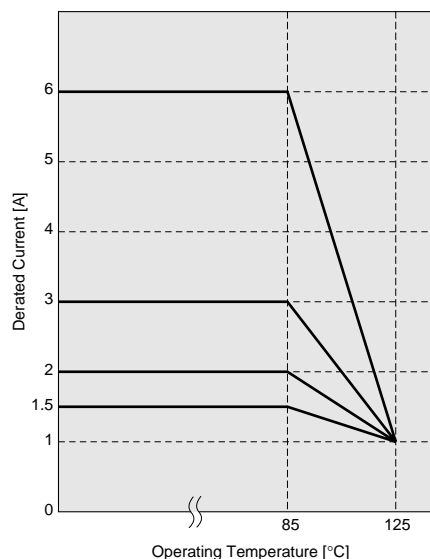


■ Notice (Rating)

In operating temperature exceeding +85°C, derating of current is necessary for BLM21PG series.

Please apply the derating curve shown in chart according to the operating temperature.

Derating



Continued on the following page. ↗

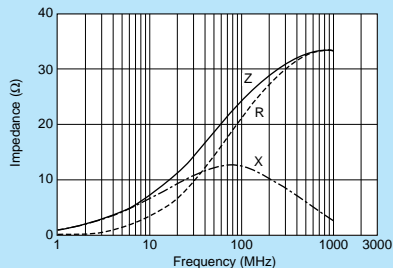
△Note • Please read rating and △CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

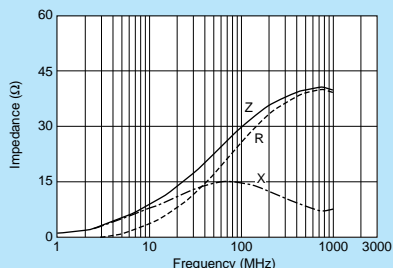
C31E.pdf
Mar.28,2011

Impedance-Frequency Characteristics

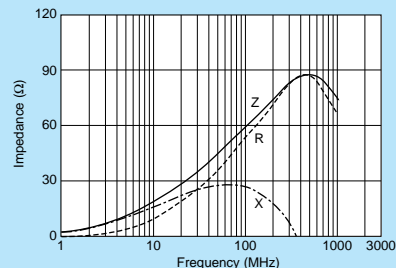
BLM21PG220SN1



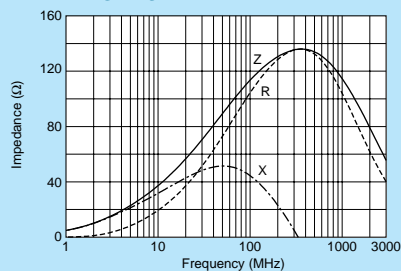
BLM21PG300SN1



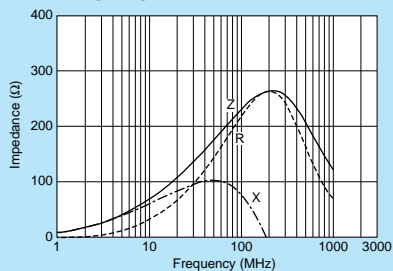
BLM21PG600SN1



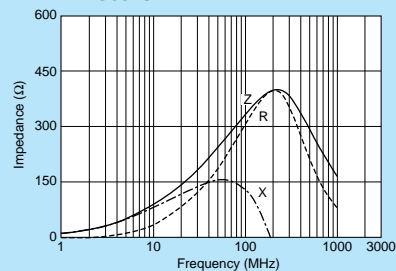
BLM21PG121SN1



BLM21PG221SN1



BLM21PG331SN1



BLM31P Series (1206 Size)

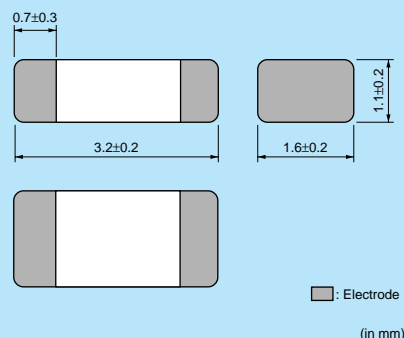


1206 size for power lines.

*Please refer to the products which are designed for both power lines and signal lines.



■ Dimensions



■ Equivalent Circuit



(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	3000
K	330mm Reel Embossed Tape	10000
B	Bulk(Bag)	1000

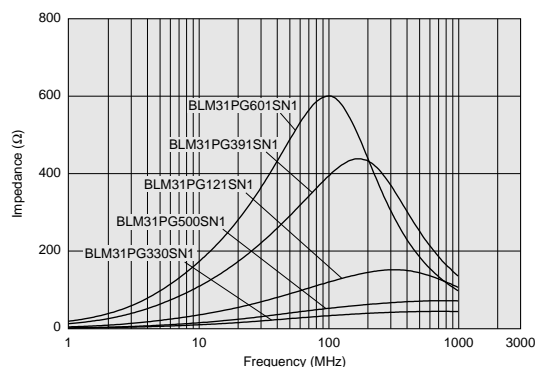
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range		
BLM31PG330SN1□	33ohm±25%	6000mA	0.01ohm max.	-55°C to +125°C	Kit	≥3A
BLM31PG500SN1□	50ohm(Typ.)	3000mA	0.025ohm max.	-55°C to +125°C	Kit	≥3A
BLM31PG121SN1□	120ohm±25%	3000mA	0.025ohm max.	-55°C to +125°C	Kit	≥3A
BLM31PG391SN1□	390ohm±25%	2000mA	0.05ohm max.	-55°C to +125°C	Kit	≥1A
BLM31PG601SN1□	600ohm±25%	1500mA	0.09ohm max.	-55°C to +125°C	Kit	≥1A

Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

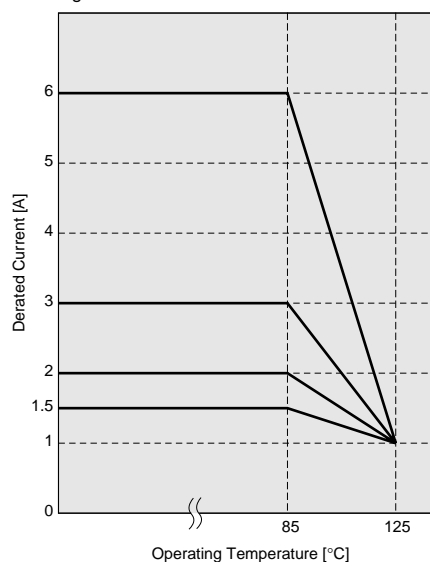


■ Notice (Rating)

In operating temperature exceeding +85°C, derating of current is necessary for BLM31PG series.

Please apply the derating curve shown in chart according to the operating temperature.

Derating



Continued on the following page.

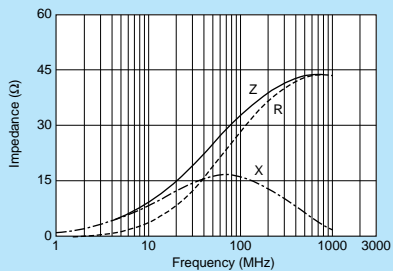
△Note • Please read rating and △CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

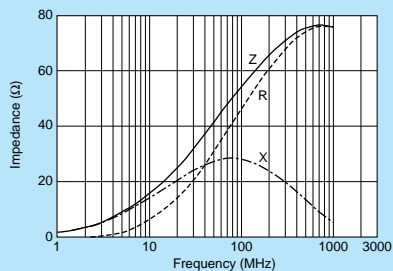
C31E.pdf
Mar.28,2011

Impedance-Frequency Characteristics

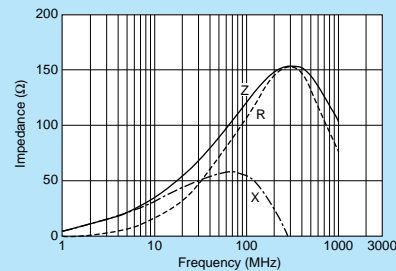
BLM31PG330SN1



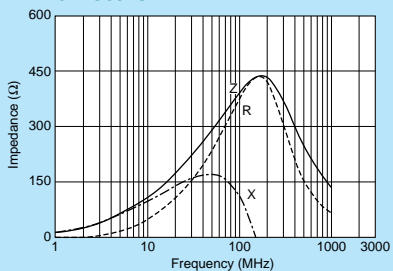
BLM31PG500SN1



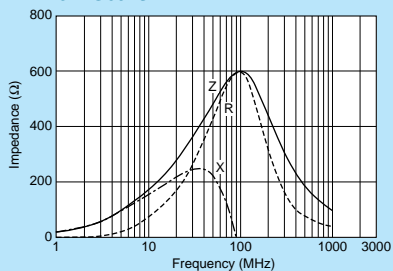
BLM31PG121SN1



BLM31PG391SN1



BLM31PG601SN1

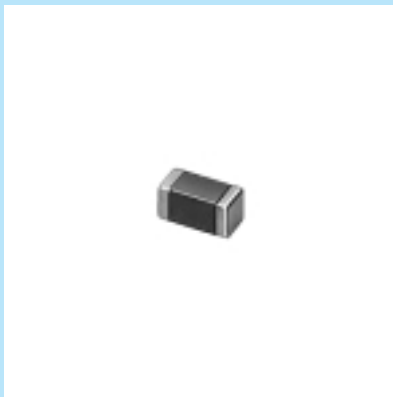


BLM41P Series (1806 Size)

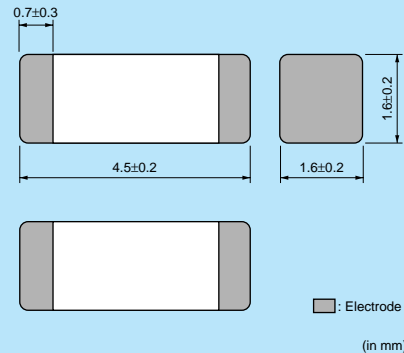


1806 size for power lines.

*Please refer to the products which are designed for both power lines and signal lines.



■ Dimensions



■ Equivalent Circuit



(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	2500
K	330mm Reel Embossed Tape	8000
B	Bulk(Bag)	1000

Refer to pages from p.91 to p.94 for mounting information.

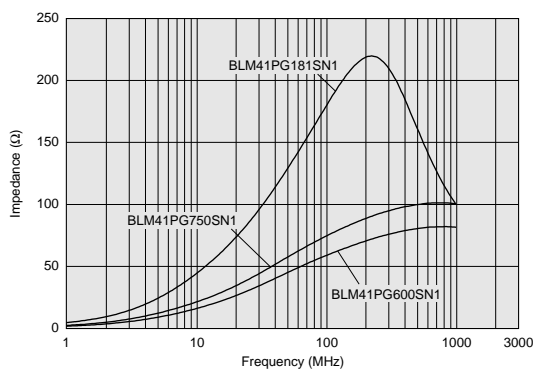
■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range		
BLM41PG600SN1□	60ohm(Typ.)	6000mA	0.01ohm max.	-55°C to +125°C	Kit	≥3A
BLM41PG750SN1□	75ohm(Typ.)	3000mA	0.025ohm max.	-55°C to +125°C	Kit	≥3A
BLM41PG181SN1□	180ohm±25%	3000mA	0.025ohm max.	-55°C to +125°C	Kit	≥3A
BLM41PG471SN1□	470ohm±25%	2000mA	0.05ohm max.	-55°C to +125°C	Kit	≥1A
BLM41PG102SN1□	1000ohm±25%	1500mA	0.09ohm max.	-55°C to +125°C	Kit	≥1A

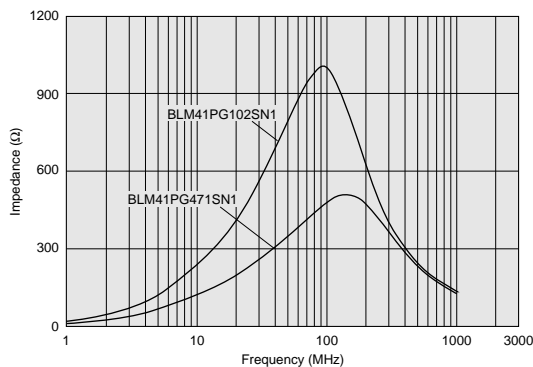
Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

BLM41PG Series (60ohm to 180ohm)



BLM41PG Series (470ohm to 1000ohm)

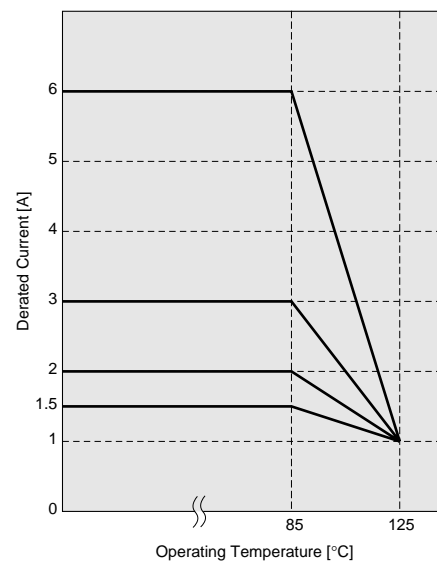


■ Notice (Rating)

In operating temperature exceeding +85°C, derating of current is necessary for BLM41PG series.

Please apply the derating curve shown in chart according to the operating temperature.

Derating



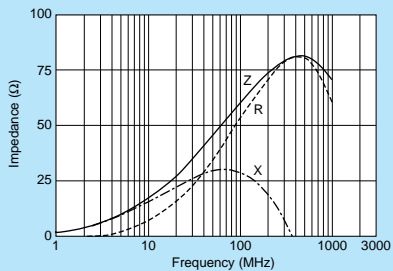
Continued on the following page.

△Note • Please read rating and △CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

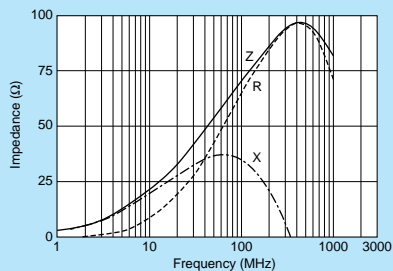
• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

■ Impedance-Frequency Characteristics

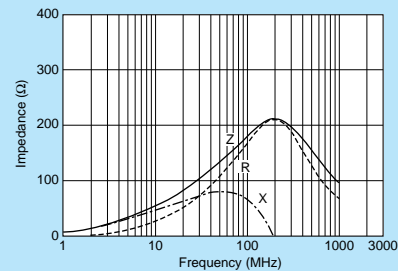
BLM41PG600SN1



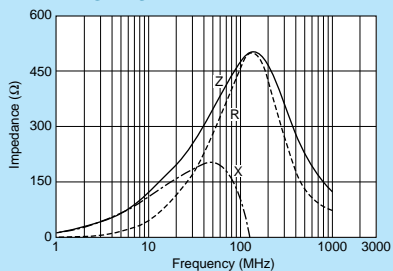
BLM41PG750SN1



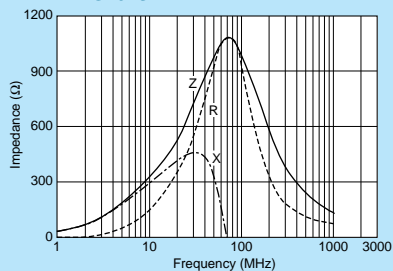
BLM41PG181SN1



BLM41PG471SN1



BLM41PG102SN1



BLM18K Series (0603 Size)

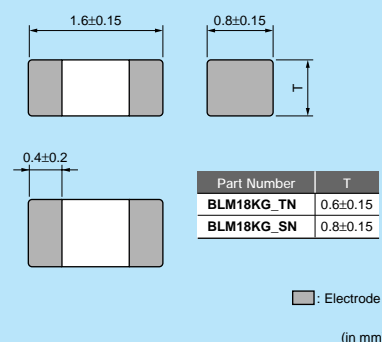


6A Max, high performance type for power lines up to 600ohm.

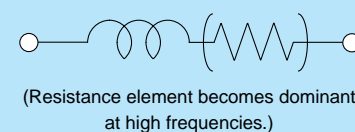
*Please refer to the products which are designed for both power lines and signal lines.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
J	330mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

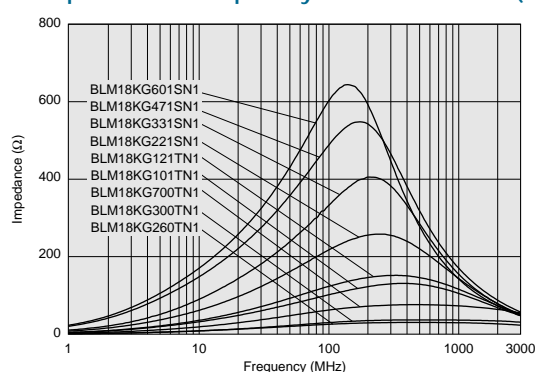
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM18KG260TN1□	26ohm±25%	6000mA	0.007ohm max.	-55°C to +125°C	Kit ≥3A
BLM18KG300TN1□	30ohm±25%	5000mA	0.010ohm max.	-55°C to +125°C	Kit ≥3A
BLM18KG700TN1□	70ohm±25%	3500mA	0.022ohm max.	-55°C to +125°C	Kit ≥3A
BLM18KG101TN1□	100ohm±25%	3000mA	0.030ohm max.	-55°C to +125°C	Kit ≥3A
BLM18KG121TN1□	120ohm±25%	3000mA	0.030ohm max.	-55°C to +125°C	Kit ≥3A
BLM18KG221SN1□	220ohm±25%	2200mA	0.050ohm max.	-55°C to +125°C	Kit ≥1A
BLM18KG331SN1□	330ohm±25%	1700mA	0.080ohm max.	-55°C to +125°C	Kit ≥1A
BLM18KG471SN1□	470ohm±25%	1500mA	0.130ohm max.	-55°C to +125°C	Kit ≥1A
BLM18KG601SN1□	600ohm±25%	1300mA	0.150ohm max.	-55°C to +125°C	Kit ≥1A

Number of Circuits: 1

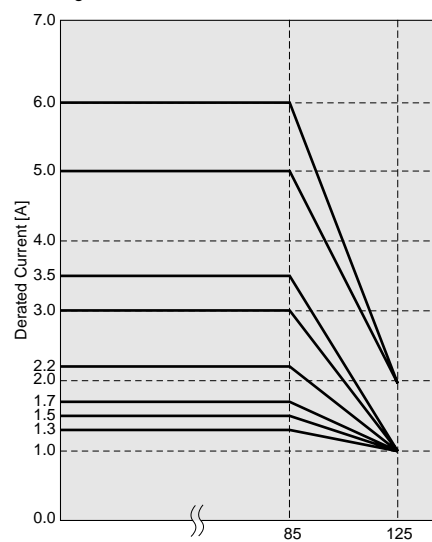
■ Impedance-Frequency Characteristics (Main Items)



■ Notice (Rating)

In operating temperature exceeding +85°C, derating of current is necessary for BLM18KG series. Please apply the derating curve shown in chart according to the operating temperature.

Derating



Operating Temperature [°C] Continued on the following page.

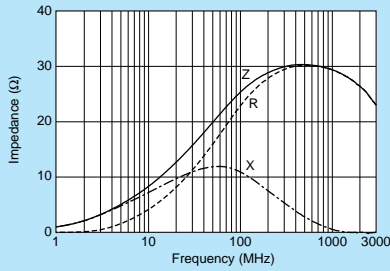
△Note • Please read rating and △CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

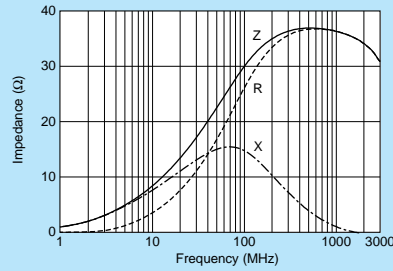
C31E.pdf
Mar.28,2011

Impedance-Frequency Characteristics

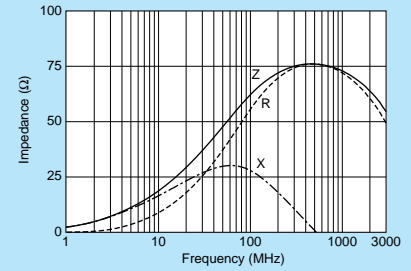
BLM18KG260TN1



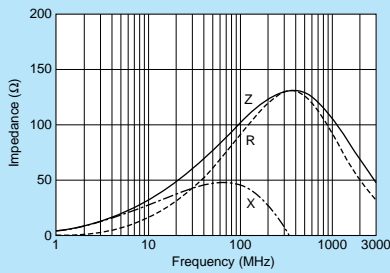
BLM18KG300TN1



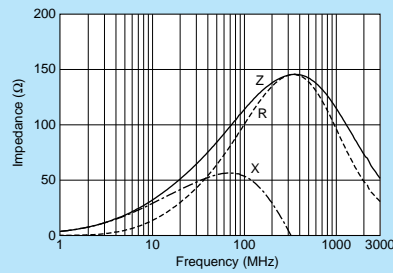
BLM18KG700TN1



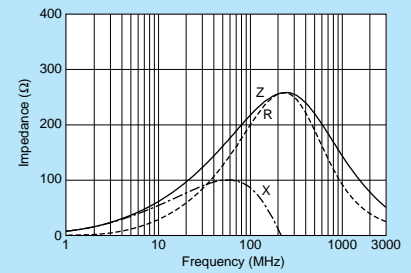
BLM18KG101TN1



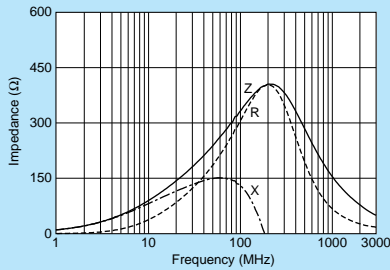
BLM18KG121TN1



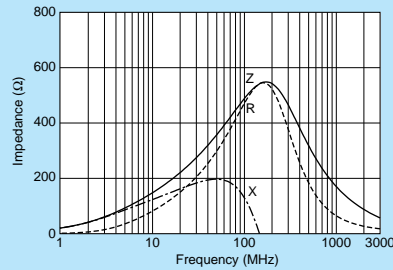
BLM18KG221SN1



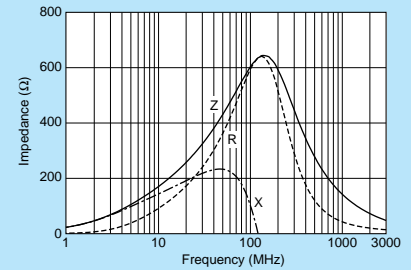
BLM18KG331SN1



BLM18KG471SN1



BLM18KG601SN1

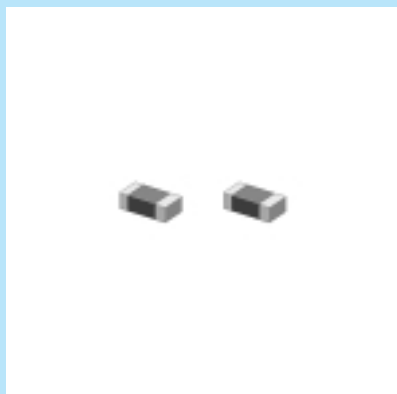


BLM18S Series (0603 Size)

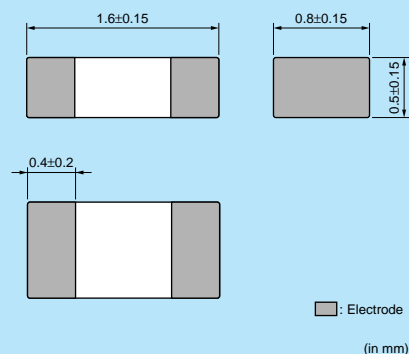


6A Max, high performance type for power lines.

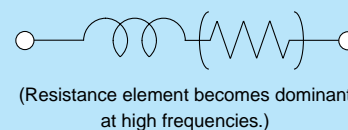
*Please refer to the products which are designed for both power lines and signal lines.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	10000
J	330mm Reel Paper Tape	30000
B	Bulk(Bag)	1000

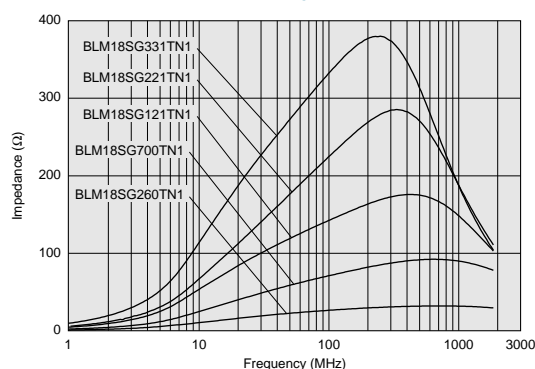
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM18SG260TN1□	26ohm±25%	6000mA	0.007ohm max.	-55°C to +125°C	Kit ≥3A
BLM18SG700TN1□	70ohm±25%	4000mA	0.020ohm max.	-55°C to +125°C	Kit ≥3A
BLM18SG121TN1□	120ohm±25%	3000mA	0.025ohm max.	-55°C to +125°C	Kit ≥3A
BLM18SG221TN1□	220ohm±25%	2500mA	0.040ohm max.	-55°C to +125°C	Kit ≥1A
BLM18SG331TN1□	330ohm±25%	1500mA	0.070ohm max.	-55°C to +125°C	Kit ≥1A

Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

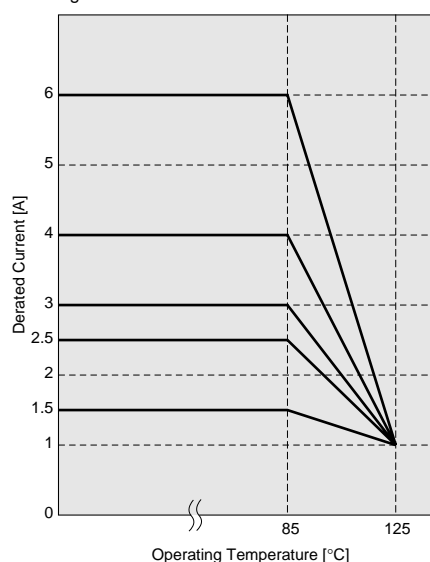


■ Notice (Rating)

In operating temperature exceeding +85°C, derating of current is necessary for BLM18SG series.

Please apply the derating curve shown in chart according to the operating temperature.

Derating



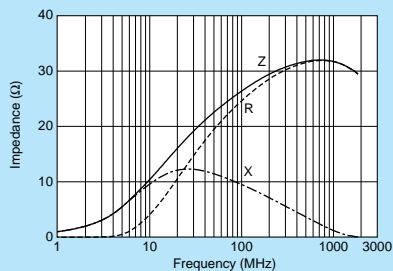
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△Note • Please read rating and △CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

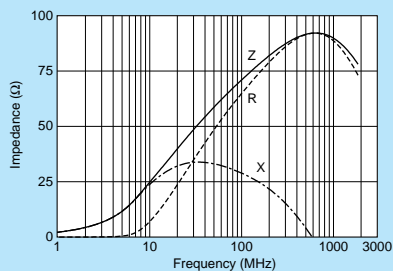
• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

Impedance-Frequency Characteristics

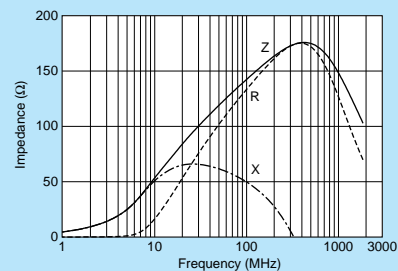
BLM18SG260TN1



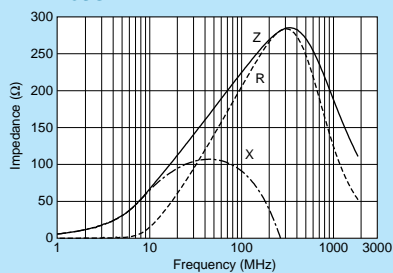
BLM18SG700TN1



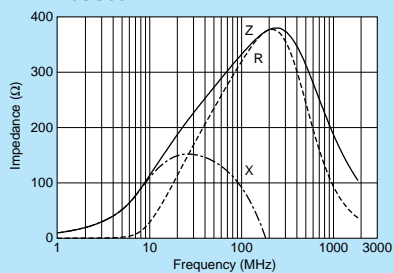
BLM18SG121TN1



BLM18SG221TN1



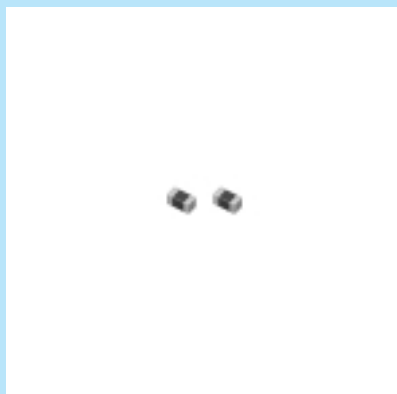
BLM18SG331TN1



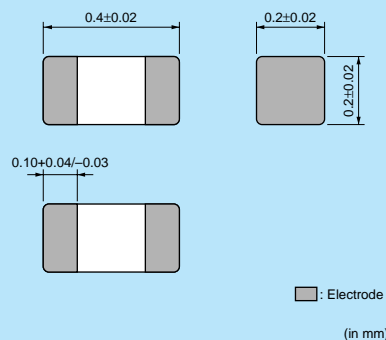
BLM02A Series (01005 Size)



Ultra small 01005 size for general signal lines.



■ Dimensions



■ Equivalent Circuit



(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	20000
B	Bulk(Bag)	1000

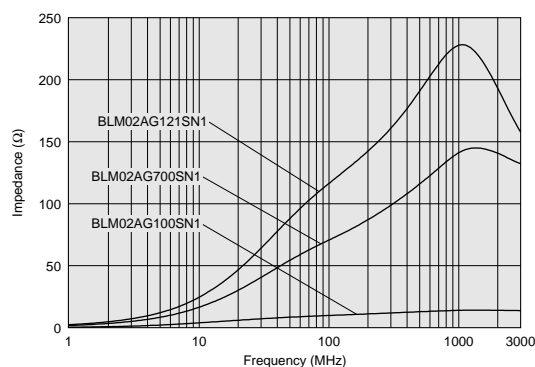
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM02AG100SN1□	10ohm(Typ.)	500mA	0.1ohm max.	-55°C to +125°C	Kit
BLM02AG700SN1□	70ohm±25%	250mA	0.5ohm max.	-55°C to +125°C	Kit
BLM02AG121SN1□	120ohm±25%	200mA	0.8ohm max.	-55°C to +125°C	Kit

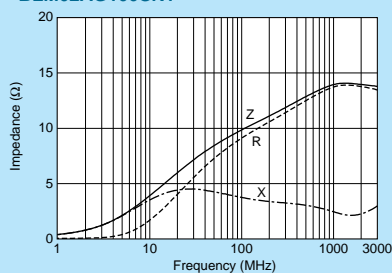
Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

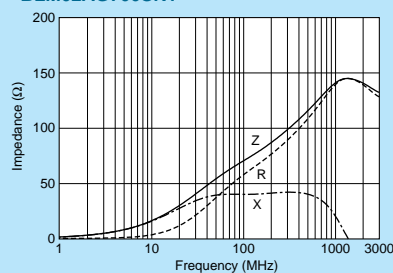


■ Impedance-Frequency Characteristics

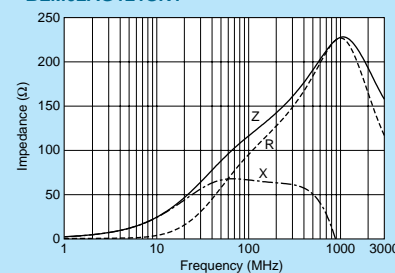
BLM02AG100SN1



BLM02AG700SN1



BLM02AG121SN1



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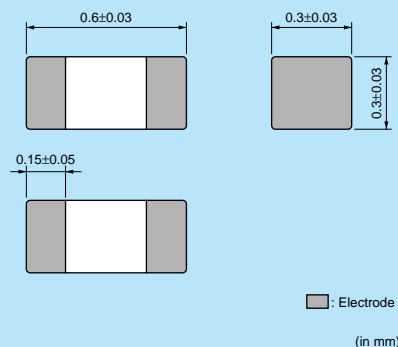
BLM03AG Series (0201 Size)



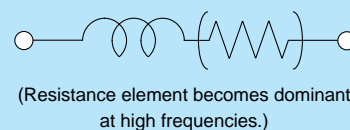
0201 size for general signal lines.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	15000
J	330mm Reel Paper Tape	50000
B	Bulk(Bag)	1000

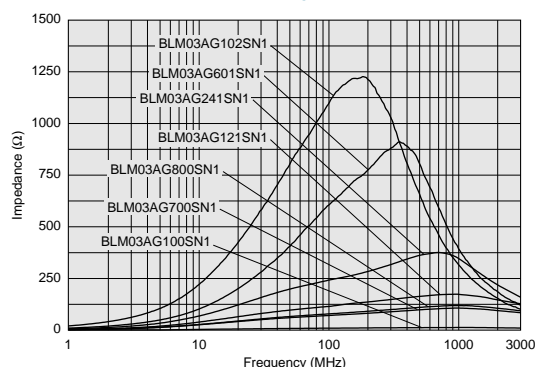
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

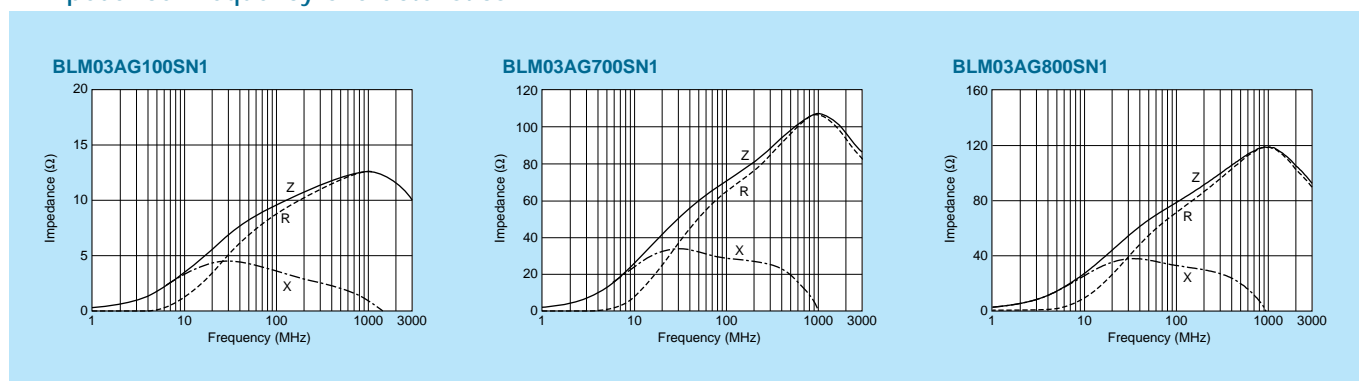
Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM03AG100SN1□	10ohm(Typ.)	500mA	0.1ohm max.	-55°C to +125°C	Kit
BLM03AG700SN1□	70ohm(Typ.)	200mA	0.4ohm max.	-55°C to +125°C	Kit
BLM03AG800SN1□	80ohm±25%	200mA	0.4ohm max.	-55°C to +125°C	Kit
BLM03AG121SN1□	120ohm±25%	200mA	0.5ohm max.	-55°C to +125°C	Kit
BLM03AG241SN1□	240ohm±25%	200mA	0.8ohm max.	-55°C to +125°C	Kit
BLM03AG601SN1□	600ohm±25%	100mA	1.5ohm max.	-55°C to +125°C	Kit
BLM03AG102SN1□	1000ohm±25%	100mA	2.5ohm max.	-55°C to +125°C	Kit

Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)



■ Impedance-Frequency Characteristics



Continued on the following page.

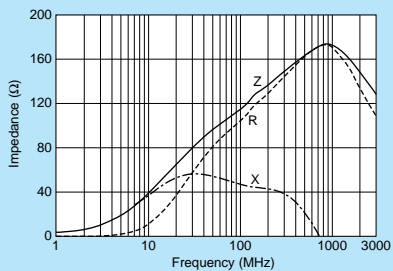
⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

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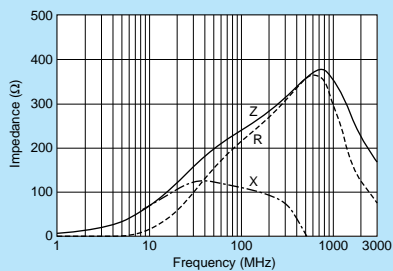
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Mar.28,2011

■ Impedance-Frequency Characteristics

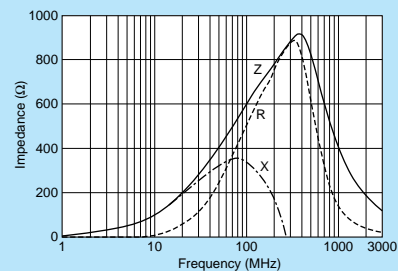
BLM03AG121SN1



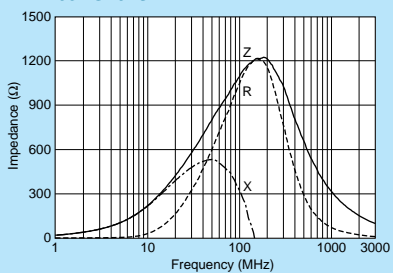
BLM03AG241SN1



BLM03AG601SN1



BLM03AG102SN1



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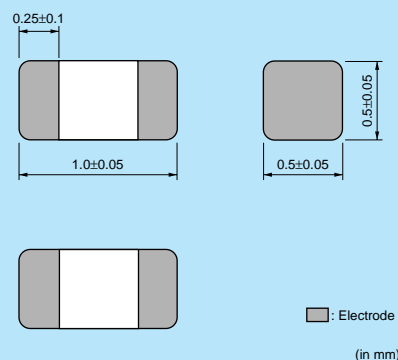
BLM15AG-SN Series (0402 Size)



0402 size for general signal lines.



■ Dimensions



■ Equivalent Circuit



(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	10000
J	330mm Reel Paper Tape	50000
B	Bulk(Bag)	1000

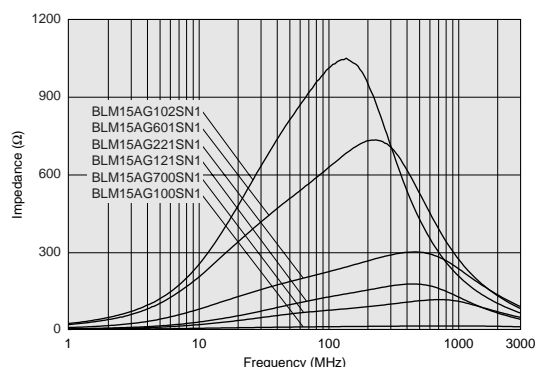
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM15AG100SN1□	10ohm(Typ.)	1000mA	0.05ohm max.	-55°C to +125°C	Kit $\geq 1A$
BLM15AG700SN1□	70ohm(Typ.)	500mA	0.15ohm max.	-55°C to +125°C	Kit
BLM15AG121SN1□	120ohm±25%	500mA	0.25ohm max.	-55°C to +125°C	Kit
BLM15AG221SN1□	220ohm±25%	300mA	0.35ohm max.	-55°C to +125°C	Kit
BLM15AG601SN1□	600ohm±25%	300mA	0.6ohm max.	-55°C to +125°C	Kit
BLM15AG102SN1□	1000ohm±25%	200mA	1.0ohm max.	-55°C to +125°C	Kit

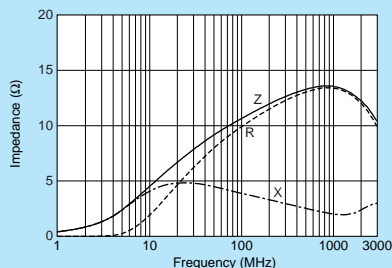
Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

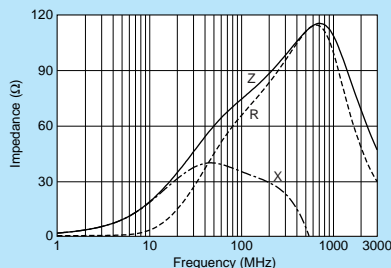


■ Impedance-Frequency Characteristics

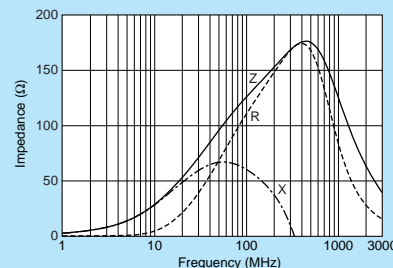
BLM15AG100SN1



BLM15AG700SN1



BLM15AG121SN1



Continued on the following page.

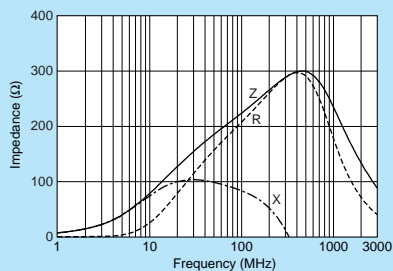
△Note • Please read rating and △CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

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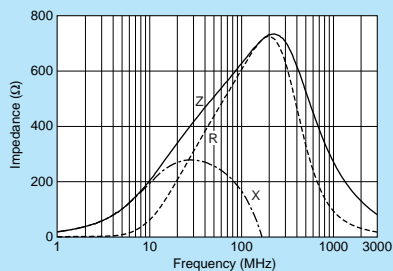
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Impedance-Frequency Characteristics

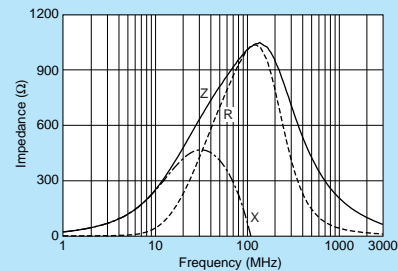
BLM15AG221SN1



BLM15AG601SN1



BLM15AG102SN1



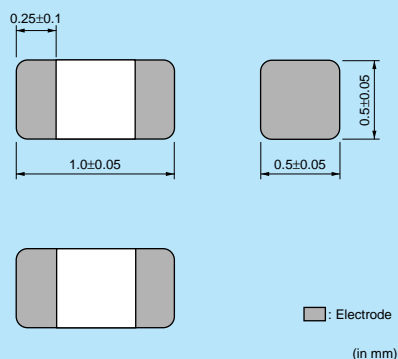
Note • Please read rating and **CAUTION** (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
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BLM15AG-AN Series Gold Plating (0402 Size)

Au plating electrode for wire bonding mount.



■ Dimensions



■ Equivalent Circuit



(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	10000
J	330mm Reel Paper Tape	50000
B	Bulk(Bag)	1000

Refer to pages from p.91 to p.94 for mounting information.

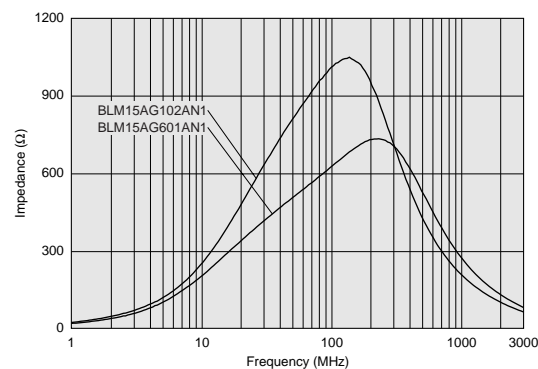
■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range
BLM15AG601AN1□	600ohm±25%	300mA	0.6ohm max.	-55°C to +125°C
BLM15AG102AN1□	1000ohm±25%	200mA	1.0ohm max.	-55°C to +125°C

Number of Circuits: 1

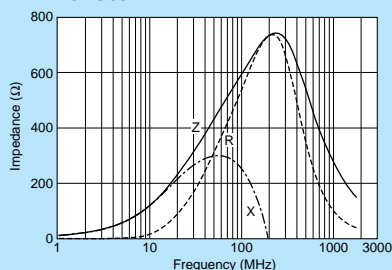
This product is Au plating version designed for wire bonding mount. Be sure that this product is not designed for solder mounting.

■ Impedance-Frequency Characteristics (Main Items)

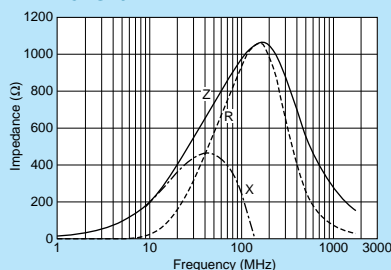


■ Impedance-Frequency Characteristics

BLM15AG601AN1



BLM15AG102AN1



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BLM18A Series (0603 Size)

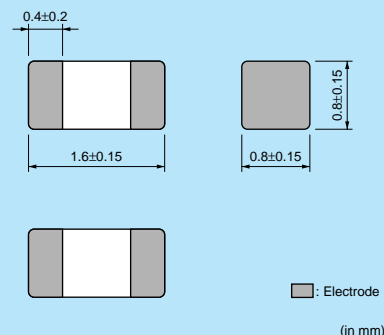


0603 size for general signal lines.

*Please refer to BLM15A for downsizing.



■ Dimensions



■ Equivalent Circuit



(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
J	330mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

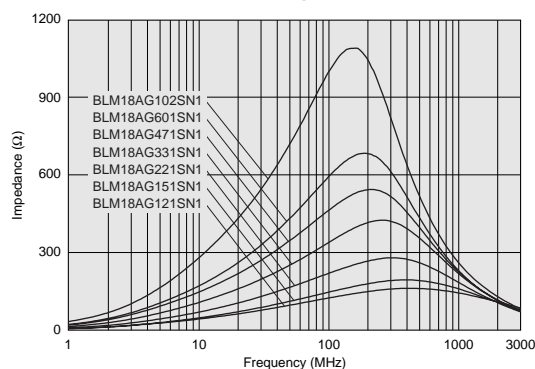
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

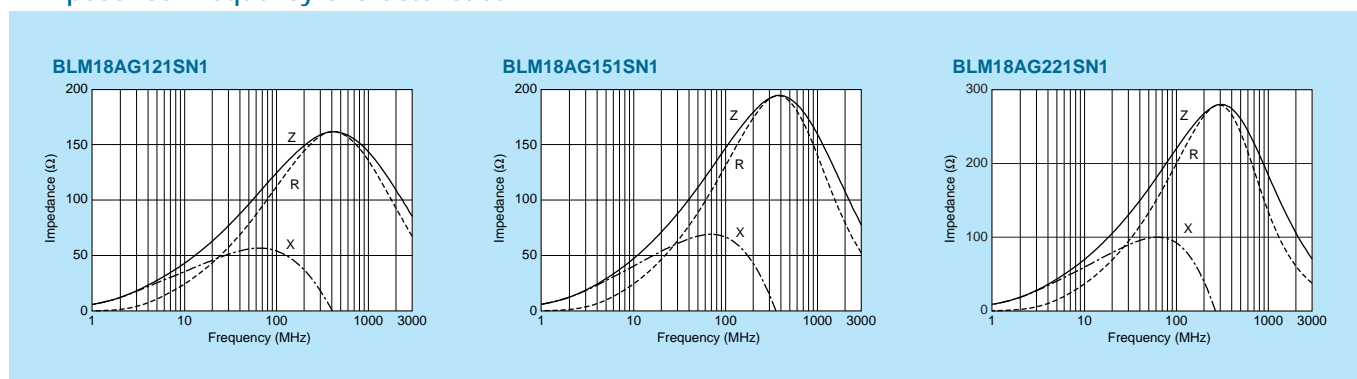
Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM18AG121SN1□	120ohm±25%	500mA	0.18ohm max.	-55°C to +125°C	Kit
BLM18AG151SN1□	150ohm±25%	500mA	0.25ohm max.	-55°C to +125°C	Kit
BLM18AG221SN1□	220ohm±25%	500mA	0.25ohm max.	-55°C to +125°C	Kit
BLM18AG331SN1□	330ohm±25%	500mA	0.30ohm max.	-55°C to +125°C	Kit
BLM18AG471SN1□	470ohm±25%	500mA	0.35ohm max.	-55°C to +125°C	Kit
BLM18AG601SN1□	600ohm±25%	500mA	0.38ohm max.	-55°C to +125°C	Kit
BLM18AG102SN1□	1000ohm±25%	400mA	0.50ohm max.	-55°C to +125°C	Kit

Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)



■ Impedance-Frequency Characteristics



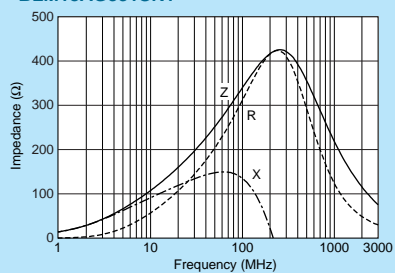
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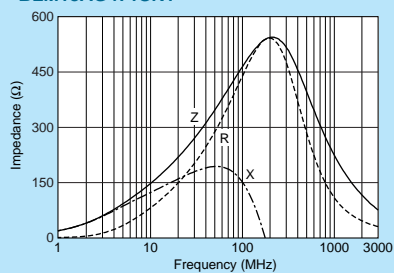
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Impedance-Frequency Characteristics

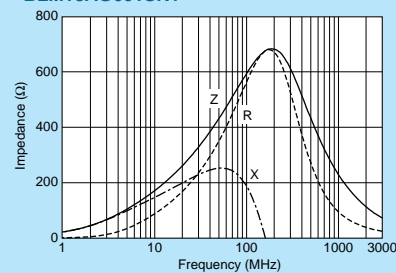
BLM18AG331SN1



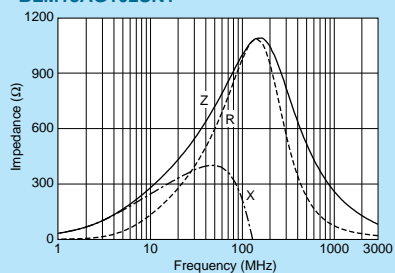
BLM18AG471SN1



BLM18AG601SN1



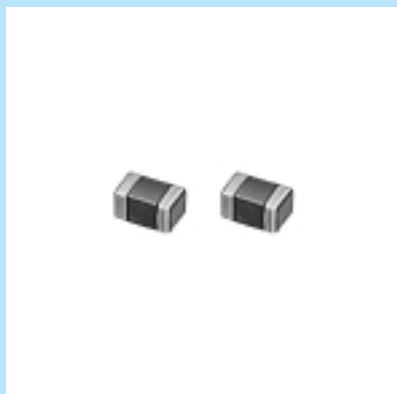
BLM18AG102SN1



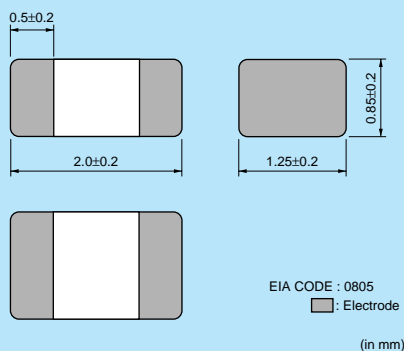
BLM21A Series (0805 Size)



0805 size for general signal lines.



■ Dimensions



■ Equivalent Circuit



(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
J	330mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

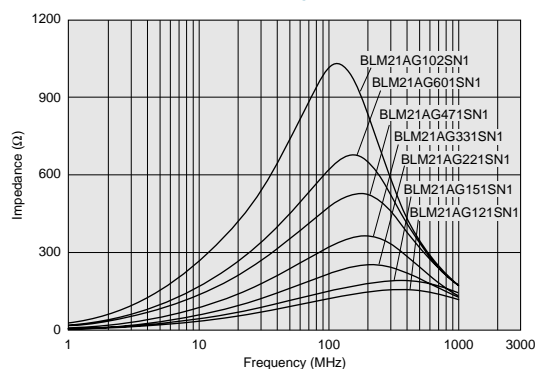
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

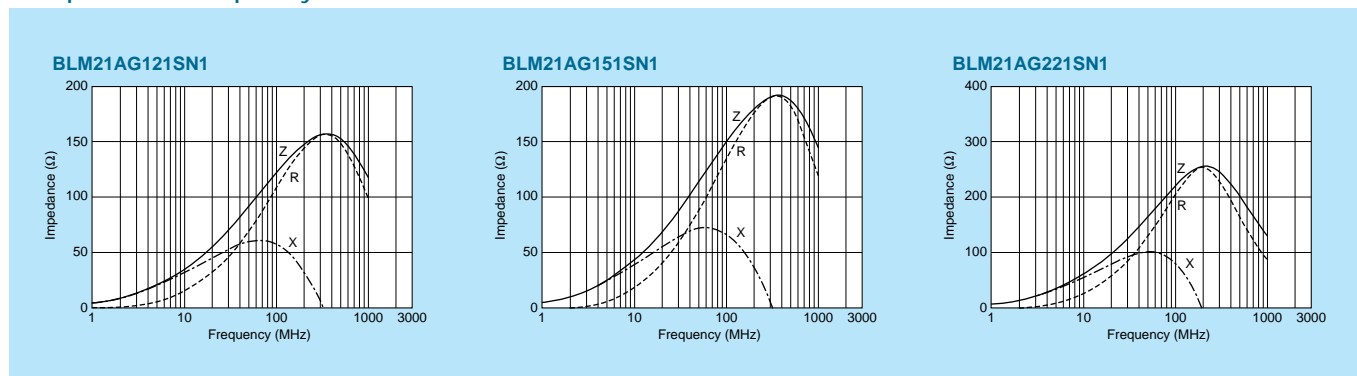
Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM21AG121SN1□	120ohm±25%	200mA	0.15ohm max.	-55°C to +125°C	Kit
BLM21AG151SN1□	150ohm±25%	200mA	0.15ohm max.	-55°C to +125°C	Kit
BLM21AG221SN1□	220ohm±25%	200mA	0.20ohm max.	-55°C to +125°C	Kit
BLM21AG331SN1□	330ohm±25%	200mA	0.25ohm max.	-55°C to +125°C	Kit
BLM21AG471SN1□	470ohm±25%	200mA	0.25ohm max.	-55°C to +125°C	Kit
BLM21AG601SN1□	600ohm±25%	200mA	0.30ohm max.	-55°C to +125°C	Kit
BLM21AG102SN1□	1000ohm±25%	200mA	0.45ohm max.	-55°C to +125°C	Kit

Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)



■ Impedance-Frequency Characteristics



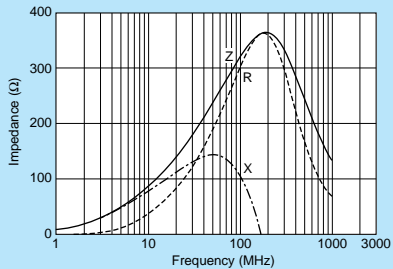
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△Note • Please read rating and △CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

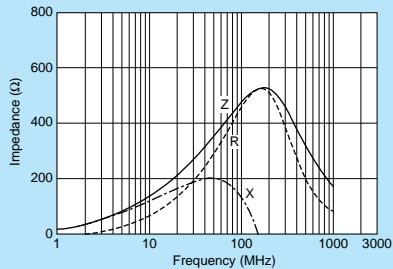
• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

Impedance-Frequency Characteristics

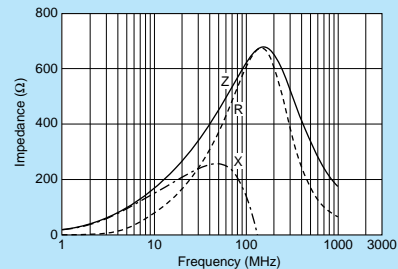
BLM21AG331SN1



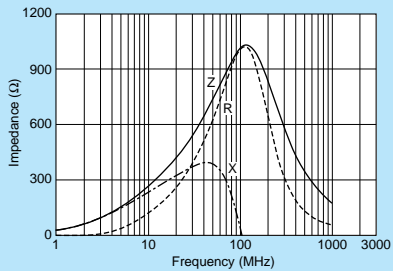
BLM21AG471SN1



BLM21AG601SN1



BLM21AG102SN1



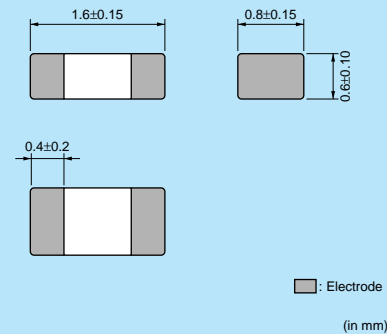
BLM18T Series (0603 Size)



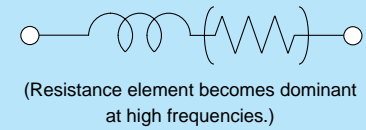
Thin 0603 size for general signal lines.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

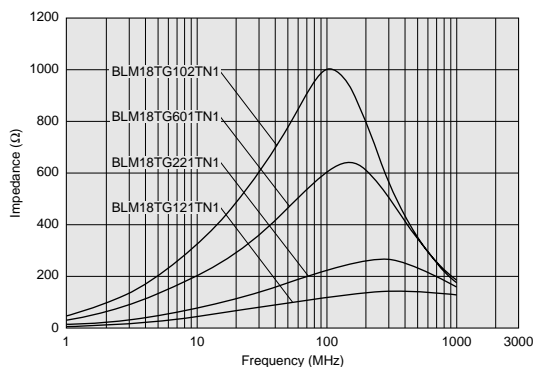
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

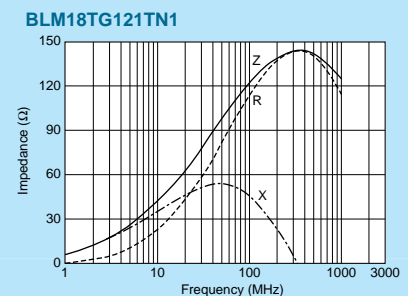
Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range
BLM18TG121TN1□	120ohm±25%	200mA	0.25ohm max.	-55°C to +125°C
BLM18TG221TN1□	220ohm±25%	200mA	0.30ohm max.	-55°C to +125°C
BLM18TG601TN1□	600ohm±25%	200mA	0.45ohm max.	-55°C to +125°C
BLM18TG102TN1□	1000ohm±25%	100mA	0.60ohm max.	-55°C to +125°C

Number of Circuits: 1

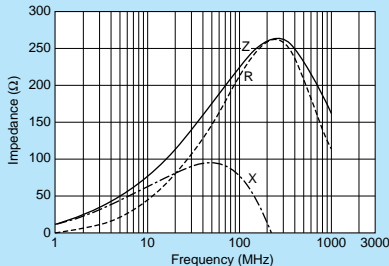
■ Impedance-Frequency Characteristics (Main Items)



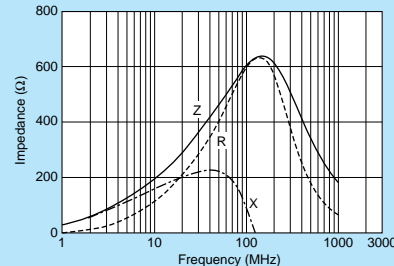
■ Impedance-Frequency Characteristics



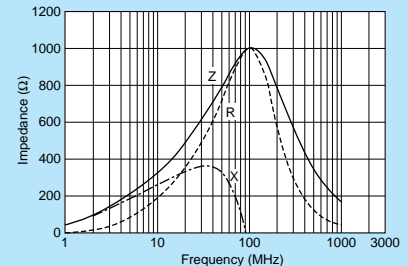
BLM18TG221TN1



BLM18TG601TN1



BLM18TG102TN1



△Note • Please read rating and △CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

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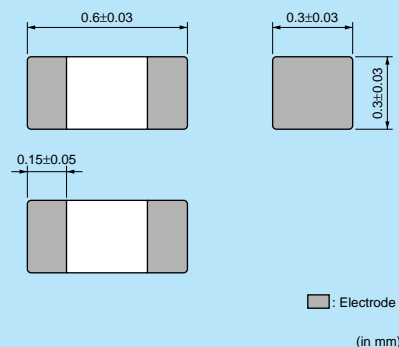
BLM03B Series (0201 Size)



0201 size for high speed signal lines.



■ Dimensions



■ Equivalent Circuit



(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	15000
J	330mm Reel Paper Tape	50000
B	Bulk(Bag)	1000

Refer to pages from p.91 to p.94 for mounting information.

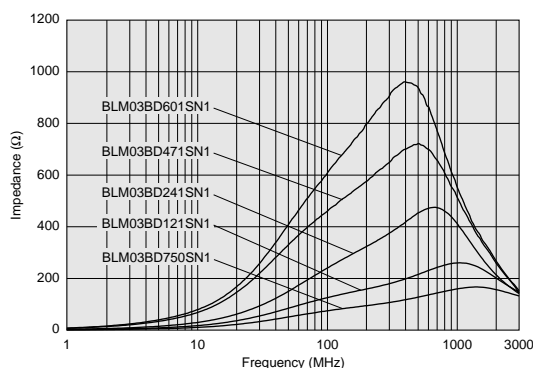
■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM03BD750SN1□	75ohm±25%	300mA	0.4ohm max.	-55°C to +125°C	Kit
BLM03BD121SN1□	120ohm±25%	250mA	0.5ohm max.	-55°C to +125°C	Kit
BLM03BD241SN1□	240ohm±25%	200mA	0.8ohm max.	-55°C to +125°C	Kit
BLM03BD471SN1□	470ohm±25%	215mA	1.5ohm max.	-55°C to +125°C	Kit
BLM03BD601SN1□	600ohm±25%	200mA	1.7ohm max.	-55°C to +125°C	Kit
BLM03BB100SN1□	10ohm±25%	300mA	0.4ohm max.	-55°C to +125°C	Kit
BLM03BB220SN1□	22ohm±25%	200mA	0.5ohm max.	-55°C to +125°C	Kit
BLM03BB470SN1□	47ohm±25%	200mA	0.7ohm max.	-55°C to +125°C	Kit
BLM03BB750SN1□	75ohm±25%	200mA	1.0ohm max.	-55°C to +125°C	Kit
BLM03BB121SN1□	120ohm±25%	100mA	1.5ohm max.	-55°C to +125°C	Kit
BLM03BC330SN1□	33ohm±25%	150mA	0.85ohm max.	-55°C to +125°C	New Kit
BLM03BC560SN1□	56ohm±25%	100mA	1.05ohm max.	-55°C to +125°C	New Kit
BLM03BC800SN1□	80ohm±25%	100mA	1.40ohm max.	-55°C to +125°C	New Kit

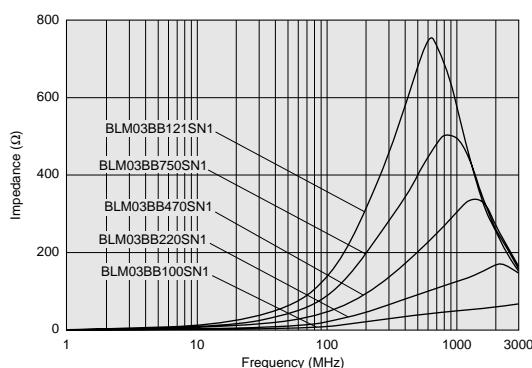
Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

BLM03BD Series



BLM03BB Series

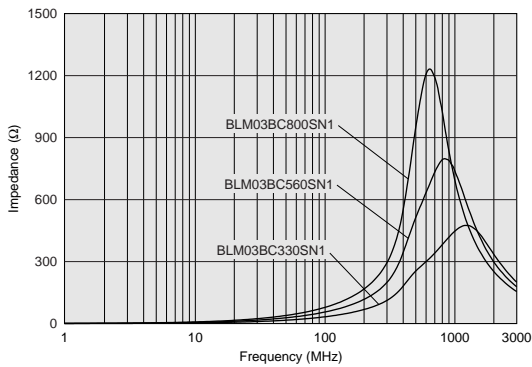


Continued on the following page. ↗

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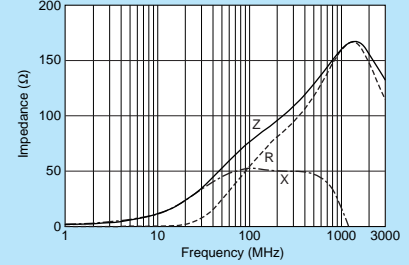
Impedance-Frequency Characteristics (Main Items)

BLM03BC Series

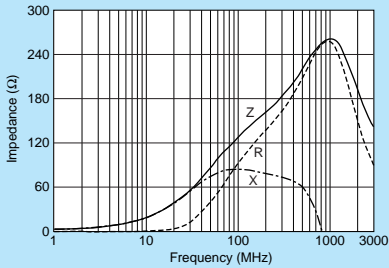


Impedance-Frequency Characteristics

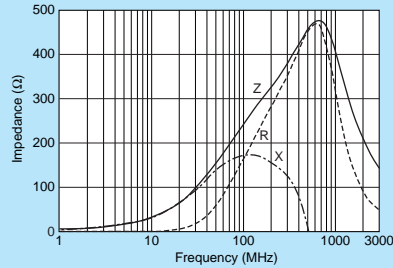
BLM03BD750SN1



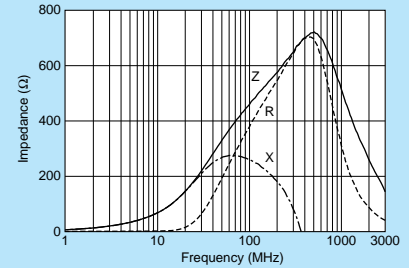
BLM03BD121SN1



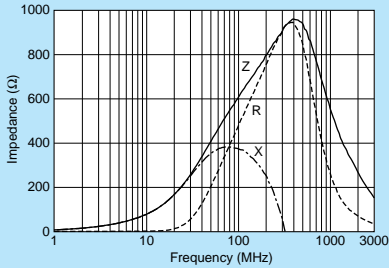
BLM03BD241SN1



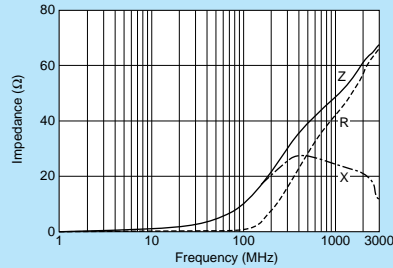
BLM03BD471SN1



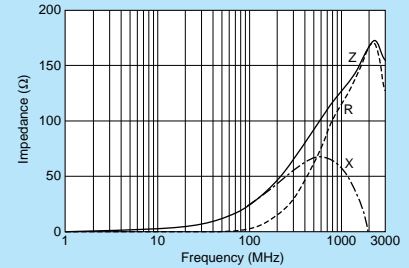
BLM03BD601SN1



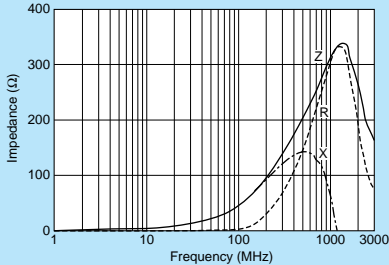
BLM03BB100SN1



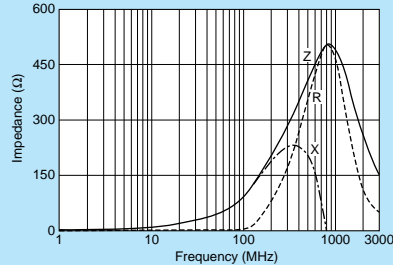
BLM03BB220SN1



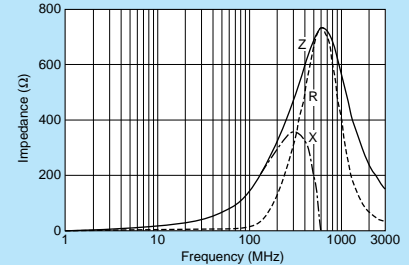
BLM03BB470SN1



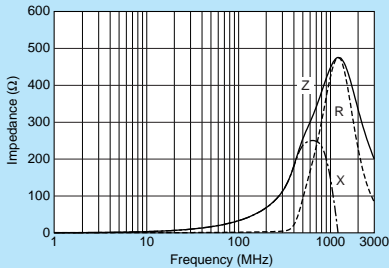
BLM03BB750SN1



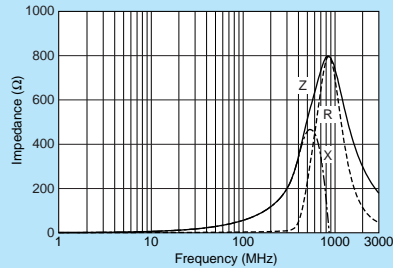
BLM03BB121SN1



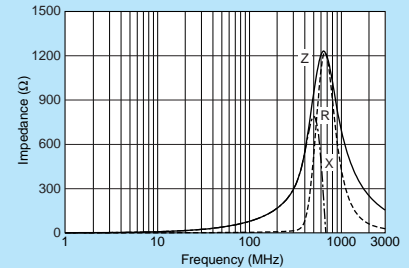
BLM03BC330SN1



BLM03BC560SN1



BLM03BC800SN1



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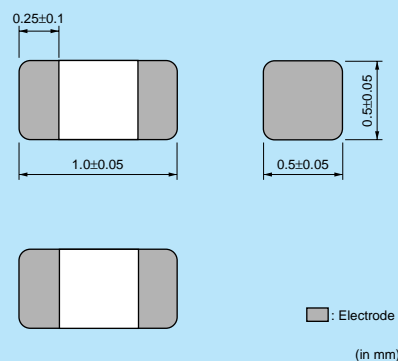
BLM15B Series (0402 Size)



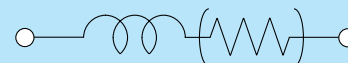
0402 size for high speed signal lines.



■ Dimensions



■ Equivalent Circuit



(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	10000
J	330mm Reel Paper Tape	50000
B	Bulk(Bag)	1000

Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM15BD750SN1□	75ohm±25%	300mA	0.20ohm max.	-55°C to +125°C	Kit
BLM15BD121SN1□	120ohm±25%	300mA	0.30ohm max.	-55°C to +125°C	Kit
BLM15BD221SN1□	220ohm±25%	300mA	0.40ohm max.	-55°C to +125°C	Kit
BLM15BD471SN1□	470ohm±25%	200mA	0.60ohm max.	-55°C to +125°C	Kit
BLM15BD601SN1□	600ohm±25%	200mA	0.65ohm max.	-55°C to +125°C	Kit
BLM15BD102SN1□	1000ohm±25%	200mA	0.90ohm max.	-55°C to +125°C	Kit
BLM15BD182SN1□	1800ohm±25%	100mA	1.40ohm max.	-55°C to +125°C	Kit
BLM15BB050SN1□	5ohm±25%	500mA	0.08ohm max.	-55°C to +125°C	Kit
BLM15BB100SN1□	10ohm±25%	300mA	0.10ohm max.	-55°C to +125°C	Kit
BLM15BB220SN1□	22ohm±25%	300mA	0.20ohm max.	-55°C to +125°C	Kit
BLM15BB470SN1□	47ohm±25%	300mA	0.35ohm max.	-55°C to +125°C	Kit
BLM15BB750SN1□	75ohm±25%	300mA	0.40ohm max.	-55°C to +125°C	Kit
BLM15BB121SN1□	120ohm±25%	300mA	0.55ohm max.	-55°C to +125°C	Kit
BLM15BB221SN1□	220ohm±25%	200mA	0.80ohm max.	-55°C to +125°C	Kit
BLM15BC121SN1□	120ohm±25%	350mA	0.45ohm max.	-55°C to +125°C	Kit
BLM15BC241SN1□	240ohm±25%	250mA	0.70ohm max.	-55°C to +125°C	Kit
BLM15BA050SN1□	5ohm±25%	300mA	0.10ohm max.	-55°C to +125°C	Kit
BLM15BA100SN1□	10ohm±25%	300mA	0.20ohm max.	-55°C to +125°C	Kit
BLM15BA220SN1□	22ohm±25%	300mA	0.30ohm max.	-55°C to +125°C	Kit
BLM15BA330SN1□	33ohm±25%	300mA	0.40ohm max.	-55°C to +125°C	Kit
BLM15BA470SN1□	47ohm±25%	200mA	0.60ohm max.	-55°C to +125°C	Kit
BLM15BA750SN1□	75ohm±25%	200mA	0.80ohm max.	-55°C to +125°C	Kit

Number of Circuits: 1

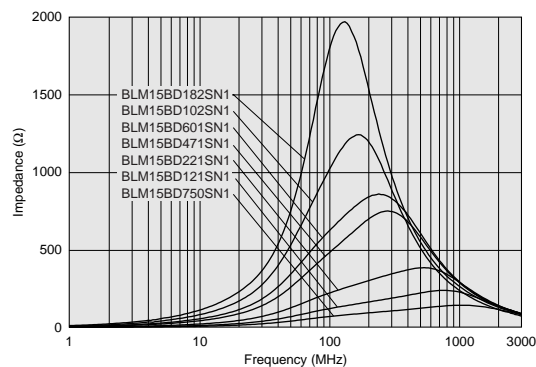
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△Note • Please read rating and △CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

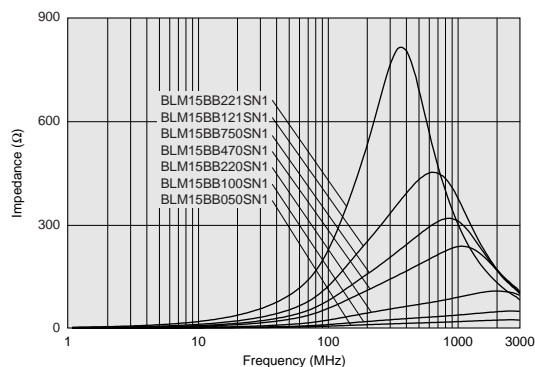
• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

Impedance-Frequency Characteristics (Main Items)

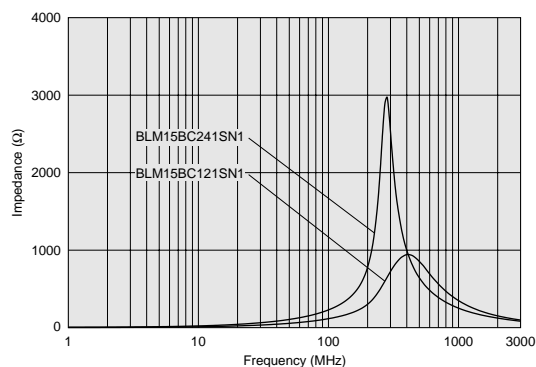
BLM15BD Series



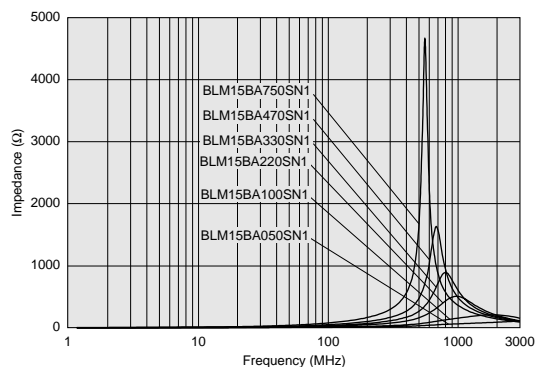
BLM15BB Series



BLM15BC Series

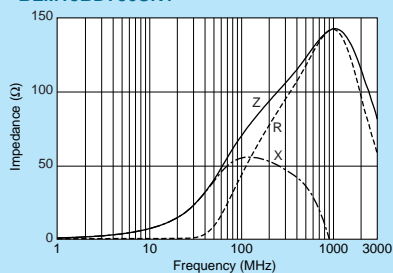


BLM15BA Series

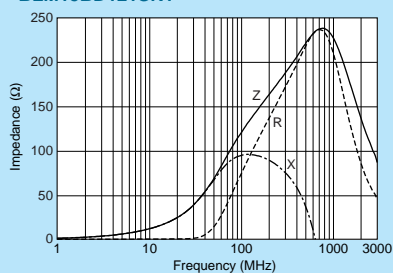


Impedance-Frequency Characteristics

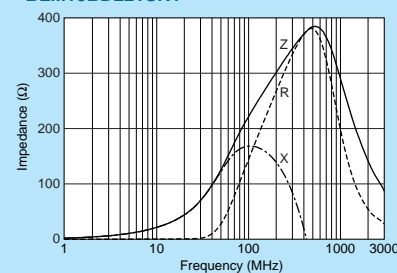
BLM15BD750SN1



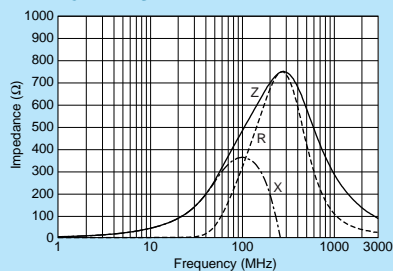
BLM15BD121SN1



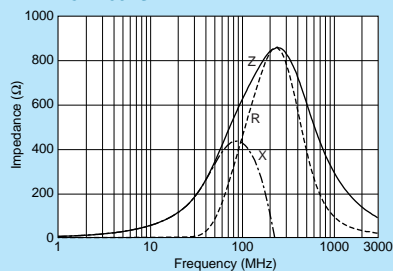
BLM15BD221SN1



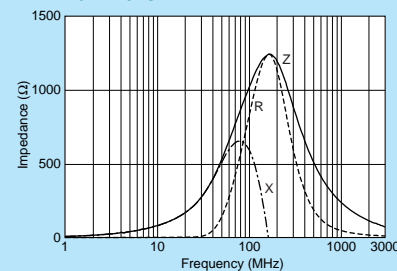
BLM15BD471SN1



BLM15BD601SN1



BLM15BD102SN1



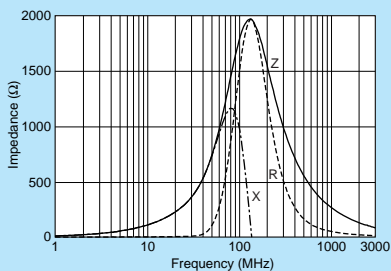
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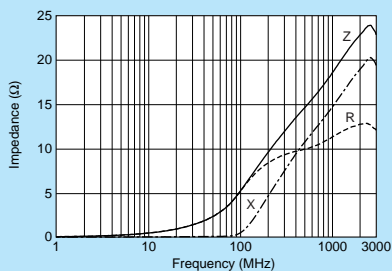
C31E.pdf
Mar.28,2011

Impedance-Frequency Characteristics

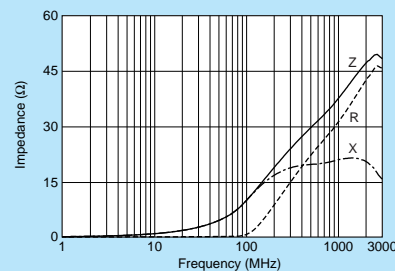
BLM15BD182SN1



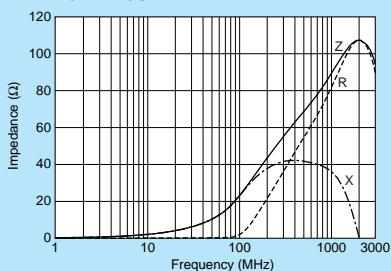
BLM15BB050SN1



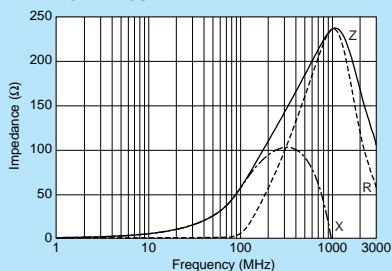
BLM15BB100SN1



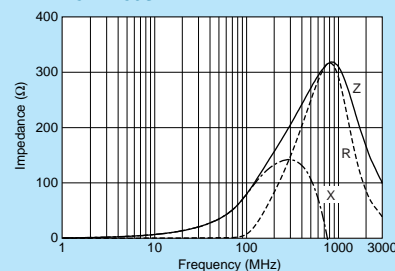
BLM15BB220SN1



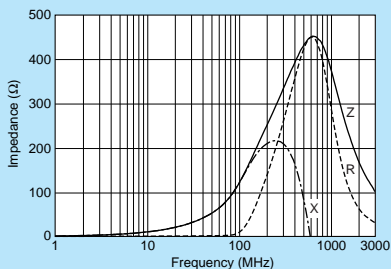
BLM15BB470SN1



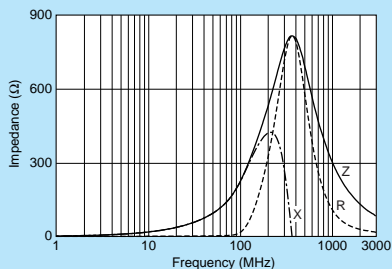
BLM15BB750SN1



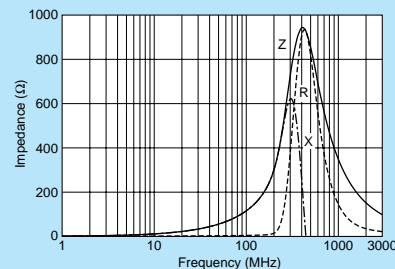
BLM15BB121SN1



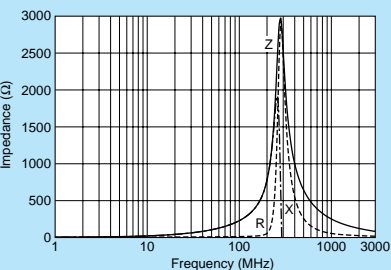
BLM15BB221SN1



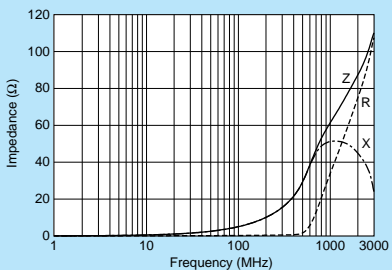
BLM15BC121SN1



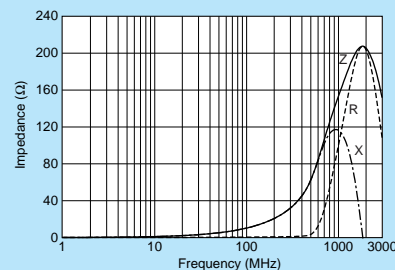
BLM15BC241SN1



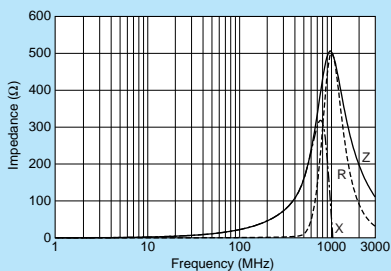
BLM15BA050SN1



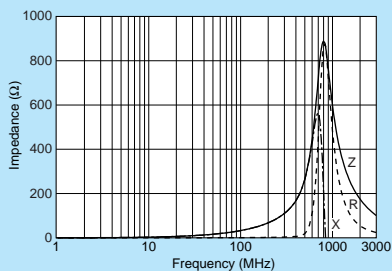
BLM15BA100SN1



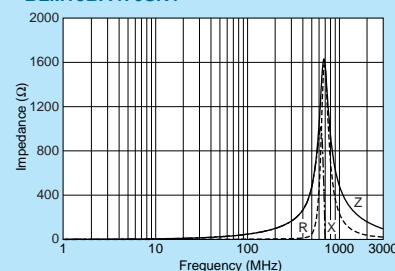
BLM15BA220SN1



BLM15BA330SN1



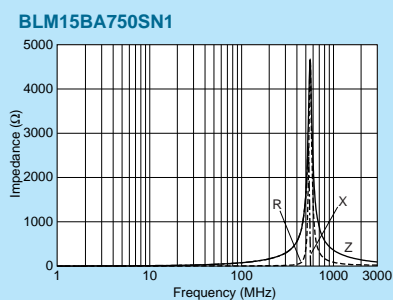
BLM15BA470SN1



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■ Impedance-Frequency Characteristics



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BLM18B Series (0603 Size)

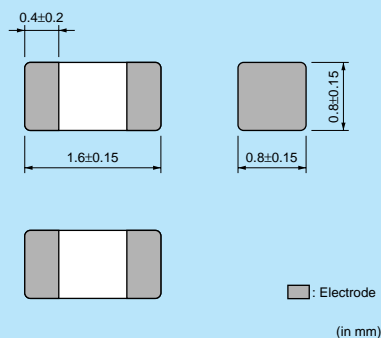


0603 size for high speed signal lines.

*Please refer to BLM15B for downsizing.



■ Dimensions



■ Equivalent Circuit



(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
J	330mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM18BD470SN1□	47ohm±25%	500mA	0.30ohm max.	-55°C to +125°C	Kit
BLM18BD121SN1□	120ohm±25%	200mA	0.40ohm max.	-55°C to +125°C	Kit
BLM18BD151SN1□	150ohm±25%	200mA	0.40ohm max.	-55°C to +125°C	Kit
BLM18BD221SN1□	220ohm±25%	200mA	0.45ohm max.	-55°C to +125°C	Kit
BLM18BD331SN1□	330ohm±25%	200mA	0.50ohm max.	-55°C to +125°C	Kit
BLM18BD421SN1□	420ohm±25%	200mA	0.55ohm max.	-55°C to +125°C	Kit
BLM18BD471SN1□	470ohm±25%	200mA	0.55ohm max.	-55°C to +125°C	Kit
BLM18BD601SN1□	600ohm±25%	200mA	0.65ohm max.	-55°C to +125°C	Kit
BLM18BD102SN1□	1000ohm±25%	100mA	0.85ohm max.	-55°C to +125°C	Kit
BLM18BD152SN1□	1500ohm±25%	50mA	1.20ohm max.	-55°C to +125°C	Kit
BLM18BD182SN1□	1800ohm±25%	50mA	1.50ohm max.	-55°C to +125°C	Kit
BLM18BD222SN1□	2200ohm±25%	50mA	1.50ohm max.	-55°C to +125°C	Kit
BLM18BD252SN1□	2500ohm±25%	50mA	1.50ohm max.	-55°C to +125°C	Kit
BLM18BB050SN1□	5ohm±25%	700mA	0.05ohm max.	-55°C to +125°C	Kit
BLM18BB100SN1□	10ohm±25%	700mA	0.10ohm max.	-55°C to +125°C	Kit
BLM18BB220SN1□	22ohm±25%	600mA	0.20ohm max.	-55°C to +125°C	Kit
BLM18BB470SN1□	47ohm±25%	550mA	0.25ohm max.	-55°C to +125°C	Kit
BLM18BB600SN1□	60ohm±25%	550mA	0.25ohm max.	-55°C to +125°C	Kit
BLM18BB750SN1□	75ohm±25%	500mA	0.30ohm max.	-55°C to +125°C	Kit
BLM18BB121SN1□	120ohm±25%	500mA	0.30ohm max.	-55°C to +125°C	Kit
BLM18BB141SN1□	140ohm±25%	450mA	0.35ohm max.	-55°C to +125°C	
BLM18BB151SN1□	150ohm±25%	450mA	0.37ohm max.	-55°C to +125°C	Kit
BLM18BB221SN1□	220ohm±25%	450mA	0.45ohm max.	-55°C to +125°C	Kit
BLM18BB331SN1□	330ohm±25%	400mA	0.58ohm max.	-55°C to +125°C	Kit
BLM18BB471SN1□	470ohm±25%	300mA	0.85ohm max.	-55°C to +125°C	Kit
BLM18BA050SN1□	5ohm±25%	500mA	0.20ohm max.	-55°C to +125°C	Kit
BLM18BA100SN1□	10ohm±25%	500mA	0.25ohm max.	-55°C to +125°C	Kit
BLM18BA220SN1□	22ohm±25%	500mA	0.35ohm max.	-55°C to +125°C	
BLM18BA470SN1□	47ohm±25%	300mA	0.55ohm max.	-55°C to +125°C	Kit
BLM18BA750SN1□	75ohm±25%	300mA	0.70ohm max.	-55°C to +125°C	Kit
BLM18BA121SN1□	120ohm±25%	200mA	0.90ohm max.	-55°C to +125°C	Kit

Number of Circuits: 1

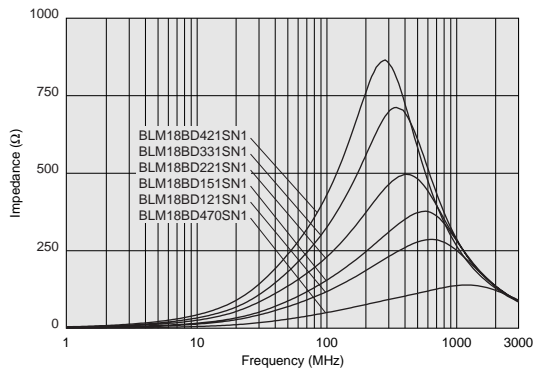
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△Note • Please read rating and △CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

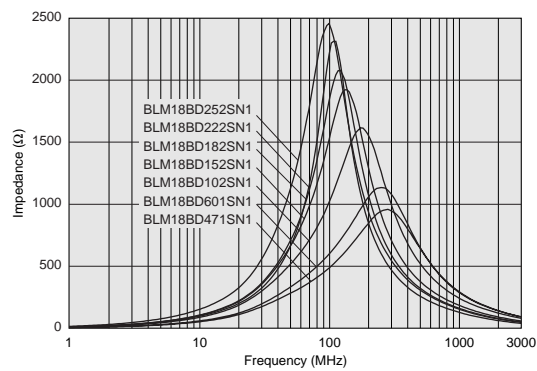
• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

Impedance-Frequency Characteristics (Main Items)

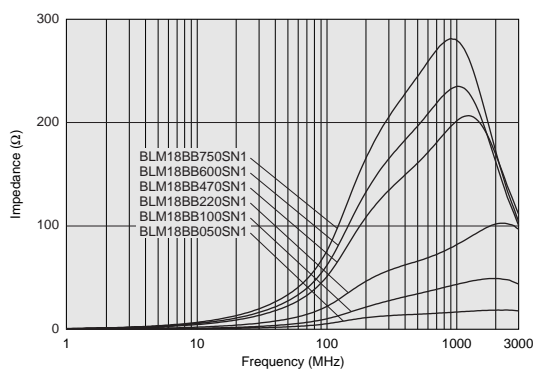
BLM18BD Series (47ohm to 420ohm)



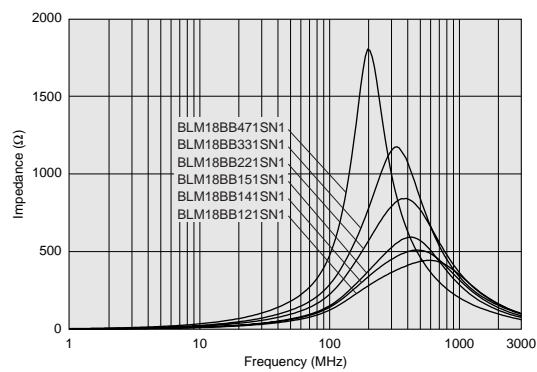
BLM18BD Series (470ohm to 2500ohm)



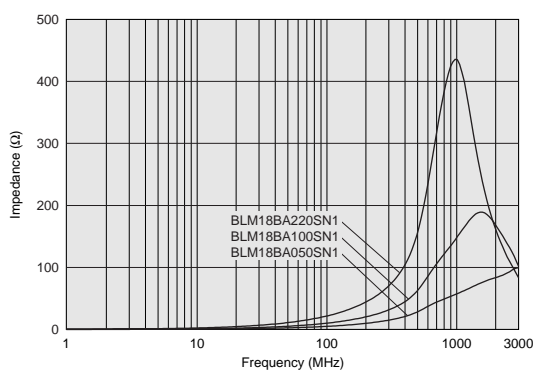
BLM18BB Series (5ohm to 75ohm)



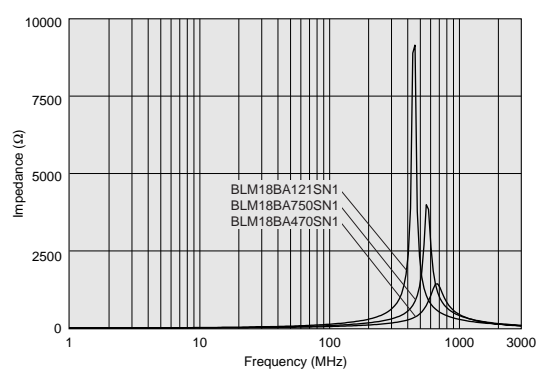
BLM18BB Series (120ohm to 470ohm)



BLM18BA Series (5ohm to 22ohm)

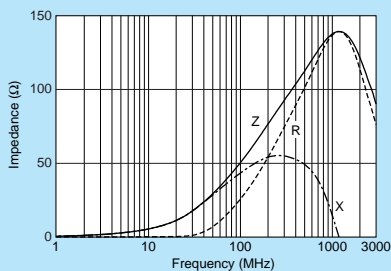


BLM18BA Series (47ohm to 120ohm)

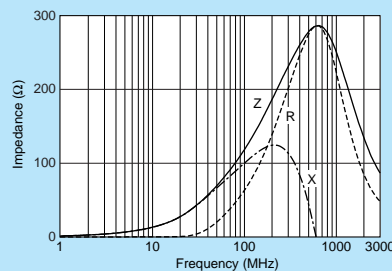


Impedance-Frequency Characteristics

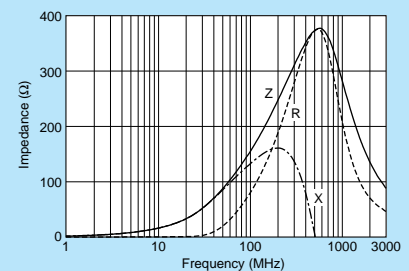
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BLM18BD121SN1



BLM18BD151SN1



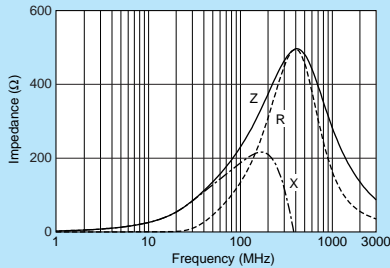
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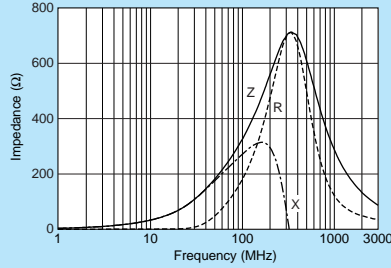
C31E.pdf
Mar.28,2011

Impedance-Frequency Characteristics

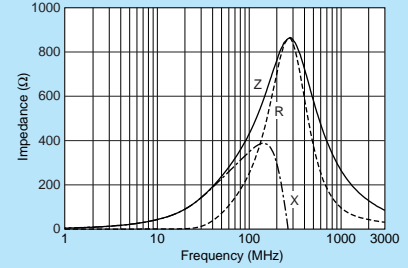
BLM18BD221SN1



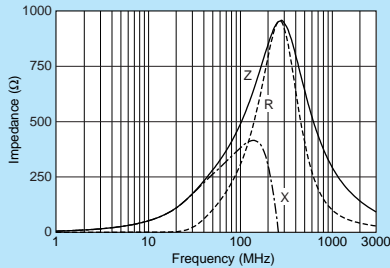
BLM18BD331SN1



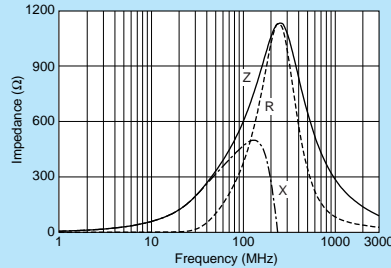
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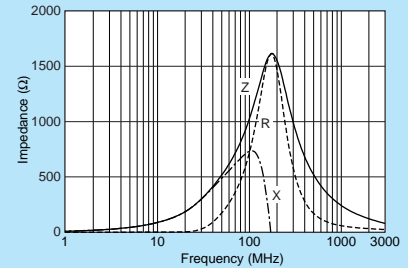
BLM18BD471SN1



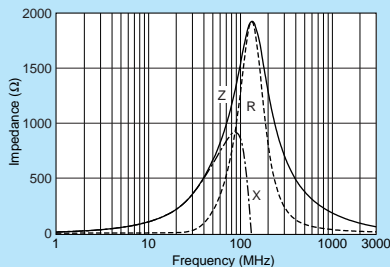
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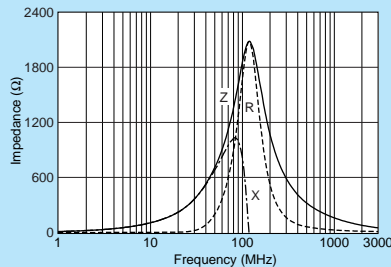
BLM18BD102SN1



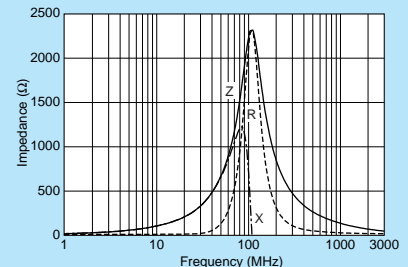
BLM18BD152SN1



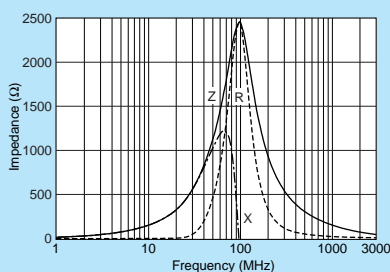
BLM18BD182SN1



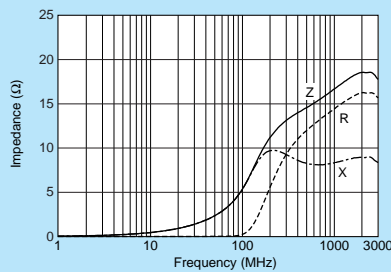
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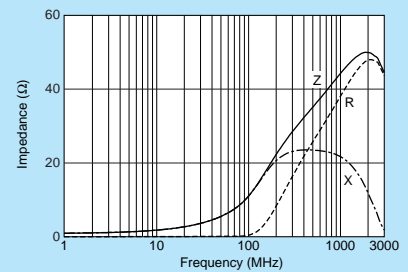
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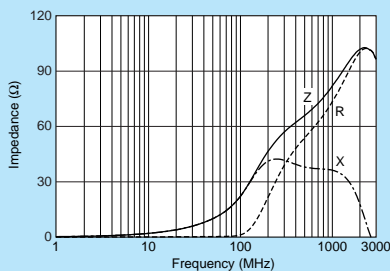
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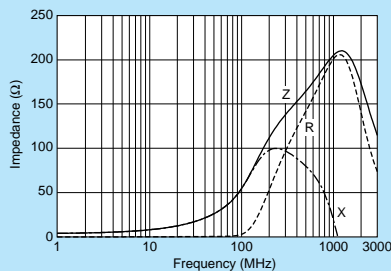
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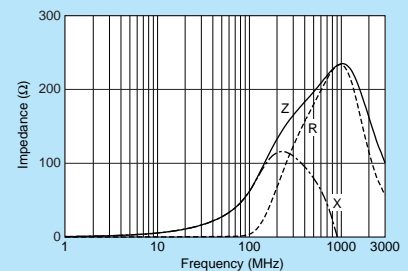
BLM18BB220SN1



BLM18BB470SN1



BLM18BB600SN1



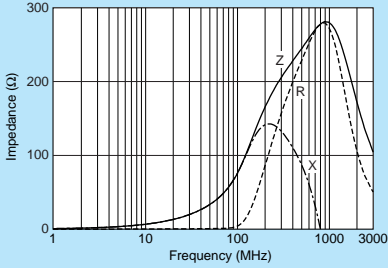
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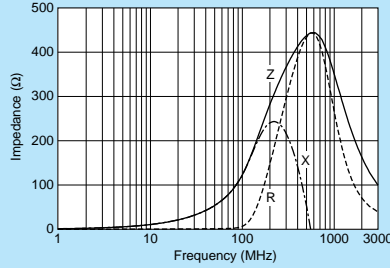
C31E.pdf
Mar.28,2011

Impedance-Frequency Characteristics

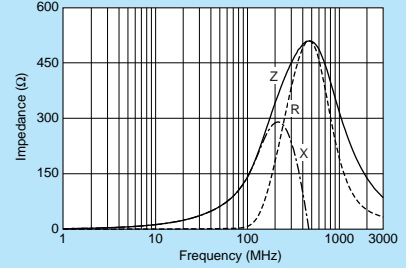
BLM18BB750SN1



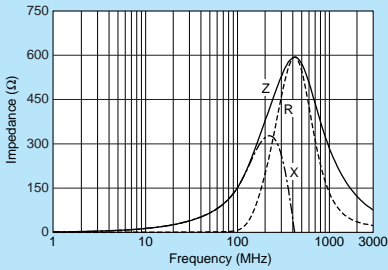
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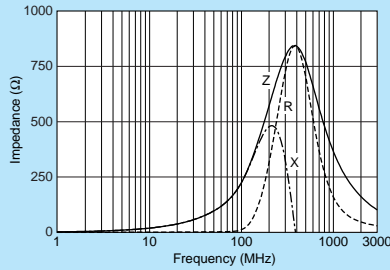
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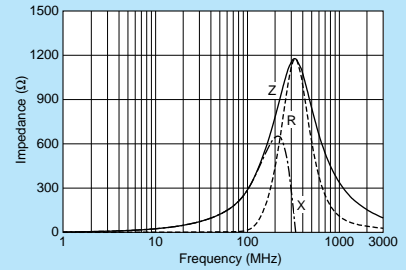
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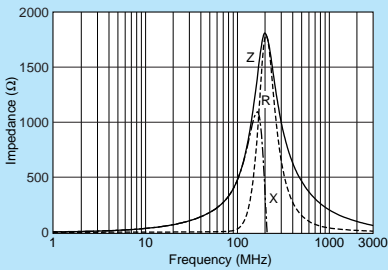
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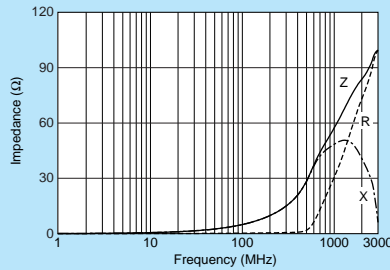
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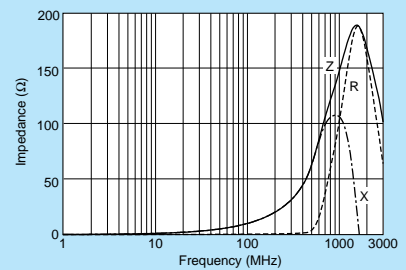
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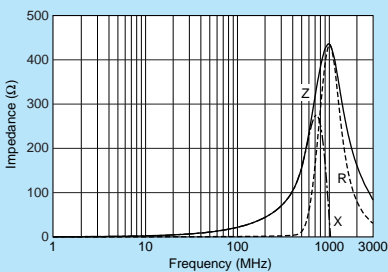
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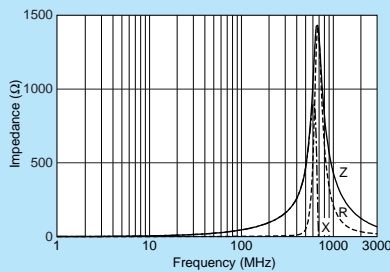
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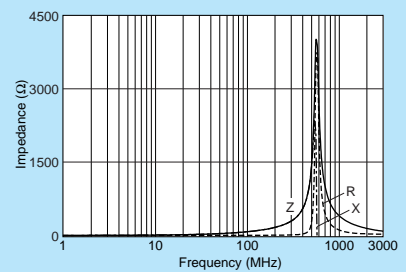
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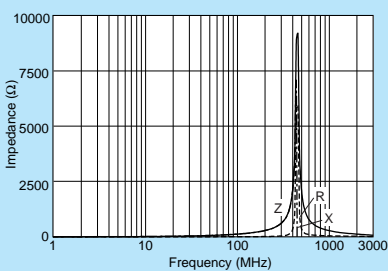
BLM18BA470SN1



BLM18BA750SN1



BLM18BA121SN1

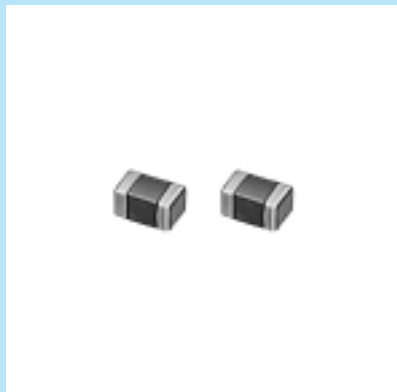


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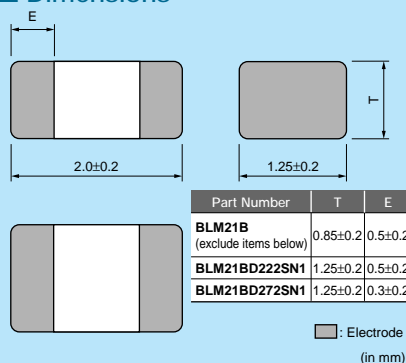
BLM21B Series (0805 Size)



0805 size for high speed signal lines.



■ Dimensions



■ Equivalent Circuit



(Resistance element becomes dominant at high frequencies.)

■ Packaging

• All except BLM21BD222SN1/21BD272SN1

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
J	330mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

• BLM21BD222SN1/21BD272SN1 only

Code	Packaging	Minimum Quantity
L	180mm Reel Plastic Tape	3000
K	330mm Reel Plastic Tape	10000
B	Bulk(Bag)	1000

Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM21BD121SN1□	120ohm±25%	200mA	0.25ohm max.	-55°C to +125°C	Kit
BLM21BD151SN1□	150ohm±25%	200mA	0.25ohm max.	-55°C to +125°C	
BLM21BD221SN1□	220ohm±25%	200mA	0.25ohm max.	-55°C to +125°C	Kit
BLM21BD331SN1□	330ohm±25%	200mA	0.30ohm max.	-55°C to +125°C	
BLM21BD421SN1□	420ohm±25%	200mA	0.30ohm max.	-55°C to +125°C	Kit
BLM21BD471SN1□	470ohm±25%	200mA	0.35ohm max.	-55°C to +125°C	Kit
BLM21BD601SN1□	600ohm±25%	200mA	0.35ohm max.	-55°C to +125°C	Kit
BLM21BD751SN1□	750ohm±25%	200mA	0.40ohm max.	-55°C to +125°C	
BLM21BD102SN1□	1000ohm±25%	200mA	0.40ohm max.	-55°C to +125°C	Kit
BLM21BD152SN1□	1500ohm±25%	200mA	0.45ohm max.	-55°C to +125°C	Kit
BLM21BD182SN1□	1800ohm±25%	200mA	0.50ohm max.	-55°C to +125°C	Kit
BLM21BD222TN1□	2200ohm±25%	200mA	0.60ohm max.	-55°C to +125°C	Kit
BLM21BD222SN1□	2250ohm(Typ.)	200mA	0.60ohm max.	-55°C to +125°C	Kit
BLM21BD272SN1□	2700ohm±25%	200mA	0.80ohm max.	-55°C to +125°C	Kit
BLM21BB050SN1□	5ohm±25%	500mA	0.07ohm max.	-55°C to +125°C	Kit
BLM21BB600SN1□	60ohm±25%	200mA	0.20ohm max.	-55°C to +125°C	Kit
BLM21BB750SN1□	75ohm±25%	200mA	0.25ohm max.	-55°C to +125°C	Kit
BLM21BB121SN1□	120ohm±25%	200mA	0.25ohm max.	-55°C to +125°C	Kit
BLM21BB151SN1□	150ohm±25%	200mA	0.25ohm max.	-55°C to +125°C	
BLM21BB201SN1□	200ohm±25%	200mA	0.35ohm max.	-55°C to +125°C	
BLM21BB221SN1□	220ohm±25%	200mA	0.35ohm max.	-55°C to +125°C	Kit
BLM21BB331SN1□	330ohm±25%	200mA	0.40ohm max.	-55°C to +125°C	Kit
BLM21BB471SN1□	470ohm±25%	200mA	0.45ohm max.	-55°C to +125°C	Kit

Number of Circuits: 1

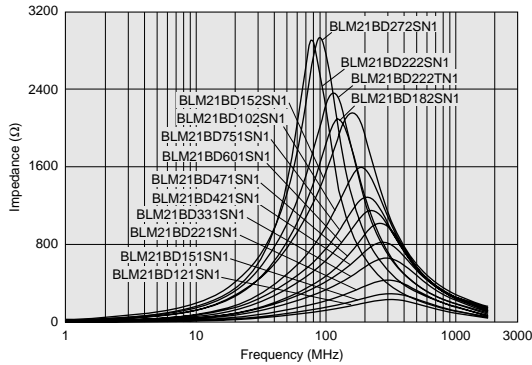
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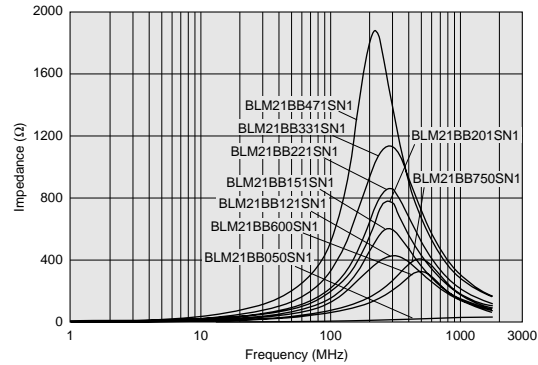
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Impedance-Frequency Characteristics (Main Items)

BLM21BD Series

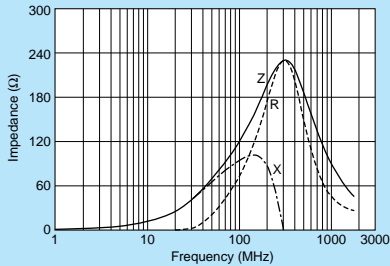


BLM21BB Series

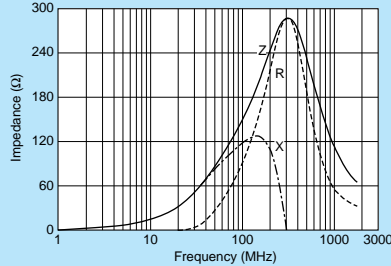


Impedance-Frequency Characteristics

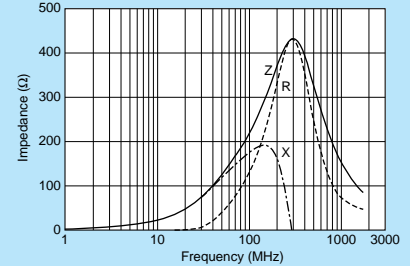
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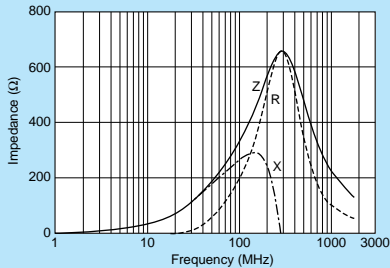
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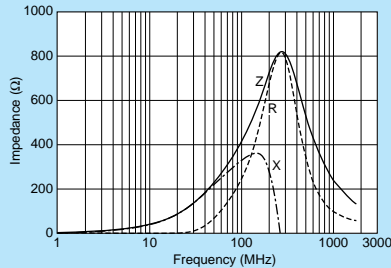
BLM21BD221SN1



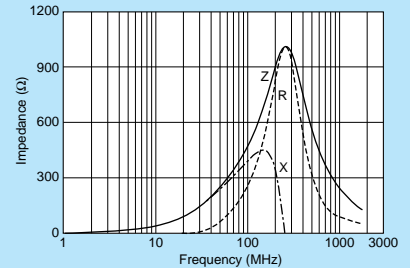
BLM21BD331SN1



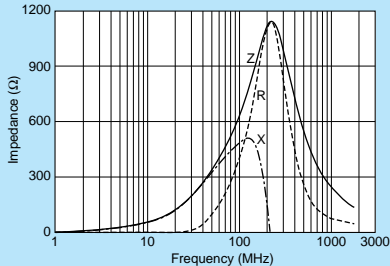
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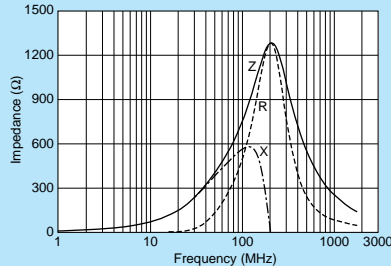
BLM21BD471SN1



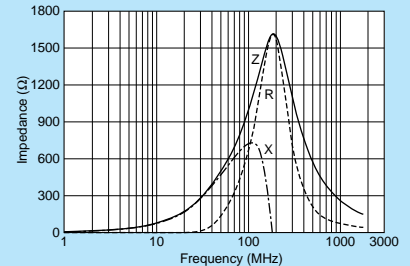
BLM21BD601SN1



BLM21BD751SN1



BLM21BD102SN1

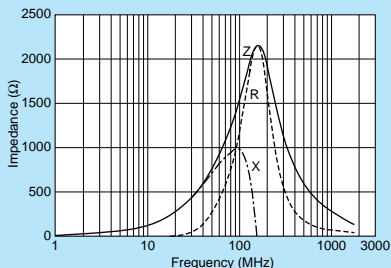


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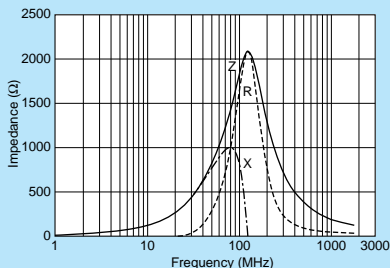
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Impedance-Frequency Characteristics

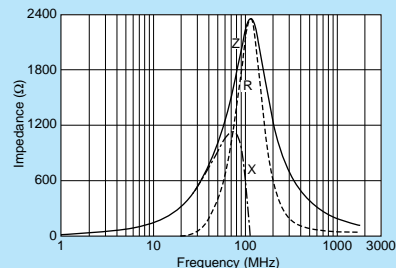
BLM21BD152SN1



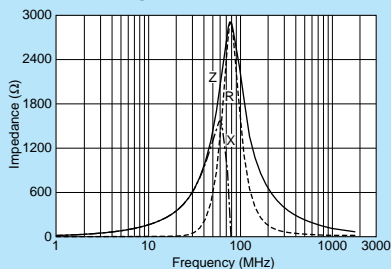
BLM21BD182SN1



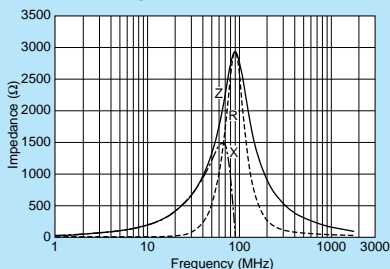
BLM21BD222TN1



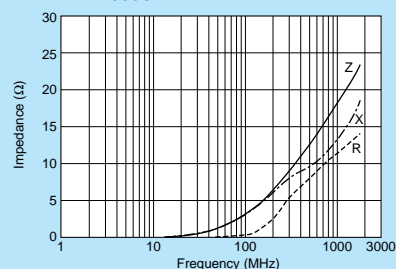
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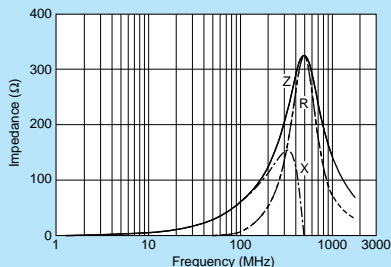
BLM21BD272SN1



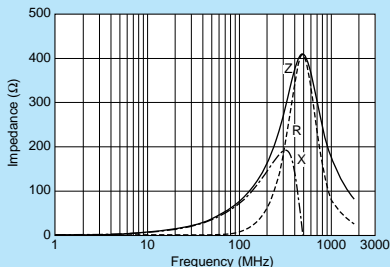
BLM21BB050SN1



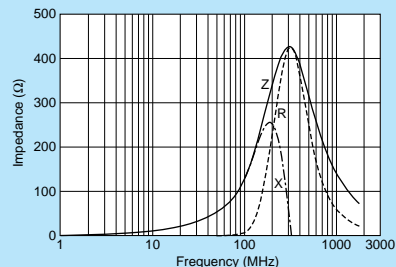
BLM21BB600SN1



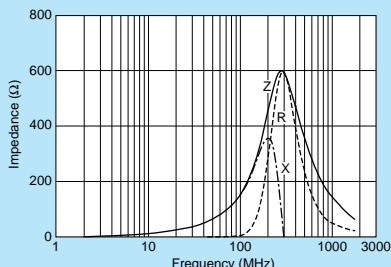
BLM21BB750SN1



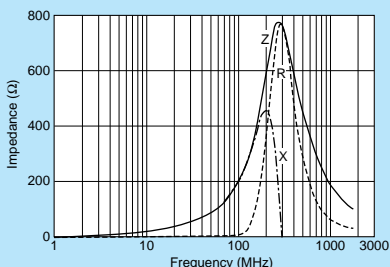
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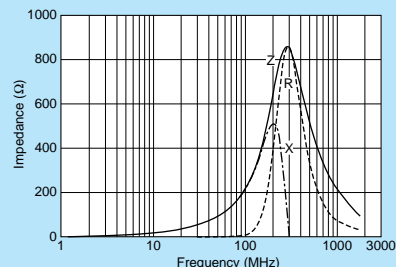
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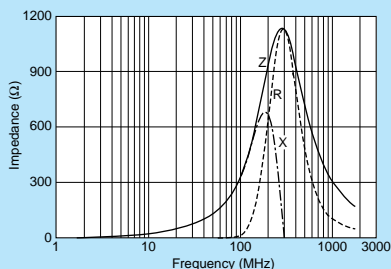
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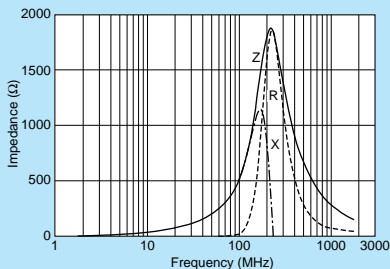
BLM21BB221SN1



BLM21BB331SN1



BLM21BB471SN1



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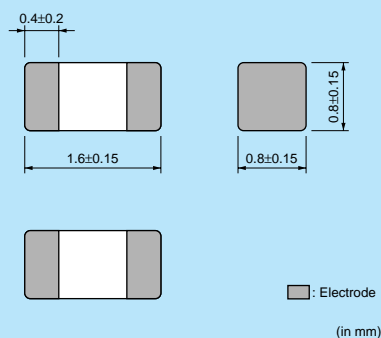
BLM18R Series (0603 Size)



For digital I/F. Reduce the distortion of waveform created by resonance.



■ Dimensions



■ Equivalent Circuit



(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
J	330mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

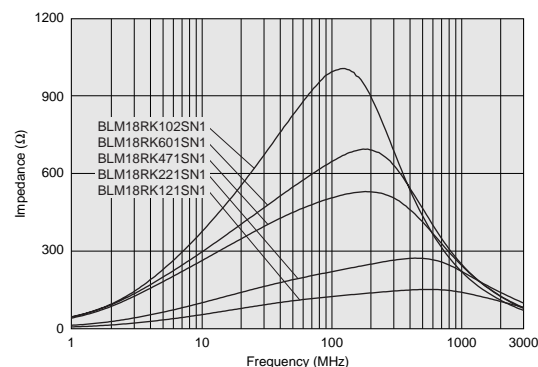
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM18RK121SN1□	120ohm±25%	200mA	0.25ohm max.	-55°C to +125°C	Kit
BLM18RK221SN1□	220ohm±25%	200mA	0.30ohm max.	-55°C to +125°C	
BLM18RK471SN1□	470ohm±25%	200mA	0.50ohm max.	-55°C to +125°C	Kit
BLM18RK601SN1□	600ohm±25%	200mA	0.60ohm max.	-55°C to +125°C	Kit
BLM18RK102SN1□	1000ohm±25%	200mA	0.80ohm max.	-55°C to +125°C	Kit

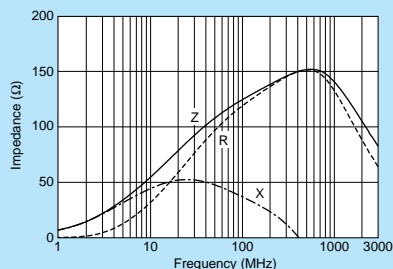
Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

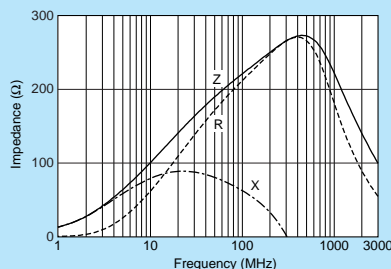


■ Impedance-Frequency Characteristics

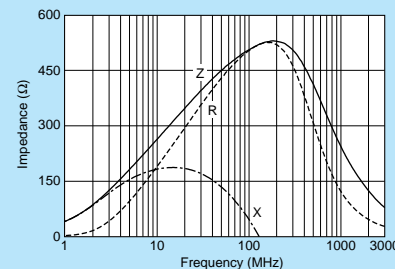
BLM18RK121SN1



BLM18RK221SN1



BLM18RK471SN1



Continued on the following page.

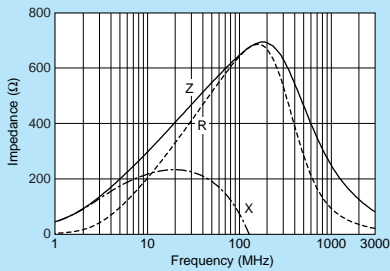
△Note • Please read rating and △CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

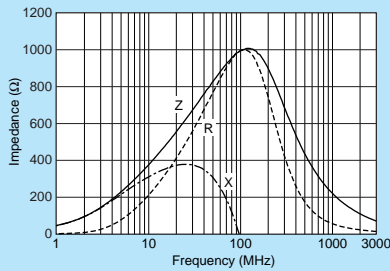
C31E.pdf
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■ Impedance-Frequency Characteristics

BLM18RK601SN1



BLM18RK102SN1



Signal Lines Type
Chip Ferrite Bead

Chip EMIFIL®

Chip Common Mode Choke Coil

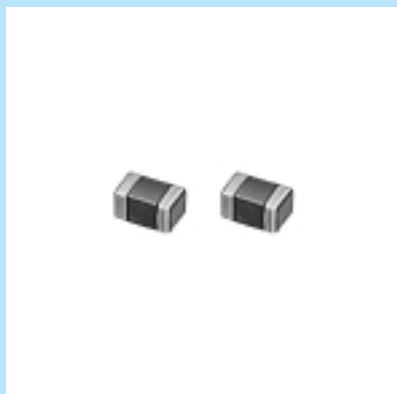
Block Type EMIFIL®

⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

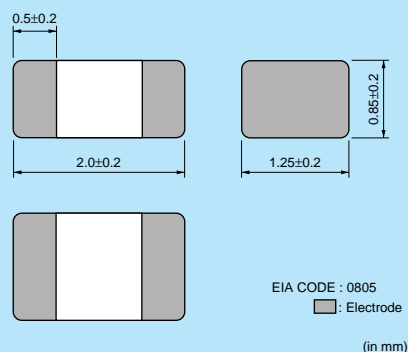
BLM21R Series (0805 Size)



For digital I/F. Reduce the distortion of waveform created by resonance.



■ Dimensions



■ Equivalent Circuit



(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
J	330mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

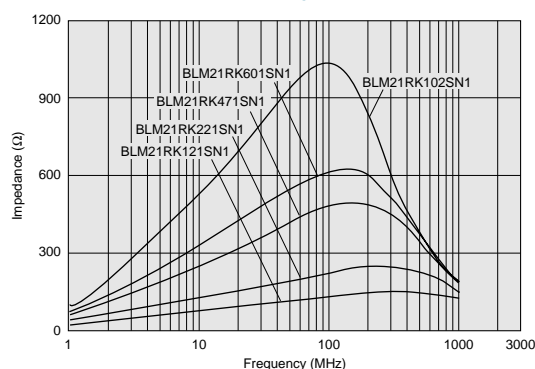
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range
BLM21RK121SN1□	120ohm±25%	200mA	0.15ohm max.	-55°C to +125°C
BLM21RK221SN1□	220ohm±25%	200mA	0.20ohm max.	-55°C to +125°C
BLM21RK471SN1□	470ohm±25%	200mA	0.25ohm max.	-55°C to +125°C
BLM21RK601SN1□	600ohm±25%	200mA	0.30ohm max.	-55°C to +125°C
BLM21RK102SN1□	1000ohm±25%	200mA	0.50ohm max.	-55°C to +125°C

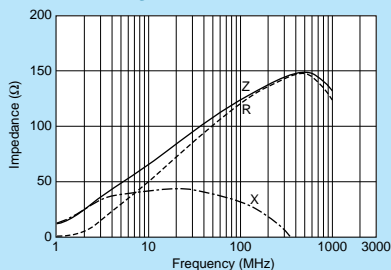
Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

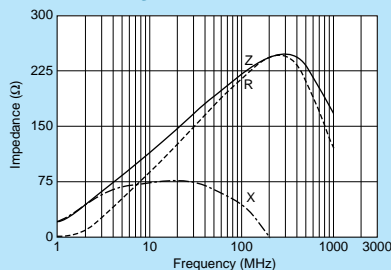


■ Impedance-Frequency Characteristics

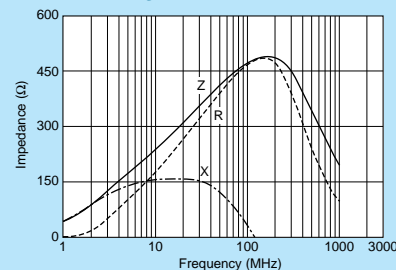
BLM21RK121SN1



BLM21RK221SN1



BLM21RK471SN1



Continued on the following page.

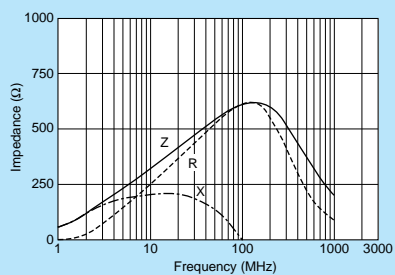
△Note • Please read rating and △CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

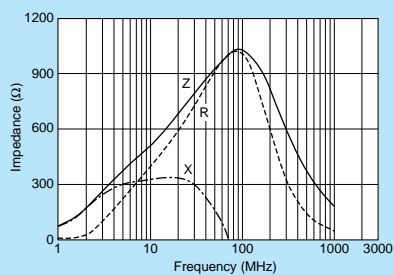
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Impedance-Frequency Characteristics

BLM21RK601SN1

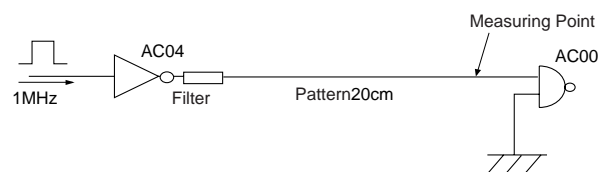


BLM21RK102SN1



Waveform Distortion Suppressing Performance of BLM□□R Series

Measuring Circuits

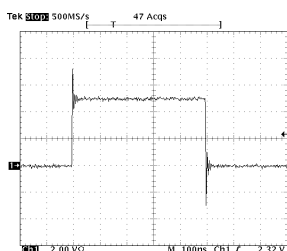


Type of Filter

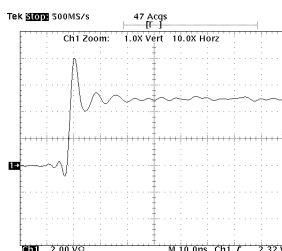
EMI Suppression Effect / Description

Initial (No filter)

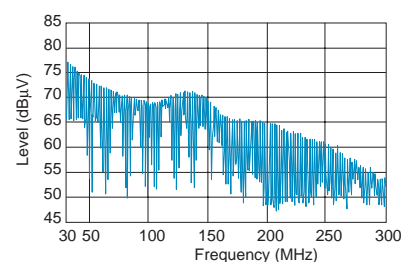
Signal waveform (100nsec/div, 2V/div)



Expand (10nsec/div, 2V/div)



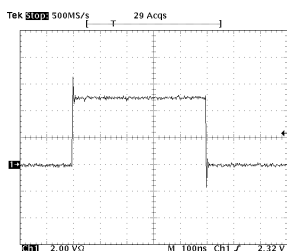
Spectrum



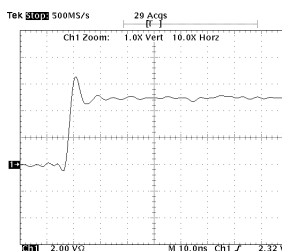
Ringing is caused on the signal waveform.
Such ringing contains several hundred MHz harmonic components and generates noise.

Resistor (47Ω) is used

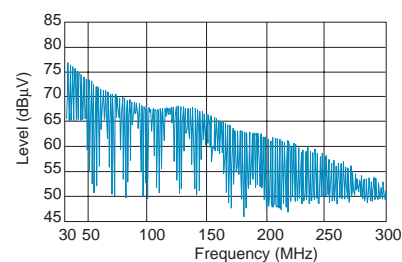
Signal waveform (100nsec/div, 2V/div)



Expand (10nsec/div, 2V/div)



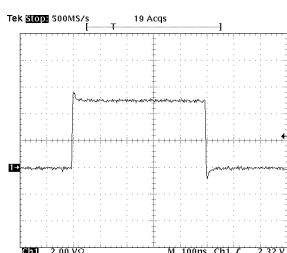
Spectrum



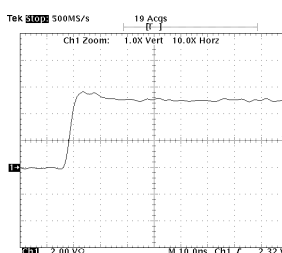
Comparing initial waveform, ringing is suppressed a little.
However there still remains high level waveform distortion.

BLM18RK221SN1 (220Ω at 100MHz) is used

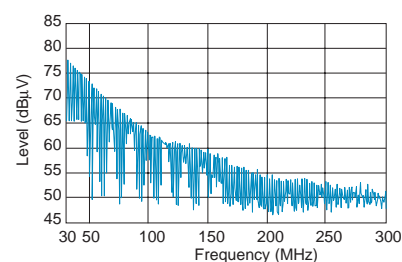
Signal waveform (100nsec/div, 2V/div)



Expand (10nsec/div, 2V/div)



Spectrum



BLM18R has excellent performance for noise suppression and waveform distortion suppression.
BLM18R suppresses drastically not only spectrum level in more than 100MHz range but waveform distortion.

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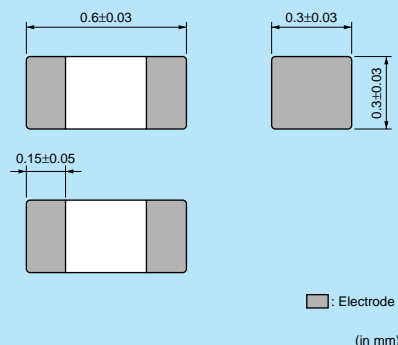
BLM03H Series (0201 Size)



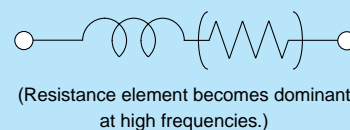
0201 size for GHz band noise.



Dimensions



Equivalent Circuit



Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	15000
J	330mm Reel Paper Tape	50000
B	Bulk(Bag)	1000

Refer to pages from p.91 to p.94 for mounting information.

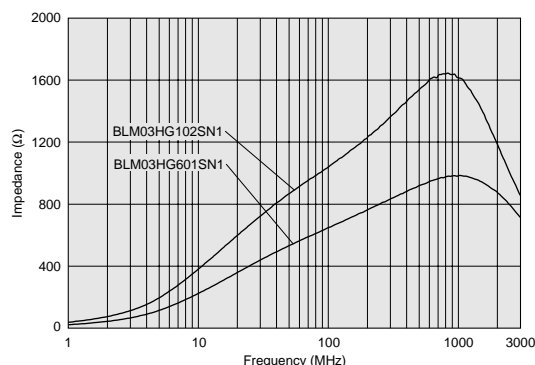
Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Impedance (at 1GHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM03HG601SN1□	600ohm±25%	1000ohm±40%	150mA	1.6ohm max.	-55°C to +125°C	Kit
BLM03HG102SN1□	1000ohm±25%	1800ohm±40%	125mA	2.6ohm max.	-55°C to +125°C	Kit
BLM03HD331SN1□	330ohm±25%	750ohm±40%	200mA	1.0ohm max.	-55°C to +125°C	New Kit
BLM03HD471SN1□	470ohm±25%	1000ohm±40%	175mA	1.3ohm max.	-55°C to +125°C	New Kit
BLM03HD601SN1□	600ohm±25%	1500ohm±40%	150mA	1.7ohm max.	-55°C to +125°C	New Kit
BLM03HD102SN1□	1000ohm±25%	2300ohm±40%	120mA	2.9ohm max.	-55°C to +125°C	New Kit

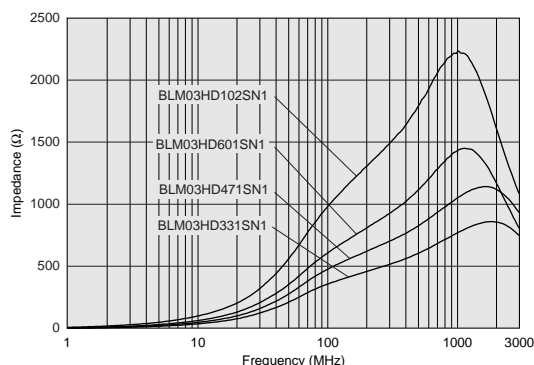
Number of Circuits: 1

Impedance-Frequency Characteristics (Main Items)

BLM03HG Series

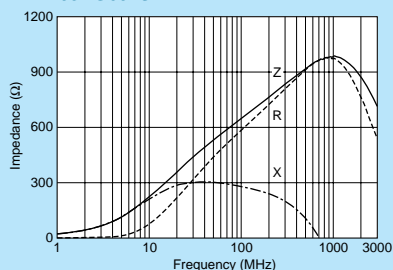


BLM03HD Series

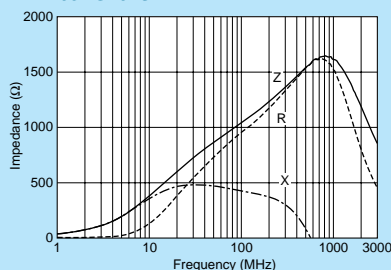


Impedance-Frequency Characteristics

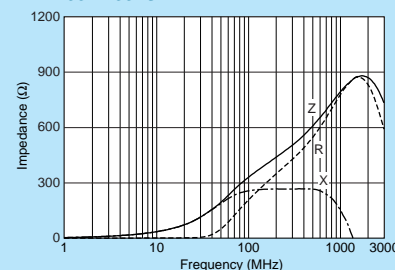
BLM03HG601SN1



BLM03HG102SN1



BLM03HD331SN1



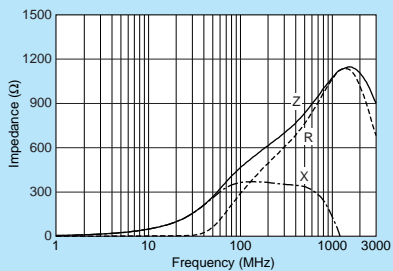
Continued on the following page.

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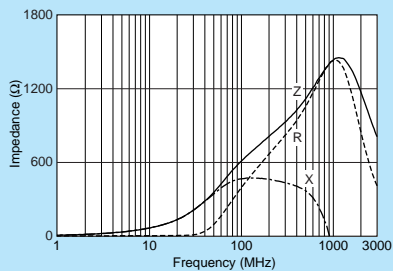
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Impedance-Frequency Characteristics

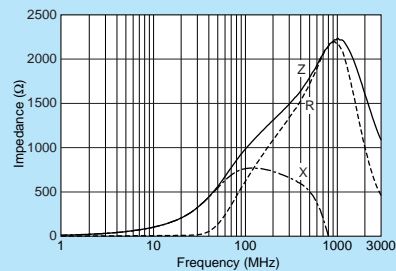
BLM03HD471SN1



BLM03HD601SN1



BLM03HD102SN1



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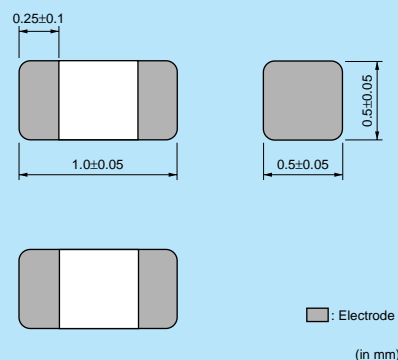
BLM15H Series (0402 Size)



0402 size for GHz band noise.



■ Dimensions



■ Equivalent Circuit



(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	10000
J	330mm Reel Paper Tape	50000
B	Bulk(Bag)	1000

Refer to pages from p.91 to p.94 for mounting information.

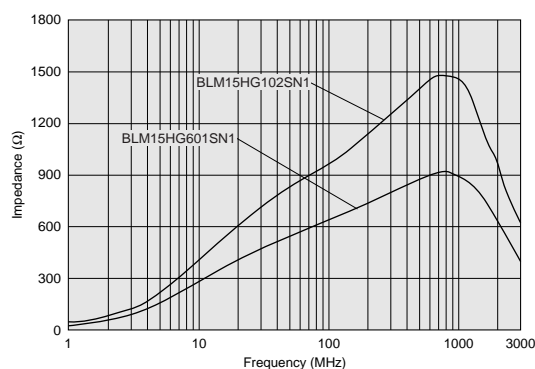
■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Impedance (at 1GHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM15HG601SN1□	600ohm±25%	1000ohm±40%	300mA	0.7ohm max.	-55°C to +125°C	Kit
BLM15HG102SN1□	1000ohm±25%	1400ohm±40%	250mA	1.1ohm max.	-55°C to +125°C	Kit
BLM15HD601SN1□	600ohm±25%	1400ohm±40%	300mA	0.85ohm max.	-55°C to +125°C	Kit
BLM15HD102SN1□	1000ohm±25%	2000ohm±40%	250mA	1.25ohm max.	-55°C to +125°C	Kit
BLM15HD182SN1□	1800ohm±25%	2700ohm±40%	200mA	2.2ohm max.	-55°C to +125°C	Kit
BLM15HB121SN1□	120ohm±25%	500ohm±40%	300mA	0.7ohm max.	-55°C to +125°C	Kit
BLM15HB221SN1□	220ohm±25%	900ohm±40%	250mA	1.0ohm max.	-55°C to +125°C	Kit

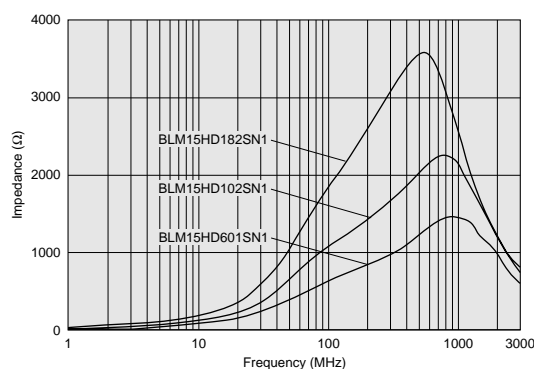
Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

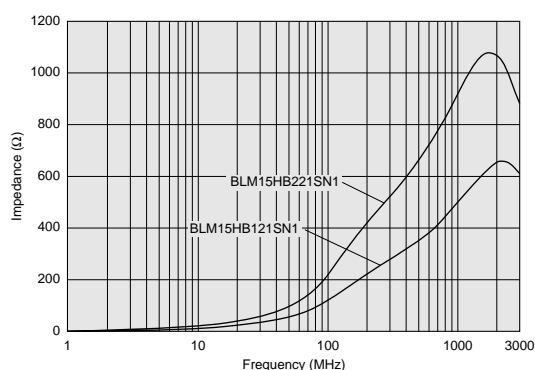
BLM15HG Series (For General Signal Lines)



BLM15HD Series (For High Speed Signal Lines)



BLM15HB Series (For High Speed Signal Lines)



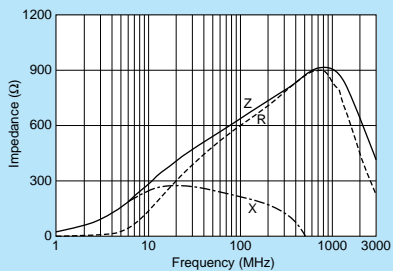
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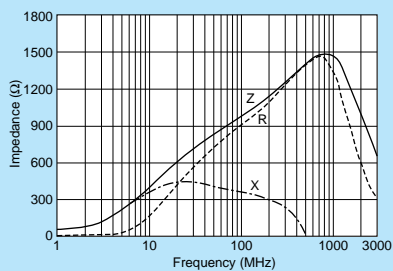
C31E.pdf
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Impedance-Frequency Characteristics

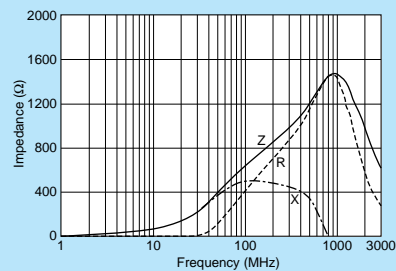
BLM15HG601SN1



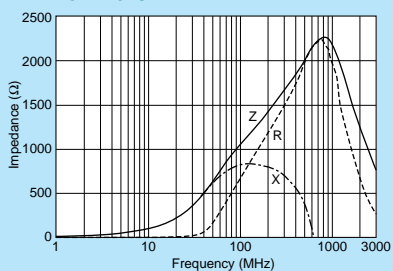
BLM15HG102SN1



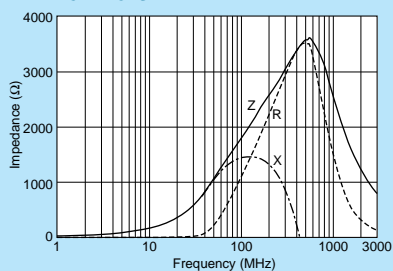
BLM15HD601SN1



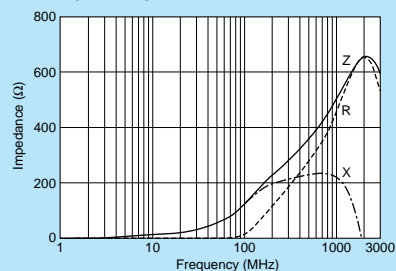
BLM15HD102SN1



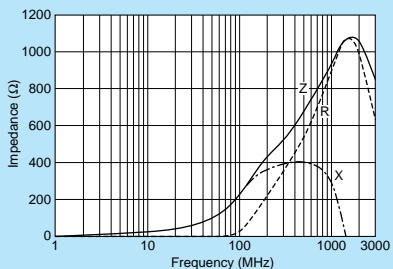
BLM15HD182SN1



BLM15HB121SN1



BLM15HB221SN1



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BLM18H Series (0603 Size)

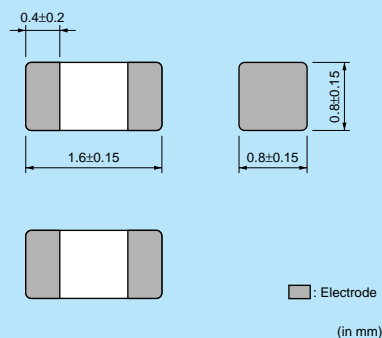


0603 size for GHz band noise.

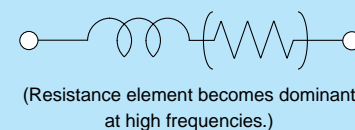
*Please refer to BLM15H for downsizing.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
J	330mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

Refer to pages from p.91 to p.94 for mounting information.

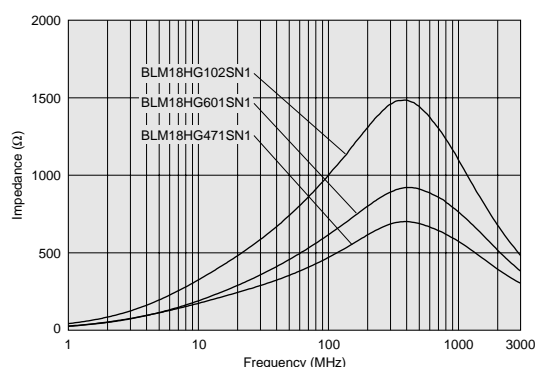
■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Impedance (at 1GHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM18HG471SN1□	470ohm±25%	600ohm(Typ.)	200mA	0.85ohm max.	-55°C to +125°C	Kit
BLM18HG601SN1□	600ohm±25%	700ohm(Typ.)	200mA	1.00ohm max.	-55°C to +125°C	Kit
BLM18HG102SN1□	1000ohm±25%	1000ohm(Typ.)	100mA	1.60ohm max.	-55°C to +125°C	Kit
BLM18HE601SN1□	600ohm±25%	600ohm(Typ.)	800mA	0.25ohm max.	-55°C to +125°C	Kit
BLM18HE102SN1□	1000ohm±25%	1000ohm(Typ.)	600mA	0.35ohm max.	-55°C to +125°C	Kit
BLM18HE152SN1□	1500ohm±25%	1500ohm(Typ.)	500mA	0.50ohm max.	-55°C to +125°C	Kit
BLM18HD471SN1□	470ohm±25%	1000ohm(Typ.)	100mA	1.20ohm max.	-55°C to +125°C	Kit
BLM18HD601SN1□	600ohm±25%	1200ohm(Typ.)	100mA	1.50ohm max.	-55°C to +125°C	Kit
BLM18HD102SN1□	1000ohm±25%	1700ohm(Typ.)	50mA	1.80ohm max.	-55°C to +125°C	Kit
BLM18HB121SN1□	120ohm±25%	500ohm±40%	200mA	0.50ohm max.	-55°C to +125°C	Kit
BLM18HB221SN1□	220ohm±25%	1100ohm±40%	100mA	0.80ohm max.	-55°C to +125°C	Kit
BLM18HB331SN1□	330ohm±25%	1600ohm±40%	50mA	1.20ohm max.	-55°C to +125°C	Kit
BLM18HK331SN1□	330ohm±25%	400ohm±40%	200mA	0.50ohm max.	-55°C to +125°C	Kit
BLM18HK471SN1□	470ohm±25%	600ohm±40%	200mA	0.70ohm max.	-55°C to +125°C	Kit
BLM18HK601SN1□	600ohm±25%	700ohm±40%	100mA	0.90ohm max.	-55°C to +125°C	Kit
BLM18HK102SN1□	1000ohm±25%	1200ohm±40%	50mA	1.50ohm max.	-55°C to +125°C	Kit

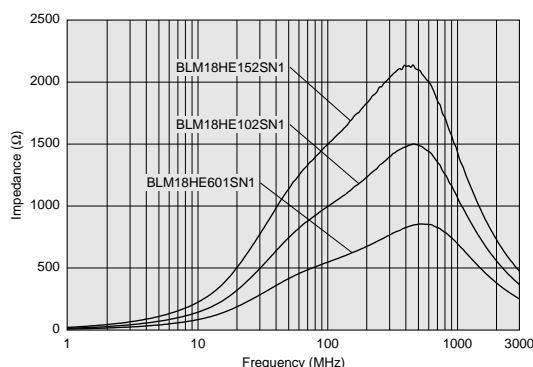
Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

BLM18HG Series (For General Signal Lines)



BLM18HE Series (For High Speed Signal Lines)



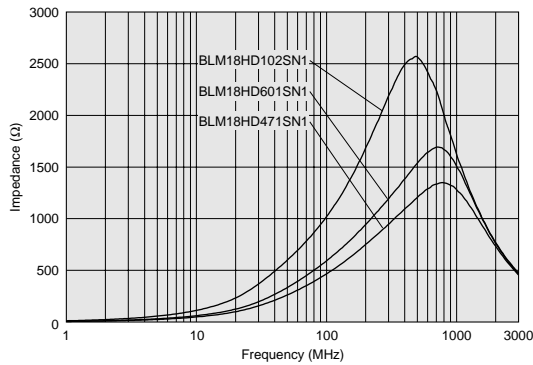
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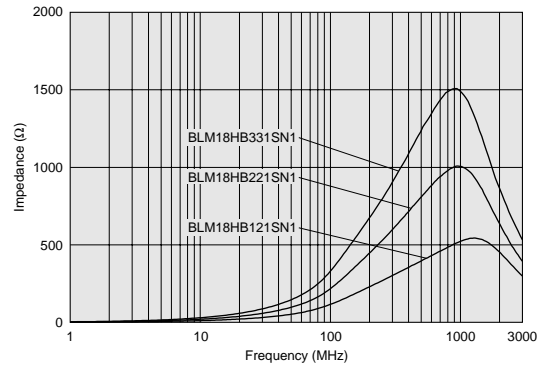
• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

Impedance-Frequency Characteristics (Main Items)

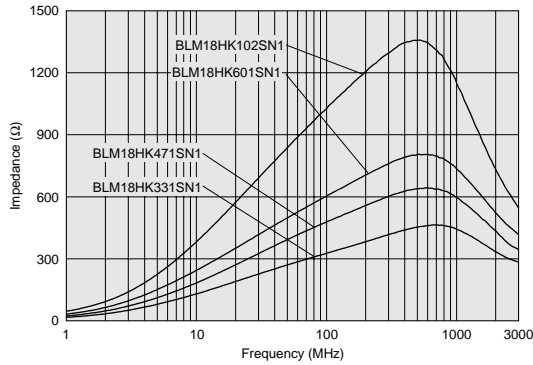
BLM18HD Series (For High Speed Signal Lines)



BLM18HB Series (For High Speed Signal Lines)



BLM18HK Series (For Digital Interface Lines)

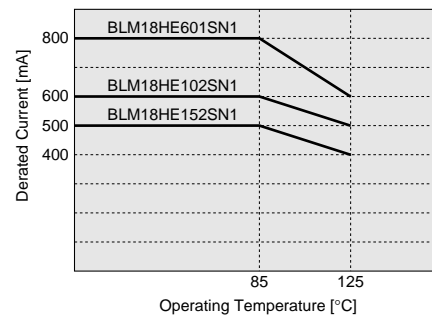


Notice (Rating)

In operating temperature exceeding +85°C, derating of current is necessary for BLM18HE series.

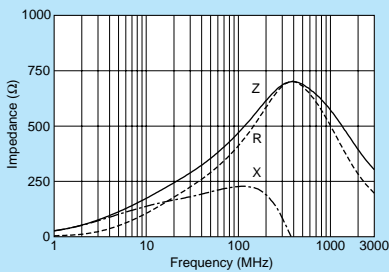
Please apply the derating curve shown in chart according to the operating temperature.

Derating

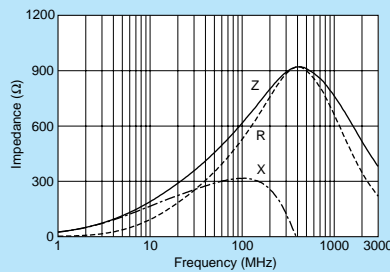


Impedance-Frequency Characteristics

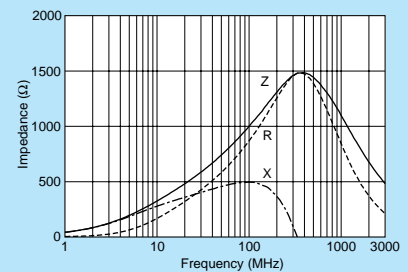
BLM18HG471SN1



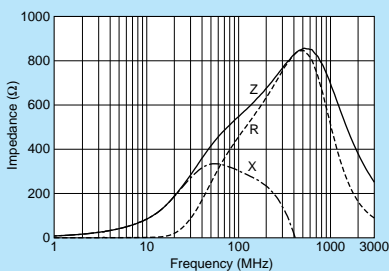
BLM18HG601SN1



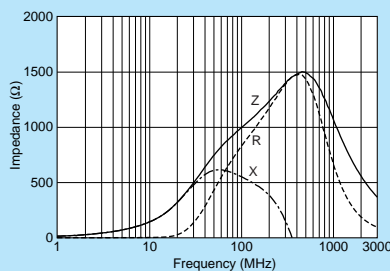
BLM18HG102SN1



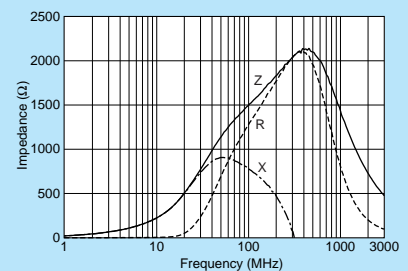
BLM18HE601SN1



BLM18HE102SN1



BLM18HE152SN1



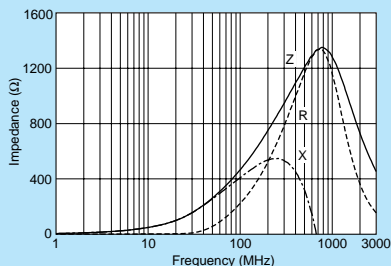
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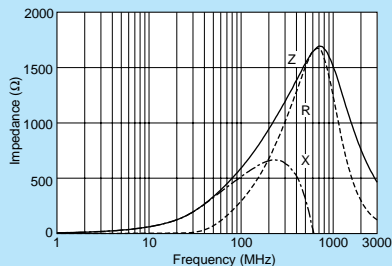
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Impedance-Frequency Characteristics

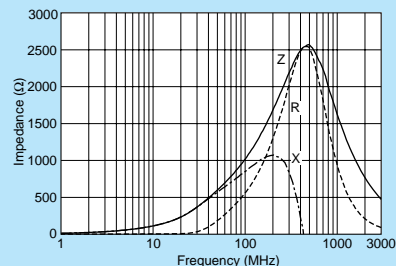
BLM18HD471SN1



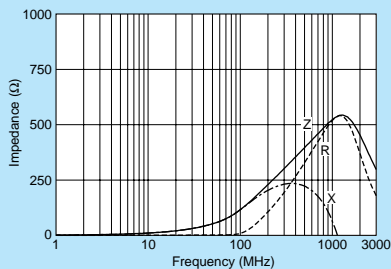
BLM18HD601SN1



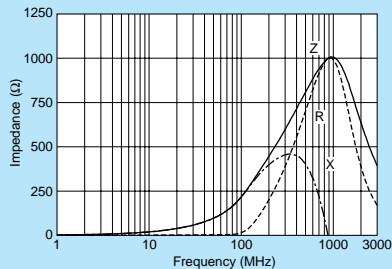
BLM18HD102SN1



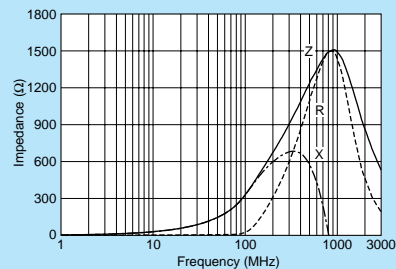
BLM18HB121SN1



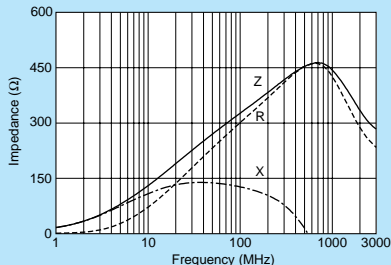
BLM18HB221SN1



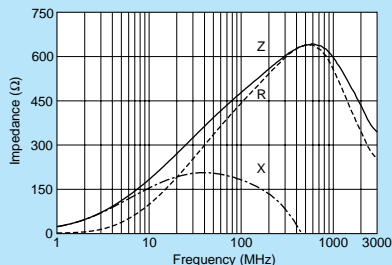
BLM18HB331SN1



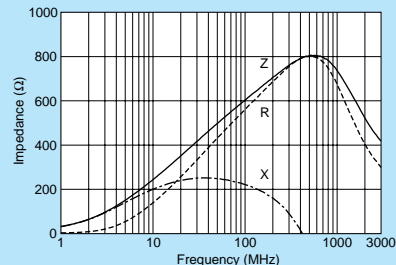
BLM18HK331SN1



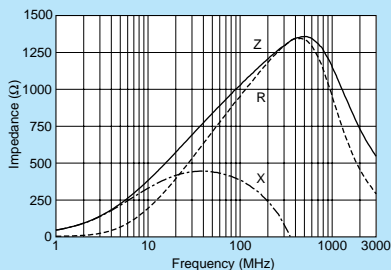
BLM18HK471SN1



BLM18HK601SN1

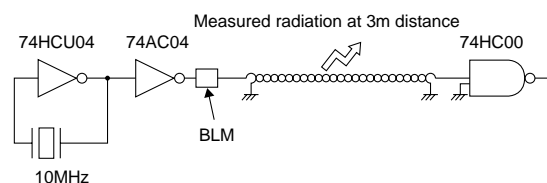


BLM18HK102SN1



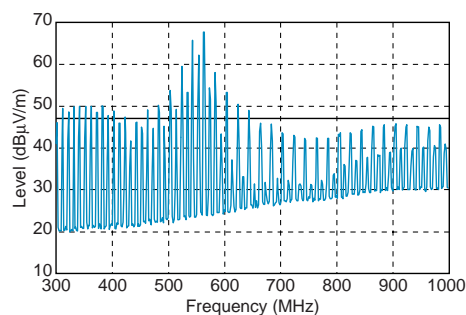
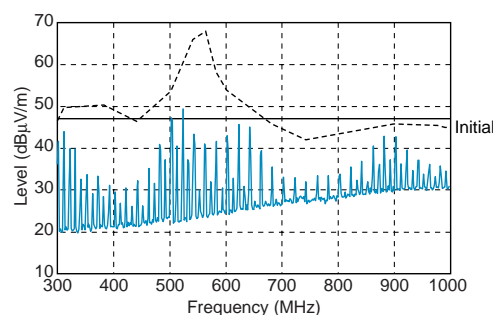
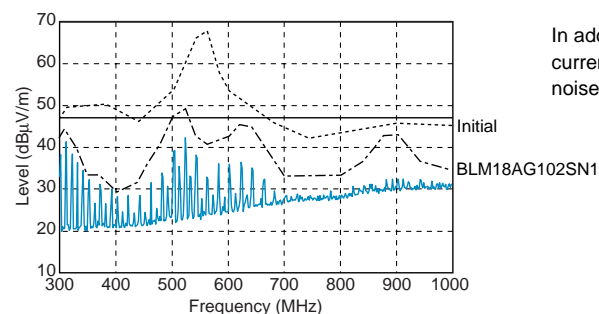
Noise Suppression of BLM18H
in UHF Range

Testing Circuit

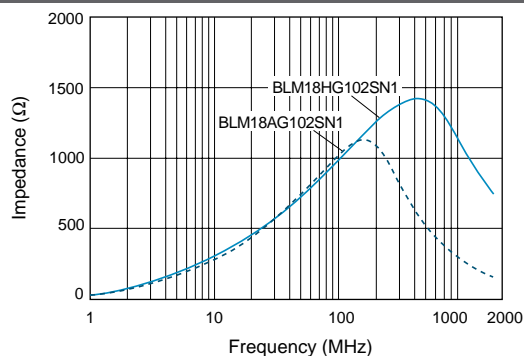


Type of Filter

EMI Suppression Effect / Description

Initial
(No filter)Conventional Type
BLM18AG102SN1
(1000Ω at 100MHz)Current BLM18AG are effective in
suppressing noise in the range between
300MHz and 700MHz.for GHz Noise Suppression
BLM18HG102SN1
(1000Ω at 100MHz)In addition to the effectiveness of
current BLM, BLM18HG suppresses
noise in the range beyond 700MHz.

Comparison between BLM18HG102SN1 and BLM18AG102SN1 (Current Item)



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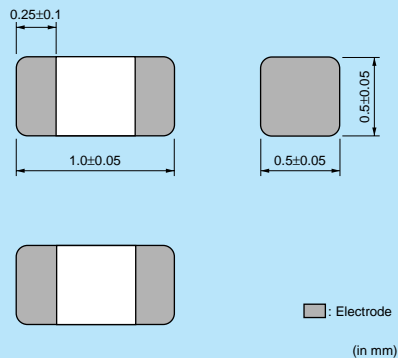
BLM15G Series (0402 Size)



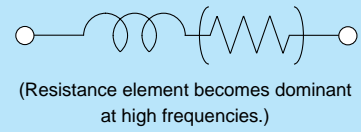
Available up to high-GHz band noise.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	10000
J	330mm Reel Paper Tape	50000
B	Bulk(Bag)	1000

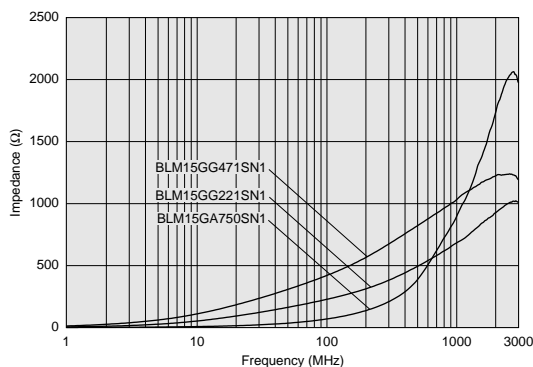
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Impedance (at 1GHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM15GG221SN1□	220ohm±25%	600ohm±40%	300mA	0.7ohm max.	-55°C to +125°C	Kit
BLM15GG471SN1□	470ohm±25%	1200ohm±40%	200mA	1.3ohm max.	-55°C to +125°C	Kit
BLM15GA750SN1□	75ohm±25%	1000ohm±40%	200mA	1.3ohm max.	-55°C to +125°C	Kit

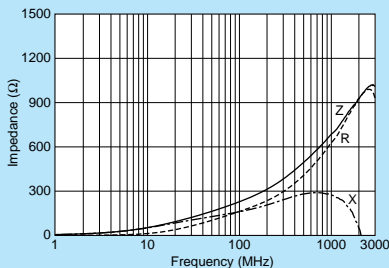
Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

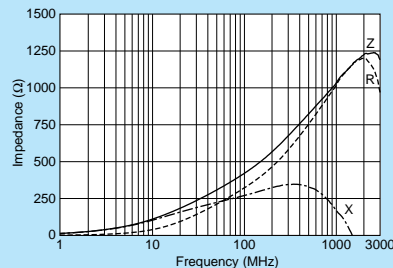


■ Impedance-Frequency Characteristics

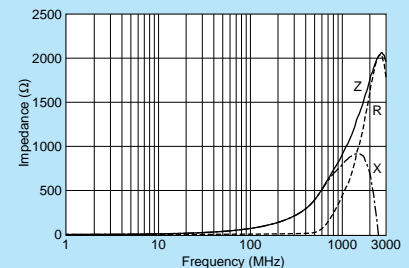
BLM15GG221SN1



BLM15GG471SN1



BLM15GA750SN1



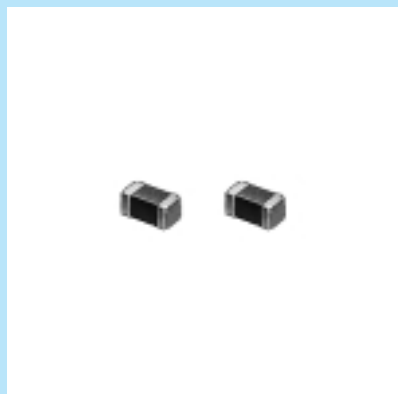
△Note • Please read rating and △CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

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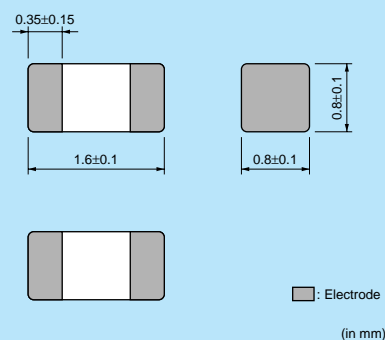
BLM18G Series (0603 Size)



Available up to high-GHz band noise.



■ Dimensions



■ Equivalent Circuit



(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
J	330mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

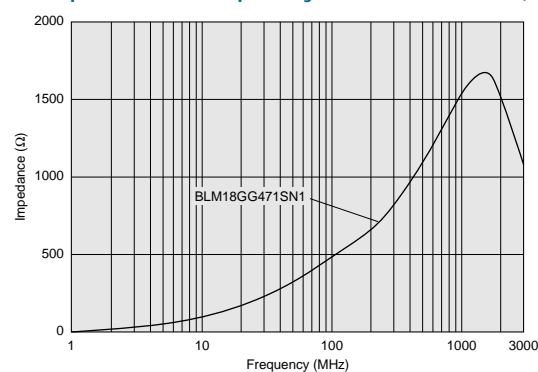
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

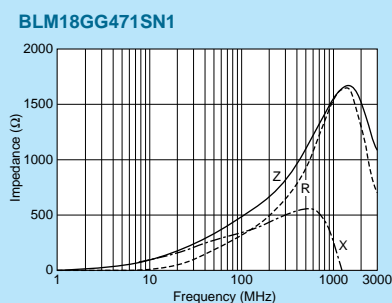
Part Number	Impedance (at 100MHz/20°C)	Impedance (at 1GHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM18GG471SN1□	470ohm±25%	1800ohm±30%	200mA	1.0ohm ±0.3ohm	-55°C to +125°C	Kit

Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)



■ Impedance-Frequency Characteristics



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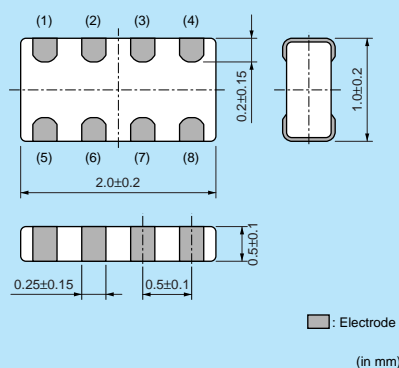
BLA2AA/BLA2AB Series (0804 Size)



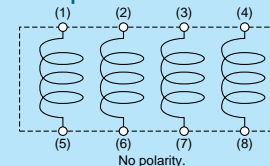
4-lines array, 0804 size.



Dimensions



Equivalent Circuit



Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	10000
J	330mm Reel Paper Tape	50000
B	Bulk(Bag)	1000

Refer to pages from p.91 to p.94 for mounting information.

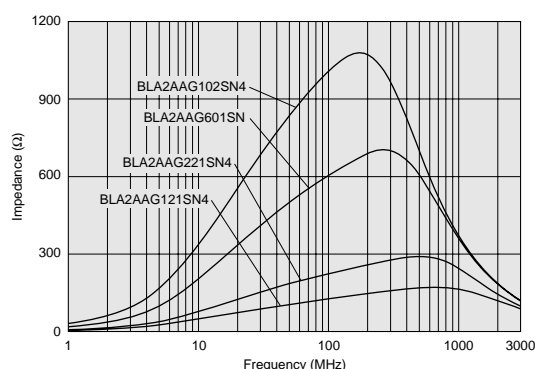
Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range
BLA2AAG121SN4□	120ohm±25%	100mA	0.50ohm max.	-55°C to +125°C
BLA2AAG221SN4□	220ohm±25%	50mA	0.70ohm max.	-55°C to +125°C
BLA2AAG601SN4□	600ohm±25%	50mA	1.10ohm max.	-55°C to +125°C
BLA2AAG102SN4□	1000ohm±25%	50mA	1.30ohm max.	-55°C to +125°C
BLA2ABD750SN4□	75ohm±25%	200mA	0.20ohm max.	-55°C to +125°C
BLA2ABD121SN4□	120ohm±25%	200mA	0.35ohm max.	-55°C to +125°C
BLA2ABD221SN4□	220ohm±25%	100mA	0.40ohm max.	-55°C to +125°C
BLA2ABD471SN4□	470ohm±25%	100mA	0.65ohm max.	-55°C to +125°C
BLA2ABD601SN4□	600ohm±25%	100mA	0.80ohm max.	-55°C to +125°C
BLA2ABD102SN4□	1000ohm±25%	50mA	1.00ohm max.	-55°C to +125°C
BLA2ABB100SN4□	10ohm±25%	200mA	0.1ohm max.	-55°C to +125°C
BLA2ABB220SN4□	22ohm±25%	200mA	0.2ohm max.	-55°C to +125°C
BLA2ABB470SN4□	47ohm±25%	200mA	0.35ohm max.	-55°C to +125°C
BLA2ABB121SN4□	120ohm±25%	50mA	0.60ohm max.	-55°C to +125°C
BLA2ABB221SN4□	220ohm±25%	50mA	0.90ohm max.	-55°C to +125°C

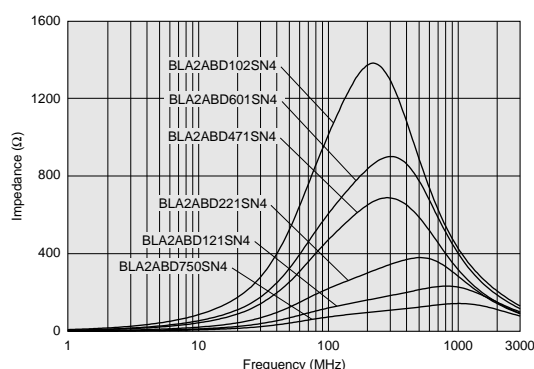
Number of Circuits: 4

Impedance-Frequency Characteristics (Main Items)

BLA2AAG Series



BLA2ABD Series



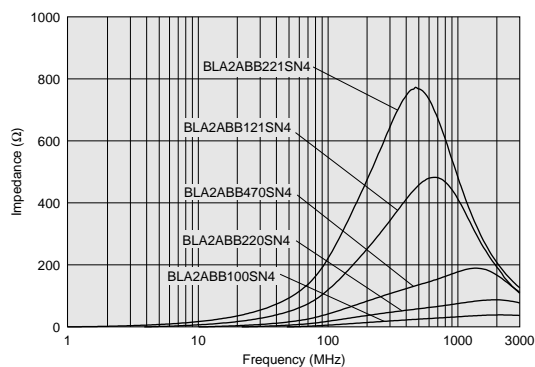
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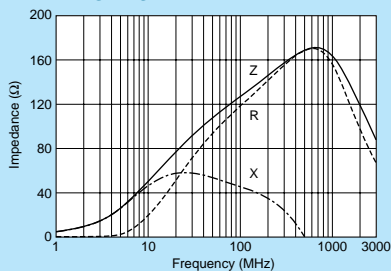
Impedance-Frequency Characteristics (Main Items)

BLA2ABB Series

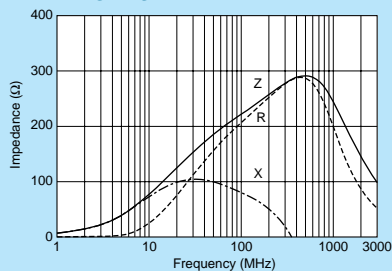


Impedance-Frequency Characteristics

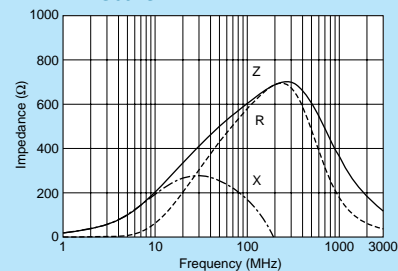
BLA2AAG121SN4



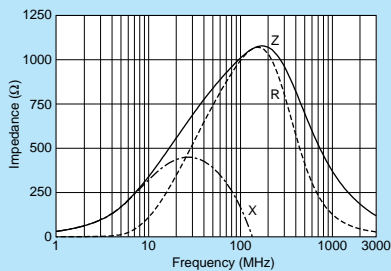
BLA2AAG221SN4



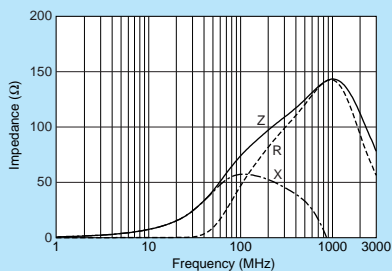
BLA2AAG601SN4



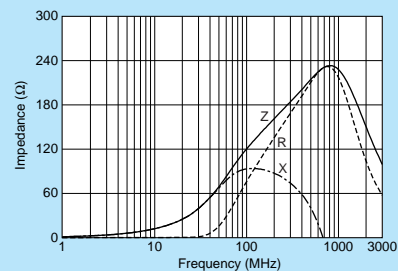
BLA2AAG102SN4



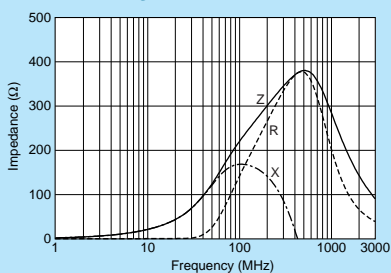
BLA2ABD750SN4



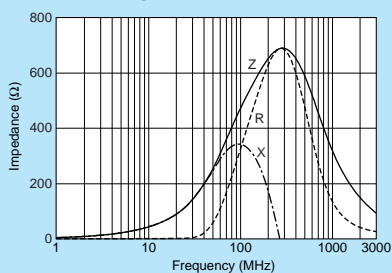
BLA2ABD121SN4



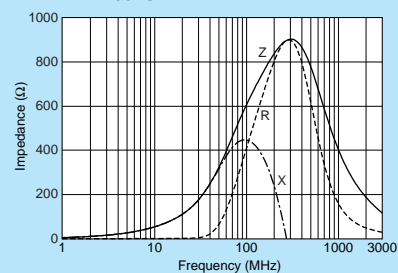
BLA2ABD221SN4



BLA2ABD471SN4



BLA2ABD601SN4



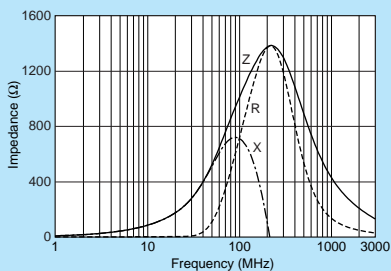
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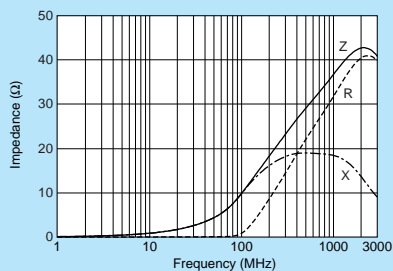
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■ Impedance-Frequency Characteristics

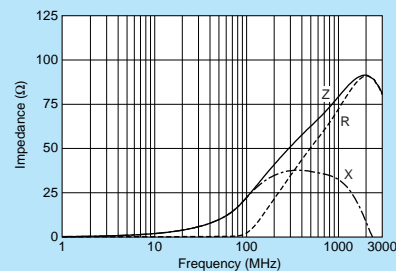
BLA2ABD102SN4



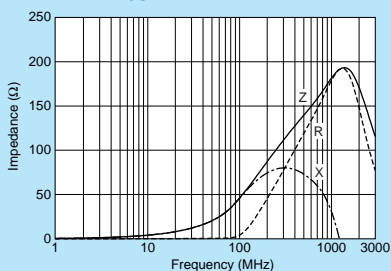
BLA2ABB100SN4



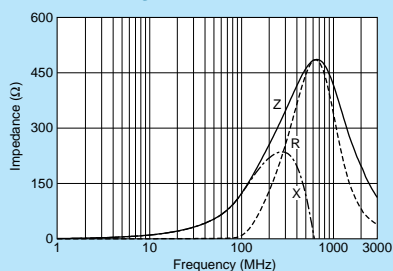
BLA2ABB220SN4



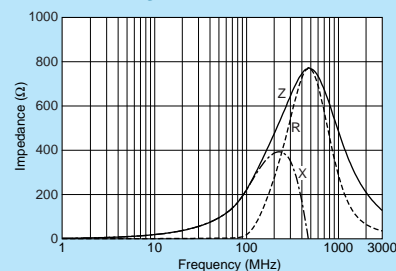
BLA2ABB470SN4



BLA2ABB121SN4



BLA2ABB221SN4



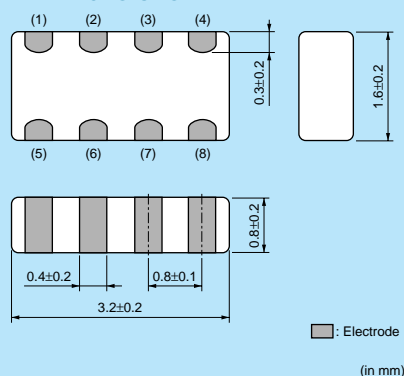
BLA31A/BLA31B Series (1206 Size)



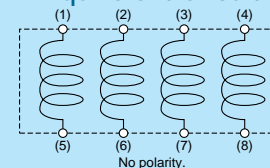
4-lines array, 1206 size.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
J	330mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

Refer to pages from p.91 to p.94 for mounting information.

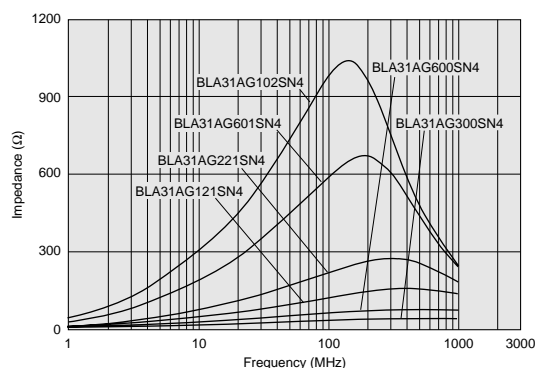
■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range
BLA31AG300SN4□	30ohm±25%	200mA	0.10ohm max.	-55°C to +125°C
BLA31AG600SN4□	60ohm±25%	200mA	0.15ohm max.	-55°C to +125°C
BLA31AG121SN4□	120ohm±25%	150mA	0.20ohm max.	-55°C to +125°C
BLA31AG221SN4□	220ohm±25%	150mA	0.25ohm max.	-55°C to +125°C
BLA31AG601SN4□	600ohm±25%	100mA	0.35ohm max.	-55°C to +125°C
BLA31AG102SN4□	1000ohm±25%	50mA	0.45ohm max.	-55°C to +125°C
BLA31BD121SN4□	120ohm±25%	150mA	0.30ohm max.	-55°C to +125°C
BLA31BD221SN4□	220ohm±25%	150mA	0.35ohm max.	-55°C to +125°C
BLA31BD471SN4□	470ohm±25%	100mA	0.40ohm max.	-55°C to +125°C
BLA31BD601SN4□	600ohm±25%	100mA	0.45ohm max.	-55°C to +125°C
BLA31BD102SN4□	1000ohm±25%	50mA	0.55ohm max.	-55°C to +125°C

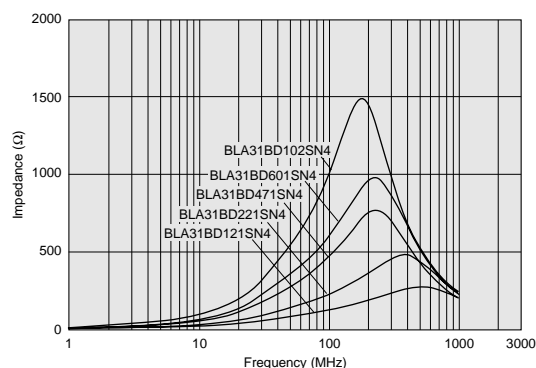
Number of Circuits: 4

■ Impedance-Frequency Characteristics (Main Items)

BLA31AG Series



BLA31BD Series

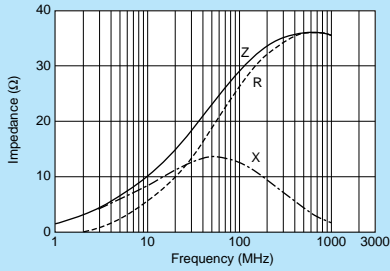


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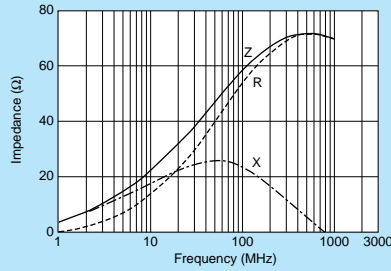
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Impedance-Frequency Characteristics

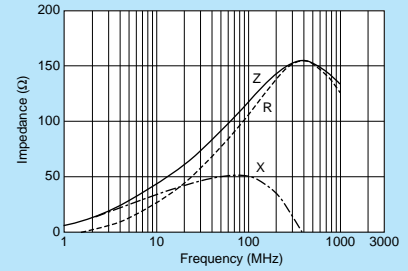
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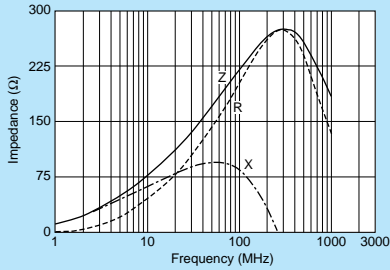
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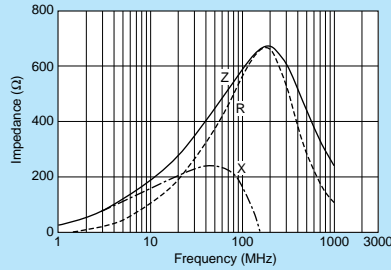
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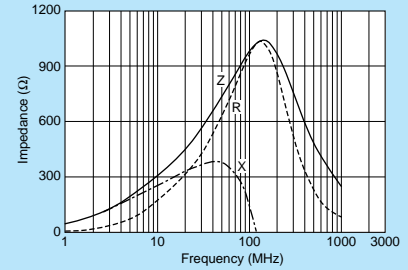
BLA31AG221SN4



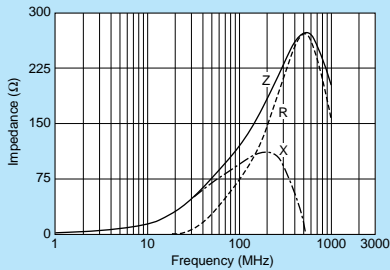
BLA31AG601SN4



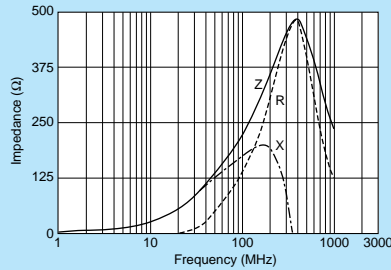
BLA31AG102SN4



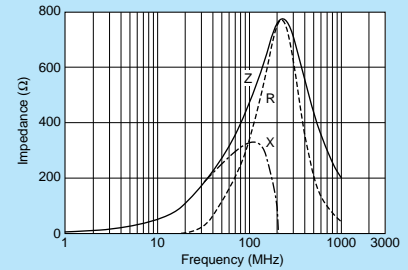
BLA31BD121SN4



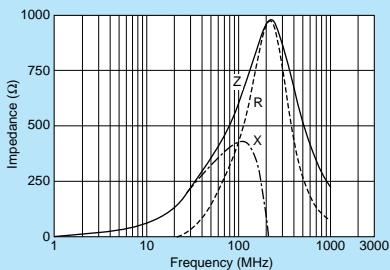
BLA31BD221SN4



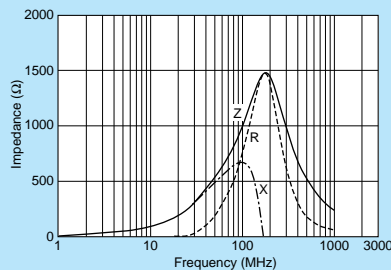
BLA31BD471SN4



BLA31BD601SN4



BLA31BD102SN4



⚠ Caution

● Rating

1. About the Rated Current
Do not use products beyond the rated current as this may create excessive heat and deteriorate the insulation resistance.
2. About the Excessive Surge Current
Excessive surge current (pulse current or rush current) than specified rated current applied to the product may cause a critical failure, such as an open circuit, burnout caused by excessive temperature rise. Please contact us in advance in case of applying the surge current.

● Soldering and Mounting

- Self-heating
Please provide special attention when mounting chip ferrite beads BLM_AX/P/K/S series in close proximity to other products that radiate heat.
The heat generated by other products may deteriorate the insulation resistance and cause excessive heat in this component.

Notice

● Storage and Operating Conditions

<Operating Environment>

Do not use products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.

Do not use products in the environment close to the organic solvent.

<Storage and Handling Requirements>

1. Storage Period
BLM15E/15H/15G series should be used within 12 months, the other series should be used within 6 months.
Solderability should be checked if this period is exceeded.
2. Storage Conditions
 - (1) Storage temperature: -10 to +40°C
Relative humidity: 15 to 85%
Avoid sudden changes in temperature and humidity.
 - (2) Do not store products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.

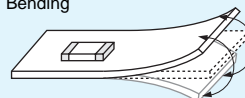
● Notice (Soldering and Mounting)

1. Cleaning
Failure and degradation of a product are caused by the cleaning method. When you clean in conditions that are not in mounting information, please contact Murata engineering.
2. Soldering
Reliability decreases with improper soldering methods. Please solder by the standard soldering conditions shown in mounting information.
3. Other
Noise suppression levels resulting from Murata's EMI suppression filters EMIFIL® may vary, depending on the circuits and ICs used, type of noise, mounting pattern, mounting location, and other operating conditions. Be sure to check and confirm in advance the noise suppression effect of each filter, in actual circuits, etc. before applying the filter in a commercial-purpose equipment design.

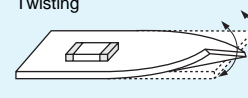
● Handling

1. Resin Coating
Using resin for coating/molding products may affect the products performance.
So please pay careful attention in selecting resin.
Prior to use, please make the reliability evaluation with the product mounted in your application set.
2. Handling of a Substrate
After mounting products on a substrate, do not apply any stress to the product caused by bending or twisting to the substrate when cropping the substrate, inserting and removing a connector from the substrate or tightening screw to the substrate.
Excessive mechanical stress may cause cracking in the Product.

Bending



Twisting



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1. Standard Land Pattern Dimensions

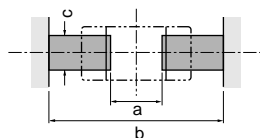
 Land Pattern + Solder Resist
 Land Pattern
 Solder Resist

(in mm)

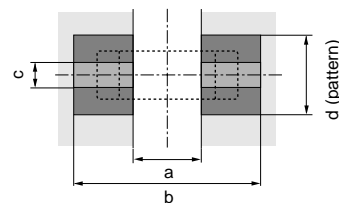
BLM02
BLM03
BLM15
 (Except BLM
 15_AN1 series)

BLM18
BLM21
BLM31
BLM41

●Reflow and Flow
BLM Series



BLM□□AX/P/K/S



Type	Soldering	a	b	c
BLM02	Reflow	0.16-0.2	0.4-0.56	0.2-0.23
BLM03	Reflow	0.2-0.3	0.6-0.9	0.3
BLM15	Reflow	0.4	1.2-1.4	0.5
BLM18	Flow (except 18G)	0.7	2.2-2.6	0.7
	Reflow		1.8-2.0	
BLM21	Flow/ Reflow	1.2	3.0-4.0	1.0

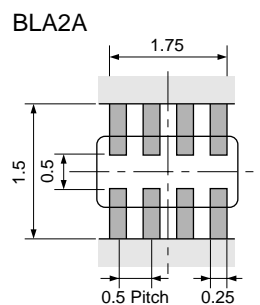
- Except BLM03PG/15AX-PD-PG/18PG-KG-SG/21PG.
And BLM02/03/15/18G is specially adapted for reflow soldering.

Type	Rated Current (A)	Soldering	a	b	c	Land Pad Thickness and Dimension d		
						18μm	35μm	70μm
BLM03AX BLM03PG	1max.	Reflow	0.2-0.3	0.6-0.9	0.3	0.3	0.3	0.3
BLM15AX	1.5max.	Reflow	0.4	1.2-1.4	0.5	0.5	0.5	0.5
BLM15P□	2.2max.					1.2	0.7	0.5
BLM18PG BLM18KG BLM18SG	0.5-1.5	Flow/ Reflow	0.7	Flow 2.2-2.6 Reflow 1.8-2.0	0.7	0.7	0.7	0.7
	1.7-2.5					1.2	0.7	0.7
	3-4					2.4	1.2	0.7
	6					6.4	3.3	1.65
BLM21PG	1.5		1.2	3.0-4.0	1.0	1.0	1.0	1.0
	2					1.2	1.0	1.0
	3					2.4	1.2	1.0
	6					6.4	3.3	1.65
BLM31PG	1.5/2		2.0	4.2-5.2	1.2	1.2	1.2	1.2
	3					2.4	1.2	1.2
	6					6.4	3.3	1.65
BLM41PG	1.5/2		3.0	5.5-6.5		1.2	1.2	1.2
	3					2.4	1.2	1.2
	6					6.4	3.3	1.65

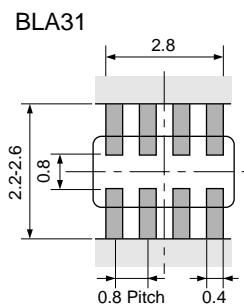
- Do not apply narrower pattern than listed above to BLM□□AX/P/K/S.
Narrow pattern can cause excessive heat or open circuit.

BLA2A
BLA31

●Reflow Soldering



●Reflow and Flow



- If there are high amounts of self-heating on pattern, the contact points of PCB and part may become damaged.

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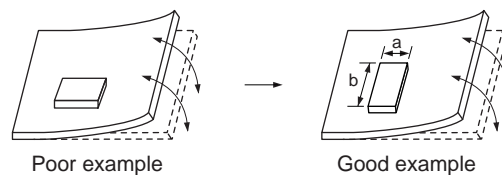
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C31E.pdf
Mar.28,2011

● PCB Warping

PCB should be designed so that products are not subjected to the mechanical stress caused by warping the board.

Products should be located in the sideways direction (Length: $a < b$) to the mechanical stress.



2. Solder Paste Printing and Adhesive Application

When reflow soldering the chip ferrite beads, the printing must be conducted in accordance with the following cream solder printing conditions.

If too much solder is applied, the chip will be prone to damage by mechanical and thermal stress from the PCB and may crack.

Standard land dimensions should be used for resist and copper foil patterns.

When flow soldering the chip ferrite beads, apply the adhesive in accordance with the following conditions. If too much adhesive is applied, then it may overflow into the land or termination areas and yield poor solderability. In contrast, if insufficient adhesive is applied, or if the adhesive is not sufficiently hardened, then the chip may become detached during flow soldering process.

(in mm)

Series	Solder Paste Printing	Adhesive Application
BLM (Except BLM 15_AN1 series)	<ul style="list-style-type: none"> ● Ensure that solder is applied smoothly to a minimum height of 0.2mm to 0.3mm at the end surface of the part. ● Guideline of solder paste thickness: 50-80μm: BLM02 100-150μm: BLM03 100-200μm: BLM15/18/21/31/41 	<ul style="list-style-type: none"> ■ BLM18/21/31/41 Series (Except BLM18G Series) Coating amount is illustrated in the following diagram.
BLA	<ul style="list-style-type: none"> ● Guideline of solder paste thickness: 100-150μm: BLA2A 150-200μm: BLA31 <div style="display: flex; justify-content: space-around;"> <div> BLA31 </div> <div> BLA2A </div> </div>	<ul style="list-style-type: none"> ■ BLA31 Series Coating amount is illustrated in the following diagram.

3. Standard Soldering Conditions

(1) Soldering Methods

Use flow and reflow soldering methods only.

Use standard soldering conditions when soldering chip ferrite beads.

In cases where several different parts are soldered, each having different soldering conditions, use those conditions requiring the least heat and minimum time.

Solder: Use Sn-3.0Ag-0.5Cu solder. Use of Sn-Zn based solder will deteriorate performance of products.

If using BLA series with Sn-Zn based solder, please contact Murata in advance.

Flux:

- Use Rosin-based flux.

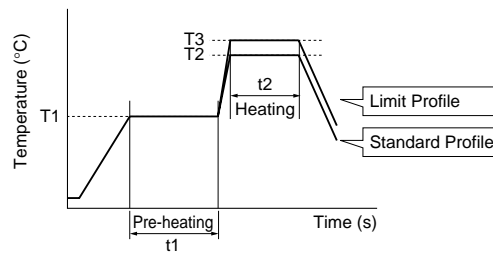
In case of using RA type solder, products should be cleaned completely with no residual flux.

- Do not use strong acidic flux (with chlorine content exceeding 0.20wt%)
- Do not use water-soluble flux.

For additional mounting methods, please contact Murata.

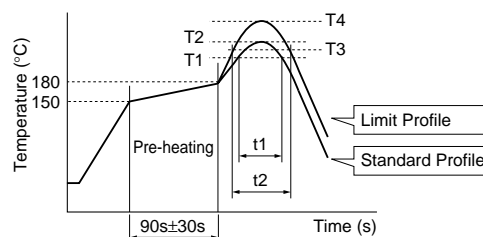
(2) Soldering Profile

- Flow Soldering profile
(Sn-3.0Ag-0.5Cu Solder)



Series	Pre-heating		Standard Profile			Limit Profile		
			Heating		Cycle of Flow	Heating		Cycle of Flow
	Temp. (T1)	Time. (t1)	Temp. (T2)	Time. (t2)		Temp. (T3)	Time. (t2)	
BLM (Except BLM02/03/15/18G) BLA31	150°C	60s min.	250°C	4 to 6s	2 times max.	265±3°C	5s max.	2 times max.

- Reflow Soldering Profile
(Sn-3.0Ag-0.5Cu Solder)



Series	Standard Profile				Limit Profile			
	Heating		Peak Temperature (T2)	Cycle of Reflow	Heating		Peak Temperature (T4)	Cycle of Reflow
	Temp. (T1)	Time. (t1)			Temp. (T3)	Time. (t2)		
BLM BLA	220°C min.	30 to 60s	245±3°C	2 times max.	230°C min.	60s max.	260°C/10s	2 times max.

(3) Reworking with Solder Iron

The following conditions must be strictly followed when using a soldering iron. (Except BLM02 Series)

Pre-heating: 150°C 60s min.

Soldering iron power output / Tip diameter:

80W max. / ø3mm max.

Temperature of soldering iron tip / Soldering time / Times:
350°C max. / 3-4s / 2 times

Do not allow the tip of the soldering iron to directly contact the chip.

For additional methods of reworking with a soldering iron, please contact Murata engineering.

4. Cleaning

Following conditions should be observed when cleaning chip ferrite beads.

(1) Cleaning Temperature: 60°C max. (40°C max. for alcohol type cleaner)

(2) Ultrasonic

Output: 20W/liter max.

Duration: 5 minutes max.

Frequency: 28 to 40kHz

(3) Cleaning Agent

The following list of cleaning agents have been tested on the individual components. Evaluation of final assembly should be completed prior to production.

(a) Alcohol cleaning agent

Isopropyl alcohol (IPA)

(b) Aqueous cleaning agent

Pine Alpha ST-100S

(4) Ensure that flux residue is completely removed.

Component should be thoroughly dried after aqueous agent has been removed with deionized water.

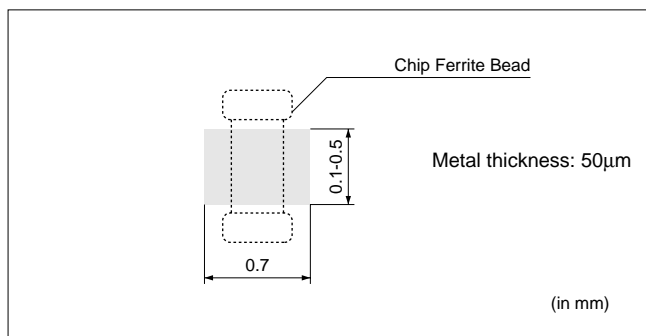
(5) BLM_G type is processed with resin. On rinsing the product, using water for ultrasonic cleaning may affect the resin quality used for the product by water element. In case of set cleaning conditions, please make sure the reliability according to the cleaning conditions.

5. Mounting of BLM15_AN1 Series

BLM15_AN1 is series for wire bonding mounting.

(1) Die Bonding Mounting

(a) Dimension of Standard Metal Mask



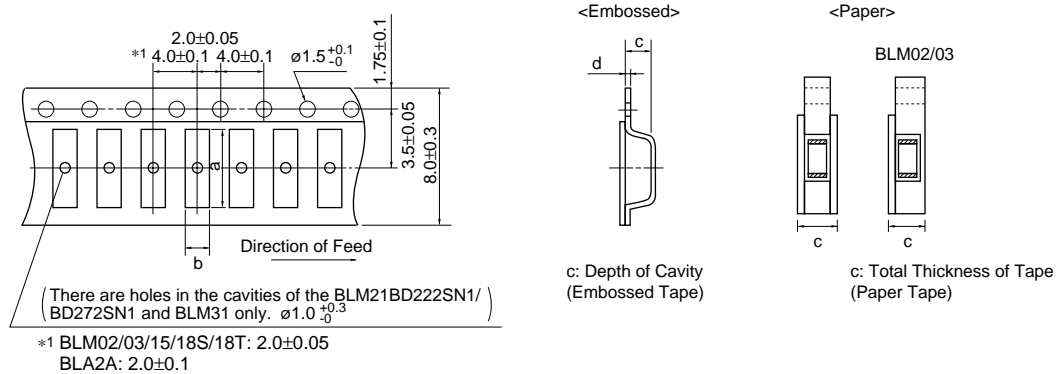
(b) Die Bonding Agent

- Use adhesive for die bonding for which the curing temperature is 200°C or less.

(c) Notice

- Use a flat surface of substrate for bonding mounting. Slant mounting of product may affect the wire bonding.
- Adhesive for die bonding may affect the mounting reliability in wire bonding. Make sure of the mounting reliability with the adhesive to be used in advance.

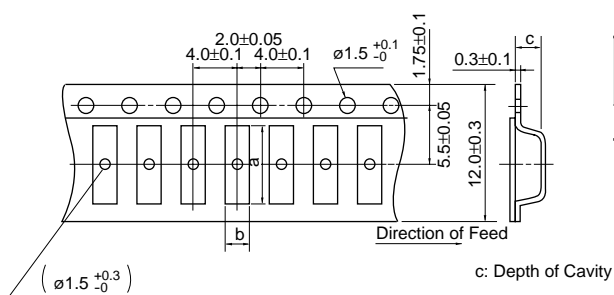
■ Minimum Quantity and Dimensions of 8mm Width Paper / Embossed Tape



Part Number	Cavity Size (mm)				Minimum Qty. (pcs.)				
					ø180mm Reel		ø330mm Reel		Bulk
	a	b	c	d	Paper Tape	Embossed Tape	Paper Tape	Embossed Tape	
BLM02	0.45	0.25	0.40 max.	-	20000	-	-	-	1000
BLM03	0.70	0.40	0.55 max.	-	15000	-	50000	-	1000
BLM15	1.15	0.65	0.8 max.	-	10000	-	50000	-	1000
BLM18	1.85	1.05	1.1 max.	-	4000	-	10000	-	1000
BLM18EG/KG_TN	1.85	1.05	0.85 max.	-	4000	-	10000	-	1000
BLM18EG/KG_SN			1.1 max.						
BLM18S	1.85	1.05	0.90 max.	-	10000	-	30000	-	1000
BLM18T	1.85	1.05	0.90 max.	-	10000	-	-	-	1000
BLM21	2.25	1.45	1.1 max.	-	4000	-	10000	-	1000
BLM31	3.5	1.9	1.3	0.2	-	3000	-	10000	1000
BLM21BD222SN1/272SN1	2.25	1.45	1.3	0.2	-	3000	-	10000	1000
BLA2A	2.2	1.2	0.8 max.	-	10000	-	50000	-	1000
BLA31	3.4	1.8	1.1 max.	-	4000	-	10000	-	1000

(in mm)

■ Minimum Quantity and Dimensions of 12mm Width Embossed Tape

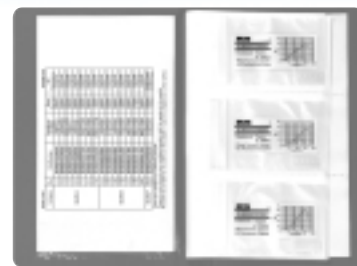


Part Number	Cavity Size			Minimum Qty. (pcs.)		
	a	b	c	ø180mm Reel	ø330mm Reel	Bulk
BLM41	4.8	1.9	1.75	2500	8000	1000

(in mm)

"Minimum Quantity" means the number of units of each delivery or order. The quantity should be an integral multiple of the "Minimum Quantity".

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●EKEMBL03G (Chip Ferrite Beads 01005 Size / 0201 Size)

No.	Part Number	Quantity (pcs.)	Impedance typ. (at 100MHz, 20 degrees C)	Rated Current (mA)	DC Resistance (Ω) max.
1	BLM02AG100SN1	10	10Ω (Typ.)	500	0.1
2	BLM02AG700SN1	10	70Ω±25%	250	0.5
3	BLM02AG121SN1	10	120Ω±25%	200	0.8
4	BLM03AG100SN1	10	10Ω (Typ.)	500	0.1
5	BLM03AG700SN1	10	70Ω (Typ.)	200	0.4
6	BLM03AG800SN1	10	80Ω±25%	200	0.4
7	BLM03AG121SN1	10	120Ω±25%	200	0.5
8	BLM03AG241SN1	10	240Ω±25%	200	0.8
9	BLM03AG601SN1	10	600Ω±25%	100	1.5
10	BLM03AG102SN1	10	1000Ω±25%	100	2.5
11	BLM03AX100SN1	10	10Ω (Typ.)	1000	0.05
12	BLM03AX800SN1	10	80Ω±25%	500	0.18
13	BLM03AX121SN1	10	120Ω±25%	450	0.23
14	BLM03AX241SN1	10	240Ω±25%	350	0.38
15	BLM03AX601SN1	10	600Ω±25%	250	0.85
16	BLM03AX102SN1	10	1000Ω±25%	200	1.25
17	BLM03BB100SN1	10	10Ω±25%	300	0.4
18	BLM03BB220SN1	10	22Ω±25%	200	0.5
19	BLM03BB470SN1	10	47Ω±25%	200	0.7
20	BLM03BB750SN1	10	75Ω±25%	200	1.0
21	BLM03BB121SN1	10	120Ω±25%	100	1.5
22	BLM03BD750SN1	10	75Ω±25%	300	0.4
23	BLM03BD121SN1	10	120Ω±25%	250	0.5
24	BLM03BD241SN1	10	240Ω±25%	200	0.8
25	BLM03BD471SN1	10	470Ω±25%	215	1.5
26	BLM03BD601SN1	10	600Ω±25%	200	1.7
27	BLM03BC330SN1	10	33Ω±25%	150	0.85
28	BLM03BC560SN1	10	56Ω±25%	100	1.05
29	BLM03BC800SN1	10	80Ω±25%	100	1.40
30	BLM03HG601SN1	10	600Ω±25%	150	1.6
31	BLM03HG102SN1	10	1000Ω±25%	125	2.6
32	BLM03HD331SN1	10	330Ω±25%	200	1.0
33	BLM03HD471SN1	10	470Ω±25%	175	1.3
34	BLM03HD601SN1	10	600Ω±25%	150	1.7
35	BLM03HD102SN1	10	1000Ω±25%	120	2.9
36	BLM03PG220SN1	10	22Ω±25%	900	0.065
37	BLM03PG330SN1	10	33Ω±25%	750	0.090

●EKEMBL15N (Chip Ferrite Beads 0402 Size)

No.	Part Number	Quantity (pcs.)	Impedance typ. (at 100MHz, 20 degrees C)	Rated Current (mA)	DC Resistance (Ω) max.
1	BLM15AG100SN1	10	10Ω (Typ.)	1000	0.05
2	BLM15AG700SN1	10	70Ω (Typ.)	500	0.15
3	BLM15AG121SN1	10	120Ω±25%	500	0.25
4	BLM15AG221SN1	10	220Ω±25%	300	0.35
5	BLM15AG601SN1	10	600Ω±25%	300	0.60
6	BLM15AG102SN1	10	1000Ω±25%	200	1.00
7	BLM15AX100SN1	10	10Ω (Typ.)	1740	0.015
8	BLM15AX300SN1	10	30Ω±25%	1100	0.06
9	BLM15AX700SN1	10	70Ω±25%	780	0.10
10	BLM15AX121SN1	10	120Ω±25%	680	0.13
11	BLM15AX221SN1	10	220Ω±25%	580	0.18
12	BLM15AX601SN1	10	600Ω±25%	420	0.34
13	BLM15AX102SN1	10	1000Ω±25%	350	0.49
14	BLM15BA050SN1	10	5Ω±25%	300	0.10

Continued on the following page.

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Continued from the preceding page.

No.	Part Number	Quantity (pcs.)	Impedance typ. (at 100MHz, 20 degrees C)	Rated Current (mA)	DC Resistance (Ω) max.
15	BLM15BA100SN1	10	10Ω±25%	300	0.20
16	BLM15BA220SN1	10	22Ω±25%	300	0.30
17	BLM15BA330SN1	10	33Ω±25%	300	0.40
18	BLM15BA470SN1	10	47Ω±25%	200	0.60
19	BLM15BA750SN1	10	75Ω±25%	200	0.80
20	BLM15BB050SN1	10	5Ω±25%	500	0.08
21	BLM15BB100SN1	10	10Ω±25%	300	0.10
22	BLM15BB220SN1	10	22Ω±25%	300	0.20
23	BLM15BB470SN1	10	47Ω±25%	300	0.35
24	BLM15BB750SN1	10	75Ω±25%	300	0.40
25	BLM15BB121SN1	10	120Ω±25%	300	0.55
26	BLM15BB221SN1	10	220Ω±25%	200	0.80
27	BLM15BC121SN1	10	120Ω±25%	350	0.45
28	BLM15BC241SN1	10	240Ω±25%	250	0.70
29	BLM15BD750SN1	10	75Ω±25%	300	0.20
30	BLM15BD121SN1	10	120Ω±25%	300	0.30
31	BLM15BD221SN1	10	220Ω±25%	300	0.40
32	BLM15BD471SN1	10	470Ω±25%	200	0.60
33	BLM15BD601SN1	10	600Ω±25%	200	0.65
34	BLM15BD102SN1	10	1000Ω±25%	200	0.90
35	BLM15BD182SN1	10	1800Ω±25%	100	1.40
36	BLM15HD601SN1	10	600Ω±25%	300	0.85
37	BLM15HD102SN1	10	1000Ω±25%	250	1.25
38	BLM15HD182SN1	10	1800Ω±25%	200	2.20
39	BLM15HG601SN1	10	600Ω±25%	300	0.70
40	BLM15HG102SN1	10	1000Ω±25%	250	1.10
41	BLM15HB121SN1	10	120Ω±25%	300	0.70
42	BLM15HB221SN1	10	220Ω±25%	250	1.00
43	BLM15EG121SN1	10	120Ω±25%	1500	0.095
44	BLM15EG221SN1	10	220Ω±25%	700	0.28
45	BLM15GG221SN1	10	220Ω±25%	300	0.70
46	BLM15GG471SN1	10	470Ω±25%	200	1.30
47	BLM15GA750SN1	10	75Ω±25%	200	1.30
48	BLM15PG100SN1	10	10Ω (Typ.)	1000	0.05
49	BLM15PD300SN1	10	30Ω±25%	2200	0.035
50	BLM15PD600SN1	10	60Ω±25%	1700	0.06
51	BLM15PD800SN1	10	80Ω±25%	1500	0.07
52	BLM15PD121SN1	10	120Ω±25%	1300	0.09
53	BLM15PX121SN1	10	120Ω±25%	1800	0.06

●EKEMBL18H (Chip Ferrite Beads 0603 Size)

No.	Part Number	Quantity (pcs.)	Impedance typ. (at 100MHz, 20 degrees C)	Rated Current (mA)	DC Resistance (Ω) max.
1	BLM18AG121SN1	10	120Ω±25%	500	0.18
2	BLM18AG151SN1	10	150Ω±25%	500	0.25
3	BLM18AG221SN1	10	220Ω±25%	500	0.25
4	BLM18AG331SN1	10	330Ω±25%	500	0.30
5	BLM18AG471SN1	10	470Ω±25%	500	0.35
6	BLM18AG601SN1	10	600Ω±25%	500	0.38
7	BLM18AG102SN1	10	1000Ω±25%	400	0.50
8	BLM18BA050SN1	10	5Ω±25%	500	0.20
9	BLM18BA100SN1	10	10Ω±25%	500	0.25
10	BLM18BA470SN1	10	47Ω±25%	300	0.55
11	BLM18BA750SN1	10	75Ω±25%	300	0.70
12	BLM18BA121SN1	10	120Ω±25%	200	0.90
13	BLM18BB050SN1	10	5Ω±25%	700	0.05
14	BLM18BB100SN1	10	10Ω±25%	700	0.10
15	BLM18BB220SN1	10	22Ω±25%	600	0.20
16	BLM18BB470SN1	10	47Ω±25%	550	0.25
17	BLM18BB600SN1	10	60Ω±25%	550	0.25
18	BLM18BB750SN1	10	75Ω±25%	500	0.30
19	BLM18BB121SN1	10	120Ω±25%	500	0.30
20	BLM18BB151SN1	10	150Ω±25%	450	0.37
21	BLM18BB221SN1	10	220Ω±25%	450	0.45
22	BLM18BB331SN1	10	330Ω±25%	400	0.58

Continued on the following page. 

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Continued from the preceding page.

No.	Part Number	Quantity (pcs.)	Impedance typ. (at 100MHz, 20 degrees C)	Rated Current (mA)	DC Resistance (Ω) max.
23	BLM18BB471SN1	10	470Ω±25%	300	0.85
24	BLM18BD470SN1	10	47Ω±25%	200	0.30
25	BLM18BD121SN1	10	120Ω±25%	200	0.40
26	BLM18BD151SN1	10	150Ω±25%	200	0.40
27	BLM18BD221SN1	10	220Ω±25%	200	0.45
28	BLM18BD331SN1	10	330Ω±25%	200	0.50
29	BLM18BD421SN1	10	420Ω±25%	200	0.55
30	BLM18BD471SN1	10	470Ω±25%	200	0.55
31	BLM18BD601SN1	10	600Ω±25%	200	0.65
32	BLM18BD102SN1	10	1000Ω±25%	100	0.85
33	BLM18BD152SN1	10	1500Ω±25%	50	1.20
34	BLM18BD182SN1	10	1800Ω±25%	50	1.50
35	BLM18BD222SN1	10	2200Ω±25%	50	1.50
36	BLM18BD252SN1	10	2500Ω±25%	50	1.50
37	BLM18PG300SN1	10	30Ω (Typ.)	1000	0.05
38	BLM18PG330SN1	10	33Ω±25%	3000	0.025
39	BLM18PG600SN1	10	60Ω (Typ.)	500	0.10
40	BLM18PG121SN1	10	120Ω±25%	2000	0.05
41	BLM18PG181SN1	10	180Ω±25%	1500	0.09
42	BLM18PG221SN1	10	220Ω±25%	1400	0.10
43	BLM18PG331SN1	10	330Ω±25%	1200	0.15
44	BLM18PG471SN1	10	470Ω±25%	1000	0.20
45	BLM18KG260TN1	10	26Ω±25%	6000	0.007
46	BLM18KG300TN1	10	30Ω±25%	5000	0.010
47	BLM18KG700TN1	10	70Ω±25%	3500	0.022
48	BLM18KG101TN1	10	100Ω±25%	3000	0.030
49	BLM18KG121TN1	10	120Ω±25%	3000	0.030
50	BLM18KG221SN1	10	220Ω±25%	2200	0.050
51	BLM18KG331SN1	10	330Ω±25%	1700	0.080
52	BLM18KG471SN1	10	470Ω±25%	1500	0.130
53	BLM18KG601SN1	10	600Ω±25%	1300	0.150
54	BLM18SG260TN1	10	26Ω±25%	6000	0.007
55	BLM18SG700TN1	10	70Ω±25%	4000	0.020
56	BLM18SG121TN1	10	120Ω±25%	3000	0.025
57	BLM18SG221TN1	10	220Ω±25%	2500	0.040
58	BLM18SG331TN1	10	330Ω±25%	1500	0.070

●EKEMBL8GA (Chip Ferrite Beads 0603 Size / for High Frequency Type)

No.	Part Number	Quantity (pcs.)	Impedance (at 100MHz, 20 degrees C)	Impedance (at 1GHz, 20 degrees C)	Rated Current (mA)	DC Resistance (Ω) max.
1	BLM18HG471SN1	10	470Ω±25%	600Ω (Typ.)	200	0.85
2	BLM18HG601SN1	10	600Ω±25%	700Ω (Typ.)	200	1.00
3	BLM18HG102SN1	10	1000Ω±25%	1000Ω (Typ.)	100	1.60
4	BLM18HB121SN1	10	120Ω±25%	500Ω±40%	200	0.50
5	BLM18HB221SN1	10	220Ω±25%	1100Ω±40%	100	0.80
6	BLM18HB331SN1	10	330Ω±25%	1600Ω±40%	50	1.20
7	BLM18HD471SN1	10	470Ω±25%	1000Ω (Typ.)	100	1.20
8	BLM18HD601SN1	10	600Ω±25%	1200Ω (Typ.)	100	1.50
9	BLM18HD102SN1	10	1000Ω±25%	1700Ω (Typ.)	50	1.80
10	BLM18HE601SN1	10	600Ω±25%	600Ω (Typ.)	800	0.25
11	BLM18HE102SN1	10	1000Ω±25%	1000Ω (Typ.)	600	0.35
12	BLM18HE152SN1	10	1500Ω±25%	1500Ω (Typ.)	500	0.50
13	BLM18HK331SN1	10	330Ω±25%	400Ω (Typ.)	200	0.50
14	BLM18HK471SN1	10	470Ω±25%	600Ω (Typ.)	200	0.70
15	BLM18HK601SN1	10	600Ω±25%	700Ω (Typ.)	100	0.90
16	BLM18HK102SN1	10	1000Ω±25%	1200Ω (Typ.)	50	1.50
17	BLM18EG101TN1	10	100Ω±25%	140Ω (Typ.)	2000	0.045
18	BLM18EG121SN1	10	120Ω±25%	145Ω (Typ.)	2000	0.04
19	BLM18EG221TN1	10	220Ω±25%	300Ω (Typ.)	1000	0.15
20	BLM18EG221SN1	10	220Ω±25%	260Ω (Typ.)	2000	0.05
21	BLM18EG331TN1	10	330Ω±25%	450Ω (Typ.)	500	0.21
22	BLM18EG391TN1	10	390Ω±25%	520Ω (Typ.)	500	0.30
23	BLM18EG471SN1	10	470Ω±25%	550Ω (Typ.)	500	0.21
24	BLM18EG601SN1	10	600Ω±25%	700Ω (Typ.)	500	0.35
25	BLM18GG471SN1	10	470Ω±25%	1800Ω±30%	200	1.30

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●EKEMBL21E (Chip Ferrite Beads 0805 Size / for Large-current P Type)

No.	Part Number	Quantity (pcs.)	Impedance typ. (at 100MHz, 20 degrees C)	Rated Current (mA)	DC Resistance (Ω) max.
1	BLM21AG121SN1	10	120Ω±25%	200	0.15
2	BLM21AG151SN1	10	150Ω±25%	200	0.15
3	BLM21AG221SN1	10	220Ω±25%	200	0.20
4	BLM21AG331SN1	10	330Ω±25%	200	0.25
5	BLM21AG471SN1	10	470Ω±25%	200	0.25
6	BLM21AG601SN1	10	600Ω±25%	200	0.30
7	BLM21AG102SN1	10	1000Ω±25%	200	0.45
8	BLM21BB050SN1	10	5Ω±25%	500	0.07
9	BLM21BB600SN1	10	60Ω±25%	200	0.20
10	BLM21BB750SN1	10	75Ω±25%	200	0.25
11	BLM21BB121SN1	10	120Ω±25%	200	0.25
12	BLM21BB221SN1	10	220Ω±25%	200	0.35
13	BLM21BB331SN1	10	330Ω±25%	200	0.40
14	BLM21BB471SN1	10	470Ω±25%	200	0.45
15	BLM21BD121SN1	10	120Ω±25%	200	0.25
16	BLM21BD221SN1	10	220Ω±25%	200	0.25
17	BLM21BD421SN1	10	420Ω±25%	200	0.30
18	BLM21BD471SN1	10	470Ω±25%	200	0.35
19	BLM21BD601SN1	10	600Ω±25%	200	0.35
20	BLM21BD102SN1	10	1000Ω±25%	200	0.40
21	BLM21BD152SN1	10	1500Ω±25%	200	0.45
22	BLM21BD182SN1	10	1800Ω±25%	200	0.50
23	BLM21BD222SN1	10	2250Ω (Typ.)	200	0.60
24	BLM21BD222TN1	10	2200Ω±25%	200	0.60
25	BLM21BD272SN1	10	2700Ω±25%	200	0.80
26	BLM21PG220SN1	10	22Ω±25%	6000	0.01
27	BLM21PG300SN1	10	30Ω (Typ.)	3000	0.015
28	BLM21PG600SN1	10	60Ω±25%	3000	0.025
29	BLM21PG121SN1	10	120Ω±25%	3000	0.03
30	BLM21PG221SN1	10	220Ω±25%	2000	0.050
31	BLM21PG331SN1	10	330Ω±25%	1500	0.09
32	BLM31PG330SN1	10	33Ω±25%	6000	0.01
33	BLM31PG500SN1	10	50Ω (Typ.)	3000	0.025
34	BLM31PG121SN1	10	120Ω±25%	3000	0.025
35	BLM31PG391SN1	10	390Ω (Typ.)	2000	0.05
36	BLM31PG601SN1	10	600Ω (Typ.)	1500	0.09
37	BLM41PG600SN1	10	60Ω (Typ.)	6000	0.01
38	BLM41PG750SN1	10	75Ω (Typ.)	3000	0.025
39	BLM41PG181SN1	10	180Ω (Typ.)	3000	0.025
40	BLM41PG471SN1	10	470Ω (Typ.)	2000	0.05
41	BLM41PG102SN1	10	1000Ω (Typ.)	1500	0.09

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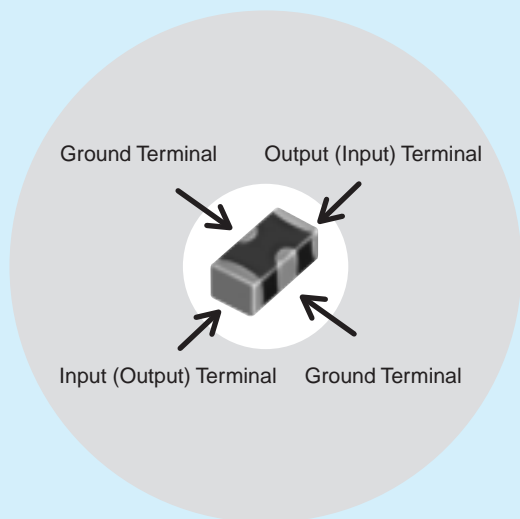
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Chip EMIFIL®

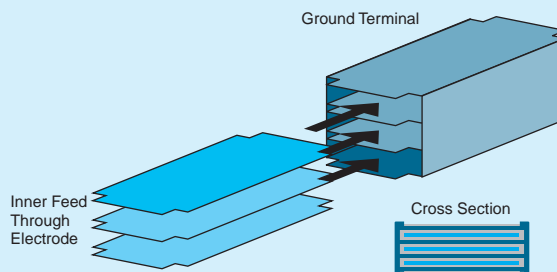
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NF Series Introduction



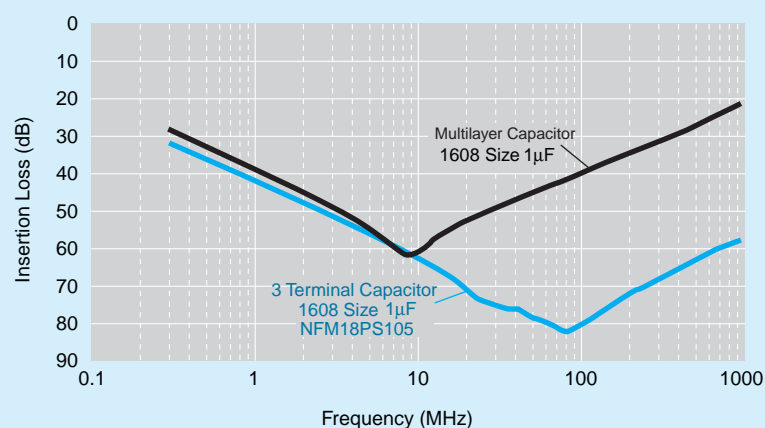
Example of 3 Terminal Capacitor Structure

Chip 3 terminal capacitor is chip shaped 3 terminal capacitor designed for noise suppression. Its inner structure like feed through capacitor makes its ground impedance quite low. Owing to this structure, 3 terminal capacitor has good noise suppression effect at high frequency range up to several hundred MHz.



Series	Equivalent Circuit	Part Number	
NFM Series (3 terminal capacitor)		NFM18CC	
		NFM21CC	
		NFM18PC	
		NFM18PS	
		NFM21PC	
NFL / NFW Series (LC filter)		NFL18ST	
		NFL18SP	
		NFL21SP	
NFR Series (RC filter)		NFA21S	
		NFA18S	
NFE Series (Feed through capacitor with ferrite cores)		NFE31PT	
		NFE61PT	

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Insertion Loss Sample	Features	Classification		Applications	Example
	Standard of 3 terminal capacitor	NFM_CC	Standard type with varied capacitance	Noise suppression in low speed signal lines	<ul style="list-style-type: none"> Low speed interface lines, sensor
		NFM_PC	Meet large current, high capacitance available, for power lines	Noise suppression in power lines	<ul style="list-style-type: none"> Individual IC power lines
	Sharp insertion loss curve enables low damage to signal waveform	NFL_ST	T-type filter, effective in low impedance circuits	Noise suppression in high speed signal lines	<ul style="list-style-type: none"> High speed interface lines Bus lines LCD lines Camera I/Fs High speed analog lines RGB / D terminal
		NFL_SP	π-type filter, effective in high impedance circuits		
		NFW_SP	π-type filter, designed for low impedance circuits		
		NFA_SL	4-line array, suitable for bus lines or flat cables		
	Limit noise using resistor, also loop back to ground			Noise suppression in signal line with unstable ground	<ul style="list-style-type: none"> Interface lines Clock lines
	Meet large current, good high frequency performance because of its feed through structure			Noise suppression in power lines / low impedance lines	<ul style="list-style-type: none"> Various power lines sensor

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NF Chip EMIFIL® Part Numbering

Capacitor

(Part Number)

NF	M	3D	CC	102	R	1H	3	L
①	②	③	④	⑤	⑥	⑦	⑧	⑨

① Product ID

Product ID	
NF	Chip EMIFIL®

② Structure

Code	Structure
M	Capacitor Type
A	Capacitor Array Type

③ Dimensions (L×W)

Code	Dimensions (L×W)	EIA
18	1.6×0.8mm	0603
21	2.0×1.25mm	0805
3D	3.2×1.25mm	1205
31	3.2×1.6mm	1206
41	4.5×1.6mm	1806
55	5.7×5.0mm	2220

④ Features

Code	Features
CC	Capacitor Type for Signal Lines
PC	Capacitor Type for Large Current
PS	High Loss Type for Large Current

⑤ Capacitance

Expressed by three figures. The unit is in pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

⑨ Packaging

Code	Packaging	Series
L	Embossed Taping (ø180mm Reel)	NFM3D/NFM31/NFM41/NFM55
B	Bulk	All series
D	Paper Taping (ø180mm Reel)	NFM18/NFM21/NFA□□CC

⑥ Characteristics

Code	Capacitance Change (Temperature Characteristics)
B	±10%, ±12.5%, +10/-13%
F	+30/-80%, +30/-84%
R	±15%, +15/-18%
U	-750 ±120ppm/°C
S	+350 to -1000ppm/°C

⑦ Rated Voltage

Code	Rated Voltage
0J	6.3V
1A	10V
1C	16V
1E	25V
1H	50V
2A	100V

⑧ Electrode/Others (NFM Series)

Code	Electrode	Series
3	Sn Plating	NFM (Except NFM55)
4	Solder Coating	NFM55

⑧ Number of Circuits (NFA□□CC Series)

Code	Number of Circuits
4	4 Circuits

LC Combined (1)

(Part Number)

NF	L	18	ST	107	X	1C	3	L
①	②	③	④	⑤	⑥	⑦	⑧	⑨

① Product ID

Product ID	
NF	Chip EMIFIL®

② Structure

Code	Structure
L	Multilayer, LC Combined Type
W	Wire Wound, LC Combined Type
E	Block, LC Combined Type

③ Dimensions (L×W)

Code	Dimensions (L×W)	EIA
18	1.6×0.8mm	0603
21	2.0×1.25mm	0805
31	3.2×1.6mm	1206
61	6.8×1.6mm	2606

④ Features

Code	Features
SP	π Circuit for Signal Lines
ST	T Circuit for Signal Lines
PT	T Circuit for Large Current

⑤ Cut-off Frequency (NFL/NFW Series)

Expressed by three figures. The unit is in hertz (Hz). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

⑤ Capacitance (NFE Series)

Expressed by three figures. The unit is in pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

⑨ Packaging

Code	Packaging	Series
K	Embossed Taping (ø330mm Reel)	NFW31/NFE
L	Embossed Taping (ø180mm Reel)	NFW31/NFE
B	Bulk	NFL18/NFL21/NFE
D	Paper Taping (ø180mm Reel)	NFL18/NFL21

⑥ Characteristics (NFL/NFW Series)

Code	Characteristics
X	Cut-off Frequency

⑥ Characteristics (NFE Series)

Code	Capacitance Change (Temperature Characteristics)
B	±10%
C	±20%, ±22%
D	+20/-30%, +22/-33%
E	+20/-55%, +22/-56%
F	+30/-80%, +22/-82%
R	±15%
U	-750 ±120ppm/ °C
Z	Other

⑦ Rated Voltage

Code	Rated Voltage
1A	10V
1C	16V
1E	25V
1H	50V
2A	100V

⑧ Electrode

Code	Electrode	Series
3/7	Sn Plating	NFL
4	Lead Free Solder Coating	NFW
9	Others	NFE

LC Combined (2)

(Part Number)

NF	A	21	SL	207	X	1A	4	5	L
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩

① Product ID

Product ID	
NF	Chip EMIFIL®

② Structure

Code	Structure
A	Array Type

③ Dimensions (L×W)

Code	Dimensions (L×W)	EIA
18	1.6×0.8mm	0603
21	2.0×1.25mm	0805

④ Features (1)

Code	Features
SL	L Circuit for Signal Lines
SD	L Circuit for Differential Signal

⑤ Cut-off Frequency

Expressed by three figures. The unit is in hertz (Hz). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

⑥ Features (2)

Code	Features
X	Expressed by a letter
V	

⑦ Rated Voltage

Code	Rated Voltage
1A	10V

⑧ Number of Circuits

Code	Number of Circuits
4	4 Circuits

⑨ Dimensions (T)

Code	Dimensions (T)
5	Low Profile
8	Standard

⑩ Packaging

Code	Packaging
B	Bulk
L	Embossed Taping (ø180mm Reel)

RC Combined

(Part Number)

NF	R	21	GD	470	470	2	L
①	②	③	④	⑤	⑥	⑦	⑧

① Product ID

Product ID	
NF	Chip EMIFIL®

② Structure

Code	Structure
R	RC Combined Type
A	RC Combined Array Type

③ Dimensions (L×W)

Code	Dimensions (L×W)	EIA
21	2.0×1.25mm	0805
31	3.2×1.6mm	1206

④ Features

Code	Features
GD	RC Combined Type for Signal Lines

⑧ Packaging

Code	Packaging	Series
L	Embossed Taping (ø180mm Reel)	NFR
B	Bulk	All Series
D	Paper Taping (ø180mm Reel)	NFA□□GD

⑤ Capacitance

Expressed by three figures. The unit is in pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

⑥ Resistance

Expressed by three-digit alphanumerics. The unit is in ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

⑦ Electrode/Others (NFR Series)

Code	Electrode
2	Sn Plating

⑦ Number of Circuits (NFA□□GD Series)

Code	Number of Circuits
4	4 Circuits

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Type	Size Code (Inch)	Thickness (mm)	Part Number	Rated Voltage	Capacitance	Nominal Cut-off Frequency	Rated Current	New	Kit	≥1A ≥3A	DTV	Flow	ReFlow
Capacitor Type for Signal Lines	p120	0.6	NFM18CC220U1C3	16Vdc	22pF+20%-20%	-	400mA		Kit				ReFlow
		0.6	NFM18CC470U1C3	16Vdc	47pF+20%-20%	-	400mA		Kit				ReFlow
		0.6	NFM18CC101R1C3	16Vdc	100pF+20%-20%	-	500mA		Kit				ReFlow
		0.6	NFM18CC221R1C3	16Vdc	220pF+20%-20%	-	500mA		Kit				ReFlow
		0.6	NFM18CC471R1C3	16Vdc	470pF+20%-20%	-	500mA		Kit				ReFlow
		0.6	NFM18CC102R1C3	16Vdc	1000pF+20%-20%	-	600mA		Kit				ReFlow
		0.6	NFM18CC222R1C3	16Vdc	2200pF+20%-20%	-	700mA		Kit				ReFlow
		0.6	NFM18CC223R1C3	16Vdc	22000pF+20%-20%	-	1000mA		Kit	≥1A			ReFlow
	p121	0.85	NFM21CC220U1H3	50Vdc	22pF+20%-20%	-	700mA		Kit				ReFlow
		0.85	NFM21CC470U1H3	50Vdc	47pF+20%-20%	-	700mA		Kit				ReFlow
		0.85	NFM21CC101U1H3	50Vdc	100pF+20%-20%	-	700mA		Kit				ReFlow
		0.85	NFM21CC221R1H3	50Vdc	220pF+20%-20%	-	700mA		Kit				ReFlow
		0.85	NFM21CC471R1H3	50Vdc	470pF+20%-20%	-	1000mA		Kit	≥1A			ReFlow
		0.85	NFM21CC102R1H3	50Vdc	1000pF+20%-20%	-	1000mA		Kit	≥1A			ReFlow
		0.85	NFM21CC222R1H3	50Vdc	2200pF+20%-20%	-	1000mA		Kit	≥1A			ReFlow
		0.85	NFM21CC223R1H3	50Vdc	22000pF+20%-20%	-	2000mA		Kit	≥1A			ReFlow
	p122	0.7	NFM3DCC220U1H3	50Vdc	22pF+50%-20%	-	300mA					Flow	ReFlow
		0.7	NFM3DCC470U1H3	50Vdc	47pF+50%-20%	-	300mA					Flow	ReFlow
		0.7	NFM3DCC101U1H3	50Vdc	100pF+50%-20%	-	300mA					Flow	ReFlow
		0.7	NFM3DCC221R1H3	50Vdc	220pF+50%-20%	-	300mA					Flow	ReFlow
		0.7	NFM3DCC471R1H3	50Vdc	470pF+50%-20%	-	300mA					Flow	ReFlow
		0.7	NFM3DCC102R1H3	50Vdc	1000pF+50%-20%	-	300mA					Flow	ReFlow
		0.7	NFM3DCC222R1H3	50Vdc	2200pF+50%-20%	-	300mA					Flow	ReFlow
		0.7	NFM3DCC223R1H3	50Vdc	22000pF+50%-20%	-	300mA					Flow	ReFlow
	p123	1.0	NFM41CC220U2A3	100Vdc	22pF+50%-20%	-	300mA					Flow	ReFlow
		1.0	NFM41CC470U2A3	100Vdc	47pF+50%-20%	-	300mA					Flow	ReFlow
		1.0	NFM41CC101U2A3	100Vdc	100pF+50%-20%	-	300mA					Flow	ReFlow
		1.0	NFM41CC221U2A3	100Vdc	220pF+50%-20%	-	300mA					Flow	ReFlow
		1.0	NFM41CC471R2A3	100Vdc	470pF+50%-20%	-	300mA					Flow	ReFlow
		1.0	NFM41CC102R2A3	100Vdc	1000pF+50%-20%	-	300mA					Flow	ReFlow
		1.0	NFM41CC222R2A3	100Vdc	2200pF+50%-20%	-	300mA					Flow	ReFlow
		1.0	NFM41CC223R2A3	100Vdc	22000pF+50%-20%	-	300mA					Flow	ReFlow
Capacitor Array Type for Signal Lines	p124	0.8	NFA31CC220S1E4	25Vdc	22pF+20%-20%	-	200mA		Kit				ReFlow
		0.8	NFA31CC470S1E4	25Vdc	47pF+20%-20%	-	200mA		Kit				ReFlow
		0.8	NFA31CC101S1E4	25Vdc	100pF+20%-20%	-	200mA		Kit				ReFlow
		0.8	NFA31CC221S1E4	25Vdc	220pF+20%-20%	-	200mA		Kit				ReFlow
		0.8	NFA31CC471R1E4	25Vdc	470pF+20%-20%	-	200mA		Kit				ReFlow
		0.8	NFA31CC102R1E4	25Vdc	1000pF+20%-20%	-	200mA		Kit				ReFlow
		0.8	NFA31CC222R1E4	25Vdc	2200pF+20%-20%	-	200mA		Kit				ReFlow
		0.8	NFA31CC223R1C4	16Vdc	22000pF+20%-20%	-	200mA		Kit				ReFlow
Capacitor Type for Power Lines	p112	0.6	NFM18PS474R0J3	6.3Vdc	0.47μF+20%-20%	-	2A		Kit	≥1A			ReFlow
		0.6	NFM18PS105R0J3	6.3Vdc	1.0μF+20%-20%	-	2A		Kit	≥1A			ReFlow
	p113	0.6	NFM18PC104R1C3	16Vdc	0.1μF+20%-20%	-	2A		Kit	≥1A			ReFlow
		0.6	NFM18PC224R0J3	6.3Vdc	0.22μF+20%-20%	-	2A		Kit	≥1A			ReFlow
		0.6	NFM18PC474R0J3	6.3Vdc	0.47μF+20%-20%	-	2A		Kit	≥1A			ReFlow
		0.6	NFM18PC105R0J3	6.3Vdc	1.0μF+20%-20%	-	4A		Kit	≥1A			ReFlow
		0.6	NFM18PC225B0J3	6.3Vdc	2.2μF+20%-20%	-	2A		Kit	≥1A			ReFlow
		0.8	NFM18PC225B1A3	10Vdc	2.2μF+20%-20%	-	4A		Kit	≥3A			ReFlow
	p115	0.85	NFM21PC104R1E3	25Vdc	0.1μF+20%-20%	-	2A		Kit	≥1A			ReFlow
		0.85	NFM21PC224R1C3	16Vdc	0.22μF+20%-20%	-	2A		Kit	≥1A			ReFlow
		0.85	NFM21PC474R1C3	16Vdc	0.47μF+20%-20%	-	2A		Kit	≥1A			ReFlow
		0.85	NFM21PC105B1A3	10Vdc	1.0μF+20%-20%	-	4A		Kit	≥3A			ReFlow
		0.85	NFM21PC105B1C3	16Vdc	1.0μF+20%-20%	-	4A		Kit	≥3A			ReFlow
		0.85	NFM21PC225B0J3	6.3Vdc	2.2μF+20%-20%	-	4A		Kit	≥3A			ReFlow
		0.85	NFM21PC475B1A3	10Vdc	4.7μF+20%-20%	-	6A		Kit	≥3A			ReFlow
	1205	p116	NFM3DPC223R1H3	50Vdc	0.022μF+20%-20%	-	2A			≥1A		Flow	ReFlow
	1206	p117	NFM31PC276B0J3	6.3Vdc	27μF+20%-20%	-	6A		Kit	≥3A		Flow	ReFlow
	p118	1.0	NFM41PC204F1H3	50Vdc	0.2μF+80%-20%	-	2A		Kit	≥1A		Flow	ReFlow
		1.0	NFM41PC155B1E3	25Vdc	1.5μF+20%-20%	-	6A		Kit	≥3A		Flow	ReFlow
	2220	p119	NFM55PC155F1H4	50Vdc	1.5μF+80%-20%	-	6A			≥3A			ReFlow

Continued on the following page.

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• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

Type	Size Code (Inch)	Thickness (mm)	Part Number	Rated Voltage	Capacitance	Nominal Cut-off Frequency	Rated Current	New	Kit	≥1A ≥3A	D TV	Flow	ReFlow
LC Combined Type for Power Lines and Signal Lines	p110	1.6	NFE31PT220R1E9	25Vdc	22pF+30%-30%	-	6A			≥3A		ReFlow	
		1.6	NFE31PT470C1E9	25Vdc	47pF+50%-20%	-	6A			≥3A		ReFlow	
		1.6	NFE31PT101C1E9	25Vdc	100pF+80%-20%	-	6A			≥3A		ReFlow	
		1.6	NFE31PT221D1E9	25Vdc	220pF+50%-20%	-	6A			≥3A		ReFlow	
		1.6	NFE31PT471F1E9	25Vdc	470pF+50%-20%	-	6A			≥3A		ReFlow	
		1.6	NFE31PT152Z1E9	25Vdc	1500pF+50%-20%	-	6A	Kit		≥3A		ReFlow	
	2706	1.6	NFE31PT222Z1E9	25Vdc	2200pF+50%-50%	-	6A	Kit		≥3A		ReFlow	
		1.6	NFE61PT330B1H9	50Vdc	33pF+30%-30%	-	2A			≥1A	Flow	ReFlow	
		1.6	NFE61PT680B1H9	50Vdc	68pF+30%-30%	-	2A			≥1A	Flow	ReFlow	
		1.6	NFE61PT101Z1H9	50Vdc	100pF+30%-30%	-	2A			≥1A	Flow	ReFlow	
		1.6	NFE61PT181B1H9	50Vdc	180pF+30%-30%	-	2A			≥1A	Flow	ReFlow	
		1.6	NFE61PT361B1H9	50Vdc	360pF+20%-20%	-	2A			≥1A	Flow	ReFlow	
		1.6	NFE61PT681B1H9	50Vdc	680pF+30%-30%	-	2A			≥1A	Flow	ReFlow	
		1.6	NFE61PT102E1H9	50Vdc	1000pF+80%-20%	-	2A	Kit		≥1A	Flow	ReFlow	
		1.6	NFE61PT472C1H9	50Vdc	4700pF+80%-20%	-	2A	Kit		≥1A	Flow	ReFlow	
LC Combined Multilayer Type for Signal Lines	p125	0.6	NFL18ST506H1A3	10Vdc	110pF (Typ.)	50MHz	75mA	New	Kit		D TV	ReFlow	
		0.6	NFL18ST706H1A3	10Vdc	70pF (Typ.)	70MHz	75mA	New	Kit		D TV	ReFlow	
		0.6	NFL18ST107H1A3	10Vdc	50pF (Typ.)	100MHz	75mA	New	Kit		D TV	ReFlow	
	p126	0.8	NFL18ST207X1C3	16Vdc	25pF+20%-20%	200MHz	150mA		Kit			ReFlow	
		0.8	NFL18ST307X1C3	16Vdc	18pF+20%-20%	300MHz	200mA		Kit			ReFlow	
		0.8	NFL18ST507X1C3	16Vdc	10pF+20%-20%	500MHz	200mA		Kit			ReFlow	
	p127	0.6	NFL18SP157X1A3	10Vdc	34pF+20%-20%	150MHz	100mA		Kit			ReFlow	
		0.6	NFL18SP207X1A3	10Vdc	24pF+20%-20%	200MHz	100mA		Kit			ReFlow	
		0.6	NFL18SP307X1A3	10Vdc	19pF+20%-20%	300MHz	100mA		Kit			ReFlow	
	p128	0.6	NFL18SP507X1A3	10Vdc	11pF+20%-20%	500MHz	100mA		Kit			ReFlow	
		0.85	NFL21SP106X1C3	16Vdc	670pF+20%-20%	10MHz	100mA		Kit			ReFlow	
		0.85	NFL21SP206X1C7	16Vdc	240pF+20%-20%	20MHz	100mA		Kit			ReFlow	
		0.85	NFL21SP506X1C3	16Vdc	84pF+20%-20%	50MHz	150mA		Kit			ReFlow	
		0.85	NFL21SP706X1C3	16Vdc	76pF+20%-20%	70MHz	150mA		Kit			ReFlow	
		0.85	NFL21SP107X1C3	16Vdc	44pF+20%-20%	100MHz	200mA		Kit			ReFlow	
		0.85	NFL21SP157X1C3	16Vdc	28pF+20%-20%	150MHz	200mA		Kit			ReFlow	
		0.85	NFL21SP207X1C3	16Vdc	22pF+20%-20%	200MHz	250mA		Kit			ReFlow	
		0.85	NFL21SP307X1C3	16Vdc	19pF+10%-10%	300MHz	300mA		Kit			ReFlow	
		0.85	NFL21SP407X1C3	16Vdc	16pF+10%-10%	400MHz	300mA		Kit			ReFlow	
		0.85	NFL21SP507X1C3	16Vdc	12pF+10%-10%	500MHz	300mA		Kit			ReFlow	
LC Combined Array Type for Signal Lines	p129	0.6	NFA18SL137V1A45	10Vdc	-	130MHz	50mA		Kit		D TV	ReFlow	
		0.6	NFA18SL187V1A45	10Vdc	-	180MHz	50mA		Kit		D TV	ReFlow	
		0.6	NFA18SL207V1A45	10Vdc	-	200MHz	50mA		Kit		D TV	ReFlow	
		0.6	NFA18SL227V1A45	10Vdc	-	220MHz	25mA		Kit		D TV	ReFlow	
		0.5	NFA18SL307V1A45	10Vdc	-	300MHz	100mA		Kit			ReFlow	
		0.5	NFA18SL357V1A45	10Vdc	-	350MHz	35mA	New	Kit			ReFlow	
		0.5	NFA18SL407V1A45	10Vdc	-	400MHz	100mA		Kit			ReFlow	
		0.5	NFA18SL487V1A45	10Vdc	-	480MHz	100mA		Kit			ReFlow	
	p130	0.6	NFA18SL506X1A45	10Vdc	-	50MHz	25mA		Kit			ReFlow	
		0.6	NFA18SD187X1A45	10Vdc	-	180MHz	25mA		Kit		D TV	ReFlow	
		0.6	NFA18SD207X1A45	10Vdc	-	200MHz	25mA		Kit		D TV	ReFlow	
	p131	0.5	NFA21SL287V1A45	10Vdc	-	280MHz	100mA		Kit			ReFlow	
		0.5	NFA21SL317V1A45	10Vdc	-	310MHz	100mA		Kit			ReFlow	
		0.5	NFA21SL337V1A45	10Vdc	-	330MHz	100mA		Kit			ReFlow	
	p132	0.85	NFA21SL287V1A48	10Vdc	-	280MHz	100mA		Kit			ReFlow	
		0.85	NFA21SL317V1A48	10Vdc	-	310MHz	100mA		Kit			ReFlow	
		0.85	NFA21SL337V1A48	10Vdc	-	330MHz	100mA		Kit			ReFlow	
		0.85	NFA21SL307X1A45	10Vdc	-	200MHz	100mA		Kit			ReFlow	
		0.85	NFA21SL307X1A45	10Vdc	-	300MHz	100mA		Kit			ReFlow	
		0.85	NFA21SL506X1A48	10Vdc	-	50MHz	20mA		Kit			ReFlow	
		0.85	NFA21SL806X1A48	10Vdc	-	80MHz	20mA		Kit			ReFlow	
		0.85	NFA21SL207X1A48	10Vdc	-	200MHz	100mA		Kit			ReFlow	
		0.85	NFA21SL307X1A48	10Vdc	-	300MHz	100mA		Kit			ReFlow	
LC Combined Array Type for Signal Lines	p133	0.5	NFA21SL207X1A45	10Vdc	-	200MHz	100mA		Kit			ReFlow	
		0.5	NFA21SL307X1A45	10Vdc	-	300MHz	100mA		Kit			ReFlow	
		0.85	NFA21SL506X1A48	10Vdc	-	50MHz	20mA		Kit			ReFlow	
	p133	0.85	NFA21SL806X1A48	10Vdc	-	80MHz	20mA		Kit			ReFlow	
		0.85	NFA21SL207X1A48	10Vdc	-	200MHz	100mA		Kit			ReFlow	
		0.85	NFA21SL307X1A48	10Vdc	-	300MHz	100mA		Kit			ReFlow	
		0.85	NFA21SL506X1A48	10Vdc	-	50MHz	20mA		Kit			ReFlow	
		0.85	NFA21SL806X1A48	10Vdc	-	80MHz	20mA		Kit			ReFlow	
		0.85	NFA21SL207X1A48	10Vdc	-	200MHz	100mA		Kit			ReFlow	
		0.85	NFA21SL307X1A48	10Vdc	-	300MHz	100mA		Kit			ReFlow	
		0.85	NFA21SL506X1A48	10Vdc	-	50MHz	20mA		Kit			ReFlow	
		0.85	NFA21SL806X1A48	10Vdc	-	80MHz	20mA		Kit			ReFlow	

Continued on the following page. ➤

Type	Size Code (Inch)	Thickness (mm)	Part Number	Rated Voltage	Capacitance	Nominal Cut-off Frequency	Rated Current	New	Kit	$\geq 1A$ $\geq 3A$	D TV	F low	R e F low
LC Combined Wire Wound Type for Signal Lines	p134 1206	1.8	NFW31SP106X1E4	-	-	10MHz	-		Kit			F low	R e F low
		1.8	NFW31SP206X1E4	-	-	20MHz	-		Kit			F low	R e F low
		1.8	NFW31SP506X1E4	-	-	50MHz	-		Kit			F low	R e F low
		1.8	NFW31SP107X1E4	-	-	100MHz	-		Kit			F low	R e F low
		1.8	NFW31SP157X1E4	-	-	150MHz	-		Kit			F low	R e F low
		1.8	NFW31SP207X1E4	-	-	200MHz	-		Kit			F low	R e F low
		1.8	NFW31SP307X1E4	-	-	300MHz	-		Kit			F low	R e F low
		1.8	NFW31SP407X1E4	-	-	400MHz	-		Kit			F low	R e F low
RC Combined Type for Signal Lines	p136 0805	0.5	NFR21GD1002202	50Vdc	10pF+20%-20%	-	50mA						R e F low
		0.5	NFR21GD1004702	50Vdc	10pF+20%-20%	-	35mA						R e F low
		0.5	NFR21GD4702202	50Vdc	47pF+20%-20%	-	50mA						R e F low
		0.5	NFR21GD4704702	50Vdc	47pF+20%-20%	-	35mA						R e F low
		0.5	NFR21GD4706802	50Vdc	47pF+20%-20%	-	30mA						R e F low
		0.5	NFR21GD4701012	50Vdc	47pF+20%-20%	-	25mA						R e F low
		0.5	NFR21GD1012202	50Vdc	100pF+20%-20%	-	50mA						R e F low
		0.5	NFR21GD1014702	50Vdc	100pF+20%-20%	-	35mA						R e F low
		0.5	NFR21GD1016802	50Vdc	100pF+20%-20%	-	30mA						R e F low
RC Combined Array Type for Signal Lines	p137 1206	0.8	NFA31GD1006R84	6Vdc	10pF+20%-20%	-	50mA						R e F low
		0.8	NFA31GD1004704	6Vdc	10pF+20%-20%	-	20mA						R e F low
		0.8	NFA31GD1001014	6Vdc	10pF+20%-20%	-	15mA						R e F low
		0.8	NFA31GD4706R84	6Vdc	47pF+20%-20%	-	50mA						R e F low
		0.8	NFA31GD4703304	6Vdc	47pF+20%-20%	-	20mA						R e F low
		0.8	NFA31GD4704704	6Vdc	47pF+20%-20%	-	20mA						R e F low
		0.8	NFA31GD4701014	6Vdc	47pF+20%-20%	-	15mA						R e F low
		0.8	NFA31GD1016R84	6Vdc	100pF+20%-20%	-	50mA						R e F low
		0.8	NFA31GD1014704	6Vdc	100pF+20%-20%	-	20mA						R e F low
		0.8	NFA31GD1011014	6Vdc	100pF+20%-20%	-	15mA						R e F low

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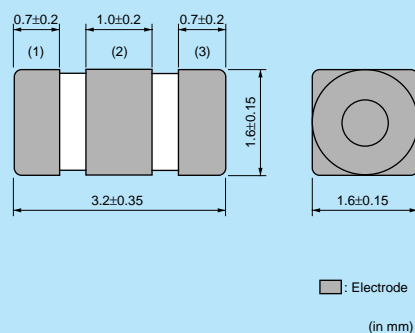
NFE31P Series (1206 Size)



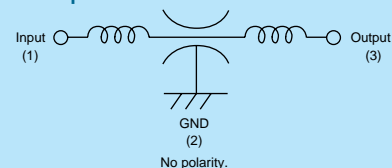
Meet 6A, T-type filter with built-in ferrite bead.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	2000
K	330mm Reel Embossed Tape	8000
B	Bulk(Bag)	500

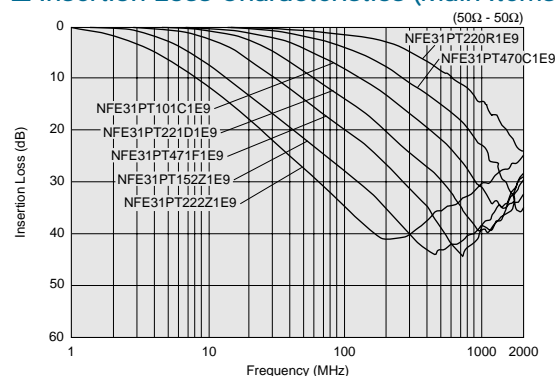
Refer to pages from p.139 to p.144 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range	
NFE31PT220R1E9□	22pF+30%-30%	6A	25Vdc	1000M ohm	-40°C to +85°C	≥3A
NFE31PT470C1E9□	47pF+50%-20%	6A	25Vdc	1000M ohm	-40°C to +85°C	≥3A
NFE31PT101C1E9□	100pF+80%-20%	6A	25Vdc	1000M ohm	-40°C to +85°C	≥3A
NFE31PT221D1E9□	220pF+50%-20%	6A	25Vdc	1000M ohm	-40°C to +85°C	≥3A
NFE31PT471F1E9□	470pF+50%-20%	6A	25Vdc	1000M ohm	-40°C to +85°C	≥3A
NFE31PT152Z1E9□	1500pF+50%-20%	6A	25Vdc	1000M ohm	-40°C to +85°C	Kit ≥3A
NFE31PT222Z1E9□	2200pF+50%-50%	6A	25Vdc	1000M ohm	-40°C to +85°C	Kit ≥3A

Number of Circuit: 1

■ Insertion Loss Characteristics (Main Items)



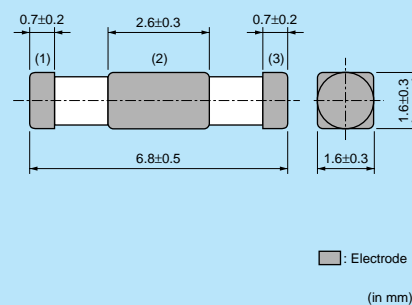
NFE61P Series (2706 Size)



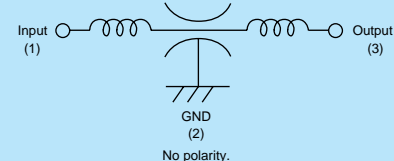
T-type filter with built-in ferrite bead.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	2500
K	330mm Reel Embossed Tape	8000
B	Bulk(Bag)	500

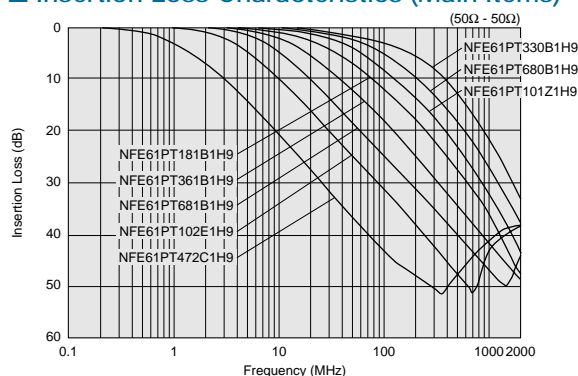
Refer to pages from p.139 to p.144 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range	
NFE61PT330B1H9□	33pF+30%-30%	2A	50Vdc	1000M ohm	-25°C to +85°C	≥1A
NFE61PT680B1H9□	68pF+30%-30%	2A	50Vdc	1000M ohm	-25°C to +85°C	≥1A
NFE61PT101Z1H9□	100pF+30%-30%	2A	50Vdc	1000M ohm	-25°C to +85°C	≥1A
NFE61PT181B1H9□	180pF+30%-30%	2A	50Vdc	1000M ohm	-25°C to +85°C	≥1A
NFE61PT361B1H9□	360pF+20%-20%	2A	50Vdc	1000M ohm	-25°C to +85°C	≥1A
NFE61PT681B1H9□	680pF+30%-30%	2A	50Vdc	1000M ohm	-25°C to +85°C	≥1A
NFE61PT102E1H9□	1000pF+80%-20%	2A	50Vdc	1000M ohm	-25°C to +85°C	Kit ≥1A
NFE61PT472C1H9□	4700pF+80%-20%	2A	50Vdc	1000M ohm	-25°C to +85°C	Kit ≥1A

Number of Circuit: 1

■ Insertion Loss Characteristics (Main Items)



NFM18PS Series (0603 Size)

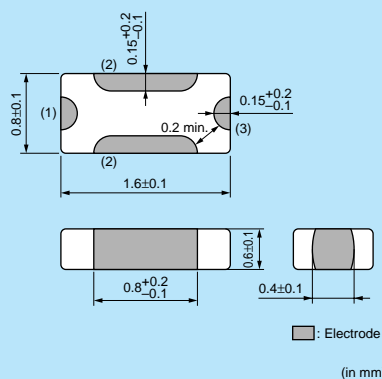


3-terminal capacitor for power lines whose ground impedance has reduced.

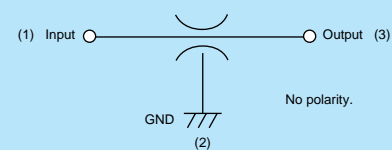
*Please refer to the products which are designed for both power lines and signal lines.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
B	Bulk(Bag)	500

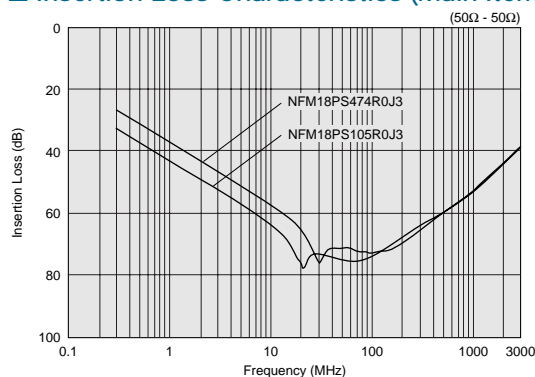
Refer to pages from p.139 to p.144 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range	
NFM18PS474R0J3□	0.47μF+20%-20%	2A	6.3Vdc	1000M ohm	-55°C to +125°C	Kit ≥1A
NFM18PS105R0J3□	1.0μF+20%-20%	2A	6.3Vdc	500M ohm	-55°C to +105°C	Kit ≥1A

Number of Circuit: 1

■ Insertion Loss Characteristics (Main Items)



NFM18PC Series (0603 Size)



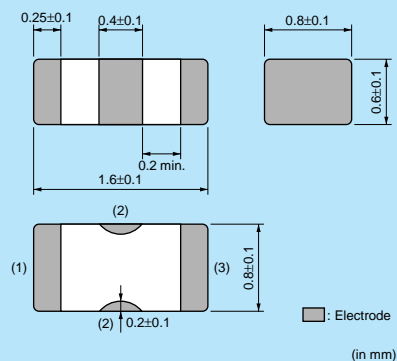
4A max, 0603 size chip 3-terminal capacitor for power lines.

*Please refer to the products which are designed for both power lines and signal lines.

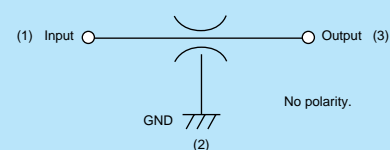
NFM18PC (0.1 to 0.47μF, 2.2μF-6.3V)



■ Dimensions



■ Equivalent Circuit



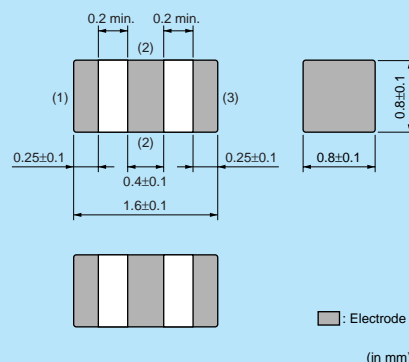
■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
B	Bulk(Bag)	500

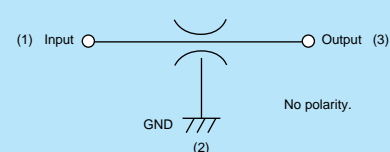
NFM18PC (1μF, 2.2μF-10V)



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
B	Bulk(Bag)	500

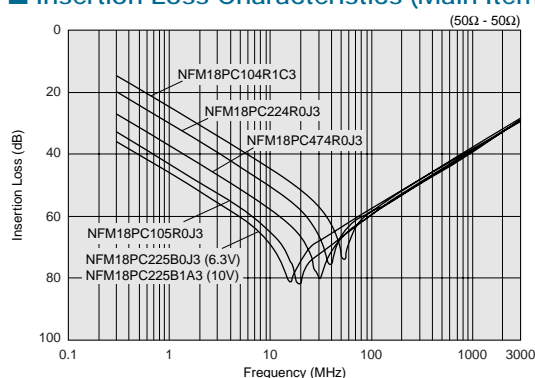
Refer to pages from p.139 to p.144 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range	
NFM18PC104R1C3□	0.1μF±20%	2A	16Vdc	1000M ohm	-55°C to +125°C	Kit ≥1A
NFM18PC224R0J3□	0.22μF±20%	2A	6.3Vdc	1000M ohm	-55°C to +125°C	Kit ≥1A
NFM18PC474R0J3□	0.47μF±20%	2A	6.3Vdc	1000M ohm	-55°C to +125°C	Kit ≥1A
NFM18PC105R0J3□	1.0μF±20%	4A	6.3Vdc	500M ohm	-55°C to +105°C	Kit ≥1A
NFM18PC225B0J3□	2.2μF±20%	2A	6.3Vdc	200M ohm	-40°C to +85°C	Kit ≥1A
NFM18PC225B1A3□	2.2μF±20%	4A	10Vdc	200M ohm	-40°C to +85°C	Kit ≥3A

Number of Circuit: 1

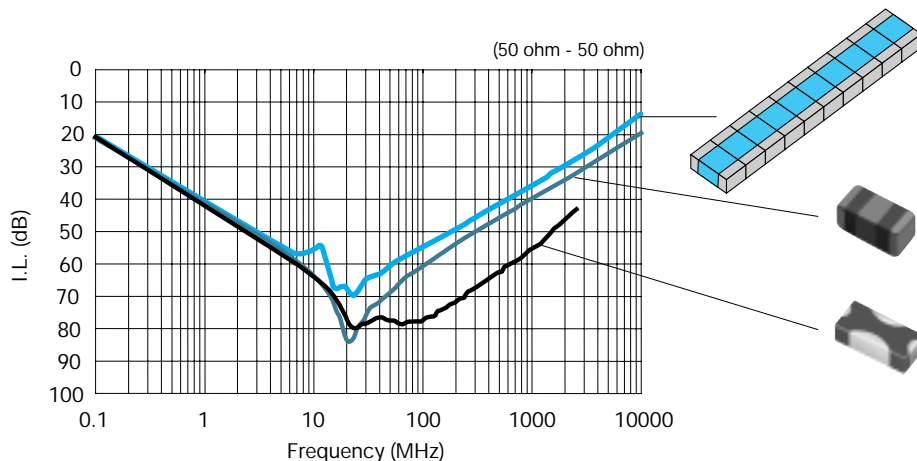
■ Insertion Loss Characteristics (Main Items)



△Note • Please read rating and △CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

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• High frequency performance of NFM18PS series



Chip 3 terminal capacitor

2 terminal MLCC: 1212 size
(0.1μF×10pcs parallel)

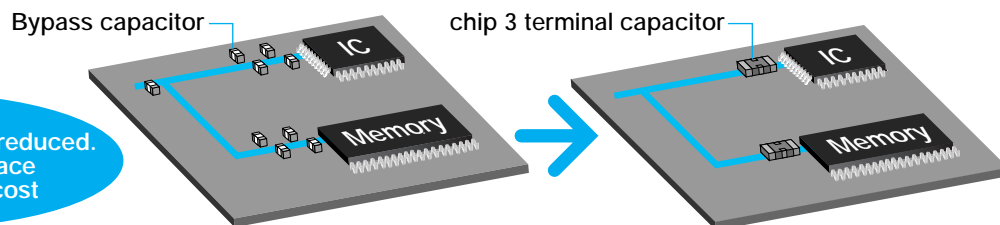
NFM18PC105R0J3 1pc
: 1608 size (1.0μF)

NFM18PS105R0J3 1pc
: 1608 size (1.0μF)

NFM18PS series has better high frequency performance compared to normal chip 3 terminal capacitors.

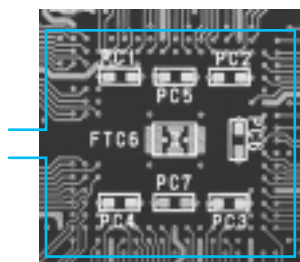
• Optimize of bypass capacitors using chip 3 terminal capacitor

Amount of parts can be reduced.
⇒ • Reduce PCB space
• Reduce mount cost

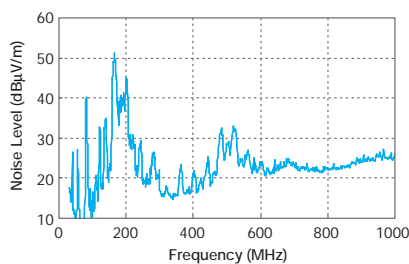
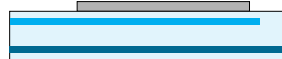


Comparison of performance as bypass capacitor

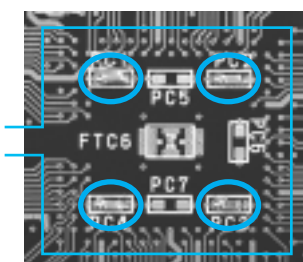
Without capacitor



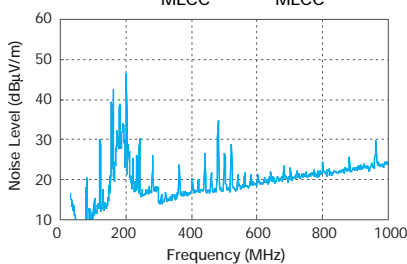
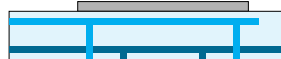
Micro computer



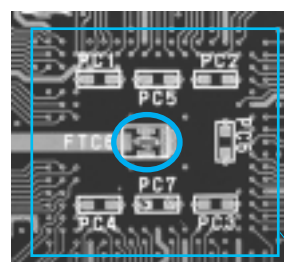
With MLCC 0.22μF×4



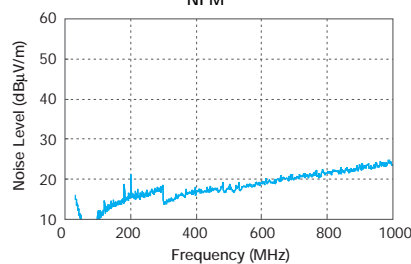
Micro computer



With chip 3 terminal capacitor (NFM) 1μF×1



Micro computer



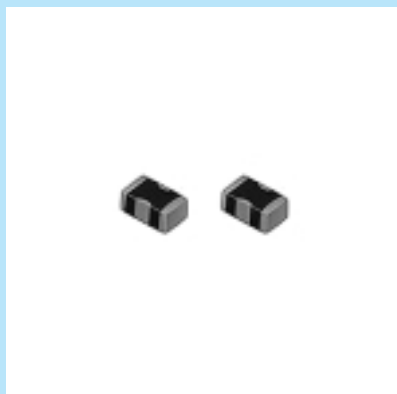
Noise suppression effect of NFM series is better than MLCCs. (1 NFM is better than 4 MLCCs)

NFM21P Series (0805 Size)

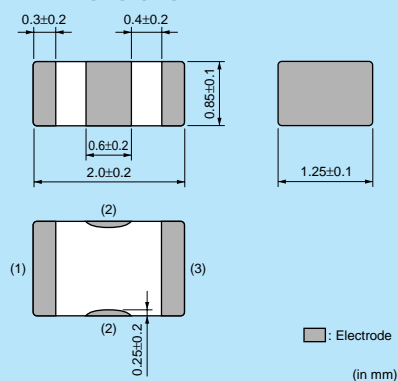


6A max, 0805 size chip 3-terminal capacitor for power lines.

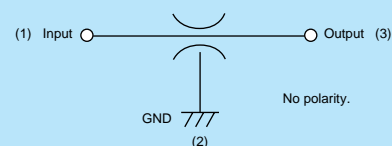
*Please refer to the products which are designed for both power lines and signal lines.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
B	Bulk(Bag)	500

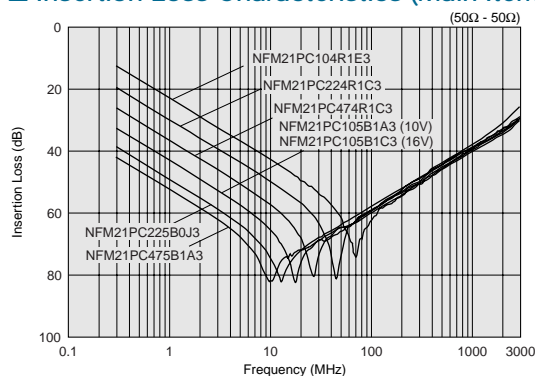
Refer to pages from p.139 to p.144 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range	
NFM21PC104R1E3□	0.1μF+20%-20%	2A	25Vdc	1000M ohm	-55°C to +125°C	Kit ≥1A
NFM21PC224R1C3□	0.22μF+20%-20%	2A	16Vdc	1000M ohm	-55°C to +125°C	Kit ≥1A
NFM21PC474R1C3□	0.47μF+20%-20%	2A	16Vdc	1000M ohm	-55°C to +125°C	Kit ≥1A
NFM21PC105B1A3□	1.0μF+20%-20%	4A	10Vdc	500M ohm	-40°C to +85°C	Kit ≥3A
NFM21PC105B1C3□	1.0μF+20%-20%	4A	16Vdc	500M ohm	-40°C to +85°C	Kit ≥3A
NFM21PC225B0J3□	2.2μF+20%-20%	4A	6.3Vdc	200M ohm	-40°C to +85°C	Kit ≥3A
NFM21PC475B1A3□	4.7μF+20%-20%	6A	10Vdc	100M ohm	-40°C to +85°C	Kit ≥3A

Number of Circuit: 1

■ Insertion Loss Characteristics (Main Items)



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NFM3DP Series (1205 Size)

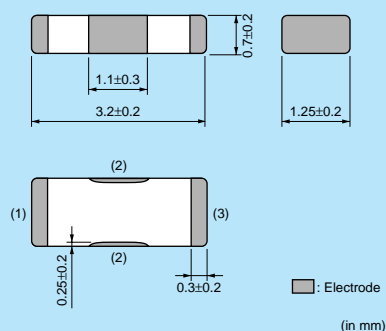


1205 size 3-terminal capacitor for power lines.

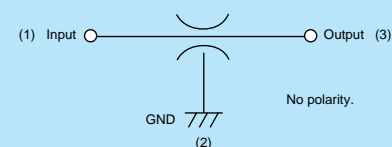
*Please refer to the products which are designed for both power lines and signal lines.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	4000
B	Bulk(Bag)	500

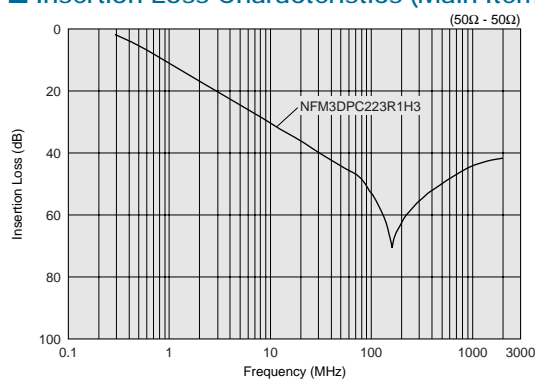
Refer to pages from p.139 to p.144 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range	
NFM3DPC223R1H3□	0.022μF+20%-20%	2A	50Vdc	1000M ohm	-55°C to +125°C	≥1A

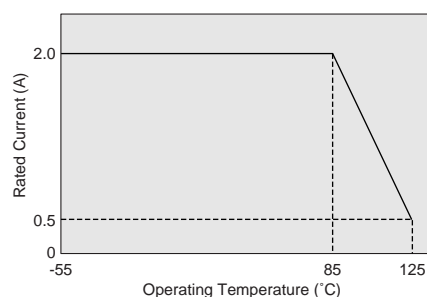
Number of Circuit: 1

■ Insertion Loss Characteristics (Main Items)



■ Notice (Rating)

When NFM3DP series is used in operating temperatures exceeding +85°C, derating of current is necessary. Please apply the derating curve shown in chart according to the operating temperature.

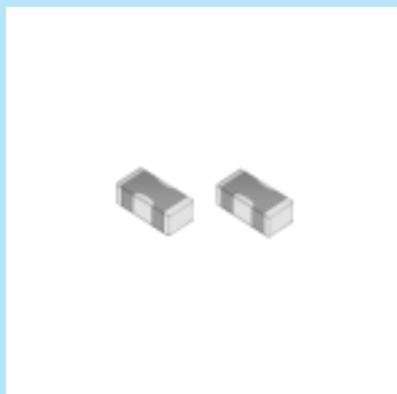


NFM31P Series (1206 Size)

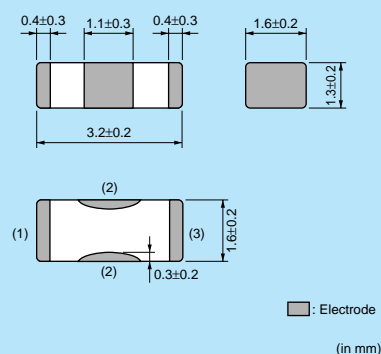


6A/27microF, 1206 size chip 3-terminal capacitor for power lines.

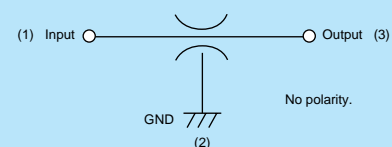
*Please refer to the products which are designed for both power lines and signal lines.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	3000
B	Bulk(Bag)	500

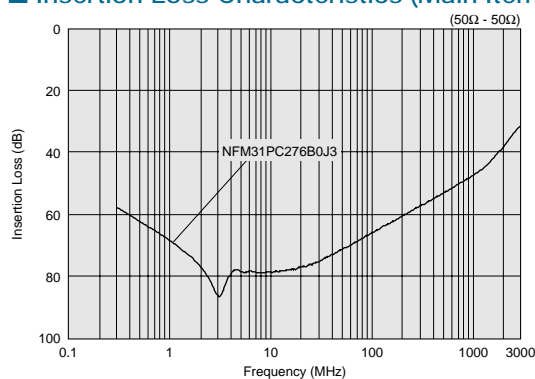
Refer to pages from p.139 to p.144 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range	
NFM31PC276B0J3□	27μF+20%-20%	6A	6.3Vdc	20M ohm	-40°C to +85°C	Kit $\geq 3A$

Number of Circuit: 1

■ Insertion Loss Characteristics (Main Items)



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Mar.28,2011

NFM41P Series (1806 Size)

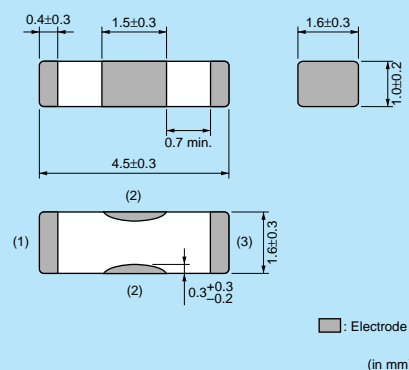


6A max, 1806 size chip 3-terminal capacitor for power lines.

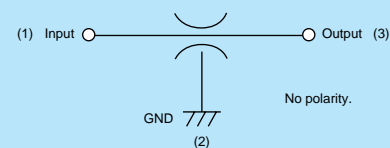
*Please refer to the products which are designed for both power lines and signal lines.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	4000
B	Bulk(Bag)	500

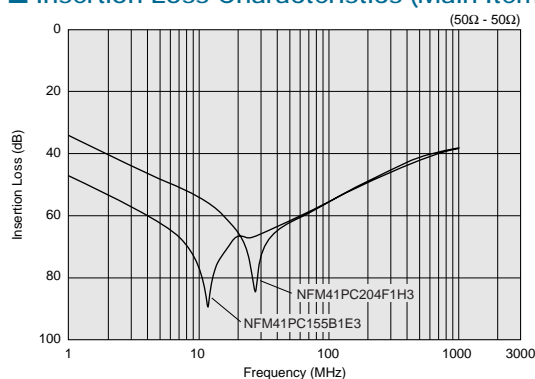
Refer to pages from p.139 to p.144 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range	
NFM41PC204F1H3□	$0.2\mu\text{F} + 80\% - 20\%$	2A	50Vdc	1000M ohm	-55°C to +85°C	Kit $\geq 1\text{A}$
NFM41PC155B1E3□	$1.5\mu\text{F} + 20\% - 20\%$	6A	25Vdc	300M ohm	-55°C to +85°C	Kit $\geq 3\text{A}$

Number of Circuit: 1

■ Insertion Loss Characteristics (Main Items)



NFM55P Series (2220 Size)

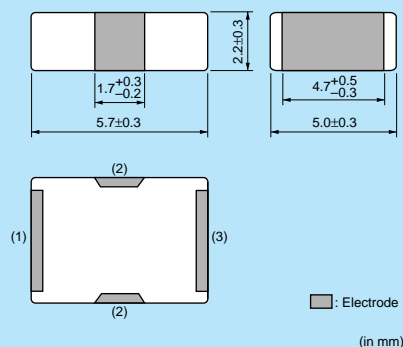


50V/6A/1.5microF, large capacitance chip 3-terminal capacitor.

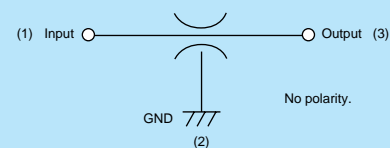
*Please refer to the products which are designed for both power lines and signal lines.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	500
B	Bulk(Bag)	100

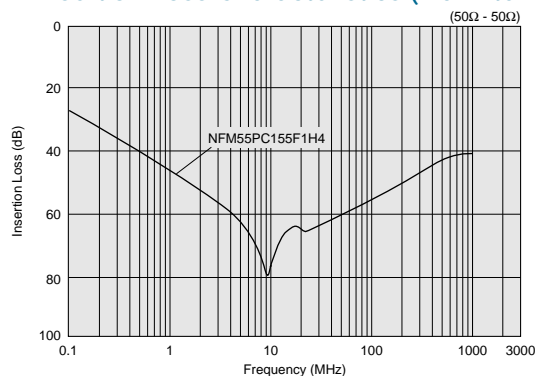
Refer to pages from p.139 to p.144 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range	
NFM55PC155F1H4□	1.5μF+80%-20%	6A	50Vdc	100M ohm	-55°C to +85°C	≥3A

Number of Circuit: 1

■ Insertion Loss Characteristics (Main Items)



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Mar.28,2011

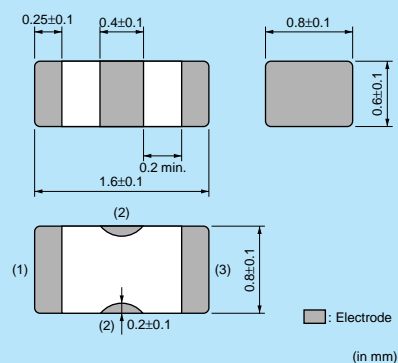
NFM18C Series (0603 Size)



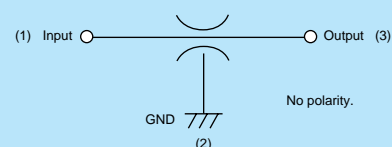
0603 size general 3-terminal capacitor.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
B	Bulk(Bag)	500

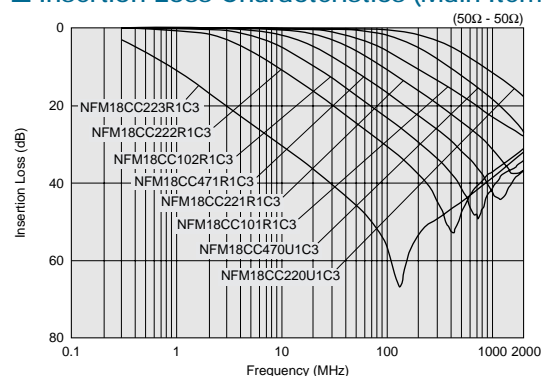
Refer to pages from p.139 to p.144 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range	
NFM18CC220U1C3□	22pF+20%-20%	400mA	16Vdc	1000M ohm	-55°C to +125°C	Kit
NFM18CC470U1C3□	47pF+20%-20%	400mA	16Vdc	1000M ohm	-55°C to +125°C	Kit
NFM18CC101R1C3□	100pF+20%-20%	500mA	16Vdc	1000M ohm	-55°C to +125°C	Kit
NFM18CC221R1C3□	220pF+20%-20%	500mA	16Vdc	1000M ohm	-55°C to +125°C	Kit
NFM18CC471R1C3□	470pF+20%-20%	500mA	16Vdc	1000M ohm	-55°C to +125°C	Kit
NFM18CC102R1C3□	1000pF+20%-20%	600mA	16Vdc	1000M ohm	-55°C to +125°C	Kit
NFM18CC222R1C3□	2200pF+20%-20%	700mA	16Vdc	1000M ohm	-55°C to +125°C	Kit
NFM18CC223R1C3□	22000pF+20%-20%	1000mA	16Vdc	1000M ohm	-55°C to +125°C	Kit ≥1A

Number of Circuit: 1

■ Insertion Loss Characteristics (Main Items)

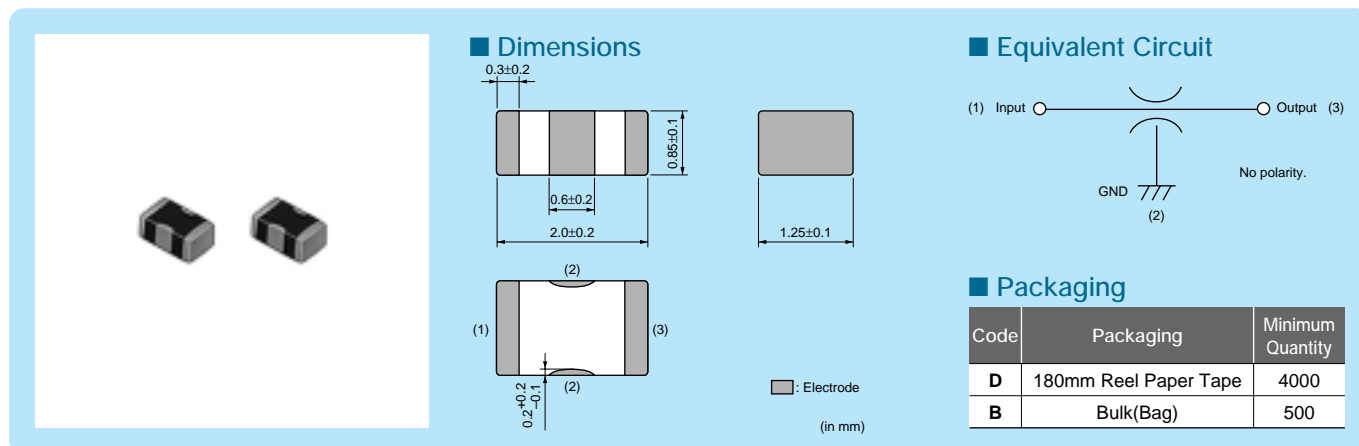


△Note • Please read rating and △CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
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NFM21C Series (0805 Size)



0805 size general 3-terminal capacitor.



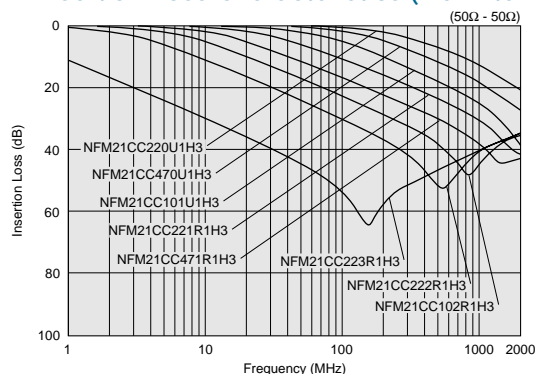
Refer to pages from p.139 to p.144 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range	
NFM21CC220U1H3□	22pF+20%-20%	700mA	50Vdc	1000M ohm	-55°C to +125°C	Kit
NFM21CC470U1H3□	47pF+20%-20%	700mA	50Vdc	1000M ohm	-55°C to +125°C	Kit
NFM21CC101U1H3□	100pF+20%-20%	700mA	50Vdc	1000M ohm	-55°C to +125°C	Kit
NFM21CC221R1H3□	220pF+20%-20%	700mA	50Vdc	1000M ohm	-55°C to +125°C	Kit
NFM21CC471R1H3□	470pF+20%-20%	1000mA	50Vdc	1000M ohm	-55°C to +125°C	Kit ≥1A
NFM21CC102R1H3□	1000pF+20%-20%	1000mA	50Vdc	1000M ohm	-55°C to +125°C	Kit ≥1A
NFM21CC222R1H3□	2200pF+20%-20%	1000mA	50Vdc	1000M ohm	-55°C to +125°C	Kit ≥1A
NFM21CC223R1H3□	22000pF+20%-20%	2000mA	50Vdc	1000M ohm	-55°C to +125°C	Kit ≥1A

Number of Circuit: 1

■ Insertion Loss Characteristics (Main Items)



⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

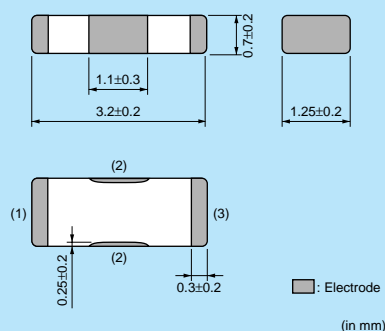
NFM3DC Series (1205 Size)



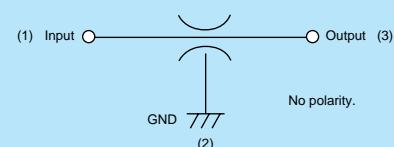
1205 size general 3-terminal capacitor.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	4000
B	Bulk(Bag)	500

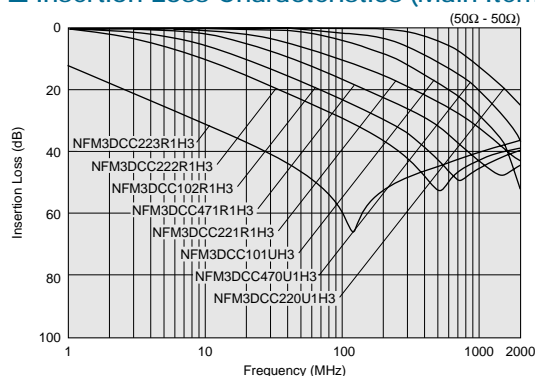
Refer to pages from p.139 to p.144 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range
NFM3DCC220U1H3□	22pF+50%-20%	300mA	50Vdc	1000M ohm	-55°C to +125°C
NFM3DCC470U1H3□	47pF+50%-20%	300mA	50Vdc	1000M ohm	-55°C to +125°C
NFM3DCC101U1H3□	100pF+50%-20%	300mA	50Vdc	1000M ohm	-55°C to +125°C
NFM3DCC221R1H3□	220pF+50%-20%	300mA	50Vdc	1000M ohm	-55°C to +125°C
NFM3DCC471R1H3□	470pF+50%-20%	300mA	50Vdc	1000M ohm	-55°C to +125°C
NFM3DCC102R1H3□	1000pF+50%-20%	300mA	50Vdc	1000M ohm	-55°C to +125°C
NFM3DCC222R1H3□	2200pF+50%-20%	300mA	50Vdc	1000M ohm	-55°C to +125°C
NFM3DCC223R1H3□	22000pF+50%-20%	300mA	50Vdc	1000M ohm	-55°C to +125°C

Number of Circuit: 1

■ Insertion Loss Characteristics (Main Items)



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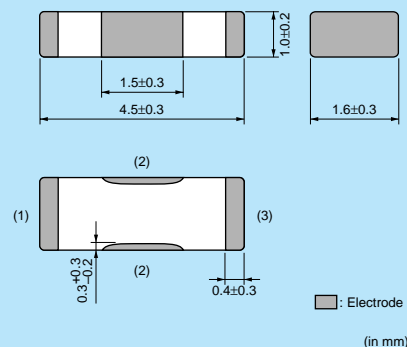
NFM41C Series (1806 Size)



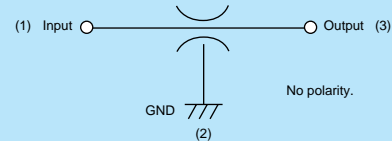
1806 size general 3-terminal capacitor.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	4000
B	Bulk(Bag)	500

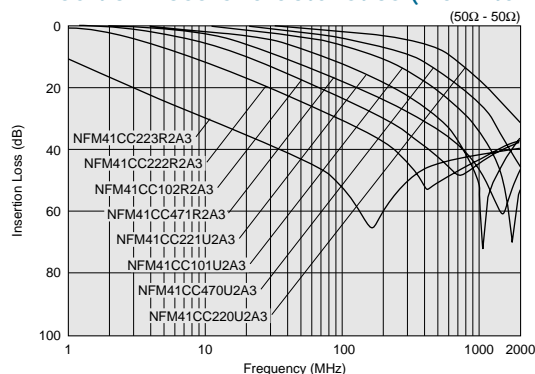
Refer to pages from p.139 to p.144 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range
NFM41CC220U2A3□	22pF+50%-20%	300mA	100Vdc	10000M ohm	-55°C to +125°C
NFM41CC470U2A3□	47pF+50%-20%	300mA	100Vdc	10000M ohm	-55°C to +125°C
NFM41CC101U2A3□	100pF+50%-20%	300mA	100Vdc	10000M ohm	-55°C to +125°C
NFM41CC221U2A3□	220pF+50%-20%	300mA	100Vdc	10000M ohm	-55°C to +125°C
NFM41CC471R2A3□	470pF+50%-20%	300mA	100Vdc	10000M ohm	-55°C to +125°C
NFM41CC102R2A3□	1000pF+50%-20%	300mA	100Vdc	10000M ohm	-55°C to +125°C
NFM41CC222R2A3□	2200pF+50%-20%	300mA	100Vdc	10000M ohm	-55°C to +125°C
NFM41CC223R2A3□	22000pF+50%-20%	300mA	100Vdc	10000M ohm	-55°C to +125°C

Number of Circuit: 1

■ Insertion Loss Characteristics (Main Items)



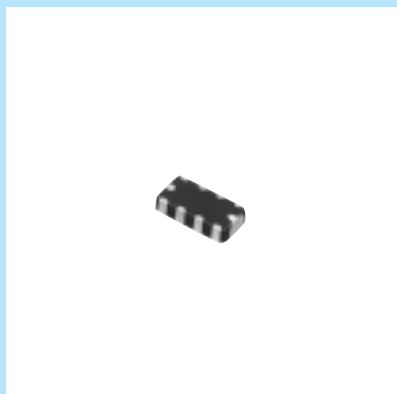
⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

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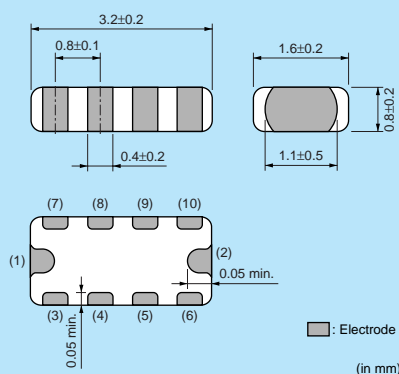
NFA31C Series (1206 Size)



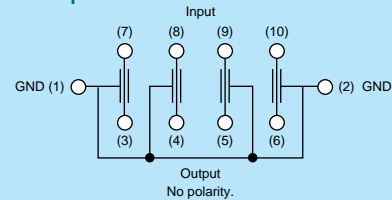
4-lines chip 3-terminal capacitor array, 1206 size.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
B	Bulk(Bag)	100

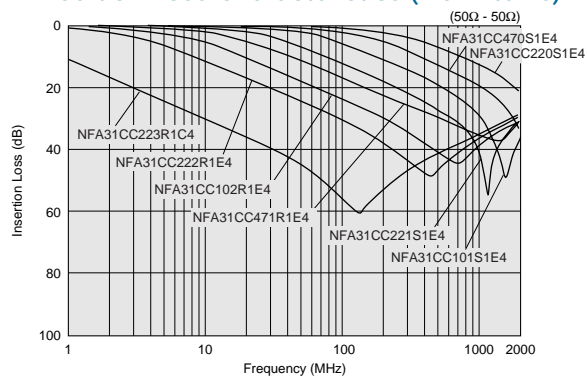
Refer to pages from p.139 to p.144 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range	
NFA31CC220S1E4□	22pF+20%-20%	200mA	25Vdc	1000M ohm	-40°C to +85°C	Kit
NFA31CC470S1E4□	47pF+20%-20%	200mA	25Vdc	1000M ohm	-40°C to +85°C	Kit
NFA31CC101S1E4□	100pF+20%-20%	200mA	25Vdc	1000M ohm	-40°C to +85°C	Kit
NFA31CC221S1E4□	220pF+20%-20%	200mA	25Vdc	1000M ohm	-40°C to +85°C	Kit
NFA31CC471R1E4□	470pF+20%-20%	200mA	25Vdc	1000M ohm	-40°C to +85°C	Kit
NFA31CC102R1E4□	1000pF+20%-20%	200mA	25Vdc	1000M ohm	-40°C to +85°C	Kit
NFA31CC222R1E4□	2200pF+20%-20%	200mA	25Vdc	1000M ohm	-40°C to +85°C	Kit
NFA31CC223R1C4□	22000pF+20%-20%	200mA	16Vdc	1000M ohm	-40°C to +85°C	Kit

Number of Circuit: 4

■ Insertion Loss Characteristics (Main Items)



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NFL18ST Series (0603 Size)

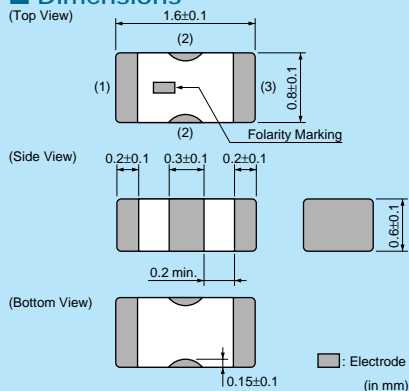


T-type LC filter. Reduce waveform distortion of high speed signal.

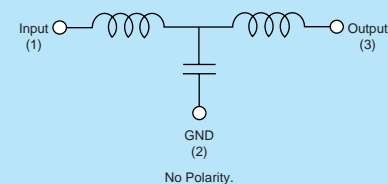
NFL18ST_H



■ Dimensions



■ Equivalent Circuit



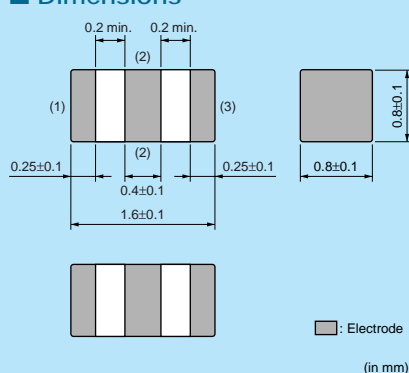
■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
B	Bulk(Bag)	1000

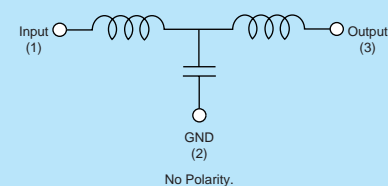
NFL18ST_X



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
B	Bulk(Bag)	1000

Refer to pages from p.139 to p.144 for mounting information.

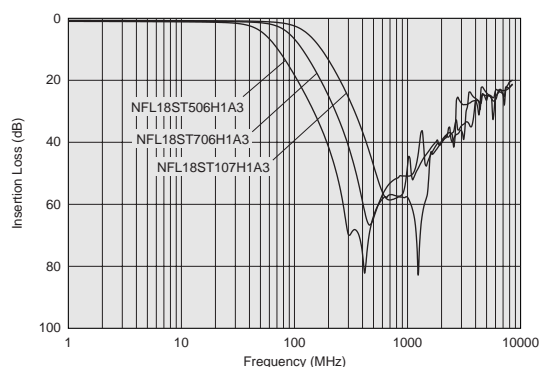
■ Rated Value (□: packaging code)

Part Number	Nominal Cut-off Frequency	Capacitance	Inductance	Insertion Loss (Cut-off Frequency)	Insertion Loss (200MHz) (min.)	Insertion Loss (300MHz) (min.)	Insertion Loss (400MHz) (min.)	Rated Current	Rated Voltage	
NFL18ST506H1A3□	50MHz	110pF (Typ.)	350nH (Typ.)	6dB max.	30dB	30dB	30dB	75mA	10Vdc	New Kit QTV
NFL18ST706H1A3□	70MHz	70pF (Typ.)	230nH (Typ.)	6dB max.	-	30dB	30dB	75mA	10Vdc	New Kit QTV
NFL18ST107H1A3□	100MHz	50pF (Typ.)	150nH (Typ.)	6dB max.	-	-	30dB	75mA	10Vdc	New Kit QTV

Insulation Resistance (min.): 1000M ohm Withstand Voltage: 30Vdc Operating Temperature Range: -55°C to +125°C Number of Circuits: 1

■ Insertion Loss Characteristics (Main Items)

NFL18ST_H Series



Continued on the following page.

△Note • Please read rating and △CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
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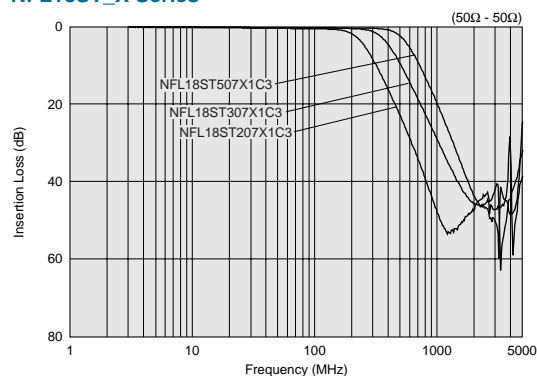
■ Rated Value (□: packaging code)

Part Number	Nominal Cut-off Frequency	Capacitance	Inductance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	Operating Temperature Range	
NFL18ST207X1C3□	200MHz	25pF±20%	110nH±20%	150mA	16Vdc	1000M ohm	50Vdc	-55°C to +125°C	Kit
NFL18ST307X1C3□	300MHz	18pF±20%	62nH±20%	200mA	16Vdc	1000M ohm	50Vdc	-55°C to +125°C	Kit
NFL18ST507X1C3□	500MHz	10pF±20%	43nH±20%	200mA	16Vdc	1000M ohm	50Vdc	-55°C to +125°C	Kit

Number of Circuits: 1

■ Insertion Loss Characteristics (Main Items)

NFL18ST_X Series



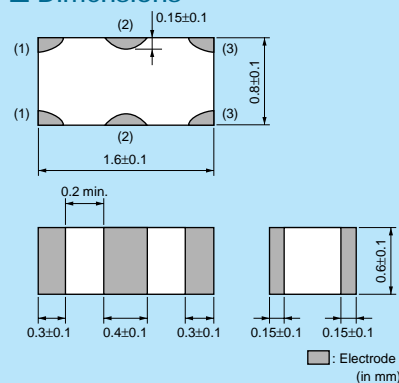
NFL18SP Series (0603 Size)



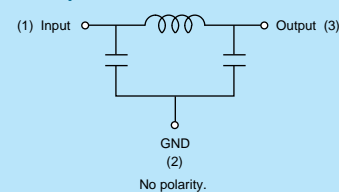
PI-type LC filter. Reduce waveform distortion of high speed signal.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
B	Bulk(Bag)	1000

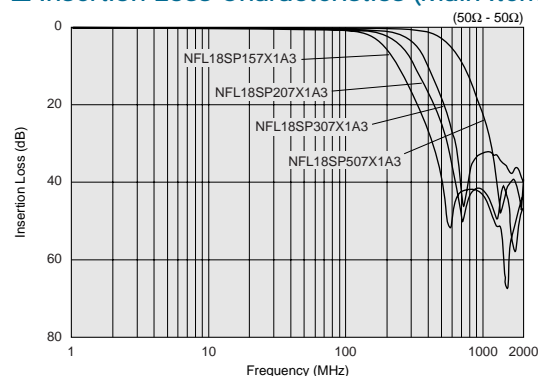
Refer to pages from p.139 to p.144 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Nominal Cut-off Frequency	Capacitance	Inductance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	Operating Temperature Range	
NFL18SP157X1A3□	150MHz	34pF±20%	100nH±20%	100mA	10Vdc	1000M ohm	30Vdc	-55°C to +125°C	Kit
NFL18SP207X1A3□	200MHz	24pF±20%	80nH±20%	100mA	10Vdc	1000M ohm	30Vdc	-55°C to +125°C	Kit
NFL18SP307X1A3□	300MHz	19pF±20%	60nH±20%	100mA	10Vdc	1000M ohm	30Vdc	-55°C to +125°C	Kit
NFL18SP507X1A3□	500MHz	11pF±20%	38nH±20%	100mA	10Vdc	1000M ohm	30Vdc	-55°C to +125°C	Kit

Number of Circuits: 1

■ Insertion Loss Characteristics (Main Items)



⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

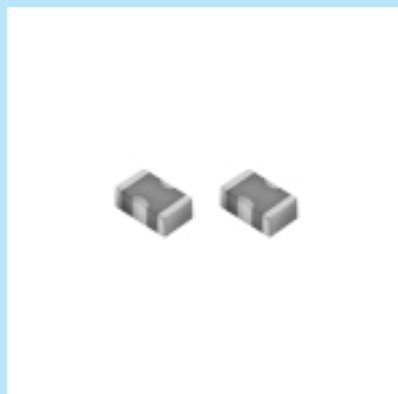
• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

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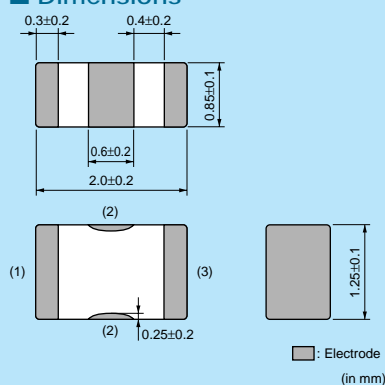
NFL21SP Series (0805 Size)



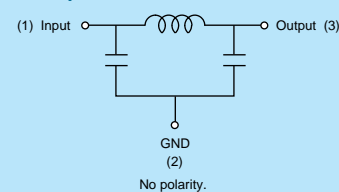
PI-type LC filter. Reduce waveform distortion of high speed signal.



Dimensions



Equivalent Circuit



Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
B	Bulk(Bag)	1000

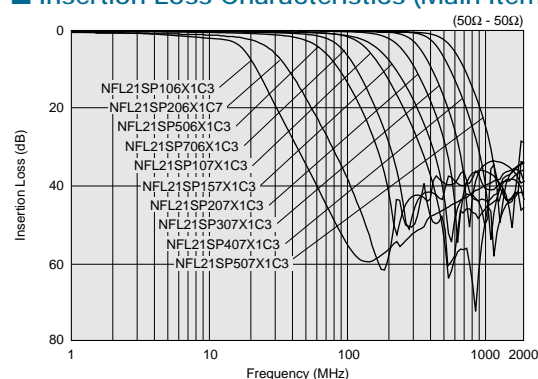
Refer to pages from p.139 to p.144 for mounting information.

Rated Value (□: packaging code)

Part Number	Nominal Cut-off Frequency	Capacitance	Inductance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	Operating Temperature Range	
NFL21SP106X1C3□	10MHz	670pF±20%	680nH±20%	100mA	16Vdc	1000M ohm	50Vdc	-55°C to +125°C	Kit
NFL21SP206X1C7□	20MHz	240pF±20%	700nH±20%	100mA	16Vdc	1000M ohm	50Vdc	-55°C to +125°C	Kit
NFL21SP506X1C3□	50MHz	84pF±20%	305nH±20%	150mA	16Vdc	1000M ohm	50Vdc	-55°C to +125°C	Kit
NFL21SP706X1C3□	70MHz	76pF±20%	185nH±20%	150mA	16Vdc	1000M ohm	50Vdc	-55°C to +125°C	Kit
NFL21SP107X1C3□	100MHz	44pF±20%	135nH±20%	200mA	16Vdc	1000M ohm	50Vdc	-55°C to +125°C	Kit
NFL21SP157X1C3□	150MHz	28pF±20%	128nH±20%	200mA	16Vdc	1000M ohm	50Vdc	-55°C to +125°C	Kit
NFL21SP207X1C3□	200MHz	22pF±20%	72nH±20%	250mA	16Vdc	1000M ohm	50Vdc	-55°C to +125°C	Kit
NFL21SP307X1C3□	300MHz	19pF±10%	45nH±10%	300mA	16Vdc	1000M ohm	50Vdc	-55°C to +125°C	Kit
NFL21SP407X1C3□	400MHz	16pF±10%	34nH±10%	300mA	16Vdc	1000M ohm	50Vdc	-55°C to +125°C	Kit
NFL21SP507X1C3□	500MHz	12pF±10%	31nH±10%	300mA	16Vdc	1000M ohm	50Vdc	-55°C to +125°C	Kit

Number of Circuits: 1

Insertion Loss Characteristics (Main Items)



NFA18SL Series (0603 Size)

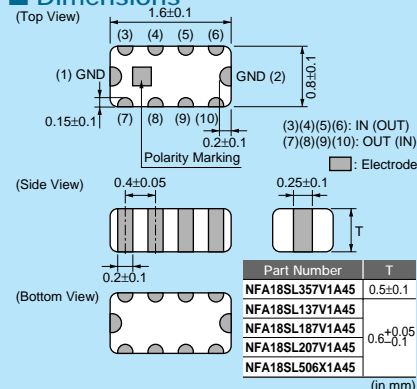


LC filter 4-lines array for mobile phones.

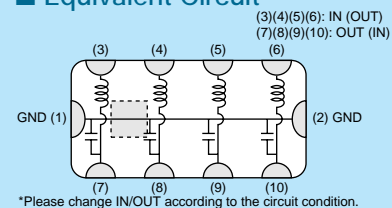
NFA18SL 137/187/207/357 V1A45 NFA18SL506X1A45



■ Dimensions



■ Equivalent Circuit



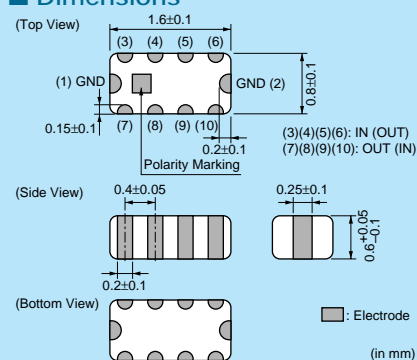
■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	4000
B	Bulk(Bag)	1000

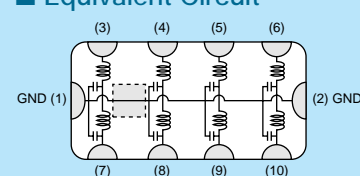
NFA18SL227V1A45



■ Dimensions



■ Equivalent Circuit



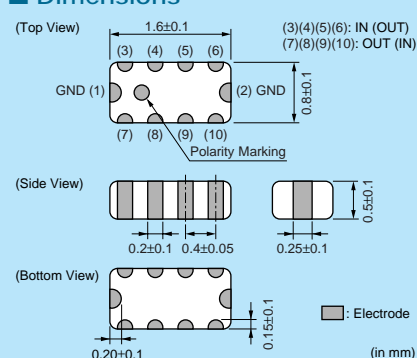
■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	4000
B	Bulk(Bag)	1000

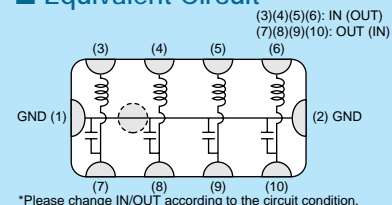
NFA18SL 307/407/487 V1A45



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	4000
B	Bulk(Bag)	1000

Refer to pages from p.139 to p.144 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Nominal Cut-off Frequency	Insertion Loss (Cut-off Frequency)	Insertion Loss (470MHz) (min.)	Insertion Loss (800MHz) (min.)	Insertion Loss (900MHz) (min.)	Insertion Loss (2000MHz) (min.)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	
NFA18SL137V1A45□	130MHz	6dBmax	25dB	-	25dB	-	50mA	10Vdc	1000M ohm	30Vdc	Kit
NFA18SL187V1A45□	180MHz	6dBmax	20dB	-	20dB	-	50mA	10Vdc	1000M ohm	30Vdc	Kit
NFA18SL207V1A45□	200MHz	6dBmax	15dB	-	15dB	-	50mA	10Vdc	1000M ohm	30Vdc	Kit
NFA18SL227V1A45□	220MHz	6dBmax	-	-	30dB	30dB	25mA	10Vdc	1000M ohm	30Vdc	Kit
NFA18SL307V1A45□	300MHz	6dBmax	-	20dB	20dB	-	100mA	10Vdc	1000M ohm	30Vdc	Kit
NFA18SL357V1A45□	350MHz	6dBmax	-	-	15dB	13dB	35mA	10Vdc	1000M ohm	30Vdc	New Kit
NFA18SL407V1A45□	400MHz	6dBmax	-	18dB	18dB	-	100mA	10Vdc	1000M ohm	30Vdc	Kit
NFA18SL487V1A45□	480MHz	6dBmax	-	15dB	15dB	-	100mA	10Vdc	1000M ohm	30Vdc	Kit

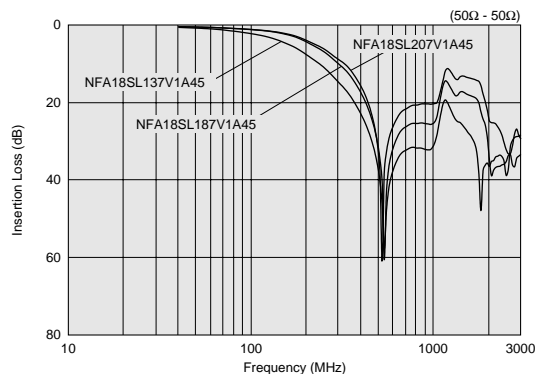
Operating Temperature Range: -40°C to +85°C (NFA18SL 137/187/207/227/357 V1A45), -55°C to +125°C (NFA18SL 307/407/487 V1A45) Number of Circuits: 4 Continued on the following page.

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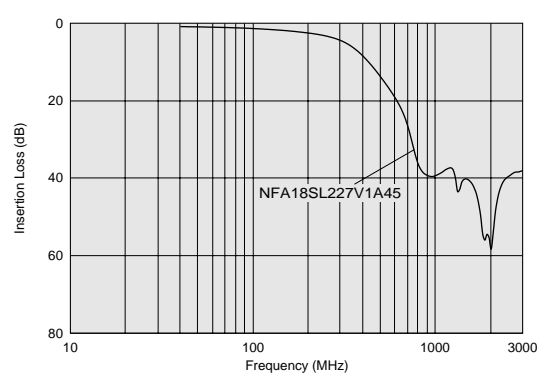
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■ Insertion Loss Characteristics (Main Items)

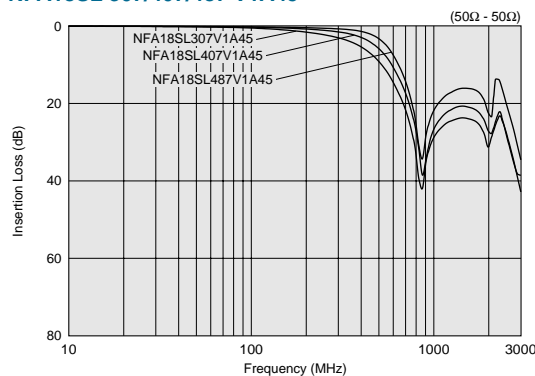
NFA18SL 137/187/207 V1A45



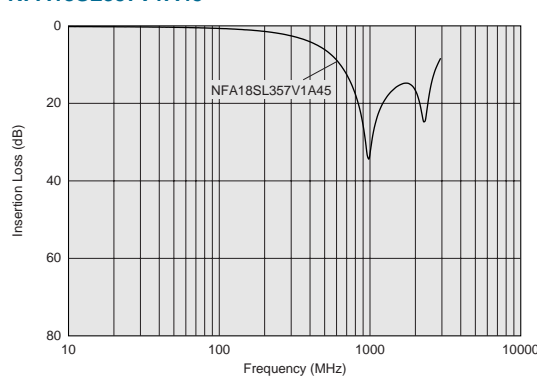
NFA18SL227V1A45



NFA18SL 307/407/487 V1A45



NFA18SL357V1A45



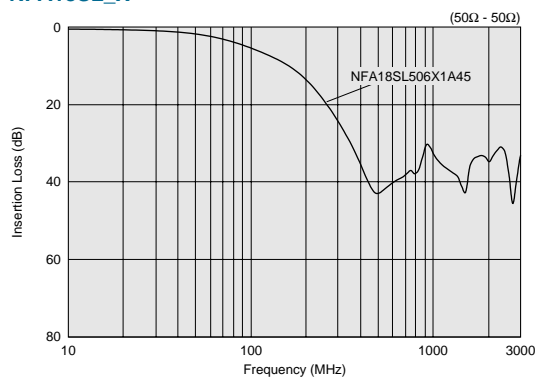
■ Rated Value (□: packaging code)

Part Number	Nominal Cut-off Frequency	Insertion Loss (Cut-off Frequency)	Insertion Loss at 500MHz (min.)	Insertion Loss at 1000MHz (min.)	Rated Voltage	Rated Current	Insulation Resistance (min.)	Withstand Voltage	
NFA18SL506X1A45□	50MHz	6dBmax	30dB	25dB	10Vdc	25mA	1000M ohm	30Vdc	Kit

Operating Temperature Range: -40°C to +85°C Number of Circuits: 4

■ Insertion Loss Characteristics (Main Items)

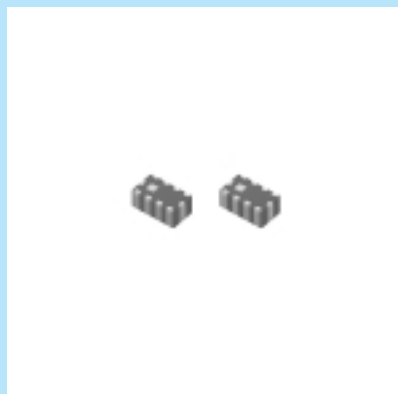
NFA18SL_X



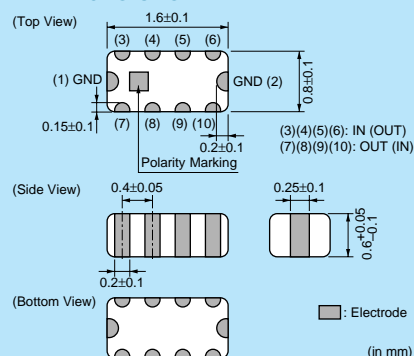
NFA18SD Series (0603 Size)



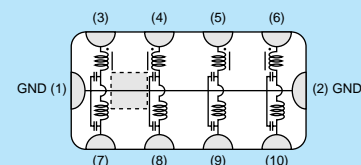
For differential signal I/F of LCD or camera in mobile phones.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	4000
B	Bulk(Bag)	1000

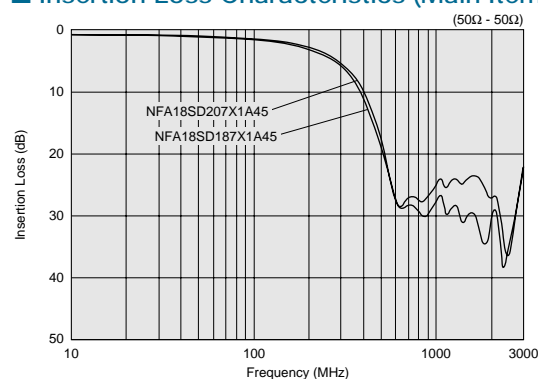
Refer to pages from p.139 to p.144 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Nominal Cut-off Frequency	Insertion Loss (Cut-off Frequency)	Insertion Loss (500MHz) (min.)	Insertion Loss (900MHz) (min.)	Insertion Loss (1500MHz) (min.)	Insertion Loss (2000MHz) (min.)	Rated Voltage	Rated Current	Insulation Resistance (min.)	Withstand Voltage	Kit	QTV
NFA18SD187X1A45□	180MHz	6dBmax	15dB	20dB	20dB	20dB	10Vdc	25mA	1000M ohm	30Vdc	Kit	QTV
NFA18SD207X1A45□	200MHz	6dBmax	13dB	20dB	20dB	20dB	10Vdc	25mA	1000M ohm	30Vdc	Kit	QTV

Operating Temperature Range: -40°C to +85°C Number of Circuits: 4

■ Insertion Loss Characteristics (Main Items)



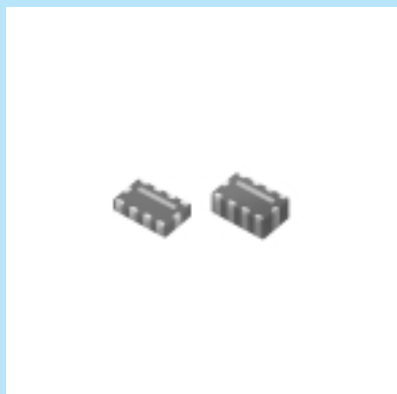
⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

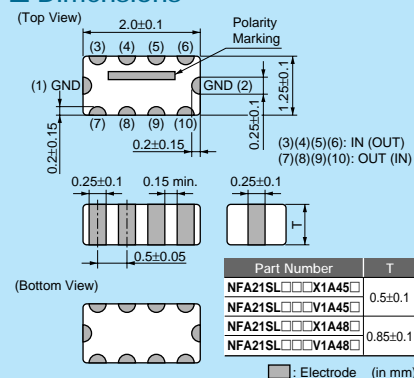
NFA21SL Series (0805 Size)



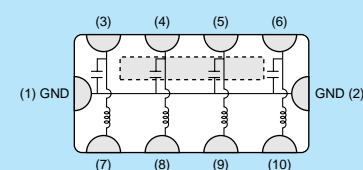
L-type LC filter 4-lines array for mobile phones.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	4000
B	Bulk(Bag)	1000

Refer to pages from p.139 to p.144 for mounting information.

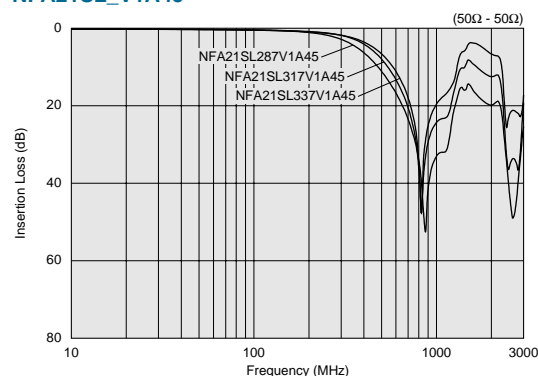
■ Rated Value (□: packaging code)

Part Number	Nominal Cut-off Frequency	Insertion Loss (Cut-off Frequency)	Insertion Loss at 800MHz (min.)	Insertion Loss at 900MHz (min.)	Rated Voltage	Rated Current	Insulation Resistance (min.)	Withstand Voltage	
NFA21SL287V1A45□	280MHz	6dBmax	25dB	25dB	10Vdc	100mA	1000M ohm	30Vdc	Kit
NFA21SL317V1A45□	310MHz	6dBmax	20dB	20dB	10Vdc	100mA	1000M ohm	30Vdc	Kit
NFA21SL337V1A45□	330MHz	6dBmax	15dB	15dB	10Vdc	100mA	1000M ohm	30Vdc	Kit
NFA21SL287V1A48□	280MHz	6dBmax	25dB	25dB	10Vdc	100mA	1000M ohm	30Vdc	Kit
NFA21SL317V1A48□	310MHz	6dBmax	20dB	20dB	10Vdc	100mA	1000M ohm	30Vdc	Kit
NFA21SL337V1A48□	330MHz	6dBmax	20dB	20dB	10Vdc	100mA	1000M ohm	30Vdc	Kit

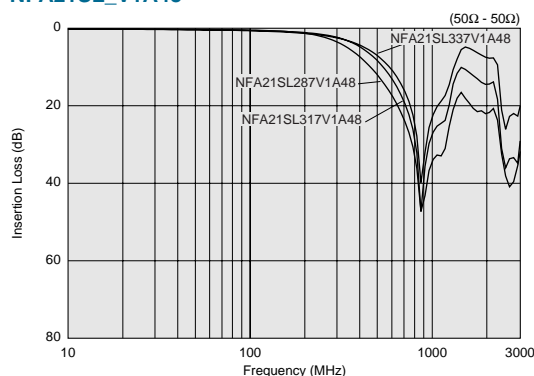
Operating Temperature Range: -55°C to +125°C Number of Circuits: 4

■ Insertion Loss Characteristics (Main Items)

NFA21SL_V1A45



NFA21SL_V1A48



Continued on the following page. ↗

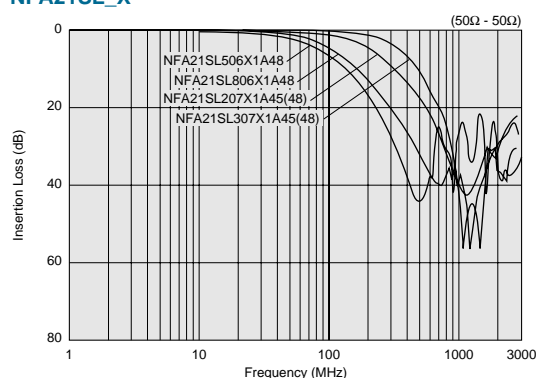
■ Rated Value (□: packaging code)

Part Number	Nominal Cut-off Frequency	Insertion Loss (Cut-off Frequency)	Insertion Loss at 500MHz (min.)	Insertion Loss at 800MHz (min.)	Insertion Loss at 1000MHz (min.)	Rated Voltage	Rated Current	Insulation Resistance (min.)	Withstand Voltage	
NFA21SL207X1A45□	200MHz	2 to 7	13dB	25dB	25dB	10Vdc	100mA	1000M ohm	30Vdc	Kit
NFA21SL307X1A45□	300MHz	2 to 7	7dB	20dB	25dB	10Vdc	100mA	1000M ohm	30Vdc	Kit
NFA21SL506X1A48□	50MHz	0 to 6	30dB	-	20dB	10Vdc	20mA	1000M ohm	30Vdc	Kit
NFA21SL806X1A48□	80MHz	2 to 7	25dB	-	25dB	10Vdc	20mA	1000M ohm	30Vdc	Kit
NFA21SL207X1A48□	200MHz	2 to 7	13dB	25dB	25dB	10Vdc	100mA	1000M ohm	30Vdc	Kit
NFA21SL307X1A48□	300MHz	2 to 7	7dB	20dB	25dB	10Vdc	100mA	1000M ohm	30Vdc	Kit

Operating Temperature Range: -55°C to +125°C Number of Circuits: 4

■ Insertion Loss Characteristics (Main Items)

NFA21SL_X



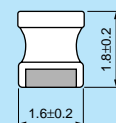
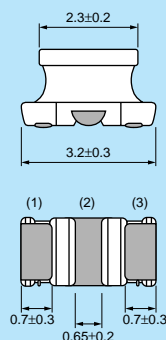
NFW31S Series (1206 Size)



Wire-wound PI-type LC filter.



■ Dimensions



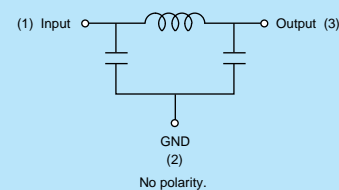
(1): Input electrode
(2): Ground electrode
(3): Output electrode

* No polarity.

■ : Electrode

(in mm)

■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	2000
K	330mm Reel Embossed Tape	7500

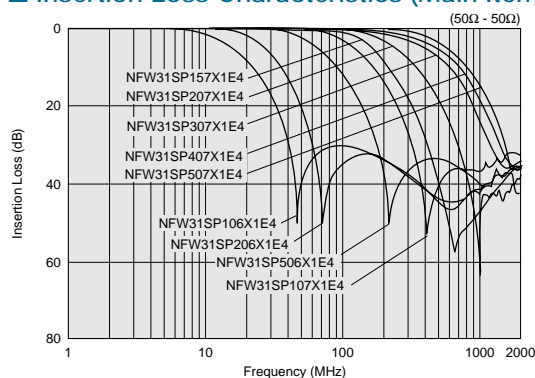
Refer to pages from p.139 to p.144 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Nominal Cut-off Frequency	Insertion Loss at 10MHz	Insertion Loss at 20MHz	Insertion Loss at 50MHz	Insertion Loss at 100MHz	Insertion Loss at 150MHz	Insertion Loss at 200MHz	Insertion Loss at 300MHz	Insertion Loss at 400MHz	Insertion Loss at 500MHz	Insertion Loss at 1000MHz	
NFW31SP106X1E4□	10MHz	6dBmax.	5dBmin.	25dBmin.	25dBmin.	-	25dBmin.	-	-	30dBmin.	30dBmin.	Kit
NFW31SP206X1E4□	20MHz	-	6dBmax.	5dBmin.	25dBmin.	-	25dBmin.	-	-	30dBmin.	30dBmin.	Kit
NFW31SP506X1E4□	50MHz	-	-	6dBmax.	10dBmin.	-	30dBmin.	-	-	30dBmin.	30dBmin.	Kit
NFW31SP107X1E4□	100MHz	-	-	-	6dBmax.	-	5dBmin.	-	-	20dBmin.	30dBmin.	Kit
NFW31SP157X1E4□	150MHz	-	-	-	-	6dBmax.	-	10dBmin.	20dBmin.	30dBmin.	30dBmin.	Kit
NFW31SP207X1E4□	200MHz	-	-	-	-	-	6dBmax.	-	-	10dBmin.	30dBmin.	Kit
NFW31SP307X1E4□	300MHz	-	-	-	-	-	-	6dBmax.	-	5dBmin.	15dBmin.	Kit
NFW31SP407X1E4□	400MHz	-	-	-	-	-	-	-	6dBmax.	-	10dBmin.	Kit
NFW31SP507X1E4□	500MHz	-	-	-	-	-	-	-	-	6dBmax.	10dBmin.	Kit

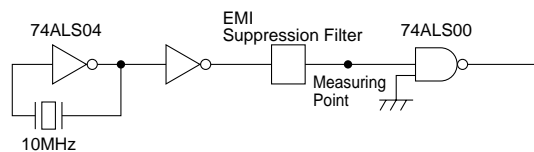
Rated Current: 200mA Rated Voltage: 25Vdc Operating Temperature Range: -40°C to +85°C Number of Circuit: 1

■ Insertion Loss Characteristics (Main Items)



Example of EMI Suppression in an Actual Circuit

Measuring Circuit

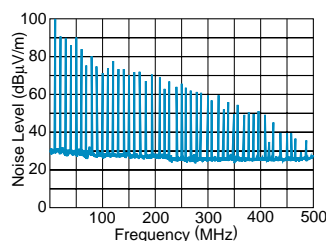
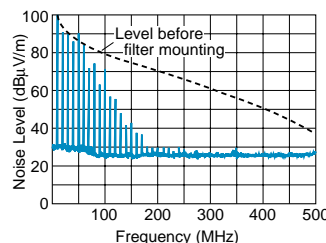


Type of Filter

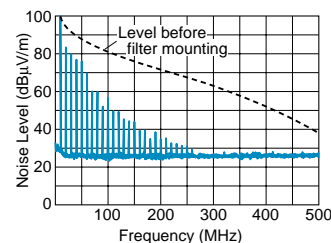
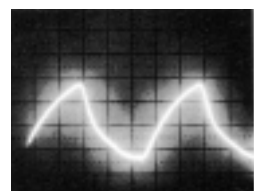
Signal Wave Form (20ns/div / 1V/div) / EMI Suppression Effect / Description

Signal Waveform
and Noise Spectrum
before Filter Mounting

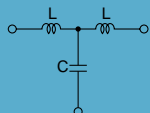
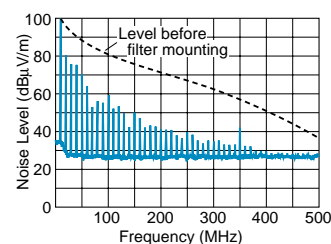
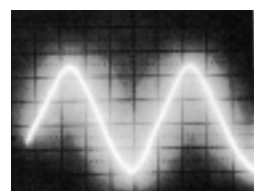
Signal Waveform (20ns/div / 1V/div)

Noise Spectrum
(10:1 Active Probe)NFW31S Series
(Cut-off frequency 50MHz)

NFW31S's steep attenuation characteristic means excellent EMI suppression without waveform cornering.

Conventional Chip
Solid Type EMI Filter
(NFM41CC 470pF)

3-terminal capacitors suppress signal frequencies as EMI frequencies so the signal waveform is distorted.

Filter Combined
with Conventional LCsL: Chip Inductor
C: Chip Capacitor
(270pF)

Combinations of inductors and capacitors can yield a steep attenuation characteristic, but they require a great deal more mounting space. Moreover, at high frequencies the EMI suppression is less than that obtained by NFW31S.

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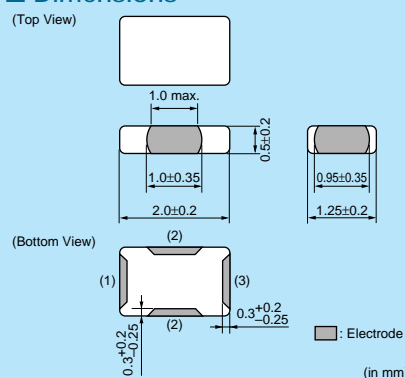
NFR21G Series (0805 Size)



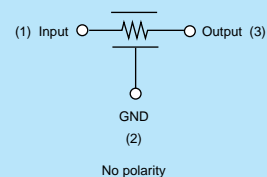
3-terminal RC filter, damp the noise current and return back to ground.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	4000
B	Bulk(Bag)	500

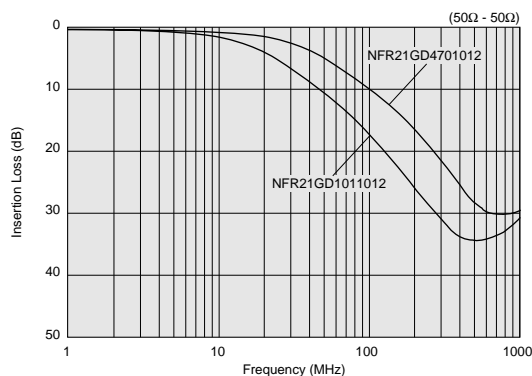
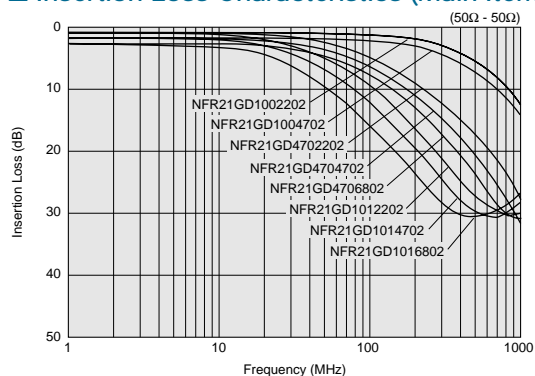
Refer to pages from p.139 to p.144 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	DC Resistance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range
NFR21GD1002202□	10pF±20%	22ohm±30%	50mA	50Vdc	1000M ohm	-40°C to +85°C
NFR21GD1004702□	10pF±20%	47ohm±30%	35mA	50Vdc	1000M ohm	-40°C to +85°C
NFR21GD4702202□	47pF±20%	22ohm±30%	50mA	50Vdc	1000M ohm	-40°C to +85°C
NFR21GD4704702□	47pF±20%	47ohm±30%	35mA	50Vdc	1000M ohm	-40°C to +85°C
NFR21GD4706802□	47pF±20%	68ohm±30%	30mA	50Vdc	1000M ohm	-40°C to +85°C
NFR21GD4701012□	47pF±20%	100ohm±30%	25mA	50Vdc	1000M ohm	-40°C to +85°C
NFR21GD1012202□	100pF±20%	22ohm±30%	50mA	50Vdc	1000M ohm	-40°C to +85°C
NFR21GD1014702□	100pF±20%	47ohm±30%	35mA	50Vdc	1000M ohm	-40°C to +85°C
NFR21GD1016802□	100pF±20%	68ohm±30%	30mA	50Vdc	1000M ohm	-40°C to +85°C
NFR21GD1011012□	100pF±20%	100ohm±30%	25mA	50Vdc	1000M ohm	-40°C to +85°C

Number of Circuit: 1

■ Insertion Loss Characteristics (Main Items)



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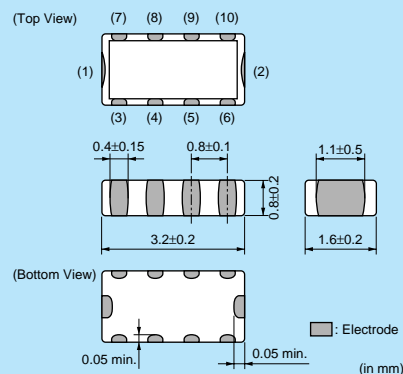
NFA31G Series (1206 Size)



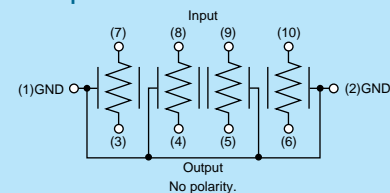
3-terminal RC filter array.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
B	Bulk(Bag)	100

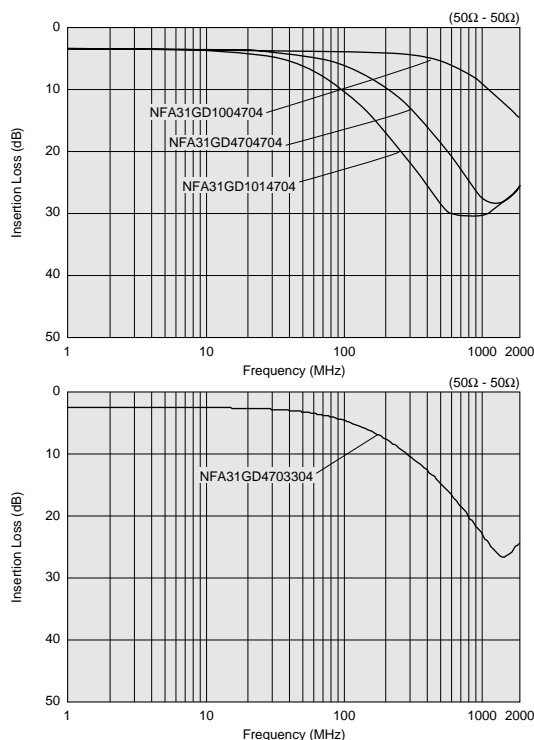
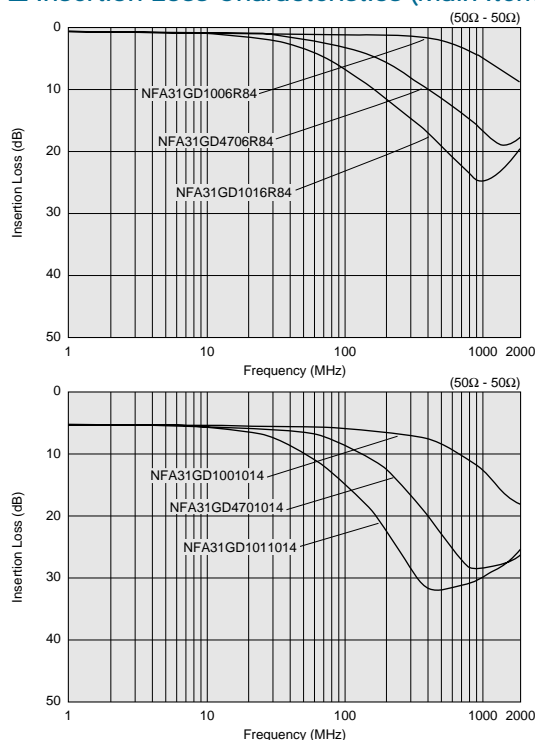
Refer to pages from p.139 to p.144 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	DC Resistance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range
NFA31GD1006R84□	10pF±20%	6.8ohm±40%	50mA	6Vdc	1000M ohm	-40°C to +85°C
NFA31GD1004704□	10pF±20%	47ohm±30%	20mA	6Vdc	1000M ohm	-40°C to +85°C
NFA31GD1001014□	10pF±20%	100ohm±30%	15mA	6Vdc	1000M ohm	-40°C to +85°C
NFA31GD4706R84□	47pF±20%	6.8ohm±40%	50mA	6Vdc	1000M ohm	-40°C to +85°C
NFA31GD4703304□	47pF±20%	33ohm±30%	20mA	6Vdc	1000M ohm	-40°C to +85°C
NFA31GD4704704□	47pF±20%	47ohm±30%	20mA	6Vdc	1000M ohm	-40°C to +85°C
NFA31GD4701014□	47pF±20%	100ohm±30%	15mA	6Vdc	1000M ohm	-40°C to +85°C
NFA31GD1016R84□	100pF±20%	6.8ohm±40%	50mA	6Vdc	1000M ohm	-40°C to +85°C
NFA31GD1014704□	100pF±20%	47ohm±30%	20mA	6Vdc	1000M ohm	-40°C to +85°C
NFA31GD1011014□	100pF±20%	100ohm±30%	15mA	6Vdc	1000M ohm	-40°C to +85°C

Number of Circuit: 4

■ Insertion Loss Characteristics (Main Items)



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C31E.pdf
Mar.28,2011

⚠ Caution

● Rating

Do not use products beyond the rated current and rated voltage as this may create excessive heat and deteriorate the insulation resistance.

● Soldering and Mounting

● Self-heating

Please provide special attention when mounting chip EMIFIL® NFM_P series in close proximity to other products that radiate heat.

The heat generated by other products may deteriorate the insulation resistance and cause excessive heat in this component.

Notice

● Storage and Operating Conditions

<Operating Environment>

Do not use products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.

Do not use products in the environment close to the organic solvent.

<Storage and Handling Requirements>

1. Storage Period

NFM55P series should be used within 6 months, the other series should be used within 12 months.

Solderability should be checked if this period is exceeded.

2. Storage Conditions

(1) Storage temperature: -10 to +40°C

Relative humidity: 15 to 85%

Avoid sudden changes in temperature and humidity.

(2) Do not store products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.

● Notice (Soldering and Mounting)

1. Cleaning

Failure and degradation of a product are caused by the cleaning method. When you clean in conditions that are not in mounting information, please contact Murata engineering.

2. Soldering

Reliability decreases with improper soldering methods. Please solder by the standard soldering conditions shown in mounting information.

3. Other

Noise suppression levels resulting from Murata's EMI suppression filters EMIFIL® may vary, depending on the circuits and ICs used, type of noise, mounting pattern, mounting location, and other operating conditions. Be sure to check and confirm in advance the noise suppression effect of each filter, in actual circuits, etc. before applying the filter in a commercial-purpose equipment design.

● Handling

1. Resin Coating

Using resin for coating/molding products may affect the products performance.

So please pay careful attention in selecting resin.

Prior to use, please make the reliability evaluation with the product mounted in your application set.

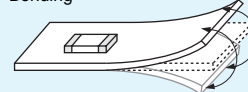
2. Caution for Use (NFW Series)

When you hold products with a tweezer, please hold by the sides. Sharp materials, such as a pair of tweezers or other material such as bristles of cleaning brush, should not touch the winding portion of this product to prevent breaking the wire. Mechanical shock should not be applied to the products mounted on the board to prevent breaking the core.

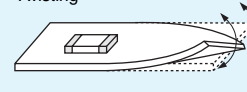
3. Handling of a Substrate

After mounting products on a substrate, do not apply any stress to the product caused by bending or twisting to the substrate when cropping the substrate, inserting and removing a connector from the substrate or tightening screw to the substrate. Excessive mechanical stress may cause cracking in the Product.


Bending



Twisting



1. Standard Land Pattern Dimensions

NF  series suppress noise by conducting the high-frequency noise element to ground. Therefore, to obtain maximum performance from these filters, the ground pattern should be made as large as possible during the PCB design stage. As shown below, one side of the PCB is used for chip mounting, and the other is used for grounding.

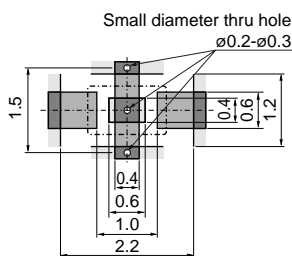
Small diameter feedthrough holes are then used to connect the grounds on each side of the PCB. This reduces the high-frequency impedance of the grounding and maximizes the filter's performance.

 Land Pattern + Solder Resist
 Land Pattern
 Solder Resist (in mm)

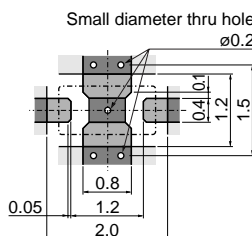
**NFM18
NFL18
NFM55P**

Reflow Soldering

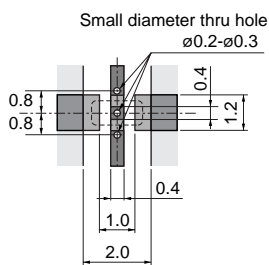
NFM18C/NFM18PC/NFL18ST



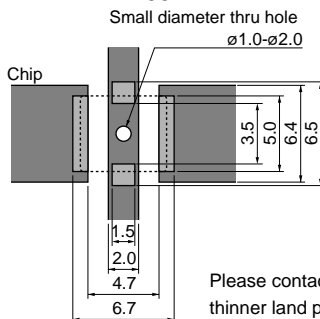
NFM18PS



NFL18SP



NFM55P



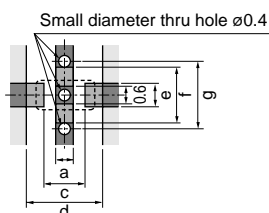
Please contact us if using thinner land pad than 18μm.

- NF 18, NFM55P are specially adapted for reflow soldering.

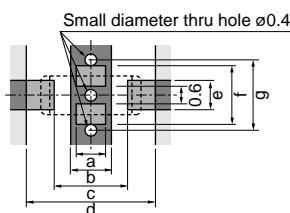
**NFM21C
NFM21P
NFM3D
NFM31P
NFM41
NFR21G
NFL21S**

● Reflow Soldering Chip mounting side

NFM21C/NFR21G
NFM21P/NFL21S



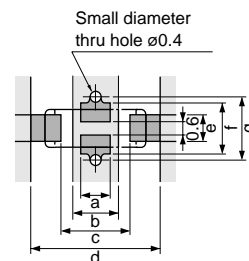
NFM3DC/NFM3DP/
NFM31P
NFM41C/NFM41P




Part Number	Size (mm)						
	a	b	c	d	e	f	g
NFM21C/NFR21G NFM21P/NFL21S	0.6	-	1.4	2.6	0.8	1.9	2.3
NFM3DC/NFM3DP	1.0	1.4	2.5	4.4	1.0	2.0	2.4
NFM31P	1.0	1.4	2.5	4.4	1.2	2.6	3.0
NFM41C/NFM41P	1.5	2.0	3.5	6.0	1.2	2.6	3.0

- NF 21 is specially adapted for reflow soldering.

● Flow Soldering Chip mounting side

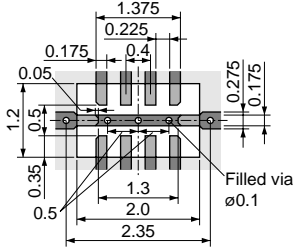
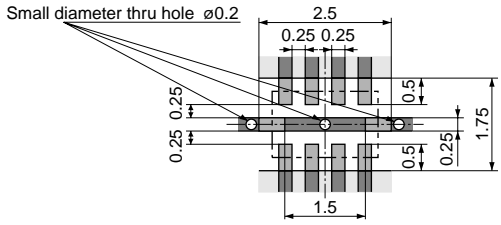
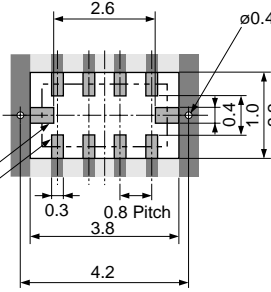
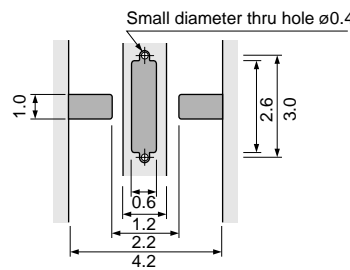
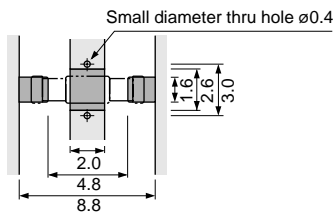
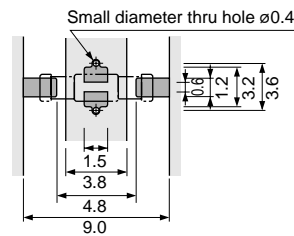


Part Number	Size (mm)						
	a	b	c	d	e	f	g
NFM3DC NFM3DP	1.0	1.4	2.5	4.4	1.0	2.0	2.4
NFM31P	1.0	1.4	2.5	4.4	1.2	2.6	3.0
NFM41C NFM41P	1.5	2.0	3.5	6.0	1.2	2.6	3.0

Continued on the following page. 

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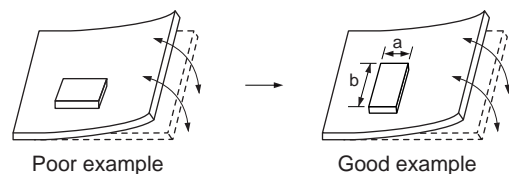
Land Pattern + Solder Resist
Land Pattern
Solder Resist (in mm)

<p>NFA18S NFA21S</p>	<p>Reflow Soldering</p> <p>NFA18S</p> 	<p>NFA21S</p> 
<p>NFA31G NFA31C NFW31S NFE31P</p>	<p>● Reflow Soldering NFA31G/31C</p> 	<p>● Reflow and Flow NFW31S ● Reflow Soldering NFE31P</p> 
<p>NFE61P</p>	<p>● Reflow Soldering</p> 	<p>● Flow Soldering</p> 

● PCB Warping

PCB should be designed so that products are not subjected to the mechanical stress caused by warping the board.

Products should be located in the sideways direction (Length: $a < b$) to the mechanical stress.



2. Solder Paste Printing and Adhesive Application

When reflow soldering the chip EMI suppression filter, the printing must be conducted in accordance with the following cream solder printing conditions.

If too much solder is applied, the chip will be prone to damage by mechanical and thermal stress from the PCB and may crack.

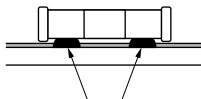
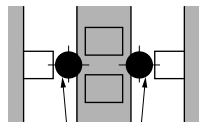
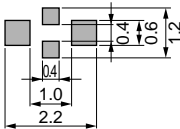
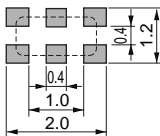
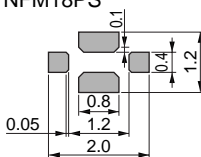
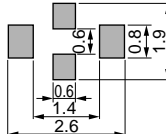
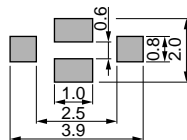
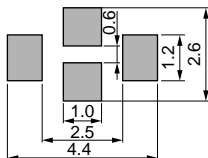
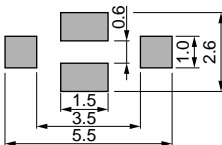
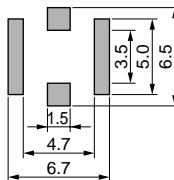
Standard land dimensions should be used for resist and copper foil patterns.

When flow soldering the EMI suppression filter, apply the adhesive in accordance with the following conditions.

If too much adhesive is applied, then it may overflow into the land or termination areas and yield poor solderability.

In contrast, if insufficient adhesive is applied, or if the adhesive is not sufficiently hardened, then the chip may become detached during flow soldering process.

(in mm)

Series	Solder Paste Printing	Adhesive Application	
NFM NFR NFL	<p>● Guideline of solder paste thickness: 100-150μm: NFM18/21/3D/31P, NFR, NFL 150-200μm: NFM55P 100-200μm: NFM41</p>	<p>■ NFM3D/31P/41 Series</p> <p>Apply 0.1mg for NFM41C/41 and 0.06mg for NFM3D/NFM31P of bonding agent at each chip. Do not cover electrodes.</p> <div><p>Bonding agent</p><p>Coating position of bonding agent</p></div>	
	<p>NFM18C/18PC NFL18ST</p> 		<p>NFL18SP</p> 
	<p>NFM18PS</p> 		<p>NFM21C/21PC NFR21G/NFL21S</p> 
	<p>NFM3DC/3DP</p> 		<p>NFM31P</p> 
	<p>NFM41C/41P</p> 		<p>NFM55P</p> 

■ NFM3D/31P/41 Series

Apply 0.1mg for NFM41C/41 and 0.06mg for NFM3D/NFM31P of bonding agent at each chip. Do not cover electrodes.

Continued on the following page.

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(in mm)

Series	Solder Paste Printing	Adhesive Application
NFA	<p>●Guideline of solder paste thickness: 100-200μm: NFA31G/31C 100-150μm: NFA18S/21S</p> <p>NFA31G/31C</p> <p>NFA21S</p> <p>NFA18S</p>	
NFW31S NFE31P	<p>●Guideline of solder paste thickness: 150-200μm</p>	<p>■ NFW31S Series Apply 0.2mg of bonding agent at each chip.</p> <p>Bonding agent</p> <p>Coating position of bonding agent</p>
NFE61P	<p>●Guideline of solder paste thickness: 150-200μm</p>	<p>Apply 1.0mg of bonding agent at each chip.</p> <p>Bonding agent</p> <p>Bonding agent</p>

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3. Standard Soldering Conditions

(1) Soldering Methods

Use flow and reflow soldering methods only.
 Use standard soldering conditions when soldering chip EMI suppression filters.
 In cases where several different parts are soldered, each having different soldering conditions, use those conditions requiring the least heat and minimum time.

Solder: Use Sn-3.0Ag-0.5Cu solder. Use of Sn-Zn based solder will deteriorate performance of products.
 If using NFM series with Sn-Zn based solder, please contact Murata in advance.

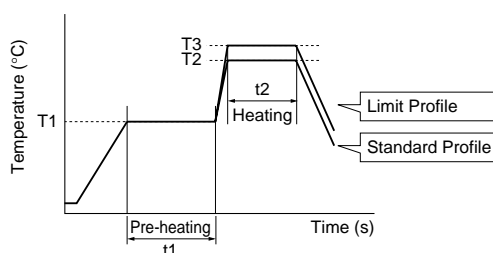
Flux:

- Use Rosin-based flux.
 In case of using RA type solder, products should be cleaned completely with no residual flux.
- Do not use strong acidic flux (with chlorine content exceeding 0.20wt%)
- Do not use water-soluble flux.

For additional mounting methods, please contact Murata.

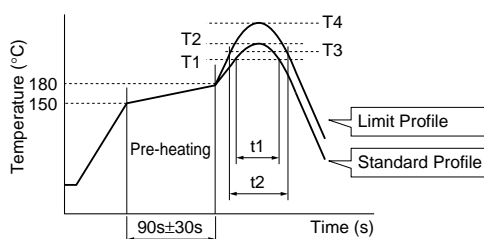
(2) Soldering Profile

● Flow Soldering Profile
 (Sn-3.0Ag-0.5Cu Solder)



Series	Pre-heating		Standard Profile			Limit Profile		
			Heating		Cycle of Flow	Heating		Cycle of Flow
	Temp. (T1)	Time. (t1)	Temp. (T2)	Time. (t2)		Temp. (T3)	Time. (t2)	
NFM3DC/3DP/31PC NFM41C/41P NFE61P	150°C	60s min.	250°C	4 to 6s	2 times max.	265±3°C	5s max.	2 times max.
NFW31S	150°C	60s min.	250°C	4 to 6s	2 times max.	265±3°C	5s max.	1 time

● Reflow Soldering Profile
 (Sn-3.0Ag-0.5Cu Solder)



Series	Standard Profile				Limit Profile			
	Heating		Peak Temperature (T2)	Cycle of Reflow	Heating		Peak Temperature (T4)	Cycle of Reflow
	Temp. (T1)	Time. (t1)			Temp. (T3)	Time. (t2)		
NFA, NFE NFL, NFM (Except NFM55P) NFR	220°C min.	30 to 60s	245±3°C	2 times max.	230°C min.	60s max.	260°C/10s	2 times max.
NFW31S, NFM55P	220°C min.	30 to 60s	245±3°C	2 times max.	230°C min.	60s max.	260°C/10s	1 time

(3) Reworking with Solder Iron

The following conditions must be strictly followed when using a soldering iron.

Pre-heating: 150°C 60s min.*¹

*¹ NFM55P: 100°C/60s+200°C/60s

Soldering iron power output / Tip diameter:

30W max. / ø3mm max.

Temperature of soldering iron tip / Soldering time / Times:

350°C max. / 3-4s / 2 times*²

*² NFE31PT152Z1E9: 280°C max. / 10s max. / 2 times

Do not allow the tip of the soldering iron to directly contact the chip.

For additional methods of reworking with a soldering iron, please contact Murata engineering.

4. Cleaning

Following conditions should be observed when cleaning chip EMI filter.

(1) Cleaning Temperature: 60°C max. (40°C max. for alcohol type cleaner)

(2) Ultrasonic

Output: 20W/liter max.

Duration: 5 minutes max.

Frequency: 28 to 40kHz

(3) Cleaning Agent

The following list of cleaning agents have been tested on the individual components. Evaluation of final assembly should be completed prior to production.

(a) Alcohol cleaning agent

Isopropyl alcohol (IPA)

(b) Aqueous cleaning agent

Pine Alpha ST-100S

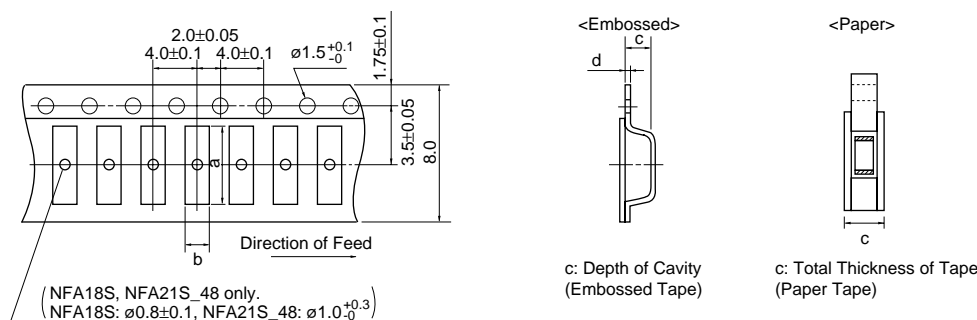
(4) Ensure that flux residue is completely removed.

Component should be thoroughly dried after aqueous agent has been removed with deionized water.

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■ Minimum Quantity and Dimensions of 8mm Width Paper / Embossed Tape

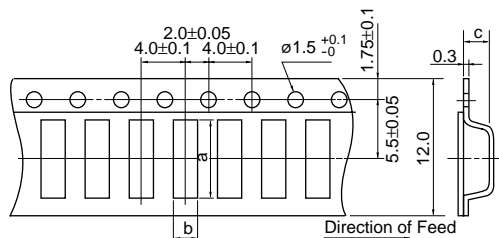


Dimension of the cavity of embossed tape is measured at the bottom side.

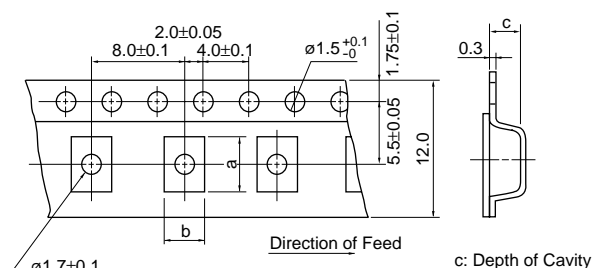
Part Number	Cavity Size				Minimum Qty. (pcs.)				
					ø180mm Reel		ø330mm Reel		Bulk
	a	b	c	d	Paper Tape	Embossed Tape	Paper Tape	Embossed Tape	
NFM18C/ NFM18PC (Except 105R/225B1A)/ NFM18PS	1.85	1.05	0.9 max.	-	4000	-	-	-	500
NFM18PC105R/225B1A			1.1 max.	-	4000	-	-	-	500
NFL18SP	1.85	1.05	0.9 max.	-	4000	-	-	-	1000
NFL18ST			1.1 max.	-					
NFL21SP	2.3	1.55	1.1 max.	-	4000	-	-	-	500
NFM21	2.3	1.55	1.1 max.	-	-	4000	-	-	500
NFM3DC/3DP	3.4	1.4	0.85	0.2	-	-	-	-	500
NFM31P	3.5	1.9	1.5	0.25	-	-	-	-	500
NFA18S	1.8	1.0	0.7	0.25	-	-	-	-	500
NFA21S_45	2.30	1.55	0.7	0.25	-	-	-	-	500
NFA21S_48	2.25	1.45	1.05	0.25	-	-	-	-	500
NFA31G/31C	3.5	2.0	1.1 max.	-	-	-	-	-	100
NFE31P	3.6	1.8	1.85	0.2	-	-	-	-	500
NFR21G	2.3	1.55	0.7	0.25	-	-	-	-	500
NFW31S	3.6	1.9	2.0	0.2	-	-	-	-	500

(in mm)

■ Minimum Quantity and Dimensions of 12mm Width Embossed Tape



Part Number	Cavity Size			Minimum Qty. (pcs.)		
	a	b	c	ø180mm Reel	ø330mm Reel	Bulk
NFM41	4.8	1.8	1.1	4000	-	500
NFE61	7.2	1.9	1.75	2500	8000	500



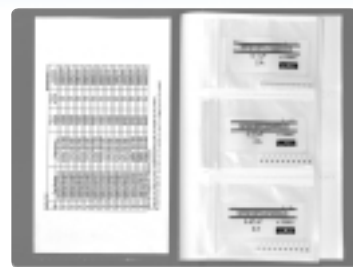
Part Number	Cavity Size			Minimum Qty. (pcs.)		
	a	b	c	ø180mm Reel	ø330mm Reel	Bulk
NFM55P	6.0	5.3	2.5	500	-	100

Dimension of the cavity is measured at the bottom side.

(in mm)

"Minimum Quantity" means the number of units of each delivery or order. The quantity should be an integral multiple of the "Minimum Quantity".

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●EKEMNFMCB (Chip EMIFIL® Capacitor Type for Signal Lines)

No.	Part Number	Quantity (pcs.)	Capacitance	Rated Voltage (Vdc)	Rated Current (mA)
1	NFM18CC220U1C3	10	22pF±20%	16	400
2	NFM18CC470U1C3	10	47pF±20%	16	400
3	NFM18CC101R1C3	10	47pF±20%	16	500
4	NFM18CC221R1C3	10	100pF±20%	16	500
5	NFM18CC471R1C3	10	220pF±20%	16	500
6	NFM18CC102R1C3	10	470pF±20%	16	600
7	NFM18CC222R1C3	10	1000pF±20%	16	700
8	NFM18CC223R1C3	10	2200pF±20%	16	1000
9	NFM21CC220U1H3	10	22000pF±20%	50	700
10	NFM21CC470U1H3	10	22pF±20%	50	700
11	NFM21CC101U1H3	10	100pF±20%	50	700
12	NFM21CC221R1H3	10	220pF±20%	50	700
13	NFM21CC471R1H3	10	470pF±20%	50	1000
14	NFM21CC102R1H3	10	1000pF±20%	50	1000
15	NFM21CC222R1H3	10	2200pF±20%	50	1000
16	NFM21CC223R1H3	10	22000pF±20%	50	2000

●EKEMFA31E (Chip EMIFIL® Capacitor Array Type/ RC Combined Array Type)

No.	Part Number	Quantity (pcs.)	Capacitance	Rated Voltage (Vdc)	Rated Current (mA)
1	NFA31CC220S1E4	10	22pF±20%	25	200
2	NFA31CC470S1E4	10	47pF±20%	25	200
3	NFA31CC101S1E4	10	100pF±20%	25	200
4	NFA31CC221S1E4	10	220pF±20%	25	200
5	NFA31CC471R1E4	10	470pF±20%	25	200
6	NFA31CC102R1E4	10	1000pF±20%	25	200
7	NFA31CC222R1E4	10	2200pF±20%	25	200
8	NFA31CC223R1C4	10	22000pF±20%	16	200

●EKEMFL18F (Chip EMIFIL® LC Combined Type)

No.	Part Number	Quantity (pcs.)	Cut-off Frequency	Rated Voltage (Vdc)	Rated Current (mA)	DC Resistance (Ω) max.
1	NFL18ST506H1A3	10	50MHz	10	75	-
2	NFL18ST706H1A3	10	70MHz	10	75	-
3	NFL18ST107H1A3	10	100MHz	10	75	-
4	NFL18ST207X1C3	10	200MHz	16	150	3.5
5	NFL18ST307X1C3	10	300MHz	16	200	1.8
6	NFL18ST507X1C3	10	500MHz	16	200	1.5
7	NFL18SP157X1A3	10	150MHz	10	100	3.0
8	NFL18SP207X1A3	10	200MHz	10	100	3.0
9	NFL18SP307X1A3	10	300MHz	10	100	3.0
10	NFL18SP507X1A3	10	500MHz	10	100	2.0
11	NFL21SP106X1C3	10	10MHz	16	100	8.5
12	NFL21SP206X1C7	10	20MHz	16	100	8.5
13	NFL21SP506X1C3	10	50MHz	16	150	3.5
14	NFL21SP706X1C3	10	70MHz	16	150	3.0
15	NFL21SP107X1C3	10	100MHz	16	200	2.0
16	NFL21SP157X1C3	10	150MHz	16	200	2.0
17	NFL21SP207X1C3	10	200MHz	16	250	1.5
18	NFL21SP307X1C3	10	300MHz	16	300	1.2
19	NFL21SP407X1C3	10	400MHz	16	300	1.2
20	NFL21SP507X1C3	10	500MHz	16	300	1.2

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No.	Part Number	Quantity (pcs.)	Cut-off Frequency	Attenuation (dB min.)										Rated Current	Rated Voltage
				10MHz	20MHz	50MHz	100MHz	150MHz	200MHz	300MHz	400MHz	500MHz	1GHz		
21	NFW31SP106X1E4	10	10MHz	6dB max.	5	25	25	-	25	-	-	30	30	200mA	25V
22	NFW31SP206X1E4	10	20MHz	-	6dB max.	5	25	-	25	-	-	30	30	200mA	25V
23	NFW31SP506X1E4	10	50MHz	-	-	6dB max.	10	-	30	-	-	30	30	200mA	25V
24	NFW31SP107X1E4	10	100MHz	-	-	-	6dB max.	-	5	-	-	20	30	200mA	25V
25	NFW31SP157X1E4	10	150MHz	-	-	-	-	6dB max.	-	10	20	30	30	200mA	25V
26	NFW31SP207X1E4	10	200MHz	-	-	-	-	-	6dB max.	-	-	10	30	200mA	25V
27	NFW31SP307X1E4	10	300MHz	-	-	-	-	-	-	6dB max.	-	5	15	200mA	25V
28	NFW31SP407X1E4	10	400MHz	-	-	-	-	-	-	-	6dB max.	-	10	200mA	25V
29	NFW31SP507X1E4	10	500MHz	-	-	-	-	-	-	-	-	6dB max.	10	200mA	25V

●EKEMFA20H (Chip EMIFIL® LC Combined Array Type)

No.	Part Number	Quantity (pcs.)	Cut-off Frequency	Rated Voltage (Vdc)	Rated Current (mA)
1	NFA18SL506X1A45	10	50MHz	10	25
2	NFA18SL137V1A45	10	130MHz	10	50
3	NFA18SL187V1A45	10	180MHz	10	50
4	NFA18SL207V1A45	10	200MHz	10	50
5	NFA18SL227V1A45	10	220MHz	10	25
6	NFA18SL307V1A45	10	300MHz	10	100
7	NFA18SL357V1A45	10	350MHz	10	35
8	NFA18SL407V1A45	10	400MHz	10	100
9	NFA18SL487V1A45	10	480MHz	10	100
10	NFA18SD187X1A45	10	180MHz	10	25
11	NFA18SD207X1A45	10	200MHz	10	25
12	NFA21SL506X1A48	10	200MHz	10	25
13	NFA21SL806X1A48	10	80MHz	10	20
14	NFA21SL207X1A45	10	200MHz	10	100
15	NFA21SL207X1A48	10	200MHz	10	100
16	NFA21SL307X1A45	10	300MHz	10	100
17	NFA21SL307X1A48	10	300MHz	10	100
18	NFA21SL287V1A45	10	280MHz	10	100
19	NFA21SL287V1A48	10	280MHz	10	100
20	NFA21SL317V1A45	10	310MHz	10	100
21	NFA21SL317V1A48	10	310MHz	10	100
22	NFA21SL337V1A45	10	330MHz	10	100
23	NFA21SL337V1A48	10	330MHz	10	100

●EKEMNFMFPH (Chip EMIFIL® for Large Current)

No.	Part Number	Quantity (pcs.)	Capacitance	Rated Voltage (Vdc)	Rated Current (A)
1	NFM18PC104R1C3	10	0.1μF±20%	16	2
2	NFM18PC224R0J3	10	0.22μF±20%	6.3	2
3	NFM18PC474R0J3	10	0.47μF±20%	6.3	2
4	NFM18PC105R0J3	10	1μF±20%	6.3	4
5	NFM18PC225B0J3	10	2.2μF±20%	6.3	2
6	NFM18PC225B1A3	10	2.2μF±20%	10	4
7	NFM18PS474R0J3	10	0.47μF±20%	6.3	2
8	NFM18PS105R0J3	10	1μF±20%	6.3	2
9	NFM21PC104R1E3	10	0.1μF±20%	25	2
10	NFM21PC224R1C3	10	0.22μF±20%	16	2
11	NFM21PC474R1C3	10	0.47μF±20%	16	2
12	NFM21PC105B1A3	10	1μF±20%	10	4
13	NFM21PC105B1C3	10	1μF±20%	16	4
14	NFM21PC225B0J3	10	2.2μF±20%	6.3	4
15	NFM21PC475B1A3	10	4.7μF±20%	10	6
16	NFM31PC276B0J3	10	27μF±20%	6.3	6
17	NFM41PC204F1H3	10	0.2μF +80/-20%	50	2
18	NFM41PC155B1E3	10	1.5μF±20%	25	6
19	NFE31PT152Z1E9	10	1500pF +50/-20%	25	6
20	NFE31PT222Z1E9	10	2200pF±50%	25	6
21	NFE61PT102E1H9	10	1000pF +80/-20%	50	2
22	NFE61PT472C1H9	10	4700pF +80/-20%	50	2

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Memo



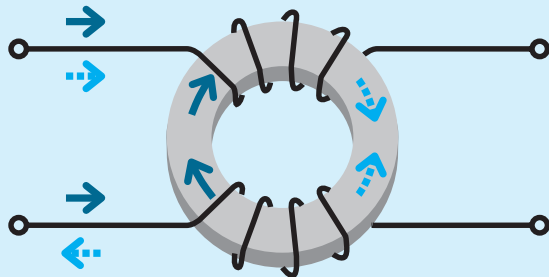
Chip Common Mode Choke Coil
Large Current Common Mode Choke Coil for Automotive Available

Series Introduction	150
Part Numbering	152
Series Line Up	154
Product Detail	156
⚠Caution/Notice	174
Soldering and Mounting	176
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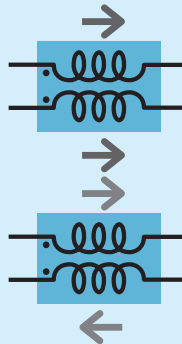
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DL Series Introduction

Common Mode Current



















Differential Mode Current



Magnetic flux by common mode current is added each other and works as an inductor

Magnetic flux by differential mode current is canceled each other and do not works as an inductor

Category	Features, Classification	Structure	Part Number	Comments
High cut-off frequency High Coupling (For high speed differential signal lines)	Ultra high cut-off frequency for high speed differential signal lines	Film type	 DLP11SA	<ul style="list-style-type: none"> Low profile, small size, suitable for mobile equipments. Tight terminal pitch enables high density layout. Ultra high cut-off frequency and its matching to line impedance enables good transmission of high speed signal.
		Wound type	 DLW21SN_HQ2	<ul style="list-style-type: none"> Ultra high self resonance frequency enables high cut-off frequency. Its matching to line impedance enables good transmission of high speed signal.
	High cut-off frequency for high speed differential signal lines	Film type	 DLP0NS  DLP11SN  DLP2AD	<ul style="list-style-type: none"> Low profile, small size, suitable for mobile equipments. Tight terminal pitch enables high density layout. High cut-off frequency enables good transmission of high speed signal.
		Wound type	 DLW21SN_SQ2  DLW31S  DLW21H	<ul style="list-style-type: none"> Ultra high self resonance frequency enables high cut-off frequency. DLW21H is designed as low profile.
	for general differential signal lines	Film type	 DLP31S  DLP31D	<ul style="list-style-type: none"> Low profile, small size, suitable for mobile equipments. Tight terminal pitch enables high density layout.
Large current High coupling (For power lines)		Wound type	 DLW5AH  DLW5BS  DLW5BT	<ul style="list-style-type: none"> Large current (6A max.), suitable for input connector from an AC adaptor. DLW5BT is designed as low profile.
Relative high differential mode impedance Low coupling (For audio lines)		Multilayer type	 DLM11G  DLM2HG	<ul style="list-style-type: none"> Modified its differential mode impedance higher than other common mode choke coils, this feature makes possible to suppress both common mode and differential mode noise. DLM11GN601SD2 is ideal to keep low distortion audio signal. DLM2HG can meet stereo 3 lines which contain a ground line.
Large current Automotive Available (For power lines)	Available up to 10A	Winding type Cased structure	 PLT10HH	<ul style="list-style-type: none"> Large current, high reliability, suitable for mortors in automobile.

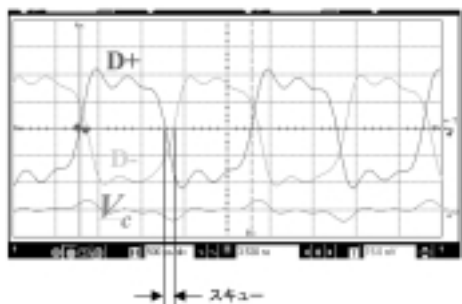
△Note • Please read rating and △CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

Skew Improve Effect of Common Mode Choke Coil

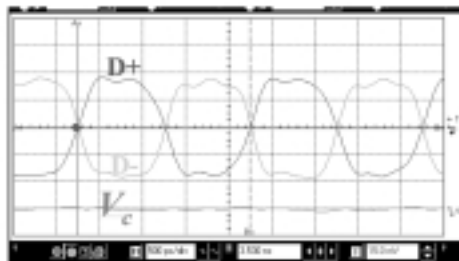
Example of Skew Improvement by Common Mode Choke Coil
(Test using pulse generator waveform)

Waveform is equivalent to 1000Mbps signal

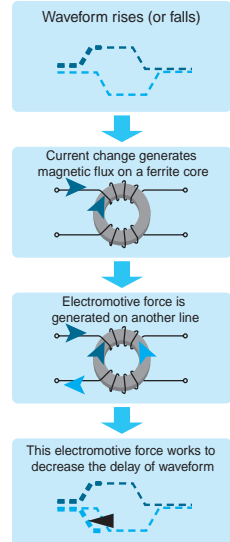
Waveform with intentionally made skew (skew: 100ps)



Skew is improved by common mode choke coil



Mechanism of Skew Improvement

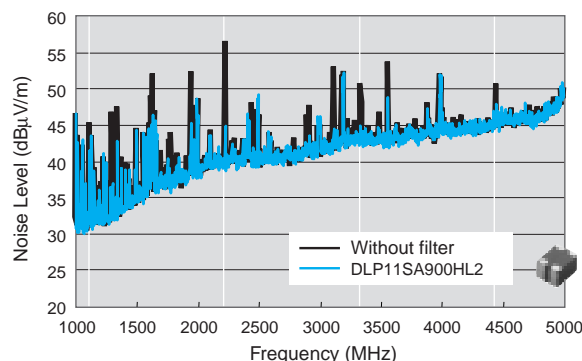
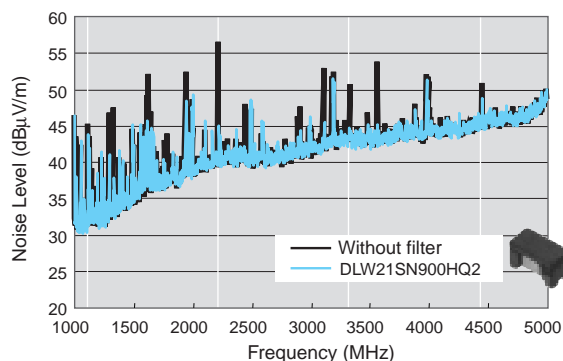


Noise Suppression of Common Mode Choke Coil in HDMI Line

Device under test / Transmitter : game machine Receiver : projector

Cable / HDMI category2 3m cable

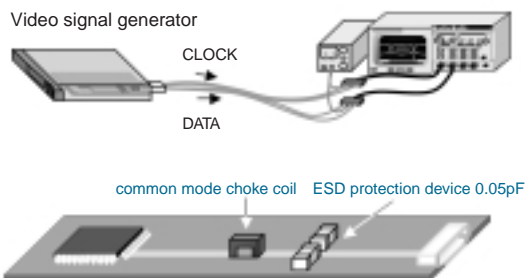
Test resolution / 1080p Deep color 12bit (Data 1.11GHz) DVD play mode



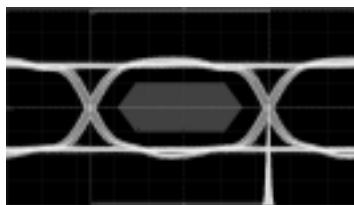
Test Example of HDMI1.3 Waveform Transmission

~Using ESD protection device 0.05pF~

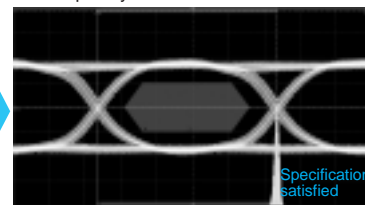
Signal frequency : 1.11GHz (Deep color 12bit)



ESD protection device only



Film Type DLP11SN900HL2
(Cut-off frequency is most low in the table below)



	Wound Type DLW21SN900HQ2	Film Type DLP11SA900HL2	Film Type Array DLP2ADN900HL4
Cut-off Frequency	Over 10GHz	Around 6GHz	Around 4GHz
Judge	Specification satisfied	Specification satisfied	Specification satisfied
Transition Time	Rise time: 83.4ps Fall time: 77.4ps	Rise time: 90.4ps Fall time: 85.5ps	Rise time: 100ps Fall time: 97.4ps

Each of common mode choke coil can keep waveform, satisfy the specification.

DL Chip Common Mode Choke Coil Part Numbering

(Part Number)

DL	W	21	S	N	371	S	Q	2	L
1	2	3	4	5	6	7	8	9	10

1 Product ID

Product ID	
DL	Chip Common Mode Choke Coils

2 Structure

Code	Structure
W	Wire Wound Type
M	Multilayer Type
P	Film Type

3 Dimensions (L×W)

Code	Dimensions (L×W)	EIA
0N	0.85×0.65mm	03025
11	1.25×1.0mm	0504
1N	1.5×0.65mm	05025
21	2.0×1.2mm	0805
31	3.2×1.6mm	1206
2A	2.0×1.0mm	0804
2H	2.5×2.0mm	1008
5A	5.0×3.6mm	2014
5B	5.0×5.0mm	2020

4 Features (1)

Code	Type
S	Magnetically Shielded One Circuit Type
D	Magnetically Shielded Two Circuit Type
H	Open Magnetic One Circuit Type
G	Magnetically Monolithic Type (sectional winding)
T	Magnetically Shielded One Circuit Low Profile Type

10 Packaging

Code	Packaging	Series
K	Embossed Taping (ø330mm Reel)	DLW5AH/DLW5BS/DLW5BT
L	Embossed Taping (ø180mm Reel)	All Series
B	Bulk	All Series

5 Category

Code	Category
A	Expressed by a letter.
B	
C	
N	
R	

6 Impedance

Typical impedance at 100MHz is expressed by three figures. The unit is in ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

7 Circuit

Code	Circuit
S	Expressed by a letter.
M	
H	
U	

8 Features (2)

Code	Features
D	Expressed by a letter.
L	
Q	
Z	

9 Number of Signal Lines

Code	Number of Signal Lines
2	Two Lines
3	Three Lines
4	Four Lines

PL Common Mode Choke Coils Part Numbering

(Part Number)

PL	T	10H	H	102	6R0	P	N	B
①	②	③	④	⑤	⑥	⑦	⑧	⑨

① Product ID

Product ID	
PL	Common Mode Choke Coils

② Type

Code	Type
T	DC Type

③ Applications

Code	Applications
10H	for DC Line High-frequency Type

④ Features

Code	Features
H	for Automotive

⑤ Impedance

Expressed by three figures. The unit is ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

⑥ Rated Current

Expressed by three figures. The unit is ampere (A). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. A decimal point is expressed by the capital letter "R". In this case, all figures are significant digits.

⑦ Winding Mode

Code	Winding Mode
P	Aligned Winding Type


⑧ Lead Dimensions

Code	Lead Dimensions
N	No Lead Terminal (SMD)

⑨ Packaging

Code	Packaging	Series
B	Bulk	PLT10H
L	Embossed Taping (ϕ 178mm/ ϕ 180mm Reel)	PLT10H
K	Embossed Taping (ϕ 330mm Reel)	PLT10H

Type	Size Code (Inch)	Thickness (mm)	Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	New	K _{It}	≥1A ≥3A	H _D U _D	Z _{match}	Flow	ReFlow
Multilayer Type for Audio Lines	0504 <i>p158</i>	0.5	DLM11GN601SD2	600ohm±25%	100mA							ReFlow
	1008 <i>p159</i>	1.2	DLM2HGN601SZ3	600ohm±25%	100mA						Flow	ReFlow
Film Type for Differential Signal Lines	03025	<i>p160</i> 0.45	DLP0NSN670HL2	67ohm±20%	110mA		K _{It}		H _D	Z _{match}		ReFlow
		0.45	DLP0NSN900HL2	90ohm±20%	100mA		K _{It}		H _D	Z _{match}		ReFlow
		0.45	DLP0NSN121HL2	120ohm±20%	90mA		K _{It}		H _D	Z _{match}		ReFlow
		0.45	DLP0NSA150HL2	15ohm±5ohm	100mA	New	K _{It}		U _D	Z _{match}		ReFlow
		0.45	DLP0NSC280HL2	28ohm±20%	100mA		K _{It}		U _D	Z _{match}		ReFlow
		0.82	DLP11SN670SL2	67ohm±20%	180mA		K _{It}		H _D			ReFlow
	0504	<i>p162</i> 0.82	DLP11SN121SL2	120ohm±20%	140mA		K _{It}		H _D			ReFlow
		0.82	DLP11SN161SL2	160ohm±20%	120mA		K _{It}		H _D			ReFlow
		0.82	DLP11SN900HL2	90ohm±20%	150mA		K _{It}		H _D	Z _{match}		ReFlow
		0.82	DLP11SN201HL2	200ohm±20%	110mA		K _{It}		H _D	Z _{match}		ReFlow
		0.82	DLP11SN241HL2	240ohm±20%	100mA		K _{It}		H _D	Z _{match}		ReFlow
		0.82	DLP11SN281HL2	280ohm±20%	90mA		K _{It}		H _D	Z _{match}		ReFlow
		0.82	DLP11SN331HL2	330ohm±20%	80mA		K _{It}		H _D	Z _{match}		ReFlow
		0.82	DLP11SA350HL2	35ohm±20%	170mA		K _{It}		U _D	Z _{match}		ReFlow
		0.82	DLP11SA670HL2	67ohm±20%	150mA		K _{It}		U _D	Z _{match}		ReFlow
		0.82	DLP11SA900HL2	90ohm±20%	150mA		K _{It}		U _D	Z _{match}		ReFlow
	<i>p163</i> 0.3		DLP11TB800UL2	80ohm±25%	100mA	New	K _{It}		U _D	Z _{match}		ReFlow
	1206	<i>p164</i> 1.15	DLP31SN121ML2	120ohm±20%	100mA				H _D			ReFlow
		1.15	DLP31SN221ML2	220ohm±20%	100mA				H _D			ReFlow
		1.15	DLP31SN551ML2	550ohm±20%	100mA				H _D			ReFlow
Film Array Type for Differential Signal Lines	05025	<i>p165</i> 0.45	DLP1NDN350HL4	35ohm±20%	100mA	New	K _{It}		U _D	Z _{match}		ReFlow
		0.45	DLP1NDN670HL4	67ohm±20%	80mA	New	K _{It}		U _D	Z _{match}		ReFlow
		0.45	DLP1NDN900HL4	90ohm±20%	60mA	New	K _{It}		U _D	Z _{match}		ReFlow
	0804	<i>p166</i> 0.82	DLP2ADA350HL4	35ohm±20%	150mA		K _{It}		U _D	Z _{match}		ReFlow
		0.82	DLP2ADA670HL4	67ohm±20%	130mA		K _{It}		U _D	Z _{match}		ReFlow
		0.82	DLP2ADA900HL4	90ohm±20%	120mA		K _{It}		U _D	Z _{match}		ReFlow
		0.82	DLP2ADN670HL4	67ohm±20%	140mA		K _{It}		H _D	Z _{match}		ReFlow
		0.82	DLP2ADN900HL4	90ohm±20%	130mA		K _{It}		H _D	Z _{match}		ReFlow
		0.82	DLP2ADN121HL4	120ohm±20%	120mA		K _{It}		H _D	Z _{match}		ReFlow
		0.82	DLP2ADN161HL4	160ohm±20%	100mA		K _{It}		H _D	Z _{match}		ReFlow
		0.82	DLP2ADN201HL4	200ohm±20%	90mA		K _{It}		H _D	Z _{match}		ReFlow
		0.82	DLP2ADN241HL4	240ohm±20%	80mA		K _{It}		H _D	Z _{match}		ReFlow
		0.82	DLP2ADN281HL4	280ohm±20%	80mA		K _{It}		H _D	Z _{match}		ReFlow
	1206	<i>p168</i> 1.15	DLP31DN900ML4	90ohm±20%	160mA				H _D			ReFlow
		1.15	DLP31DN131ML4	130ohm±20%	120mA				H _D			ReFlow
		1.15	DLP31DN201ML4	200ohm±20%	100mA				H _D			ReFlow
		1.15	DLP31DN321ML4	320ohm±20%	80mA				H _D			ReFlow
		1.15	DLP31DN441ML4	440ohm±20%	70mA				H _D			ReFlow
Wire Wound Type for Differential Signal Lines	0805	<i>p169</i> 1.2	DLW21SN670SQ2	67ohm±25%	400mA		K _{It}		H _D			ReFlow
		1.2	DLW21SN900SQ2	90ohm±25%	330mA		K _{It}		H _D			ReFlow
		1.2	DLW21SN121SQ2	120ohm±25%	370mA		K _{It}		H _D			ReFlow
		1.2	DLW21SN181SQ2	180ohm±25%	330mA		K _{It}		H _D			ReFlow
		1.2	DLW21SN261SQ2	260ohm±25%	300mA		K _{It}		H _D			ReFlow
		1.2	DLW21SN371SQ2	370ohm±25%	280mA		K _{It}		H _D			ReFlow
		1.2	DLW21SN670HQ2	67ohm±25%	320mA		K _{It}		U _D	Z _{match}		ReFlow
		1.2	DLW21SN900HQ2	90ohm±25%	280mA		K _{It}		U _D	Z _{match}		ReFlow
		1.2	DLW21SN121HQ2	120ohm±25%	280mA		K _{It}		U _D	Z _{match}		ReFlow
		1.2	DLW21SR670HQ2	67ohm±25%	400mA		K _{It}		U _D	Z _{match}		ReFlow
	1206	<i>p171</i> 0.9	DLW21HN670SQ2	67ohm±25%	330mA		K _{It}		H _D			ReFlow
		0.9	DLW21HN900SQ2	90ohm±25%	330mA		K _{It}		H _D			ReFlow
		0.9	DLW21HN121SQ2	120ohm±25%	280mA		K _{It}		H _D			ReFlow
		0.9	DLW21HN181SQ2	180ohm±25%	250mA		K _{It}		H _D			ReFlow
	1206	<i>p172</i> 1.9	DLW31SN900SQ2	90ohm±25%	370mA				H _D			ReFlow
		1.9	DLW31SN161SQ2	160ohm±25%	340mA				H _D			ReFlow
		1.9	DLW31SN261SQ2	260ohm±25%	310mA				H _D			ReFlow
		1.9	DLW31SN601SQ2	600ohm±25%	260mA				H _D			ReFlow
		1.9	DLW31SN102SQ2	1000ohm±25%	230mA				H _D			ReFlow
		1.9	DLW31SN222SQ2	2200ohm±25%	200mA				H _D			ReFlow

Continued on the following page. 

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Type	Size Code (Inch)	Thickness (mm)	Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	New	Kit	$\geq 1A$ $\geq 3A$	Hd Ud	Zmatch	Flow	ReFlow
Wire Wound Type for Power Lines and Signal Lines	2014 <i>p156</i>	4.3	DLW5AHN402SQ2	4000ohm(Typ.)	200mA		Kit					ReFlow
	2020 <i>p157</i>	4.5	DLW5BSN191SQ2	190ohm(Typ.)	5000mA		Kit	$\geq 3A$				ReFlow
		4.5	DLW5BSN351SQ2	350ohm(Typ.)	2000mA		Kit	$\geq 1A$				ReFlow
		4.5	DLW5BSN102SQ2	1000ohm(Typ.)	1500mA		Kit	$\geq 1A$				ReFlow
		4.5	DLW5BSN152SQ2	1500ohm(Typ.)	1000mA		Kit	$\geq 1A$				ReFlow
		4.5	DLW5BSN302SQ2	3000ohm(Typ.)	500mA		Kit					ReFlow
		2.5	DLW5BTN101SQ2	100ohm(Typ.)	6000mA		Kit	$\geq 3A$				ReFlow
		2.5	DLW5BTN251SQ2	250ohm(Typ.)	5000mA		Kit	$\geq 3A$				ReFlow
		2.5	DLW5BTN501SQ2	500ohm(Typ.)	4000mA		Kit	$\geq 3A$				ReFlow
		2.5	DLW5BTN102SQ2	1000ohm(Typ.)	2000mA		Kit	$\geq 1A$				ReFlow
		2.5	DLW5BTN142SQ2	1400ohm(Typ.)	1500mA		Kit	$\geq 1A$				ReFlow

PL□ Large Current Common Mode Choke Coil for Automotive Available Series Line Up

Type	Size	Thickness (mm)	Part Number	Common Mode Impedance (at 10MHz/20°C)	Rated Current	New	Kit	$\geq 3A$ $\geq 10A$	Hd Ud	Zmatch	Flow	ReFlow
Large Current Common Mode Choke Coil for Automotive Available	12.9x6.6 (mm)	9.4	PLT10HH401100PN	400ohm	10A	New	Kit	$\geq 10A$				ReFlow
		9.4	PLT10HH501100PN	500ohm	10A	New	Kit	$\geq 10A$				ReFlow
		9.4	PLT10HH9016R0PN	900ohm	6A	New	Kit	$\geq 3A$				ReFlow
		9.4	PLT10HH1026R0PN	1000ohm	6A	New	Kit	$\geq 3A$				ReFlow

△Note • Please read rating and △CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

DLW5AH/DLW5BS Series (2014/2020 Size)

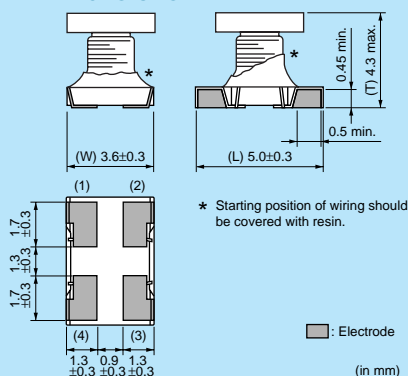


5A max, common mode choke coil for power lines.

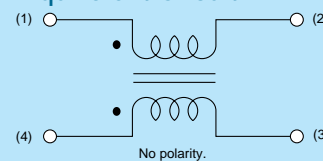
DLW5AH



■ Dimensions



■ Equivalent Circuit



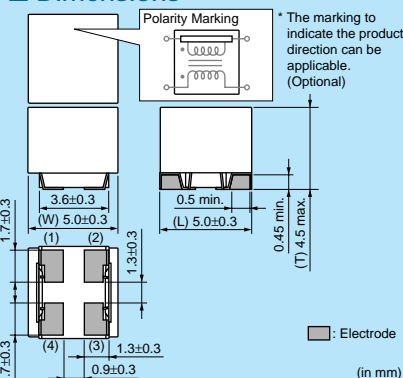
■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	400
K	330mm Reel Embossed Tape	1500
B	Bulk(Bag)	100

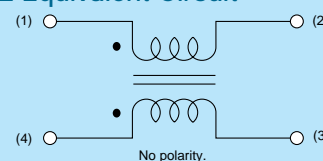
DLW5BS



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	400
K	330mm Reel Embossed Tape	1500
B	Bulk(Bag)	100

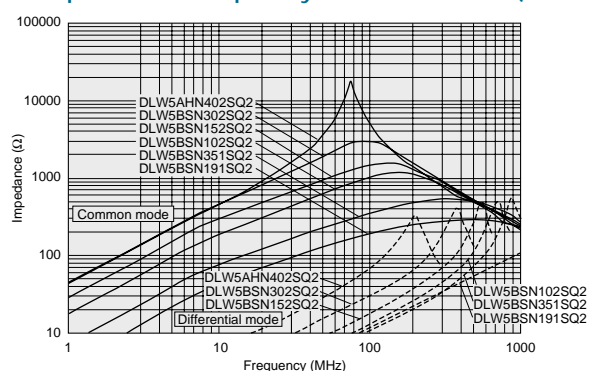
Refer to pages from p.176 to p.179 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance	
DLW5AHN402SQ2□	4000ohm(Typ.)	200mA	50Vdc	10M ohm	125Vdc	3.0ohm max.	Kit
DLW5BSN191SQ2□	190ohm(Typ.)	5000mA	50Vdc	10M ohm	125Vdc	0.02ohm max.	Kit $\geq 3A$
DLW5BSN351SQ2□	350ohm(Typ.)	2000mA	50Vdc	10M ohm	125Vdc	0.04ohm max.	Kit $\geq 1A$
DLW5BSN102SQ2□	1000ohm(Typ.)	1500mA	50Vdc	10M ohm	125Vdc	0.06ohm max.	Kit $\geq 1A$
DLW5BSN152SQ2□	1500ohm(Typ.)	1000mA	50Vdc	10M ohm	125Vdc	0.1ohm max.	Kit $\geq 1A$
DLW5BSN302SQ2□	3000ohm(Typ.)	500mA	50Vdc	10M ohm	125Vdc	0.3ohm max.	Kit

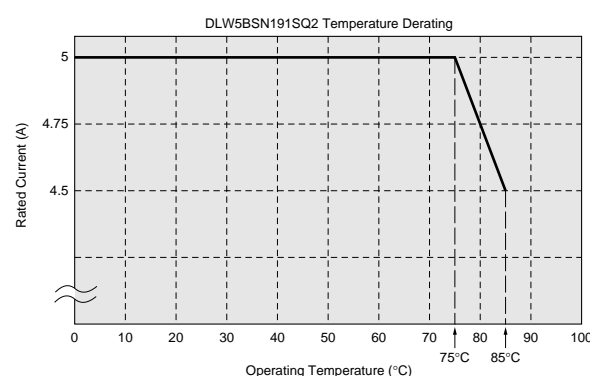
Operating Temperature Range: -25°C to +85°C (DLW5AH), -40°C to +85°C (DLW5BS) Number of Circuit: 1

■ Impedance-Frequency Characteristics (Main Items)



■ Derating of Rated Current

DLW5BSN191



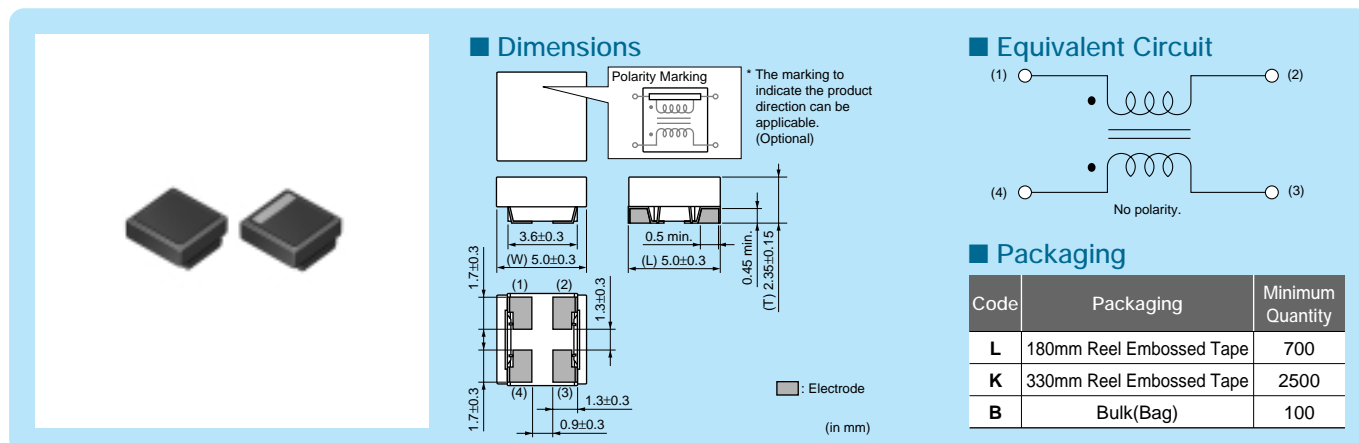
△Note • Please read rating and △CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

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DLW5BT Series (2020 Size)



Low profile wire-wound common choke coil for power lines.



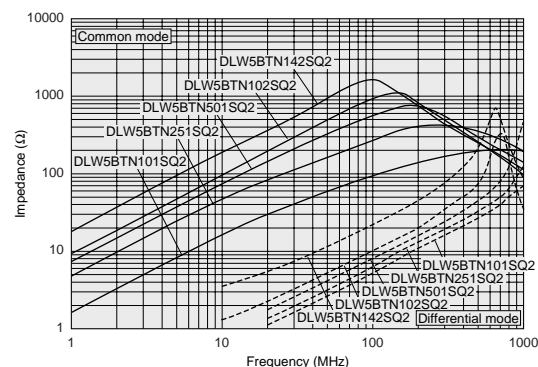
Refer to pages from p.176 to p.179 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance		
DLW5BTN101SQ2□	100ohm(Typ.)	6000mA	50Vdc	10M ohm	125Vdc	0.009ohm±40%	Kit	≥3A
DLW5BTN251SQ2□	250ohm(Typ.)	5000mA	50Vdc	10M ohm	125Vdc	0.014ohm±40%	Kit	≥3A
DLW5BTN501SQ2□	500ohm(Typ.)	4000mA	50Vdc	10M ohm	125Vdc	0.019ohm±40%	Kit	≥3A
DLW5BTN102SQ2□	1000ohm(Typ.)	2000mA	50Vdc	10M ohm	125Vdc	0.024ohm±40%	Kit	≥1A
DLW5BTN142SQ2□	1400ohm(Typ.)	1500mA	50Vdc	10M ohm	125Vdc	0.040ohm±40%	Kit	≥1A

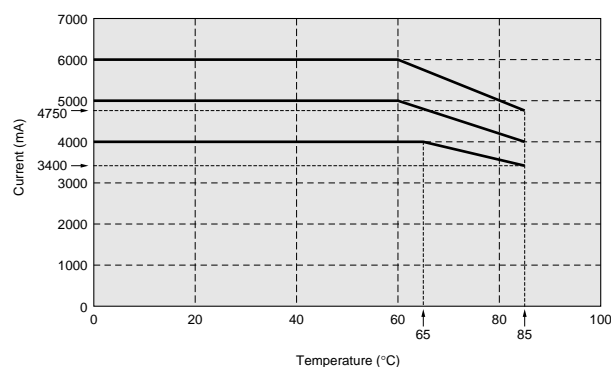
Operating Temperature Range: -40°C to +85°C Number of Circuit: 1

■ Impedance-Frequency Characteristics (Main Items)



■ Derating of Rated Current

DLW5BTN101/251/501



△Note • Please read rating and △CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

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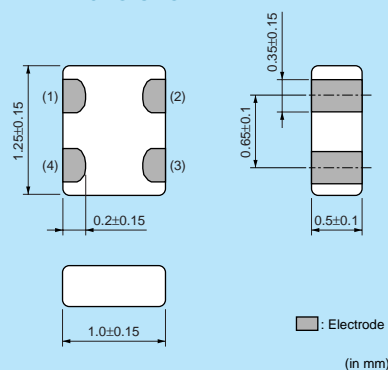
DLM11G Series (0504 Size)



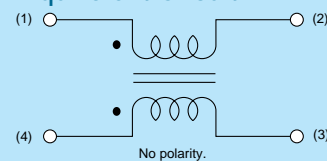
Audio line common choke also effective to differential mode.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

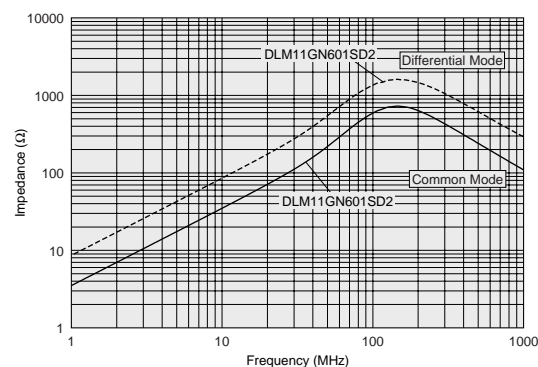
Refer to pages from p.176 to p.179 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance
DLM11GN601SD2□	600ohm±25%	100mA	5Vdc	100M ohm	25Vdc	0.8ohm max.

Operating Temperature Range: -40°C to +85°C Number of Circuit: 1

■ Impedance-Frequency Characteristics (Main Items)



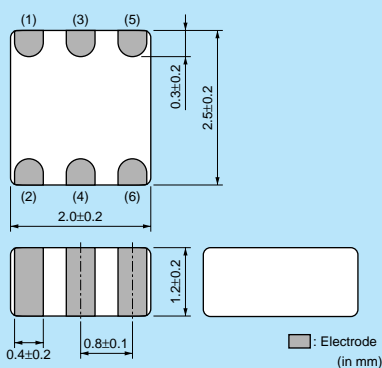
DLM2HG Series (1008 Size)



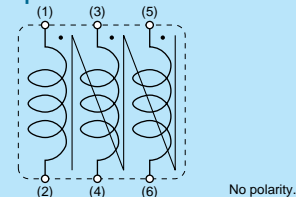
3 line audio common mode choke coil.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	3000
B	Bulk(Bag)	1000

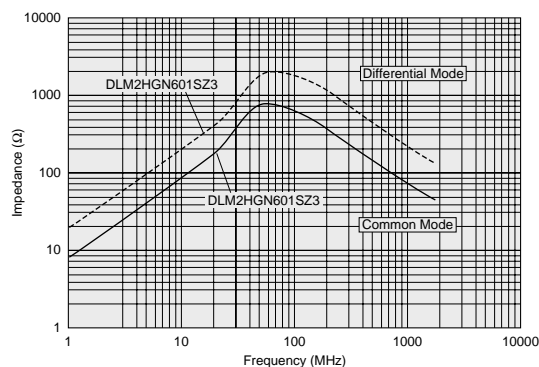
Refer to pages from p.176 to p.179 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance
DLM2HGN601SZ3□	600ohm±25%	100mA	16Vdc	100M ohm	100Vdc	0.40ohm max.

Operating Temperature Range: -55°C to +85°C Number of Circuit: 1

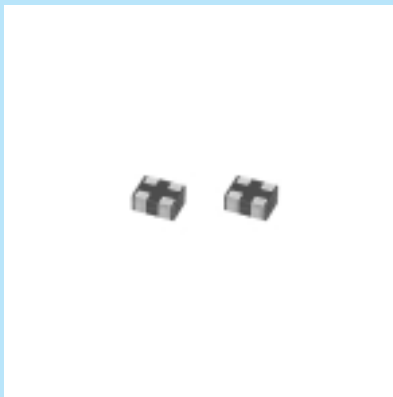
■ Impedance-Frequency Characteristics (Main Items)



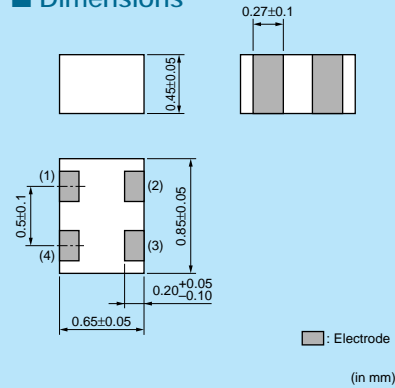
DLP0NS Series (03025 Size)



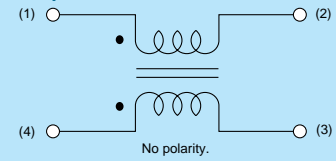
03025 size, very small chip common mode choke coil, Cut-off frequency 3GHz max.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	5000
B	Bulk(Bag)	500

Refer to pages from p.176 to p.179 for mounting information.

■ Rated Value (□: packaging code)

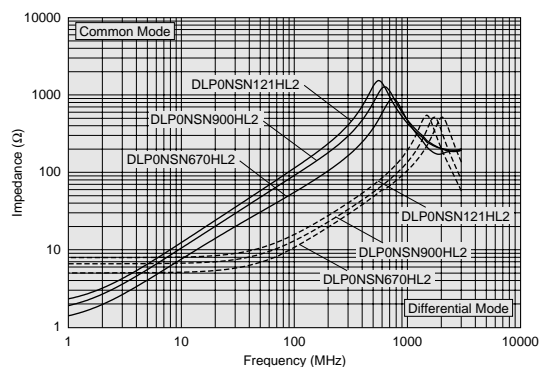
Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance	
DLP0NSN670HL2□	67ohm±20%	110mA	5Vdc	100M ohm	12.5Vdc	2.4ohm±25%	Kit HD
DLP0NSN900HL2□	90ohm±20%	100mA	5Vdc	100M ohm	12.5Vdc	3.0ohm±25%	Kit HD
DLP0NSN121HL2□	120ohm±20%	90mA	5Vdc	100M ohm	12.5Vdc	3.8ohm±25%	Kit HD
DLP0NSA150HL2□	15ohm±5ohm	100mA	5Vdc	100M ohm	12.5Vdc	0.95ohm±25%	New Kit
DLP0NSC280HL2□	28ohm±20%	100mA	5Vdc	100M ohm	12.5Vdc	1.3ohm±25%	Kit

Operating Temperature Range: -40°C to +85°C Number of Circuit: 1

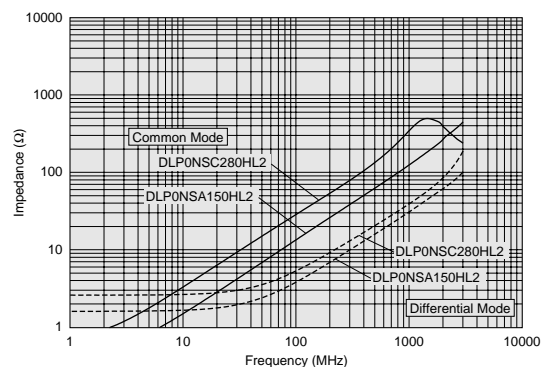
HD: for high speed differential signal lines UD: for ultra high speed differential signal lines

■ Impedance-Frequency Characteristics (Main Items)

DLP0NSN 670/900/121 HL2

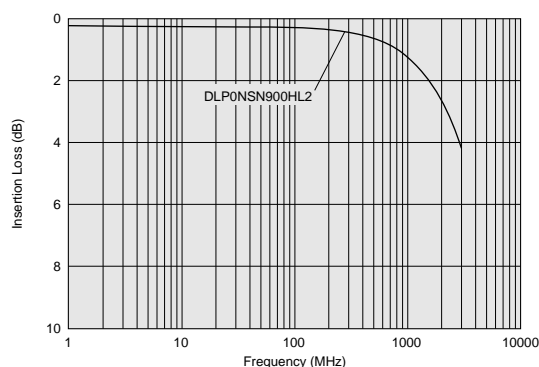


DLP0NSA150HL2/DLP0NSC280HL2

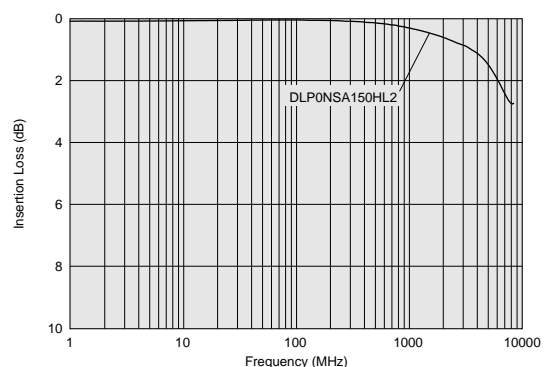


■ Differential Mode Transmission Characteristics (Typ.)

DLP0NSN900HL2



DLP0NSA150HL2

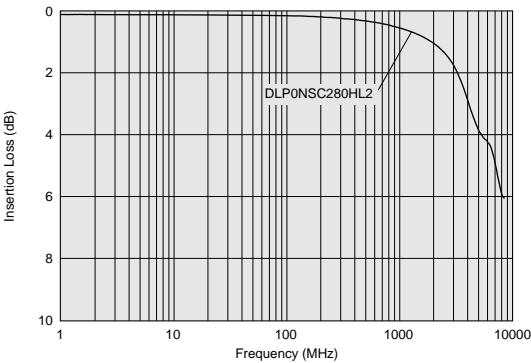


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■ Differential Mode Transmission Characteristics (Typ.)

DLP0NSC280HL2



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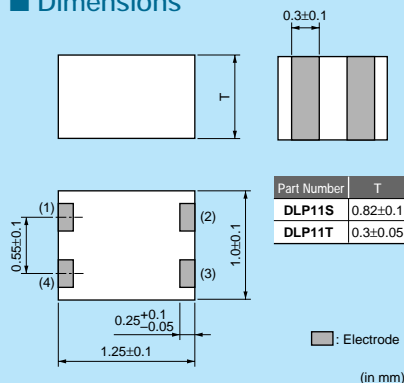
DLP11S/DLP11T Series (0504 Size)



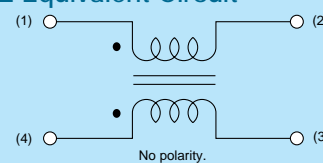
6GHz cut-off frequency (for HDMI) is available.



Dimensions



Equivalent Circuit



Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	3000 (DLP11S) 5000 (DLP11T)
B	Bulk(Bag)	500

Refer to pages from p.176 to p.179 for mounting information.

Rated Value (□: packaging code)

Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance	
DLP11SN670SL2□	67ohm±20%	180mA	5Vdc	100M ohm	12.5Vdc	1.3ohm±25%	Kit
DLP11SN121SL2□	120ohm±20%	140mA	5Vdc	100M ohm	12.5Vdc	2.0ohm±25%	Kit
DLP11SN161SL2□	160ohm±20%	120mA	5Vdc	100M ohm	12.5Vdc	2.7ohm±25%	Kit
DLP11SN900HL2□	90ohm±20%	150mA	5Vdc	100M ohm	12.5Vdc	1.5ohm±25%	Kit
DLP11SN201HL2□	200ohm±20%	110mA	5Vdc	100M ohm	12.5Vdc	3.1ohm±25%	Kit
DLP11SN241HL2□	240ohm±20%	100mA	5Vdc	100M ohm	12.5Vdc	3.5ohm±25%	Kit
DLP11SN281HL2□	280ohm±20%	90mA	5Vdc	100M ohm	12.5Vdc	4.2ohm±25%	Kit
DLP11SN331HL2□	330ohm±20%	80mA	5Vdc	100M ohm	12.5Vdc	4.9ohm±25%	Kit
DLP11SA350HL2□	35ohm±20%	170mA	5Vdc	100M ohm	12.5Vdc	0.9ohm±25%	Kit
DLP11SA670HL2□	67ohm±20%	150mA	5Vdc	100M ohm	12.5Vdc	1.2ohm±25%	Kit
DLP11SA900HL2□	90ohm±20%	150mA	5Vdc	100M ohm	12.5Vdc	1.4ohm±25%	Kit

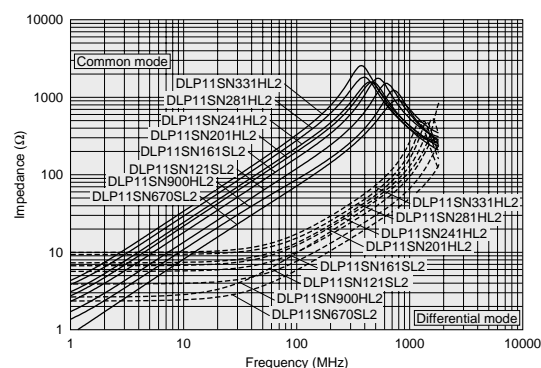
Operating Temperature Range: -40°C to +85°C Number of Circuit: 1

HD: for high speed differential signal lines

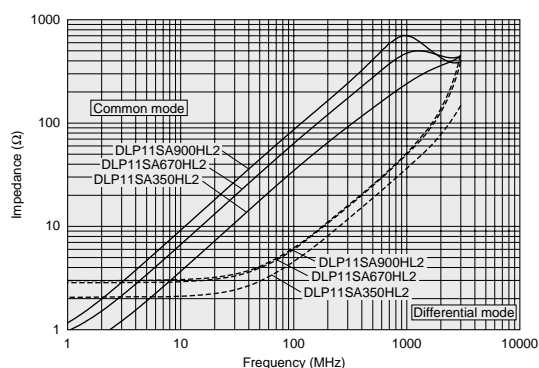
UD: for ultra high speed differential signal lines

Impedance-Frequency Characteristics

DLP11SN Series



DLP11SA Series



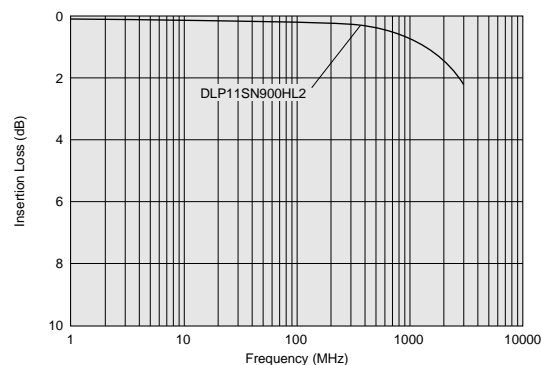
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⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

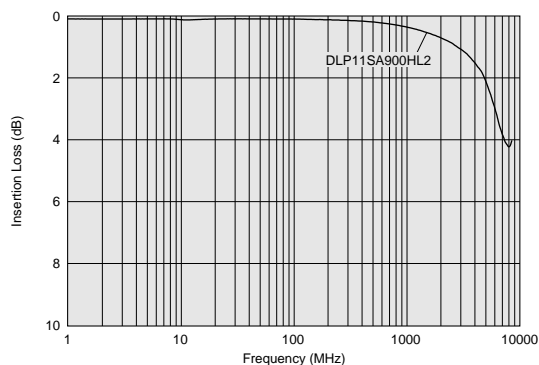
• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

Differential Mode Transmission Characteristics (Typ.)

DLP11SN Series



DLP11SA Series



Rated Value (□: packaging code)

Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance	
DLP11TB800UL2□	80ohm±25%	100mA	5Vdc	100M ohm	12.5Vdc	1.5ohm±25%	New Kit UD LMD

Operating Temperature Range: -40°C to +85°C Number of Circuit: 1

HD: for high speed differential signal lines

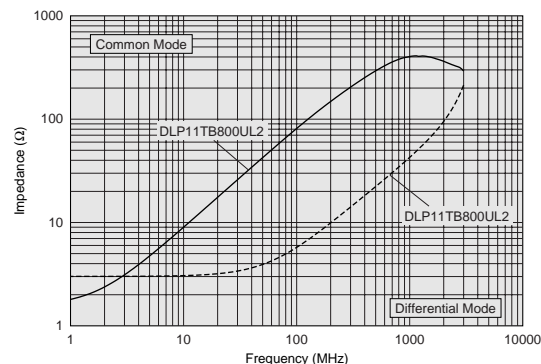
UD: for ultra high speed differential signal lines

Differential mode to common mode conversion characteristic (Scd21) at 2.5GHz: -40dB (typ.)

Impedance Characteristics between signal lines Z0 (TDR at 50ps): 90ohm±15ohm

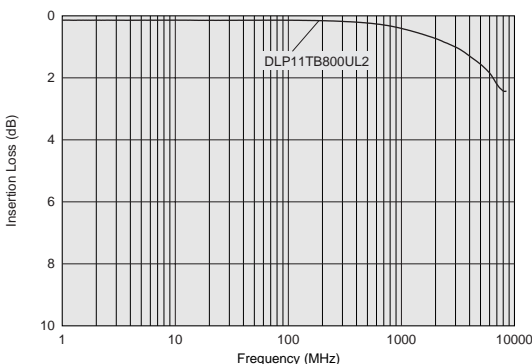
Impedance-Frequency Characteristics

DLP11TB Series



Differential Mode Transmission Characteristics

DLP11TB Series



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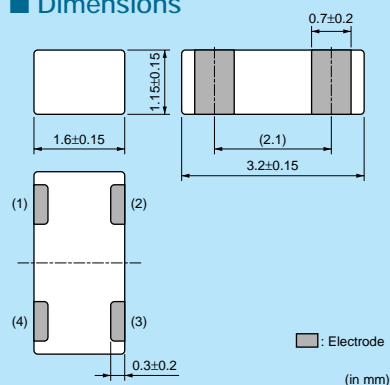
DLP31S Series (1206 Size)



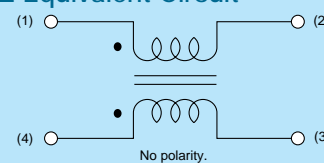
1206 size film type chip common mode choke coil.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	3000
B	Bulk(Bag)	500

Refer to pages from p.176 to p.179 for mounting information.

■ Rated Value (□: packaging code)

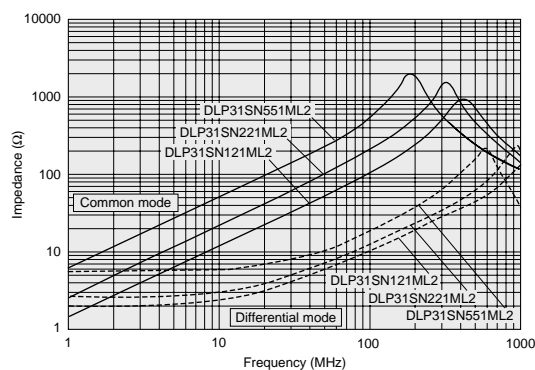
Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance	
DLP31SN121ML2□	120ohm±20%	100mA	16Vdc	100M ohm	40Vdc	2.0ohm max.	HD
DLP31SN221ML2□	220ohm±20%	100mA	16Vdc	100M ohm	40Vdc	2.5ohm max.	HD
DLP31SN551ML2□	550ohm±20%	100mA	16Vdc	100M ohm	40Vdc	3.6ohm max.	HD

Operating Temperature Range: -40°C to +85°C Number of Circuit: 1

HD: for high speed differential signal lines

UD: for ultra high speed differential signal lines

■ Impedance-Frequency Characteristics (Main Items)



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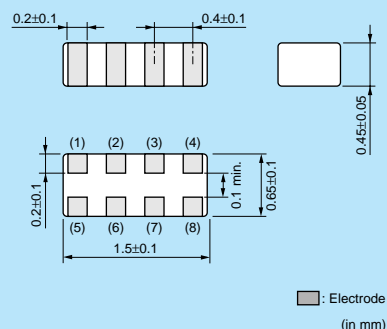
DLP1ND Series (0502 Size)



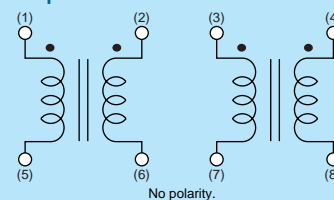
2 circuits in 05025 size, adapt to HDMI line.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	5000
B	Bulk(Bag)	500

Refer to pages from p.176 to p.179 for mounting information.

■ Rated Value (□: packaging code)

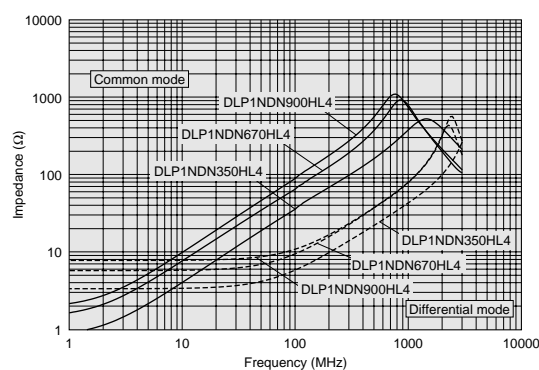
Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance	
DLP1NDN350HL4□	35ohm±20%	100mA	5Vdc	100M ohm	12.5Vdc	1.8ohm±25%	New Kit UD
DLP1NDN670HL4□	67ohm±20%	80mA	5Vdc	100M ohm	12.5Vdc	2.9ohm±25%	New Kit UD
DLP1NDN900HL4□	90ohm±20%	60mA	5Vdc	100M ohm	12.5Vdc	3.7ohm±25%	New Kit UD

Operating Temperature Range: -40°C to +85°C Number of Circuit: 2

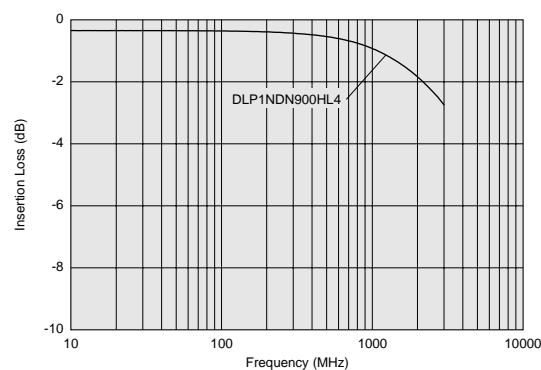
HD: for high speed differential signal lines

UD: for ultra high speed differential signal lines

■ Impedance-Frequency Characteristics



■ Differential Mode Transmission Characteristics



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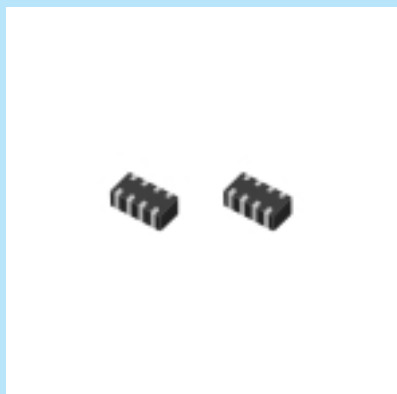
• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

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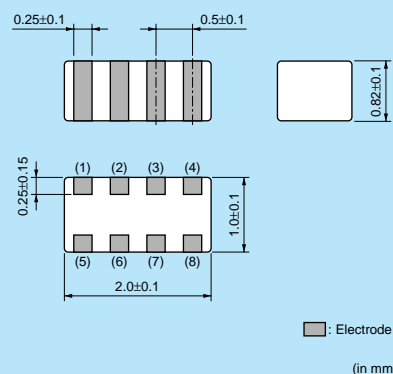
DLP2AD Series (0804 Size)



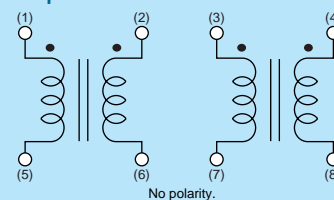
2 circuit built-in, 0804 size, HDMI adapted type available, cut-off frequency 6GHz max.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	3000
B	Bulk(Bag)	500

Refer to pages from p.176 to p.179 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance	
DLP2ADA350HL4□	35ohm±20%	150mA	5Vdc	100M ohm	12.5Vdc	0.8ohm±25%	Kit UD
DLP2ADA670HL4□	67ohm±20%	130mA	5Vdc	100M ohm	12.5Vdc	1.0ohm±25%	Kit UD
DLP2ADA900HL4□	90ohm±20%	120mA	5Vdc	100M ohm	12.5Vdc	1.4ohm±25%	Kit UD
DLP2ADN670HL4□	67ohm±20%	140mA	5Vdc	100M ohm	12.5Vdc	1.3ohm±25%	Kit HD
DLP2ADN900HL4□	90ohm±20%	130mA	5Vdc	100M ohm	12.5Vdc	1.7ohm±25%	Kit HD
DLP2ADN121HL4□	120ohm±20%	120mA	5Vdc	100M ohm	12.5Vdc	2.0ohm±25%	Kit HD
DLP2ADN161HL4□	160ohm±20%	100mA	5Vdc	100M ohm	12.5Vdc	2.5ohm±25%	Kit HD
DLP2ADN201HL4□	200ohm±20%	90mA	5Vdc	100M ohm	12.5Vdc	3.2ohm±25%	Kit HD
DLP2ADN241HL4□	240ohm±20%	80mA	5Vdc	100M ohm	12.5Vdc	3.8ohm±25%	Kit HD
DLP2ADN281HL4□	280ohm±20%	80mA	5Vdc	100M ohm	12.5Vdc	4.6ohm±25%	Kit HD

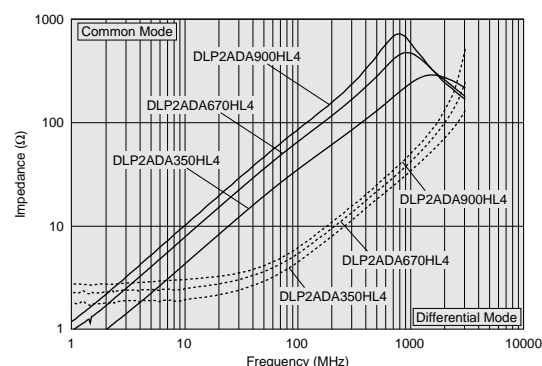
Operating Temperature Range: -40°C to +85°C Number of Circuit: 2

HD: for high speed differential signal lines

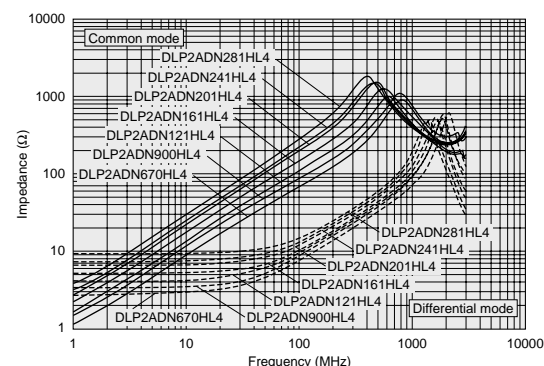
UD: for ultra high speed differential signal lines

■ Impedance-Frequency Characteristics (Main Items)

DLP2ADA Series



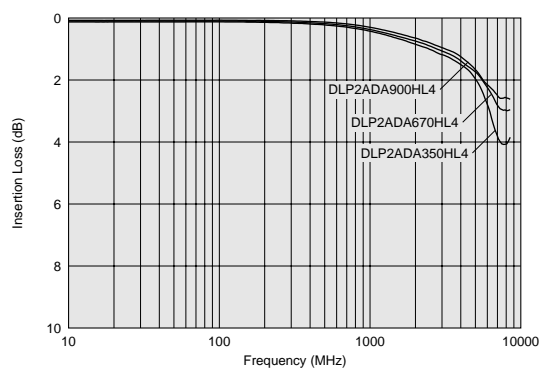
DLP2ADN Series



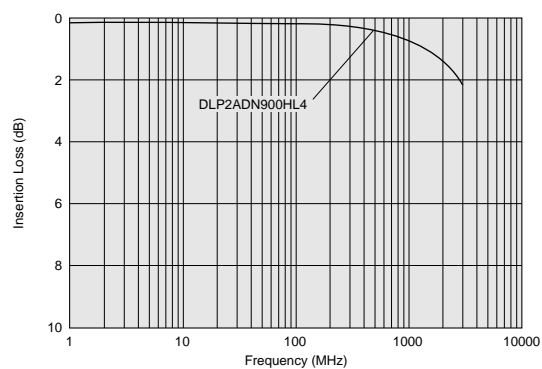
Continued on the following page.

■ Differential Mode Transmission Characteristics (Typ.)

DLP2ADA Series



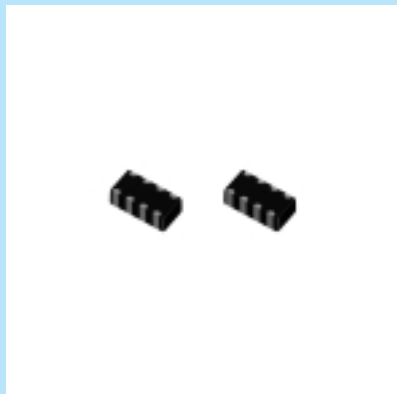
DLP2ADN Series



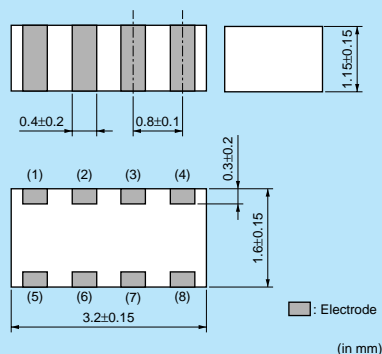
DLP31D Series (1206 Size)



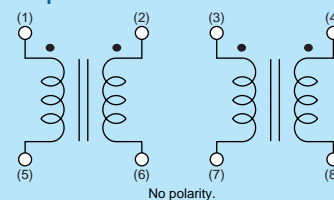
2 circuit built-in, 1206 size, meet IEEE1394,USB,LVDS.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	3000
B	Bulk(Bag)	500

Refer to pages from p.176 to p.179 for mounting information.

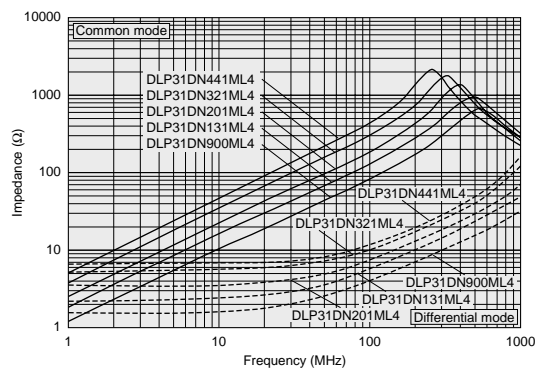
■ Rated Value (□: packaging code)

Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance	
DLP31DN900ML4□	90ohm±20%	160mA	10Vdc	100M ohm	25Vdc	1.1ohm max.	HD
DLP31DN131ML4□	130ohm±20%	120mA	10Vdc	100M ohm	25Vdc	1.1ohm max.	HD
DLP31DN201ML4□	200ohm±20%	100mA	10Vdc	100M ohm	25Vdc	2.2ohm max.	HD
DLP31DN321ML4□	320ohm±20%	80mA	10Vdc	100M ohm	25Vdc	3.5ohm max.	HD
DLP31DN441ML4□	440ohm±20%	70mA	10Vdc	100M ohm	25Vdc	4.3ohm max.	HD

Operating Temperature Range: -40°C to +85°C Number of Circuit: 2

HD: for high speed differential signal lines UD: for ultra high speed differential signal lines

■ Impedance-Frequency Characteristics (Main Items)



△Note • Please read rating and △CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

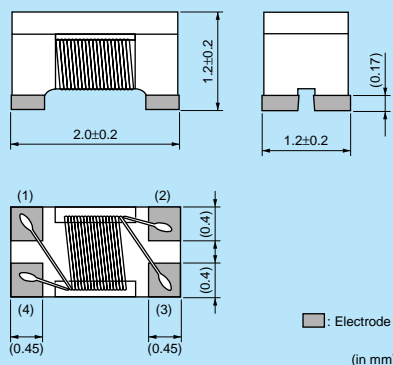
DLW21S Series (0805 Size)



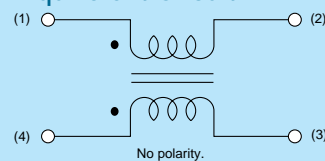
Wire-wound common choke, HDMI available type prepaired.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	2000
B	Bulk(Bag)	500

Refer to pages from p.176 to p.179 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance	
DLW21SN670SQ2□	67ohm±25%	400mA	50Vdc	10M ohm	125Vdc	0.25ohm max.	Kit
DLW21SN900SQ2□	90ohm±25%	330mA	50Vdc	10M ohm	125Vdc	0.35ohm max.	Kit
DLW21SN121SQ2□	120ohm±25%	370mA	50Vdc	10M ohm	125Vdc	0.45ohm max.	Kit
DLW21SN181SQ2□	180ohm±25%	330mA	50Vdc	10M ohm	125Vdc	0.35ohm max.	Kit
DLW21SN261SQ2□	260ohm±25%	300mA	50Vdc	10M ohm	125Vdc	0.40ohm max.	Kit
DLW21SN371SQ2□	370ohm±25%	280mA	50Vdc	10M ohm	125Vdc	0.45ohm max.	Kit
DLW21SN670HQ2□	67ohm±25%	320mA	20Vdc	10M ohm	50Vdc	0.31ohm max.	Kit
DLW21SN900HQ2□	90ohm±25%	280mA	20Vdc	10M ohm	50Vdc	0.41ohm max.	Kit
DLW21SN121HQ2□	120ohm±25%	280mA	20Vdc	10M ohm	50Vdc	0.41ohm max.	Kit
DLW21SR670HQ2□	67ohm±25%	400mA	20Vdc	10M ohm	50Vdc	0.25ohm max.	Kit

Operating Temperature Range: -40°C to +85°C Number of Circuit: 1

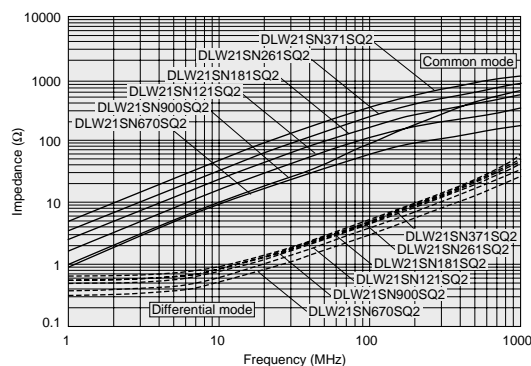
HD: for high speed differential signal lines

UD: for ultra high speed differential signal lines

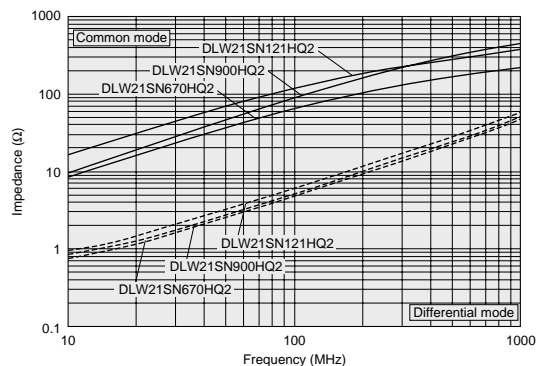
DLW21SR670HQ2 is designed to correct line impedance when ESD protection device is also used.

■ Impedance-Frequency Characteristics (Main Items)

DLW21SN_SQ2 Series



DLW21SN_HQ2 Series



Continued on the following page.

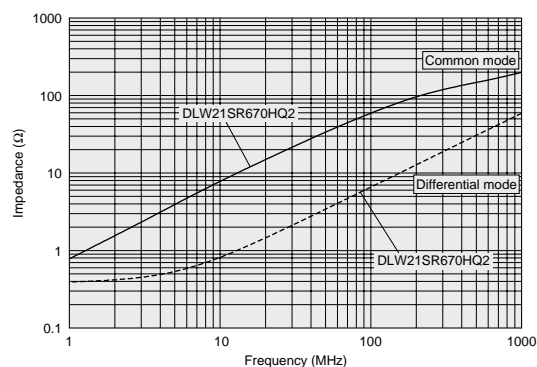
△Note • Please read rating and △CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

C31E.pdf
Mar.28,2011

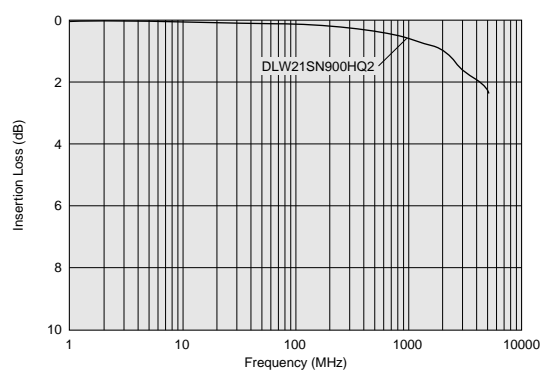
■ Impedance-Frequency Characteristics (Main Items)

DLW21SR_HQ2 Series



■ Differential Mode Transmission Characteristics (Typ.)

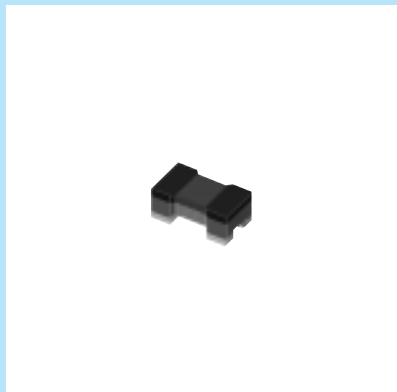
DLW21SN_HQ2 Series



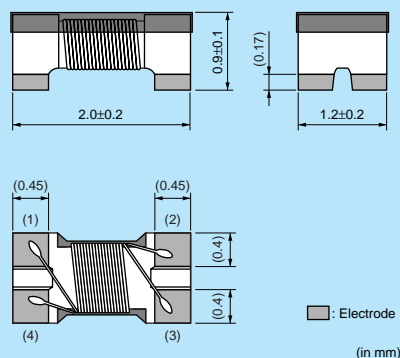
DLW21H Series (0805 Size)



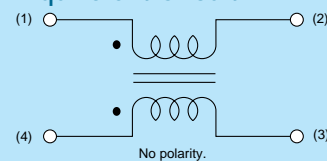
Low profile wire-wound common choke coil.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	3000
B	Bulk(Bag)	500

Refer to pages from p.176 to p.179 for mounting information.

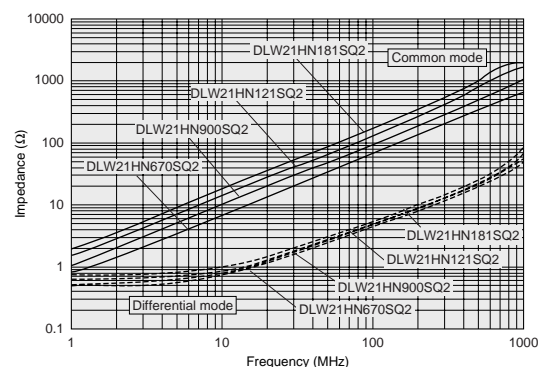
■ Rated Value (□: packaging code)

Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance	
DLW21HN670SQ2□	67ohm±25%	330mA	50Vdc	10M ohm	125Vdc	0.35ohm max.	Kit HD
DLW21HN900SQ2□	90ohm±25%	330mA	50Vdc	10M ohm	125Vdc	0.35ohm max.	Kit HD
DLW21HN121SQ2□	120ohm±25%	280mA	50Vdc	10M ohm	125Vdc	0.45ohm max.	Kit HD
DLW21HN181SQ2□	180ohm±25%	250mA	50Vdc	10M ohm	125Vdc	0.50ohm max.	Kit HD

Operating Temperature Range: -40°C to +85°C Number of Circuit: 1

HD: for high speed differential signal lines UD: for ultra high speed differential signal lines

■ Impedance-Frequency Characteristics (Main Items)



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• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

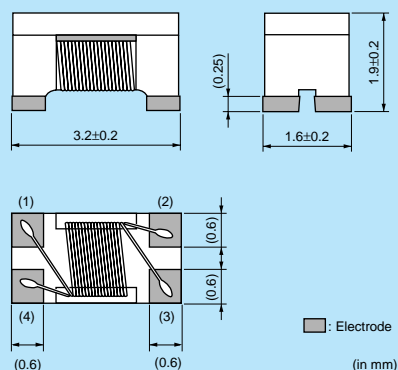
DLW31S Series (1206 Size)



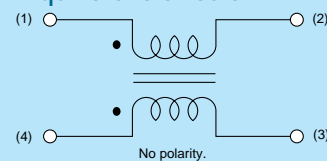
1206 size wire-wound common mode choke coil.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	2000
B	Bulk(Bag)	500

Refer to pages from p.176 to p.179 for mounting information.

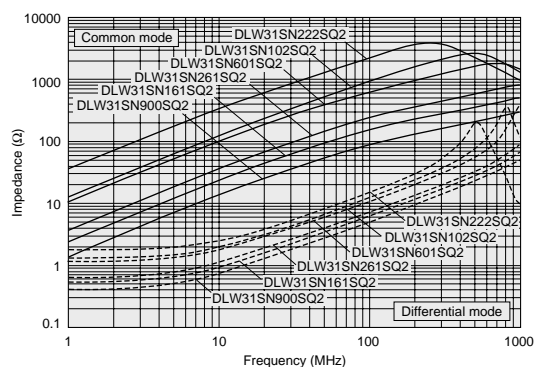
■ Rated Value (□: packaging code)

Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance	
DLW31SN900SQ2□	90ohm±25%	370mA	50Vdc	10M ohm	125Vdc	0.3ohm max.	HD
DLW31SN161SQ2□	160ohm±25%	340mA	50Vdc	10M ohm	125Vdc	0.4ohm max.	HD
DLW31SN261SQ2□	260ohm±25%	310mA	50Vdc	10M ohm	125Vdc	0.5ohm max.	HD
DLW31SN601SQ2□	600ohm±25%	260mA	50Vdc	10M ohm	125Vdc	0.8ohm max.	HD
DLW31SN102SQ2□	1000ohm±25%	230mA	50Vdc	10M ohm	125Vdc	1.0ohm max.	HD
DLW31SN222SQ2□	2200ohm±25%	200mA	50Vdc	10M ohm	125Vdc	1.2ohm max.	HD

Operating Temperature Range: -40°C to +85°C Number of Circuit: 1

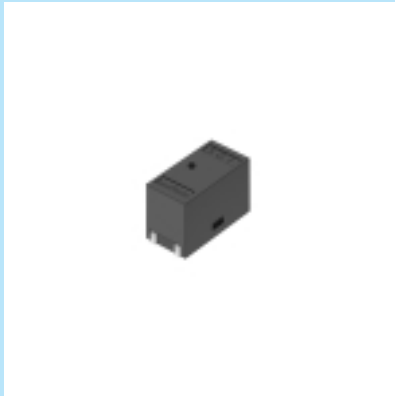
HD: for high speed differential signal lines UD: for ultra high speed differential signal lines

■ Impedance-Frequency Characteristics

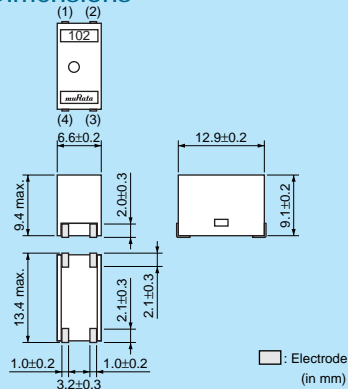


△Note • Please read rating and △CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

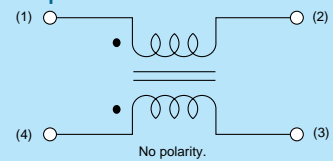
Automotive available, up to 10A.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	125
K	330mm Reel Embossed Tape	500
B	Bulk(Bag)	50

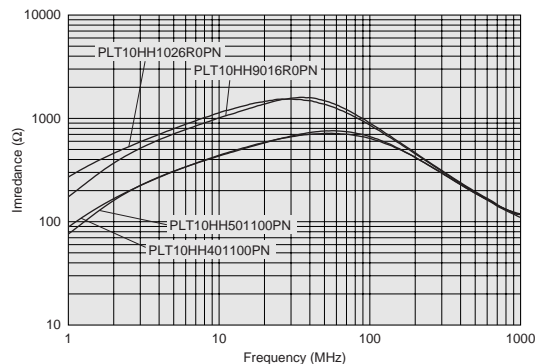
Refer to pages from p.180 to p.181 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Common Mode Impedance (at 10MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance	Common Mode Inductance	
PLT10HH401100PN	400ohm	10A	100Vdc	10M ohm	250Vdc	3.6m ohm±0.5m ohm	6μH min.	New Kit ≥10A
PLT10HH501100PN	500ohm	10A	100Vdc	10M ohm	250Vdc	3.6m ohm±0.5m ohm	9μH min.	New Kit ≥10A
PLT10HH9016R0PN	900ohm	6A	100Vdc	10M ohm	250Vdc	8.0m ohm±0.5m ohm	14μH min.	New Kit ≥3A
PLT10HH1026R0PN	1000ohm	6A	100Vdc	10M ohm	250Vdc	8.0m ohm±0.5m ohm	20μH min.	New Kit ≥3A

Operating Temperature Range (Self-temperature rise is included): -55°C to +105°C (PLT10HH 1026R0/501100 PN), -55°C to +105°C (PLT10HH 401100/9016R0 PN) Number of Circuit: 1

■ Impedance-Frequency Characteristics

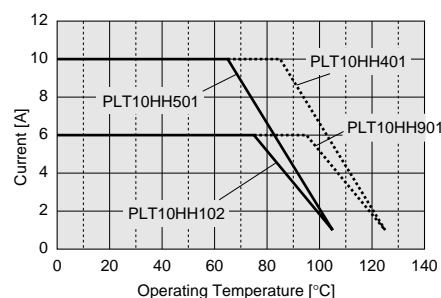


■ Notice (Rating)

In operating temperature exceeding +65°C, derating of current is necessary for PLT10H Series.

Please apply the derating curve shown in chart according to the operating temperature.

Derating



⚠ Caution

● Rating

Do not use products beyond the rated current and rated voltage as this may create excessive heat and deteriorate the insulation resistance.

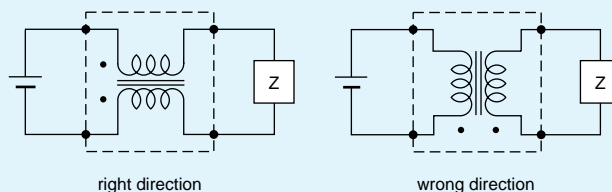
● Soldering and Mounting

1. Self-heating

Please provide special attention when mounting chip common mode choke coils DLW5 series in close proximity to other products that radiate heat. The heat generated by other products may deteriorate the insulation resistance and cause excessive heat in this component.

2. Mounting Direction

Mount Chip Common Mode Choke Coils in right direction. Wrong direction, which is 90 degrees rotated from right direction, causes not only open or short circuit but also flames or other serious trouble.



Notice

● Storage and Operating Conditions

<Operating Environment>

Do not use products in a chemical atmosphere such as chlorine gas, acid or sulfide gas. Do not use products in the environment close to the organic solvent.

<Storage and Handling Requirements>

1. Storage Period

DLW11G/DLM2HG series should be used within 6 months, the other series should be used within 12 months.

Solderability should be checked if this period is exceeded.

2. Storage Conditions

- (1) Storage temperature: -10 to +40°C
Relative humidity: 15 to 85%
Avoid sudden changes in temperature and humidity.
- (2) Do not store products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.

● Notice (Soldering and Mounting)

1. Cleaning

Failure and degradation of a product are caused by the cleaning method. When you clean in conditions that are not in mounting information, please contact Murata engineering.

2. Soldering

Reliability decreases with improper soldering methods. Please solder by the standard soldering conditions shown in mounting information.

3. Other

Noise suppression levels resulting from Murata's EMI suppression filters EMIFIL® may vary, depending on the circuits and ICs used, type of noise, mounting pattern, mounting location, and other operating conditions. Be sure to check and confirm in advance the noise suppression effect of each filter, in actual circuits, etc. before applying the filter in a commercial-purpose equipment design.

● Handling

1. Resin Coating (Except DLW Series.)

Using resin for coating/molding products may affect the products performance. So please pay careful attention in selecting resin. Prior to use, please make the reliability evaluation with the product mounted in your application set.

2. Resin Coating (DLW Series)

The impedance value may change due to high cure-stress of resin to be used for coating/molding products. An open circuit issue may occur by mechanical stress caused by the resin, amount/cured shape of resin, or operating condition etc. Some resin contains some impurities or chloride possible to generate chlorine by hydrolysis under some operating condition may cause corrosion of wire of coil, leading to open circuit. So, please pay your careful attention in selecting resin in case of coating/molding the products with the resin. Prior to use the coating resin, please make sure no reliability issue is observed by evaluating products mounted on your board.

3. Caution for Use (DLW Series)

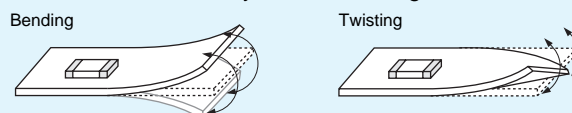
When you hold products with a tweezer, please hold by the sides. Sharp materials, such as a pair of tweezers, should not touch the winding portion to prevent breaking the wire. Mechanical shock should not be applied to the products mounted on the board to prevent breaking the core.

4. Brushing

When you clean the neighborhood of products such as connector pins, bristles of cleaning brush shall not be touched to the winding portion of this product to prevent the breaking of wire.

5. Handling of a Substrate

After mounting products on a substrate, do not apply any stress to the product caused by bending or twisting to the substrate when cropping the substrate, inserting and removing a connector from the substrate or tightening screw to the substrate. Excessive mechanical stress may cause cracking in the Product.



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Caution

● Rating

1. Do not use products beyond the rated current and rated voltage as this may create excessive heat and deteriorate the insulation resistance.
2. Be sure to provide an appropriate fail-safe function on your product to prevent a second damage that may be caused by the abnormal function or the failure of our product.

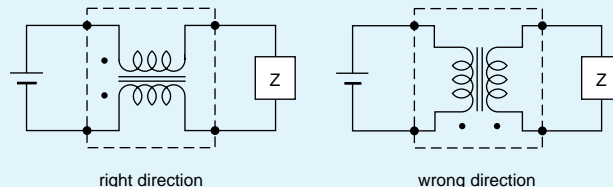
● Soldering and Mounting

1. Self-heating

Please provide special attention when mounting chip common mode choke coils in close proximity to other products that radiate heat. The heat generated by other products may deteriorate the insulation resistance and cause excessive heat in this component.

2. Mounting Direction

Mount Chip Common Mode Choke Coils in right direction. Wrong direction, which is 90 degrees rotated from right direction, causes not only open or short circuit but also flames or other serious trouble.



Notice

● Storage and Operating Conditions

<Operating Environment>

Do not use products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.

Do not use products in the environment close to the organic solvent.

<Storage and Handling Requirements>

1. Storage Period

PLT10H series should be used within 12 months. Solderability should be checked if this period is exceeded.

2. Storage Conditions

- (1) Storage temperature: -10 to +40°C
Relative humidity: 15 to 85%
Avoid sudden changes in temperature and humidity.
- (2) Do not store products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.

● Notice (Soldering and Mounting)

1. Cleaning

Failure and degradation of a product are caused by the cleaning method. When you clean in conditions that are not in mounting information, please contact Murata engineering.

2. Soldering

Reliability decreases with improper soldering methods. Please solder by the standard soldering conditions shown in mounting information.

3. Other

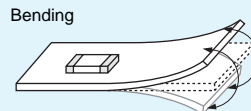
Noise suppression levels resulting from Murata's EMI suppression filters EMIFIL® may vary, depending on the circuits and ICs used, type of noise, mounting pattern, mounting location, and other operating conditions. Be sure to check and confirm in advance the noise suppression effect of each filter, in actual circuits, etc. before applying the filter in a commercial-purpose equipment design.

● Handling

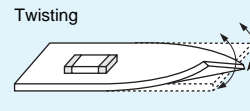
1. Handling of a Substrate

After mounting products on a substrate, do not apply any stress to the product caused by bending or twisting to the substrate when cropping the substrate, inserting and removing a connector from the substrate or tightening screw to the substrate. Excessive mechanical stress may cause cracking in the Product.

Bending



Twisting



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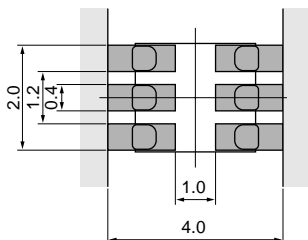
1. Standard Land Pattern Dimensions

 Land Pattern + Solder Resist
 Land Pattern
 Solder Resist (in mm)

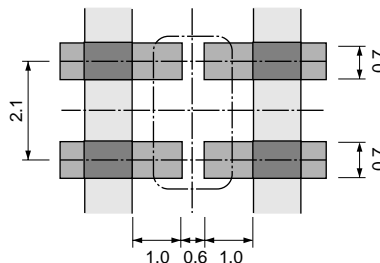
DLM11G
 DLM2HG
 DLP0NS
 DLP11S
 DLP11T
 DLP1ND
 DLP2AD
 DLP31S
 DLP31D
 DLW21S
 DLW21H
 DLW31SN
 DLW5AH
 DLW5B

● Reflow and Flow

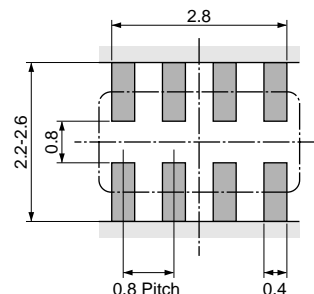
DLM2HG



DLP31S

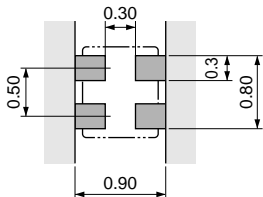


DLP31D

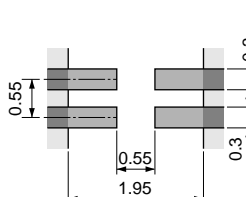


● Reflow Soldering

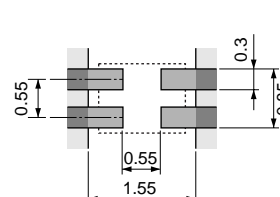
DLP0NS



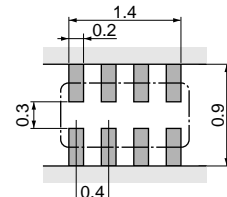
DLP11S



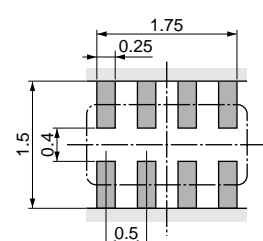
DLP11T



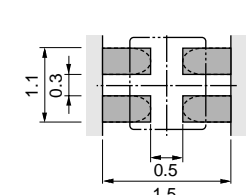
DLP1ND



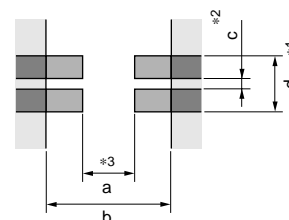
DLP2AD



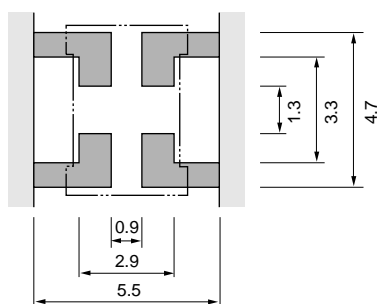
DLM11G



DLW21S/21H/31SN



DLW5AH/5B



Series	a	b	c	d
DLW21S/H	0.8	2.6	0.4	1.2
DLW31SN	1.6	3.7	0.4	1.6

*1: If the pattern is made with wider than 1.2mm (DLW21) / 1.6mm (DLW31S) it may result in components turning around, because melting speed is different. In the worst case, short circuit between lines may occur.

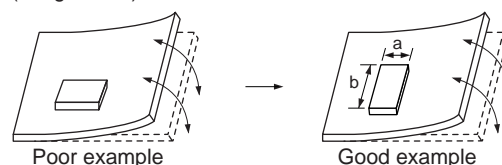
*2: If the pattern is made with less than 0.4mm, in the worst case, short circuit between lines may occur due to spread of soldering paste or mount placing accuracy.

*3: If the pattern is made with wider than 0.8mm (DLW21) / 1.6mm (DLW31SN), the bending strength will be reduced. Do not use gild pattern; excess soldering heat may dissolve metal of a copper wire.

● PCB Warping

PCB should be designed so that products are not subjected to the mechanical stress caused by warping the board.

Products should be located in the sideways direction (Length: a<b) to the mechanical stress.



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2. Solder Paste Printing and Adhesive Application

When reflow soldering the chip common mode choke coils, the printing must be conducted in accordance with the following cream solder printing conditions.

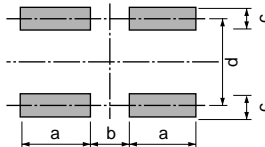
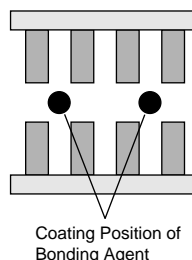
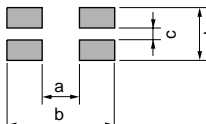
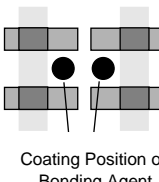
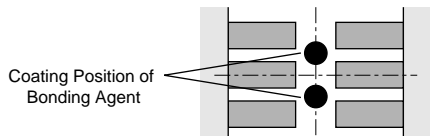
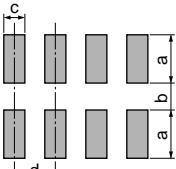
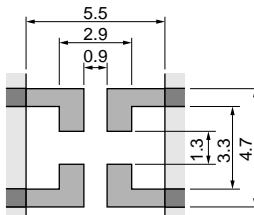
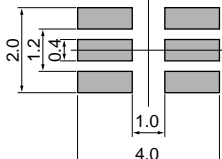
If too much solder is applied, the chip will be prone to damage by mechanical and thermal stress from the PCB and may crack.

Standard land dimensions should be used for resist and copper foil patterns.

When flow soldering the chip common mode choke coils, apply the adhesive in accordance with the following conditions.

If too much adhesive is applied, then it may overflow into the land or termination areas and yield poor solderability. In contrast, if insufficient adhesive is applied, or if the adhesive is not sufficiently hardened, then the chip may become detached during flow soldering process.

(in mm)

Series	Solder Paste Printing	Adhesive Application																														
DLP DLW DLM	<p>●Guideline of solder paste thickness: 100-150μm: DLW21S/21H/31S, DLP0NS/11S/11T/1ND/2AD/DLM11G 150-200μm: DLP31D/31S, DLM2HG, DLW5AH/5BS/5BT</p> <p>*Solderability is subject to reflow conditions and thermal conductivity. Please make sure that your product has been evaluated in view of your specifications with our product being mounted to your product.</p>	<p>■DLP31S/DLM2HG/DLP31D Apply 0.3mg of bonding agent at each chip.</p>																														
	<p>DLP0NS/11S/11T/31S/DLM11G</p> 	<p>DLP31D</p> 																														
	<p>DLW21S/21H/31S</p> 	<p>DLP31S</p> 																														
	<table><tr><th>Series</th><th>a</th><th>b</th><th>c</th><th>d</th></tr><tr><td>DLP0NS</td><td>0.3</td><td>0.3</td><td>0.3</td><td>0.5</td></tr><tr><td>DLP11S</td><td>0.7</td><td>0.55</td><td>0.3</td><td>0.55</td></tr><tr><td>DLP11T</td><td>0.5</td><td>0.55</td><td>0.3</td><td>0.55</td></tr><tr><td>DLP31S</td><td>1.0</td><td>0.6</td><td>0.7</td><td>2.1</td></tr><tr><td>DLM11G</td><td>0.5</td><td>0.5</td><td>0.4</td><td>0.7</td></tr></table>	Series	a	b	c	d	DLP0NS	0.3	0.3	0.3	0.5	DLP11S	0.7	0.55	0.3	0.55	DLP11T	0.5	0.55	0.3	0.55	DLP31S	1.0	0.6	0.7	2.1	DLM11G	0.5	0.5	0.4	0.7	<p>DLM2HG</p> 
	Series	a	b	c	d																											
DLP0NS	0.3	0.3	0.3	0.5																												
DLP11S	0.7	0.55	0.3	0.55																												
DLP11T	0.5	0.55	0.3	0.55																												
DLP31S	1.0	0.6	0.7	2.1																												
DLM11G	0.5	0.5	0.4	0.7																												
<p>DLP2AD/31D</p> 																																
<p>DLW5AH/5BS/5BT</p> 																																
	<p>DLM2HG</p> 																															

△Note • Please read rating and △CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

3. Standard Soldering Conditions

(1) Soldering Methods

Use flow and reflow soldering methods only.

Use standard soldering conditions when soldering chip common mode choke coils.

In cases where several different parts are soldered, each having different soldering conditions, use those conditions requiring the least heat and minimum time.

Solder: Use Sn-3.0Ag-0.5Cu solder. Use of Sn-Zn based solder will deteriorate performance of products.

If using DLP/DLM series with Sn-Zn based solder, please contact Murata in advance.

Flux:

- Use Rosin-based flux.

In case of DLW21/31 series, use Rosin-based flux with converting chlorine content of 0.06 to 0.1wt%.

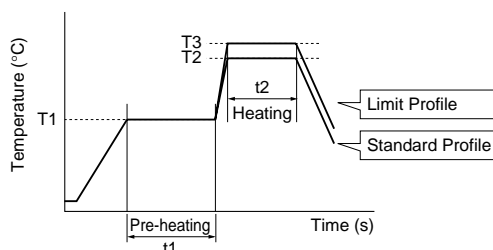
In case of using RA type solder, products should be cleaned completely with no residual flux.

- Do not use strong acidic flux (with chlorine content exceeding 0.20wt%)
- Do not use water-soluble flux.

For additional mounting methods, please contact Murata.

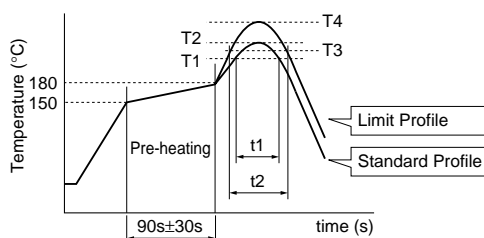
(2) Soldering Profile

- Flow Soldering Profile
(Sn-3.0Ag-0.5Cu Solder)



Series	Pre-heating		Standard Profile			Limit Profile		
			Heating		Cycle of Flow	Heating		Cycle of Flow
	Temp. (T1)	Time. (t1)	Temp. (T2)	Time. (t2)		Temp. (T3)	Time. (t2)	
DLM2HG DLP31D/31S	150°C	60s min.	250°C	4 to 6s	2 times max.	265±3°C	5s max.	2 times max.

- Reflow Soldering Profile
(Sn-3.0Ag-0.5Cu Solder)



Series	Standard Profile				Limit Profile			
	Heating		Peak Temperature (T2)	Cycle of Reflow	Heating		Peak Temperature (T4)	Cycle of Reflow
	Temp. (T1)	Time. (t1)			Temp. (T3)	Time. (t2)		
DLM/DLP DLW21/31	220°C min.	30 to 60s	245±3°C	2 times max.	230°C min.	60s max.	260°C/10s	2 times max.
DLW5A/5B	220°C min.	30 to 60s	250±3°C	2 times max.	230°C min.	60s max.	260°C/10s	2 times max.

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• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

(3) Reworking with Solder Iron

The following conditions must be strictly followed when using a soldering iron.

Pre-heating: 150°C 60s min.

Soldering iron power output / Tip diameter:

30W max. / ø3mm max.

Temperature of soldering iron tip / Soldering time / Times:

350°C max. / 3-4s / 2 times*¹

*¹ DLP0NS, DLP11S, DLP11T, DLP1ND, DLP2AD:

380°C max. / 3-4s / 2 times

Do not allow the tip of the soldering iron to directly contact the chip.

For additional methods of reworking with a soldering iron, please contact Murata engineering.

4. Cleaning

Following conditions should be observed when cleaning chip EMI filter.

- (1) Cleaning Temperature: 60°C max. (40°C max. for alcohol type cleaner)

- (2) Ultrasonic

Output: 20W/liter max.

Duration: 5 minutes max.

Frequency: 28 to 40kHz

- (3) Cleaning agent

The following list of cleaning agents have been tested on the individual components. Evaluation of final assembly should be completed prior to production.

Do not clean DLW (except DLW21H) series.

Before cleaning, please contact Murata engineering.

- (a) Alcohol cleaning agent

Isopropyl alcohol (IPA)

- (b) Aqueous cleaning agent

Pine Alpha ST-100S

- (4) Ensure that flux residue is completely removed.

Component should be thoroughly dried after aqueous agent has been removed with deionized water.

△Note • Please read rating and △CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

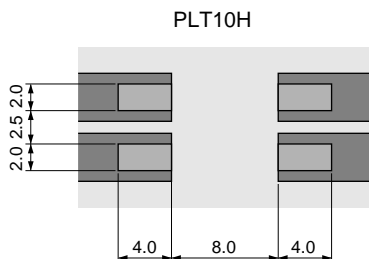
• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

1. Standard Land Pattern Dimensions

(in mm)

PLT10H

● Reflow Soldering

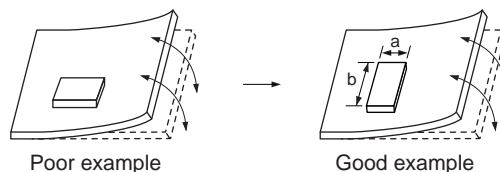


- Copper Foil Pattern
- Copper Foil Pattern + Resist
- Resist

● PCB Warping

PCB should be designed so that products are not subjected to the mechanical stress caused by warping the board.

Products should be located in the sideways direction (Length: $a < b$) to the mechanical stress.



2. Solder Paste Printing and Adhesive Application

When reflow soldering the chip common mode choke coils, the printing must be conducted in accordance with the following cream solder printing conditions.

If too much solder is applied, the chip will be prone to damage by mechanical and thermal stress from the PCB and may crack.

Standard land dimensions should be used for resist and copper foil patterns.

When flow soldering the chip common mode choke coils, apply the adhesive in accordance with the following conditions.

If too much adhesive is applied, then it may overflow into the land or termination areas and yield poor solderability. In contrast, if insufficient adhesive is applied, or if the adhesive is not sufficiently hardened, then the chip may become detached during flow soldering process.

Series	Solder Paste Printing
PLT10H	<p>● Guideline of solder paste thickness: 150-200μm: PLT10H For the solder paste printing pattern, use standard land dimensions.</p> <p>*Solderability is subject to reflow conditions and thermal conductivity. Please make sure that your product has been evaluated in view of your specifications with our product being mounted to your product.</p>

3. Standard Soldering Conditions**(1) Soldering Methods**

Use reflow soldering methods only.

Use standard soldering conditions when soldering chip common mode choke coils.

In cases where several different parts are soldered, each having different soldering conditions, use those conditions requiring the least heat and minimum time.

Solder: Use Sn-3.0Ag-0.5Cu solder. Use of Sn-Zn based solder will deteriorate performance of products.

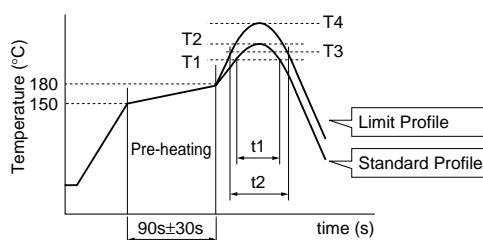
Flux:

- Use Rosin-based flux.
use Rosin-based flux.
- Do not use strong acidic flux (with chlorine content exceeding 0.20wt%)
- Do not use water-soluble flux.

For additional mounting methods, please contact Murata.

(2) Soldering Profile

● Reflow Soldering Profile
(Sn-3.0Ag-0.5Cu Solder)



Series	Standard Profile				Limit Profile			
	Heating		Peak Temperature (T2)	Cycle of Reflow	Heating		Peak Temperature (T4)	Cycle of Reflow
	Temp. (T1)	Time. (t1)			Temp. (T3)	Time. (t2)		
PLT10H	220°C min.	30 to 60s	250±3°C	2 times max.	230°C min.	60s max.	260°C/10s	2 times max.

(3) Reworking with Solder Iron

The following conditions must be strictly followed when using a soldering iron.

Pre-heating: 150°C 60s min.

Soldering iron power output / Tip diameter:

80W max. / ø3mm max.

Temperature of soldering iron tip / Soldering time / Times:

400°C max. / 5s / 2 times

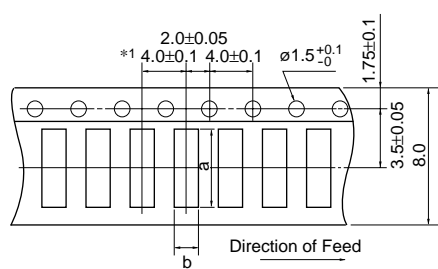
Do not allow the tip of the soldering iron to directly contact the chip.

For additional methods of reworking with a soldering iron, please contact Murata engineering.

4. Cleaning

Do not clean after soldering. If cleaning, please contact us.

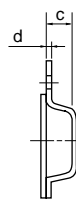
■ Minimum Quantity and Dimensions of 8mm Width Paper / Embossed Tape



*1 DLM11G: 2.0±0.05

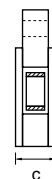
Dimension of the cavity of embossed tape is measured at the bottom side.

<Embossed>



c: Depth of Cavity
(Embossed Tape)

<Paper>

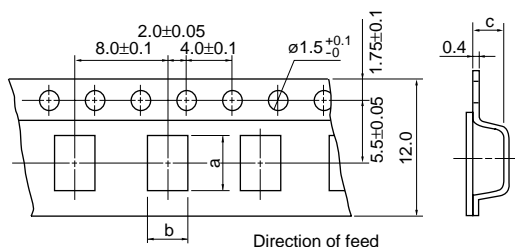


c: Total Thickness of Tape
(Paper Tape)

Part Number	Cavity Size				Minimum Qty. (pcs.)				
					ø180mm Reel		ø330mm Reel		Bulk
	a	b	c	d	Paper Tape	Embossed Tape	Paper Tape	Embossed Tape	
DLM11G	1.45	1.2	0.8 max.	-	10000	-	-	-	1000
DLM2HG	2.75	2.25	1.3	0.25	-	3000	-	-	1000
DLP0NS	0.95	0.75	0.55	0.25	-	5000	-	-	500
DLP11S	1.4	1.2	0.98	0.25	-	3000	-	-	500
DLP11T	1.35	1.1	0.45	0.25	-	5000	-	-	500
DLP1ND	1.7	0.84	0.57	0.25	-	5000	-	-	500
DLP2AD	2.2	1.2	0.98	0.25	-	3000	-	-	500
DLP31D/31S	3.5	1.9	1.3	0.25	-	3000	-	-	500
DLW21S	2.25	1.45	1.4	0.3	-	2000	-	-	500
DLW21H	2.3	1.55	1.1	0.25	-	3000	-	-	500
DLW31S	3.6	2.0	2.1	0.3	-	2000	-	-	500

(in mm)

■ Minimum Quantity and Dimensions of 12mm Width Embossed Tape



c: Depth of Cavity

Dimension of the cavity is measured at the bottom side.

Part Number	Cavity Size			Minimum Qty. (pcs.)		
	a	b	c	ø180mm Reel	ø330mm Reel	Bulk
DLW5AH	5.4	4.1	4.4	400	1500	100
DLW5BS	5.5	5.4	4.7	400	1500	100
DLW5BT	5.5	5.4	2.7	700	2500	100

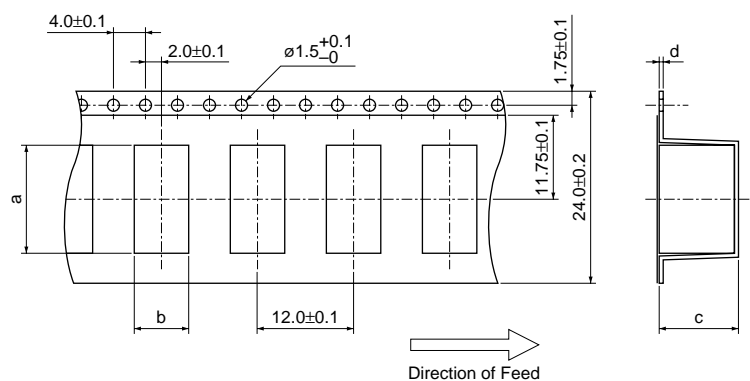
(in mm)

"Minimum Quantity" means the number of units of each delivery or order. The quantity should be an integral multiple of the "Minimum Quantity".

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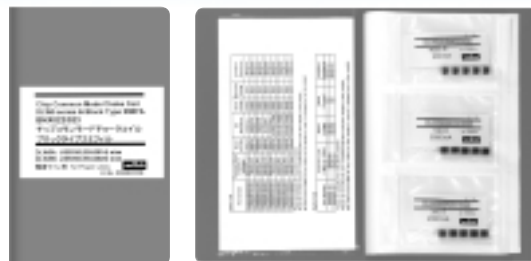
• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

■ Minimum Quantity and Dimensions of 24mm Width Embossed Tape



Dimension of the cavity is measured at the bottom side. (in mm)

Part Number	Cavity Size (mm)				Minimum Qty. (pcs.)		
	a	b	c	d	ø178mm Reel	ø330mm Reel	Bulk
PLT10H	13.5	6.5	9.4	0.5	125	500	50



●EKEMDL21L (Chip Common Mode Choke Coils)

No.	Part Number	Quantity (pcs.)	Common Mode Impedance (at 100MHz, 20 degrees C)	Rated Voltage (Vdc)	Rated Current (mA)
1	DLW21HN670SQ2	10	67Ω±25%	50	330
2	DLW21HN900SQ2	10	90Ω±25%	50	330
3	DLW21HN121SQ2	10	120Ω±25%	50	280
4	DLW21HN181SQ2	10	180Ω±25%	50	250
5	DLW21SN670SQ2	10	67Ω±25%	50	400
6	DLW21SN900SQ2	10	90Ω±25%	50	330
7	DLW21SN121SQ2	10	120Ω±25%	50	370
8	DLW21SN181SQ2	10	180Ω±25%	50	330
9	DLW21SN261SQ2	10	260Ω±25%	50	300
10	DLW21SN371SQ2	10	370Ω±25%	50	280
11	DLW21SN670HQ2	10	67Ω±25%	20	320
12	DLW21SN900HQ2	10	90Ω±25%	20	280
13	DLW21SN121HQ2	10	120Ω±25%	20	280
14	DLW21SR670HQ2	10	67Ω±25%	20	400
15	DLP0NSA150HL2	10	15Ω±5Ω	5	100
16	DLP0NSC280HL2	10	28Ω±20%	5	100
17	DLP0NSN670HL2	10	67Ω±20%	5	110
18	DLP0NSN900HL2	10	90Ω±20%	5	100
19	DLP0NSN121HL2	10	120Ω±20%	5	90
20	DLP1NDN350HL4	10	35Ω±20%	5	100
21	DLP1NDN670HL4	10	67Ω±20%	5	80
22	DLP1NDN900HL4	10	90Ω±20%	5	60
23	DLP11SA350HL2	10	35Ω±20%	5	170
24	DLP11SA670HL2	10	67Ω±20%	5	150
25	DLP11SA900HL2	10	90Ω±20%	5	150
26	DLP11SN670SL2	10	67Ω±20%	5	180
27	DLP11SN121SL2	10	120Ω±20%	5	140
28	DLP11SN161SL2	10	160Ω±20%	5	120
29	DLP11SN900HL2	10	90Ω±20%	5	150
30	DLP11SN201HL2	10	200Ω±20%	5	110
31	DLP11SN241HL2	10	240Ω±20%	5	100
32	DLP11SN281HL2	10	280Ω±20%	5	90
33	DLP11SN331HL2	10	330Ω±20%	5	80
34	DLP11TB800UL2	10	80Ω±25%	5	100
35	DLP2ADA350HL4	10	35Ω±20%	5	150
36	DLP2ADA670HL4	10	67Ω±20%	5	130
37	DLP2ADA900HL4	10	90Ω±20%	5	120
38	DLP2ADN670HL4	10	67Ω±20%	5	140
39	DLP2ADN900HL4	10	90Ω±20%	5	130
40	DLP2ADN121HL4	10	120Ω±20%	5	120
41	DLP2ADN161HL4	10	160Ω±20%	5	100
42	DLP2ADN201HL4	10	200Ω±20%	5	90
43	DLP2ADN241HL4	10	240Ω±20%	5	80
44	DLP2ADN281HL4	10	280Ω±20%	5	80

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●EKEMDCC5C (Chip Common Mode Choke Coils for DC Power Line / SMD Block type EMIFIL[®] for Power Line)

No.	Part Number	Quantity (pcs.)	Common Mode Impedance (at 100MHz, 20 degrees C)	Rated Voltage (Vdc)	Rated Current (mA)
1	DLW5AHN402SQ2	5	4000Ω (Typ.)	50	200
2	DLW5BSN191SQ2	5	190Ω (Typ.)	50	5000
3	DLW5BSN351SQ2	5	350Ω (Typ.)	50	2000
4	DLW5BSN102SQ2	5	1000Ω (Typ.)	50	1500
5	DLW5BSN152SQ2	5	1500Ω (Typ.)	50	1000
6	DLW5BSN302SQ2	5	3000Ω (Typ.)	50	500
7	DLW5BTN101SQ2	5	100Ω (Typ.)	50	6000
8	DLW5BTN251SQ2	5	250Ω (Typ.)	50	5000
9	DLW5BTN501SQ2	5	500Ω (Typ.)	50	4000
10	DLW5BTN102SQ2	5	1000Ω (Typ.)	50	2000
11	DLW5BTN142SQ2	5	1400Ω (Typ.)	50	1500

⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.



●EKEPPL10B (Common Mode Choke Coil)

No.	Part Number	Quantity (pcs.)	Common Mode Impedance (at 10MHz, 20 degrees C)	Rated Voltage (Vdc)	Rated Current (A)
1	PLT10HH401100PN	6	400Ω (Typ.)	100	10
2	PLT10HH501100PN	6	500Ω (Typ.)	100	10
3	PLT10HH9016R0PN	6	900Ω (Typ.)	100	6
4	PLT10HH1026R0PN	6	1000Ω (Typ.)	100	6

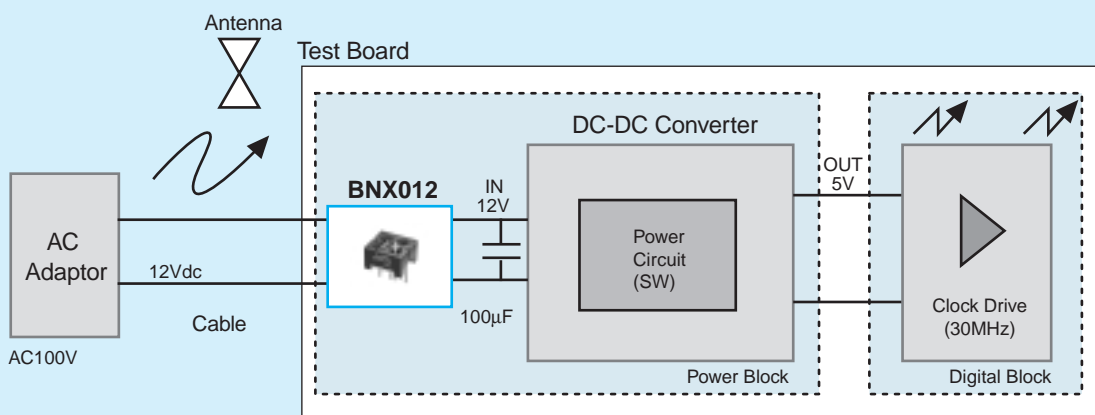


Block Type EMIFIL®

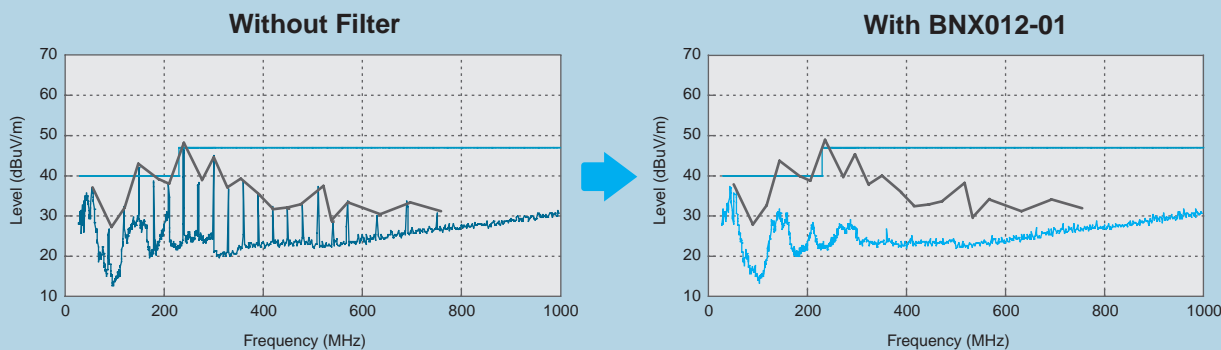
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Type	Part Number	Thickness (mm)	Rated Voltage	Effective Frequency Range	Rated Current	Kit	≥3A	Flow	ReFlow
SMD Type for Power Lines ^{p191}	BNX022-01	3.1	50Vdc	1MHz to 1GHz:35dB min.	10A	Kit	≥3A		ReFlow
	BNX023-01	3.1	100Vdc	1MHz to 1GHz:35dB min.	15A	Kit	≥3A		ReFlow
	BNX024H01	3.5	50Vdc	100kHz to 1GHz:35dB min.	15A	Kit	≥3A		ReFlow
	BNX025H01	3.5	25Vdc	50kHz to 1GHz:35dB min.	15A	Kit	≥3A		ReFlow
Lead Type for Power Lines ^{p193}	BNX002-01	18.0	50Vdc	1MHz to 1GHz:40dB min.	10A	Kit	≥3A	Flow	
	BNX003-01	18.0	150Vdc	5MHz to 1GHz:40dB min.	10A	Kit	≥3A	Flow	
	BNX005-01	18.5	50Vdc	1MHz to 1GHz:40dB min.	15A	Kit	≥3A	Flow	
Lead Type Low Profile for Power Lines ^{p194}	BNX012-01	8.0	50Vdc	1MHz to 1GHz:40dB min.	15A	Kit	≥3A	Flow	
	BNX016-01	8.0	25Vdc	100kHz to 1GHz:40dB min.	15A	Kit	≥3A	Flow	

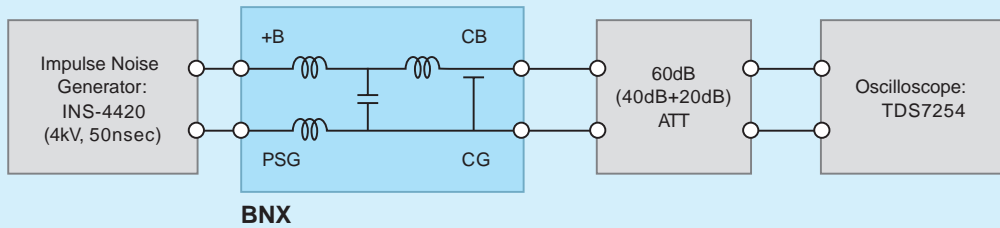
Noise Suppression of Radiation Noise from Power Line Cable



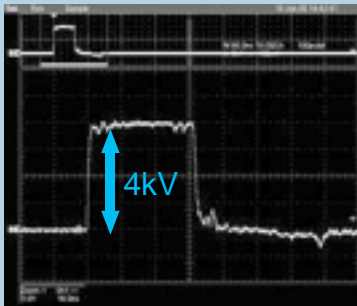
Test Result



Impulse Noise Countermeasure

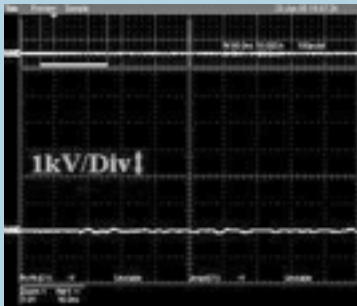


Without Filter

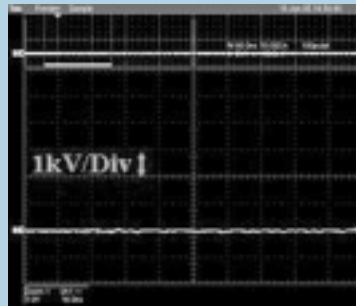


Applied Impulse Voltage: 4kV/50nS
Y-AXIS: 1kV/div

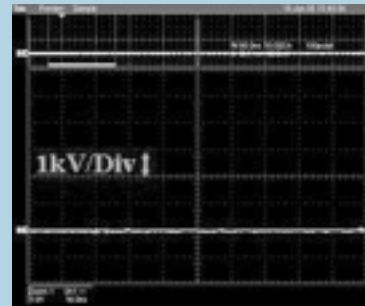
With Filter



BNX002-01



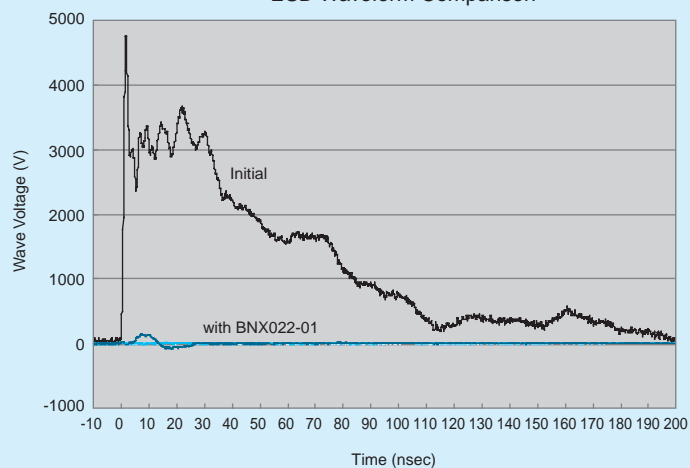
BNX012-01



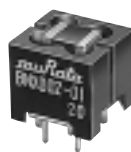
BNX022-01

ESD Countermeasure

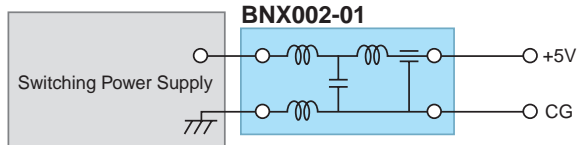
ESD Waveform Comparison



Suppression of Ripple Noise of DC Side in the Switching Power Supply



Test Circuit

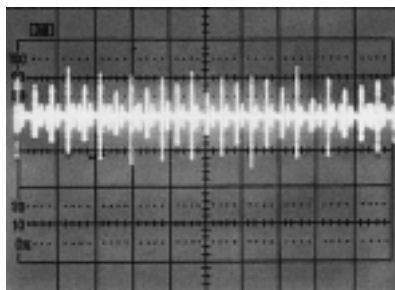


Type of Filter

EMI Suppression Effect / Description

Without Filter

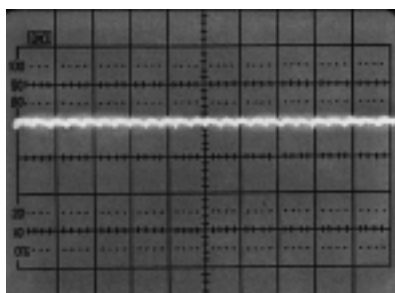
+5.0V→
50μs/div
0.2V/div



There is high frequency noise
of 0.5V maximum.

When BNX002-01
is used

+5.0V→
50μs/div
0.2V/div



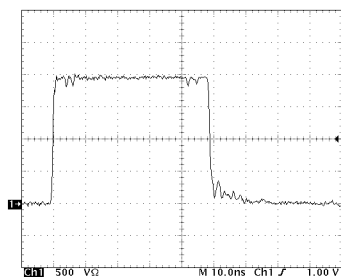
BNX002-01 can suppress most of noise.

Example of Impulse Noise Suppression

Type of Filter

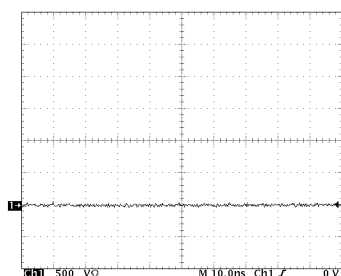
EMI Suppression Effect

Without Filter



Impulse Noise
2000V/50ns

Y-axis: 500V/div
X-axis: 10ns/sec

When BNX002
is used

Y-axis: 500V/div
X-axis: 10ns/sec

BNX02□ Series

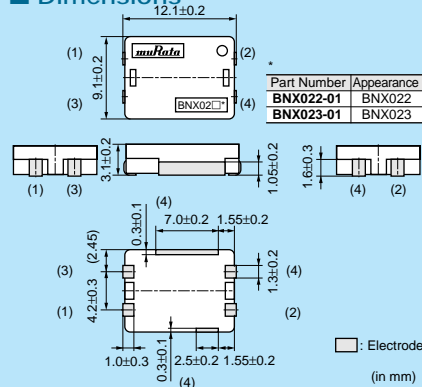


SMD package of block type EMIFIL®.

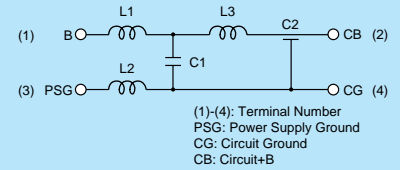
BNX022/BNX023



■ Dimensions



■ Equivalent Circuit



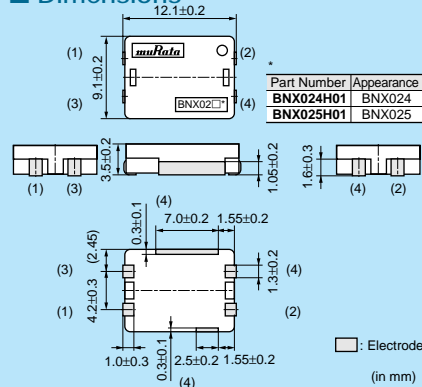
■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	400
K	330mm Reel Embossed Tape	1500
B	Bulk(Bag)	100

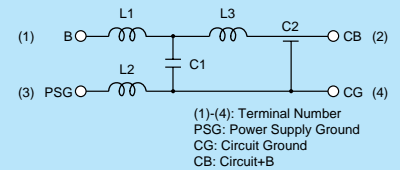
BNX024H/BNX025H



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	400
K	330mm Reel Embossed Tape	1500
B	Bulk(Bag)	100

Refer to pages from p.197 to p.200 for mounting information.

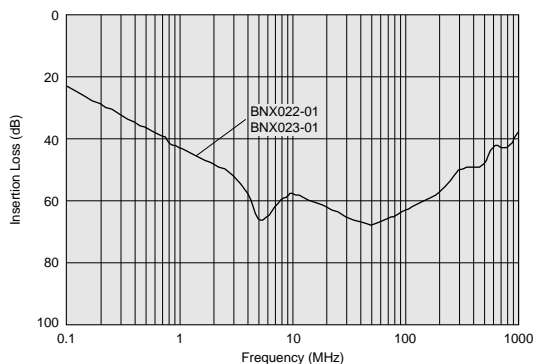
■ Rated Value (□: packaging code)

Part Number	Rated Voltage	Withstand Voltage	Rated Current	Insulation Resistance (min.)	Insertion Loss (20 to 25 degrees C line impedance=50 ohm)	
BNX022-01□	50Vdc	125Vdc	10A	500M ohm	1MHz to 1GHz:35dB min.	Kit ≥3A
BNX023-01□	100Vdc	250Vdc	15A	500M ohm	1MHz to 1GHz:35dB min.	Kit ≥3A
BNX024H01□	50Vdc	125Vdc	15A	100M ohm	100kHz to 1GHz:35dB min.	Kit ≥3A
BNX025H01□	25Vdc	62.5Vdc	15A	50M ohm	50kHz to 1GHz:35dB min.	Kit ≥3A

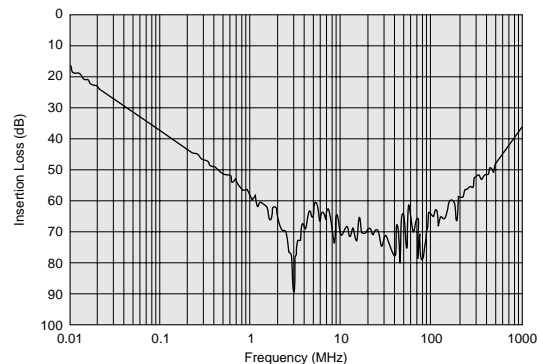
Operating Temperature Range: -40°C to +125°C (BNX022/BNX023), -55°C to +125°C (BNX024H/BNX025H)

■ Insertion Loss Characteristics

BNX022/023



BNX024H01

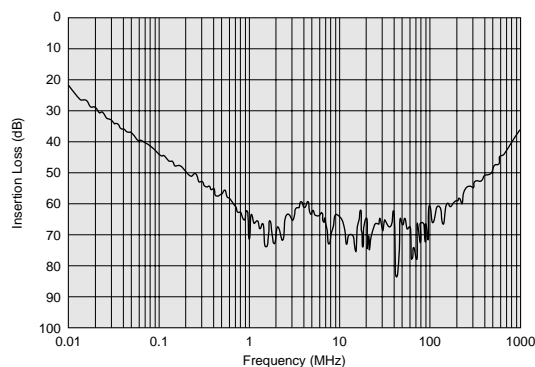


Continued on the following page. ➤

⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

■ Insertion Loss Characteristics

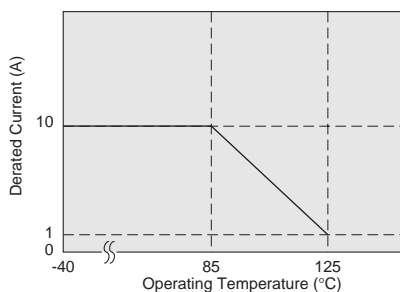
BNX025H01



■ Notice (Rating)

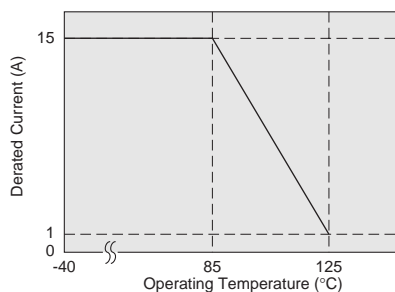
In operating temperatures exceeding +85°C, derating of current is necessary for BNX022 series. Please apply the derating curve shown in chart according to the operating temperature.

Derating



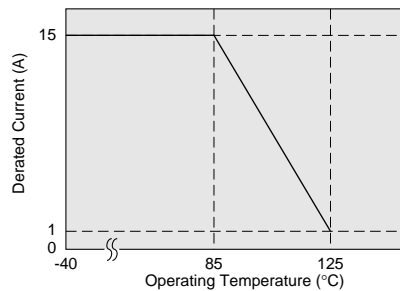
In operating temperatures exceeding +85°C, derating of current is necessary for BNX023 series. Please apply the derating curve shown in chart according to the operating temperature.

Derating



In operating temperatures exceeding +85°C, derating of current is necessary for BNX024H/025H series. Please apply the derating curve shown in chart according to the operating temperature.

Derating



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BNX00□ Series

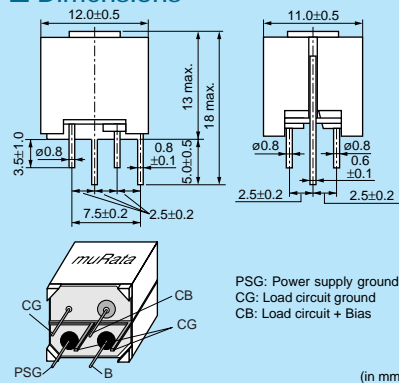


Large insertion loss from several hundred kHz to several GHz.

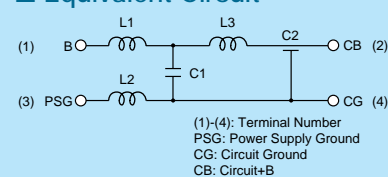
BNX002/BNX003



■ Dimensions



■ Equivalent Circuit



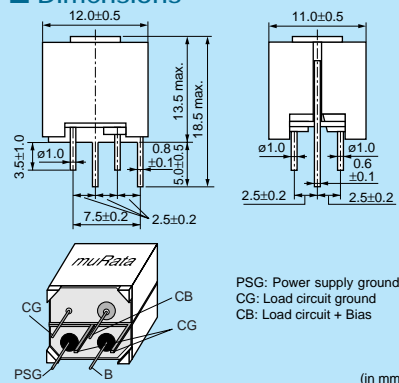
■ Packaging

Code	Packaging	Minimum Quantity
-	Box	100

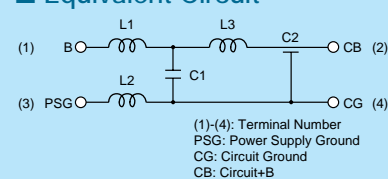
BNX005



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
-	Box	100

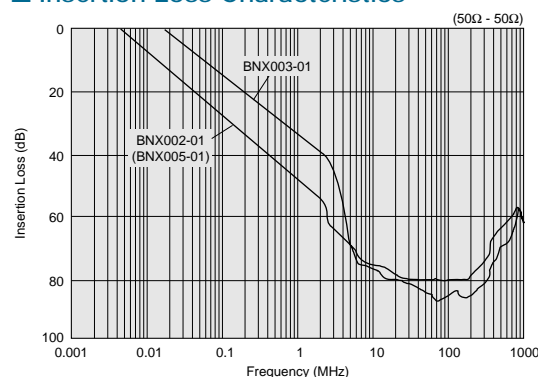
Refer to pages from p.197 to p.200 for mounting information.

■ Rated Value

Part Number	Rated Voltage	Withstand Voltage	Rated Current	Insulation Resistance (min.)	Insertion Loss (20 to 25 degrees C line impedance=50 ohm)	
BNX002-01	50Vdc	125Vdc	10A	100M ohm	1MHz to 1GHz:40dB min.	Kit ≥3A
BNX003-01	150Vdc	375Vdc	10A	100M ohm	5MHz to 1GHz:40dB min.	Kit ≥3A
BNX005-01	50Vdc	125Vdc	15A	100M ohm	1MHz to 1GHz:40dB min.	Kit ≥3A

Operating Temperature Range: -30°C to +85°C

■ Insertion Loss Characteristics



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• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering.

C31E.pdf
Mar.28,2011

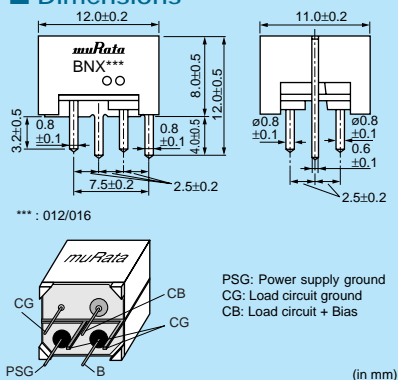
BNX01□ Series



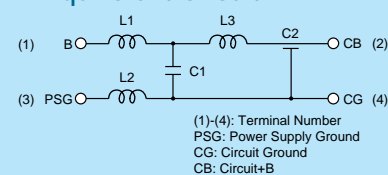
Low profile version of BNX series.



■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
-	Box	150

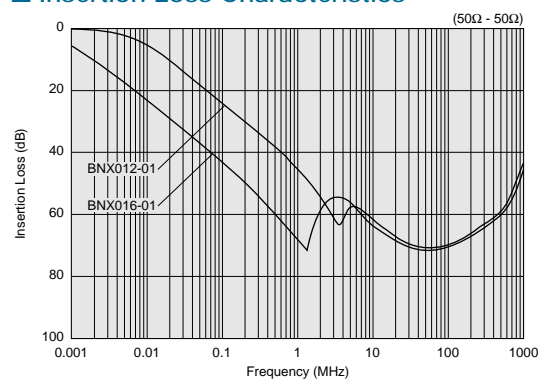
Refer to pages from p.197 to p.200 for mounting information.

■ Rated Value

Part Number	Rated Voltage	Withstand Voltage	Rated Current	Insulation Resistance (min.)	Insertion Loss (20 to 25 degrees C line impedance=50 ohm)	
BNX012-01	50Vdc	125Vdc	15A	500M ohm	1MHz to 1GHz:40dB min.	Kit $\geq 3A$
BNX016-01	25Vdc	62.5Vdc	15A	50M ohm	100kHz to 1GHz:40dB min.	Kit $\geq 3A$

Operating Temperature Range: -40°C to +125°C

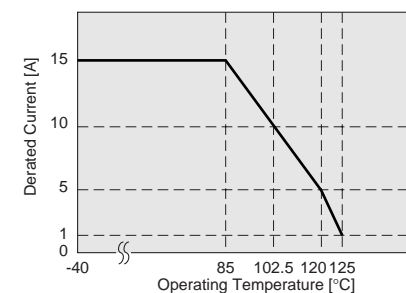
■ Insertion Loss Characteristics



■ Notice (Rating)

In operating temperatures exceeding +85°C, derating of current is necessary for BNX01□ series. Please apply the derating curve shown in chart according to the operating temperature.

Derating



● Connecting ± power line

In case of using ± power line, please connect to each terminal as shown.

Power Supply (BNX Input)	BNX	Circuit (BNX Output)
Power Supply +Bias -	B CB	- Load Circuit +Bias
Power Supply Ground -	PSG CG	- Load Circuit Ground
Power Supply -Bias -	B CB	- Load Circuit -Bias
Power Supply Ground -	PSG CG	- Load Circuit Ground

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⚠ Caution

● Rating

Do not use products beyond the rated current and rated voltage as this may create excessive heat and deteriorate the insulation resistance.

Notice

● Storage and Operating Conditions

<Operating Environment>

Do not use products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.

Do not use products in the environment close to the organic solvent.

<Storage and Handling Requirements>

1. Storage Period

BNX series should be used within 12 months.

Solderability should be checked if this period is exceeded.

2. Storage Conditions

(1) Storage temperature: -10 to +40°C

Relative humidity: 15 to 85%

Avoid sudden changes in temperature and humidity.

(2) Do not store products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.

● Notice (Soldering and Mounting)

1. Cleaning

Do not clean BNX series (SMD Type).

Before cleaning, please contact Murata engineering.

2. Soldering

Reliability decreases with improper soldering methods.

Please solder by the standard soldering conditions shown in mounting information.

3. Other

Noise suppression levels resulting from Murata's EMI suppression filters EMIFIL® may vary, depending on the circuits and ICs used, type of noise, mounting pattern, mounting location, and other operating conditions. Be sure to check and confirm in advance the noise suppression effect of each filter, in actual circuits, etc. before applying the filter in a commercial-purpose equipment design.

● Handling

1. Resin Coating

Using resin for coating/molding products may affect the products performance.

So please pay careful attention in selecting resin.

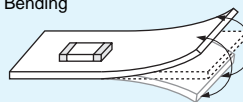
Prior to use, please make the reliability evaluation with the product mounted in your application set.

2. Handling of a Substrate (for BNX02□)

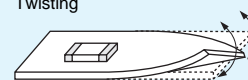
After mounting products on a substrate, do not apply any stress to the product caused by bending or twisting to the substrate when cropping the substrate, inserting and removing a connector from the substrate or tightening screw to the substrate.

Excessive mechanical stress may cause cracking in the Product.

Bending



Twisting



⚠ Note • Please read rating and ⚠ CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

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⚠ Caution

● Rating

Do not use products beyond the rated current and rated voltage as this may create excessive heat and deteriorate the insulation resistance.

Notice

● Storage and Operating Conditions

<Operating Environment>

1. Do not use products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.
2. Do not use products near water, oil or organic solvents.

<Storage and Handling Requirements>

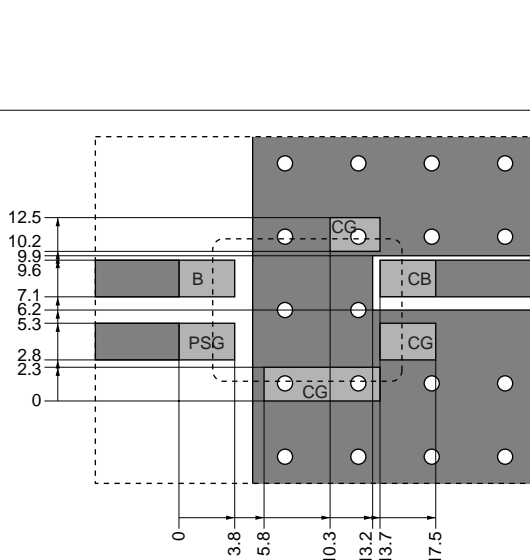
1. Storage Period
BNX Series should be used within 12 months.
Solderability should be checked if this period is exceeded.
2. Storage Conditions
 - (1) Storage temperature: -10 to +40°C
Relative humidity: 15 to 85%
Avoid sudden changes in temperature and humidity.
 - (2) Do not store products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.

● Notice (Soldering and Mounting)

1. Cleaning
Failure and degradation of a product are caused by the cleaning method. When you clean in conditions that are not in mounting information, please contact Murata engineering.
2. Soldering
Reliability decreases with improper soldering methods. Please solder by the standard soldering conditions shown in mounting information.
3. Other
Noise suppression levels resulting from Murata's EMI suppression filters "EMIFIL" may vary, depending on the circuits and ICs used, type of noise, mounting pattern, lead wire length, mounting location, and other operating conditions. Be sure to check and confirm in advance the noise suppression effect of each filter, in actual circuits, etc. before applying the filter in a commercial-purpose equipment design.

1. Standard Land Pattern Dimensions

BNX022
BNX023
BNX024
BNX025

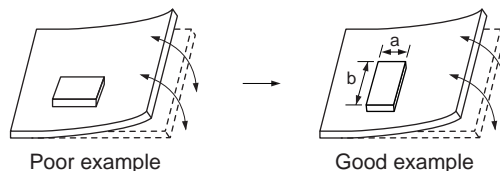


- (1) A double-sided print board (or multilayer board) as shown in the left figure is designed, and please apply a soldering Cu electrode with a product electrode to a "Land Pattern", apply resist to a "Land Pattern + Solder Resist" at Cu electrode.
- (2) This product has large rated current of 10A/15A. Please consider real current and make Cu electrode thick enough. (Please design line resistance suitable for real current)
- (3) Please drop CG on a ground electrode on the back layer (the same also in a multilayer case) by the through hole. And a surface ground electrode layer may also take a large area as much as possible.
- (4) It is recommended to use a double-sided printed circuit board with BNX mounting on one side and the ground pattern on the other in order to maximize filtering performance, multiple feed through holes are required to maximize the BNX's connection to ground.
- (5) The ground pattern should be designed to be as large as possible to achieve maximum filtering performance.

● PCB Warping (for BNX02□)

PCB should be designed so that products are not subjected to the mechanical stress caused by warping the board.

Products should be located in the sideways direction (Length: $a < b$) to the mechanical stress.



2. Solder Paste Printing and Adhesive Application

When reflow soldering the block type EMIFIL®, the printing must be conducted in accordance with the following cream solder printing conditions.
If too much solder is applied, the chip will be prone to

damage by mechanical and thermal stress from the PCB and may crack.

Standard land dimensions should be used for resist and copper foil patterns.

Series	Solder Paste Printing	Adhesive Application
BNX022 BNX023 BNX024 BNX025	<p>●Guideline of solder paste thickness: 150-200μm</p>	

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3. Standard Soldering Conditions**(1) Soldering Methods**

Use reflow soldering methods only.

Use standard soldering conditions when soldering block type EMIFIL® SMD type.

In cases where several different parts are soldered, each having different soldering conditions, use those conditions requiring the least heat and minimum time.

Solder: Use Sn-3.0Ag-0.5Cu solder. Use of Sn-Zn based solder will deteriorate performance of products.

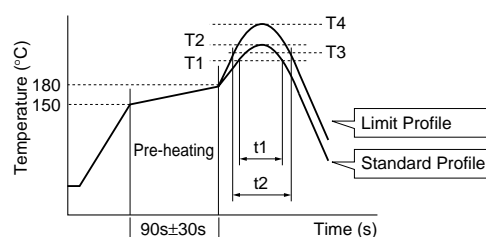
Flux:

- Use Rosin-based flux.
In case of using RA type solder, products should be cleaned completely with no residual flux.
- Do not use strong acidic flux (with chlorine content exceeding 0.20wt%)
- Do not use water-soluble flux.

For additional mounting methods, please contact Murata.

(2) Soldering Profile

- Reflow Soldering Profile (Sn-3.0Ag-0.5Cu solder)



Series	Standard Profile				Limit Profile			
	Heating		Peak Temperature (T2)	Cycle of Reflow	Heating		Peak Temperature (T4)	Cycle of Reflow
	Temp. (T1)	Time. (t1)			Temp. (T3)	Time. (t2)		
BNX022/023/024/025	220°C min.	30 to 60s	250±3°C	2 times max.	230°C min.	60s max.	260°C/10s	2 times max.

(3) Reworking with Solder Iron

The following conditions must be strictly followed when using a soldering iron.

Pre-heating: 150°C 60s min.

Soldering iron power output: 100W max.

Temperature of soldering iron tip / Soldering time / Times:
450°C max. / 5s max. / 1 time

Do not allow the tip of the soldering iron to directly contact the chip.

For additional methods of reworking with a soldering iron, please contact Murata engineering.

4. Cleaning

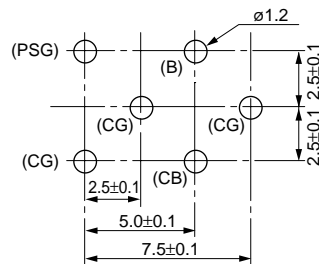
Do not clean BNX022/023/024/025 series. In case of cleaning, please contact Murata engineering.

1. Mounting Hole

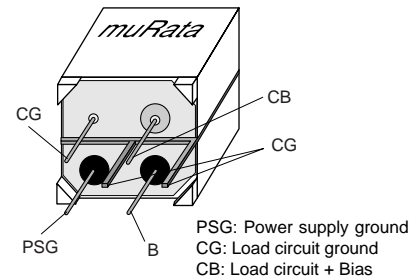
■ Mounting holes should be designed as specified below.

BNX00□/01□

Component Side



Terminal Layout (Bottom figure)



2. Using the Block Type EMIFIL® (Lead Type) Effectively

(1) How to use effectively

This product effectively prevents undesired radiation and external noise from going out / entering the circuit by grounding the high frequency components which cause noise problems. Therefore, grounding conditions may affect the performance of the filter and attention should be paid to the following for effective use.

- Design maximized grounding area in the P.C. board, and grounding pattern for all the grounding terminals of the product to be connected. (Please follow the specified recommendations.)
- Minimize the distance between ground of the P.C. board and the ground plate of the product. (Recommend using the through hole connection between grounding area both of component side and bottom side.)
- Insert the terminals into the holes on P.C. board completely.
- Don't connect PSG terminal with CG terminal directly. (See the item 1. Terminal Layout)

(2) Self-heating

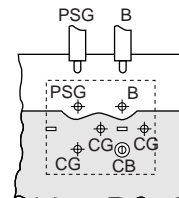
Though this product has a large rated current, localized selfheating may be caused depending on soldering conditions. To avoid this, attention should be paid to the following:

- Use P.C. board with our recommendation on hole diameter / land pattern dimensions, mentioned in the right hand drawing, especially for 4 terminals which pass current.
- Solder the terminals to the P.C. board with soldercover area at least 90%. Otherwise, excess self-heating at connection between terminals and P.C. board may lead to smoke and / or fire of the product even when operating at rated current.
- After installing this product in your product, please make sure the self-heating is within the rated current recommended.

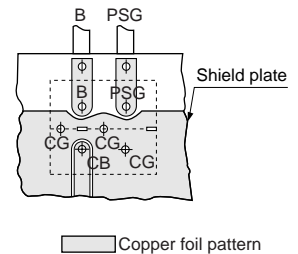
P. C. Board Patterns

Use a bilateral P.C. board. Insert the BNX into the P.C.board until the root of the terminal is secured, then solder.

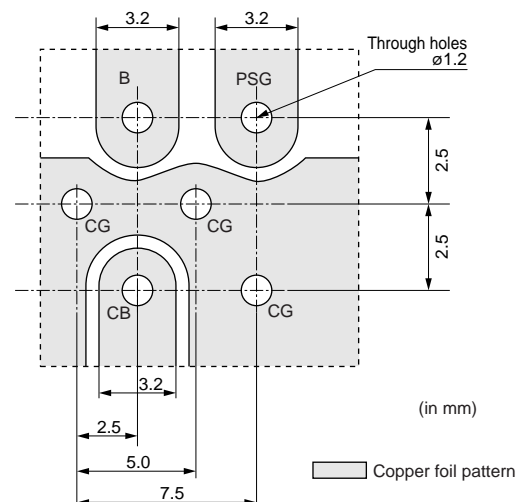
(1) Component Side View



(2) Bottom View



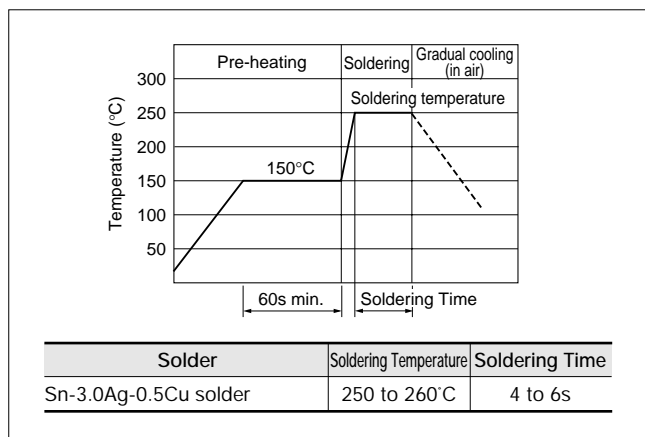
Recommended Land Pattern



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3. Soldering

- (1) Use Sn-3.0Ag-0.5Cu solder.
- (2) Use Rosin-based flux. Do not use strong acidic flux with halide content exceeding 0.2wt% (chlorine conversion value).
- (3) Products and the leads should not be subjected to any mechanical stress during the soldering process, or while subjected to the equivalent high temperatures.
- (4) Standard flow soldering profile

**4. Cleaning**

Clean the block Type EMIFIL® (Lead Type) in the following conditions.

- (1) Cleaning temperature should be limited to 60°C max. (40°C max for alcohol type cleaner).
- (2) Ultrasonic cleaning should comply with the following conditions, avoiding the resonance phenomenon at the mounted products and P.C.B.
Power: 20W/liter max.
Frequency: 28 to 40kHz
Time: 5 min. max.
- (3) Cleaner
 - (a) Alcohol type cleaner
Isopropyl alcohol (IPA)
 - (b) Aqueous agent
Pine Alpha ST-100S

- (4) There should be no residual flux or residual cleaner left after cleaning.

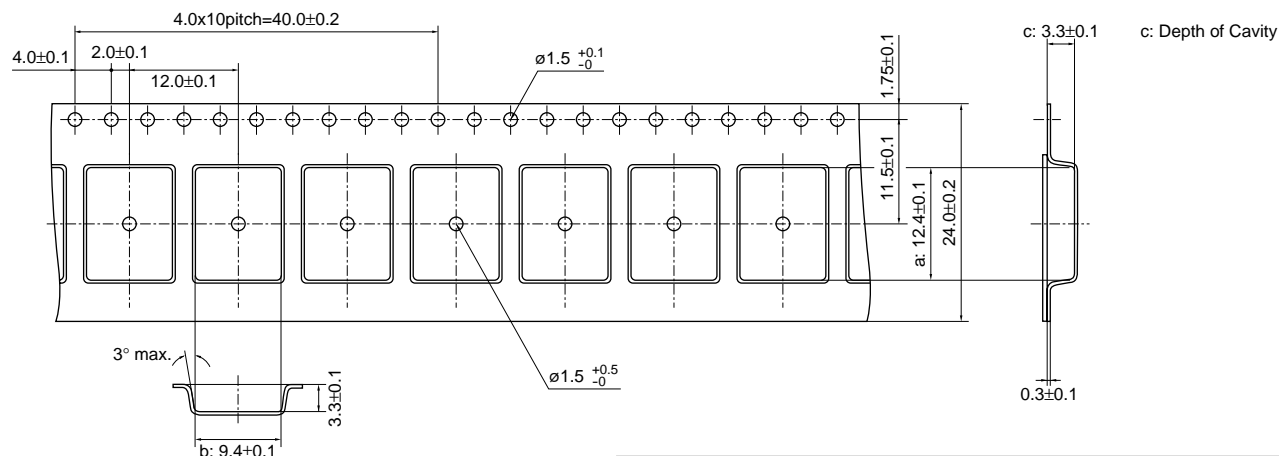
In the case of using aqueous agent, products should be dried completely after rinsing with de-ionized water in order to remove the cleaner.

- (5) The surface of products may become dirty after cleaning, but there is no deterioration on mechanical, electrical characteristics and reliability.
- (6) Other cleaning: Please contact us.

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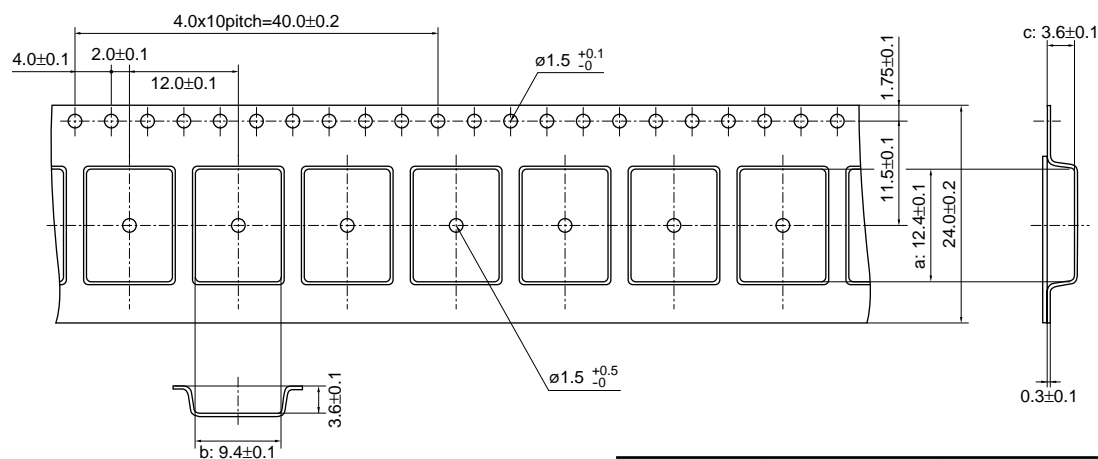
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■ Minimum Quantity and Dimensions of 24mm Width Embossed Tape



Dimension of the cavity is measured at the bottom side.

Part Number	Cavity Size			Minimum Qty. (pcs.)		
	a	b	c	ø180mm Reel	ø330mm Reel	Bulk
BNX022/023	12.4	9.4	3.3	400	1500	100



Dimension of the cavity is measured at the bottom side.

Part Number	Cavity Size			Minimum Qty. (pcs.)		
	a	b	c	ø180mm reel	ø330mm reel	Bulk
BNX024/025	12.4	9.4	3.6	400	1500	100

(in mm)

"Minimum Quantity" means the number of units of each delivery or order. The quantity should be an integral multiple of the "Minimum Quantity".

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BNX Block Type EMIFIL® Design Kits



●EKEPBNX0A

No.	Part Number	Quantity (pcs.)	Insertion Loss	Rated Voltage (Vdc)	Rated Current (A)
1	BNX002-01	1	1MHz to 1GHz : 40dB min.	50	10
2	BNX012-01	1	1MHz to 1GHz : 40dB min.	50	15
3	BNX016-01	1	100kHz to 1GHz : 40dB min.	25	15
4	BNX012H01	1	1MHz to 1GHz : 40dB min.	50	15
5	BNX022-01	3	1MHz to 1GHz : 35dB min.	50	10
6	BNX023-01	3	1MHz to 1GHz : 35dB min.	100	15
7	BNX024H01	3	100kHz to 1GHz : 35dB min.	50	15
8	BNX025H01	3	50kHz to 1GHz : 35dB min.	25	15

●EKEPBLCKA

No.	Part Number	Quantity (pcs.)	Insertion Loss	Rated Voltage (Vdc)	Rated Current (A)
1	BNX002-01	1	1MHz to 1GHz : 40dB min.	50	10
2	BNX003-01	1	5MHz to 1GHz : 40dB min.	150	10
3	BNX005-01	1	1MHz to 1GHz : 40dB min.	50	15
4	BNX012-01	1	1MHz to 1GHz : 40dB min.	50	15
5	BNX016-01	1	100kHz to 1GHz : 40dB min.	25	15
6	BNX012H01	1	1MHz to 1GHz : 40dB min.	50	15
7	BNP002-02	1	20MHz to 500MHz : 40dB min.	50	10
8	BNX022-01	3	1MHz to 1GHz : 35dB min.	50	10
9	BNX023-01	3	1MHz to 1GHz : 35dB min.	100	15
10	BNX024H01	3	100kHz to 1GHz : 35dB min.	50	15
11	BNX025H01	3	50kHz to 1GHz : 35dB min.	25	15

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Product Guide by Size

Which Size? inch (mm)	Inductor Type	Capacitor Type			Common Mode Choke Coils	Block Type L×W×T(mm)
		Simple Capacitor	LC(RC) Combined	T Circuit Filter Feed Through Type		
01005 (0402)	BLM02A <small>p46</small>					12×11×max18 <small>p193</small> BNX002-01 BNX003-01 Lead
0201 (0603)	BLM03AG <small>p47</small> BLM03B <small>p57</small> BLM03P <small>p30</small>					
03025 (0806)					DLP0NS <small>p160</small>	
0402 (1005)	BLM15AG <small>p49</small> BLM15B <small>p59</small> BLM15P <small>p31</small> BLM15HG <small>p77</small> BLM15HD <small>p77</small>	BLM15AX <small>p24</small> BLM15HB <small>p77</small> BLM15EG <small>p27</small> BLM15GG <small>p83</small> BLM15GA <small>p83</small>				12×11×max18.5 <small>p193</small> BNX005-01 Lead
05025 (1506)					DLP1ND <small>p165</small>	
0504 (1210)					DLM11G <small>p158</small> DLP11S/11T <small>p162</small>	
0603 (1608)	BLM18A <small>p52</small> BLM18B <small>p63</small> BLM18T <small>p56</small> BLM18R <small>p70</small> BLM18P <small>p34</small> BLM18K <small>p42</small> BLM18S <small>p44</small>	BLM18HG <small>p79</small> BLM18HE <small>p79</small> BLM18HD <small>p79</small> BLM18HB <small>p79</small> BLM18HK <small>p79</small> BLM18EG <small>p28</small> BLM18GG <small>p84</small>	NFM18C <small>p120</small> NFM18P <small>p112</small> NFM18P <small>p113</small>	NFL18ST <small>p125</small> NFL18SP <small>p127</small>		12×11×12 <small>p194</small> BNX012-01 BNX016-01 Lead
Array			NFA18S <small>p129</small>			
0804 (2010) Array	BLA2AA <small>p85</small> BLA2AB <small>p85</small>				DLP2AD <small>p166</small>	
0805 (2012) Array	BLM21A <small>p54</small> BLM21B <small>p67</small>	BLM21R <small>p72</small> BLM21P <small>p36</small>	NFM21C <small>p121</small> NFM21P <small>p115</small>	NFL21S <small>p128</small> NFR21G <small>p136</small> NFA21S <small>p132</small>	DLW21S <small>p169</small> DLW21H <small>p171</small>	9.1×12.1×3.1 <small>p191</small> BNX022-01 BNX023-01 SMD
1008 (2520)					DLM2HG <small>p159</small>	
1205 (3212)			NFM3DC <small>p122</small> NFM3DP <small>p116</small>			
1206 (3216) Array	BLM31P <small>p38</small> BLA31A <small>p88</small> BLA31B <small>p88</small>		NFM31P <small>p117</small>	NFW31S <small>p134</small> NFA31C <small>p124</small> NFA31G <small>p137</small>	NFE31P <small>p110</small> DLP31S <small>p164</small> DLW31S <small>p172</small> DLP31D <small>p168</small>	9.1×12.1×3.5 <small>p191</small> BNX024H01 BNX025H01 SMD
1806 (4516)	BLM41P <small>p40</small>		NFM41C <small>p123</small> NFM41P <small>p118</small>			
2014 (5036)					DLW5AH <small>p156</small>	
2020 (5050)					DLW5BS <small>p156</small> DLW5BT <small>p157</small>	
2220 (5750)			NFM55P <small>p119</small>			
2706 (6816)				NFE61P <small>p111</small>		

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Part Number Quick Reference

BL□ Series

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BLA2AB	p85
BLA31A	p88
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BLM03AG	p47
BLM03AX	p22
BLM03B	p57
BLM03H	p75
BLM03P	p30
BLM15AG	p49
BLM15AG_AN	p51
BLM15AX	p24
BLM15B	p59
BLM15EG	p27
BLM15GA	p83
BLM15GG	p83
BLM15HB	p77
BLM15HD	p77
BLM15HG	p77
BLM15PG/PD	p32
BLM15PX	p31
BLM18A	p52
BLM18B	p63
BLM18EG	p28
BLM18GG	p84
BLM18HB	p79
BLM18HD	p79
BLM18HE	p79
BLM18HG	p79
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NF□ Series

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NFL18SP	p127
NFL18ST	p125
NFL21SP	p128
NFM18C	p120
NFM18PS	p112
NFM18PC	p113
NFM21C	p121
NFM21P	p115
NFM31P	p117
NFM3DC	p122
NFM3DP	p116
NFM41C	p123
NFM41P	p118
NFM55P	p119
NFR21G	p136
NFW31S	p134

DL□ (PL□) Series

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DLP31S	p164
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Please refer to catalogs below for ferrite cores, Microwave Absorber and leaded EMIFIL®.

Ferrite Core, Microwave Absorber

Ferrite Core for EMI Suppression Microwave Absorber

Contents	Thin Type Sandwich Core <FSSA> Core for Flat Cables <FSRC> Plate Core <FSSA> Beads Core <FSRH> Ring Core <FSRB> Multi Hole Core <FSMA/FSSA> Microwave Absorber <EA>
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Lead Type EMIFIL®

EMI Suppression Filters (Lead Type EMIFIL®)

Contents Ferrite Beads Inductors <BL01/02/03>
Disc Type EMIFIL®<DS□6/DS□9>
EMIGUARD®(EMIFIL® with Varistor Function)
<VF□3/VF□6/VF□9>
Common Mode Choke Coils <PLT>



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2. Please contact our sales representatives or product engineers before using the products in this catalog for the applications listed below, which require especially high reliability for the prevention of defects which might directly damage a third party's life, body or property, or when one of our products is intended for use in applications other than those specified in this catalog.

- | | |
|-----------------------------|--|
| ① Aircraft equipment | ② Aerospace equipment |
| ③ Undersea equipment | ④ Power plant equipment |
| ⑤ Medical equipment | ⑥ Transportation equipment (vehicles, trains, ships, etc.) |
| ⑦ Traffic signal equipment | ⑧ Disaster prevention / crime prevention equipment |
| ⑨ Data-processing equipment | ⑩ Application of similar complexity and/or reliability requirements to the applications listed above |

3. Product specifications in this catalog are as of March 2011. They are subject to change or our products in it may be discontinued without advance notice. Please check with our sales representatives or product engineers before ordering. If there are any questions, please contact our sales representatives or product engineers.

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