

MURATA PRODUCTS Lineup

2012





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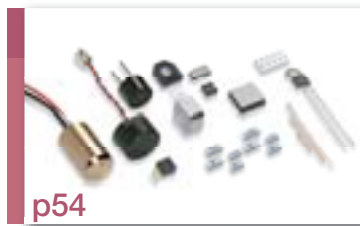
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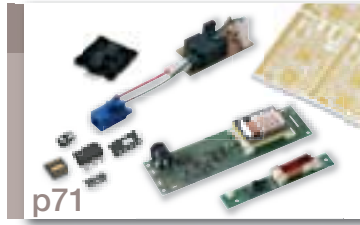
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Capacitors

The No. 1 most abundant lineup in the industry, responding to all possible needs, and proposing ideal solutions.



Summary

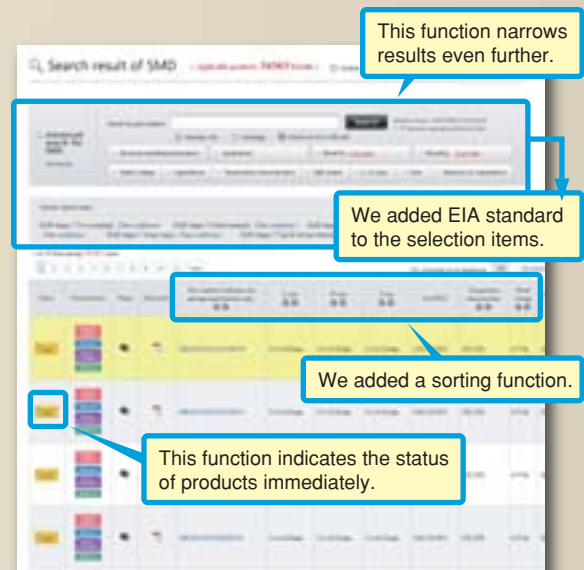
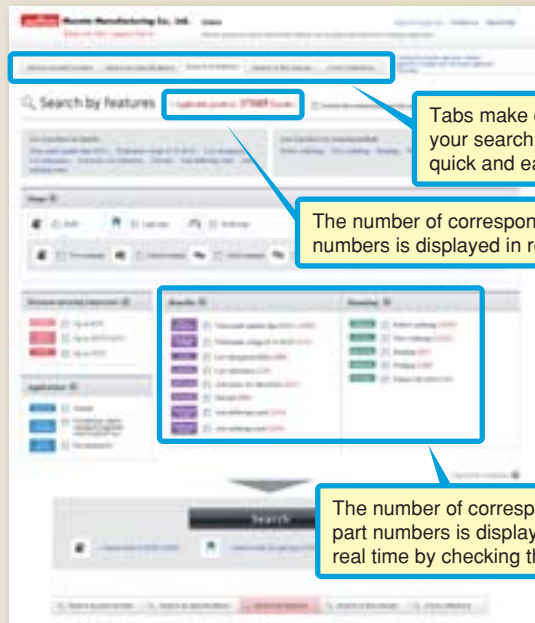
Using Murata's unique material technology, we offer a variety of capacitors covering a wide range of voltages. Murata also offers technical support that includes design kits and a comprehensive set of software tools to simulate virtually any circuit condition, satisfying the demands of many applications.

Lineup

- Ceramic Capacitors (SMD, lead type, mold type)
- Polymer Aluminum Electrolytic Capacitors
- Ceramic Trimmer Capacitors

Web Content

We have completely updated the ceramic capacitor website and search system. In this update, we improved and enhanced the search function to enable customers to find the right capacitor even more quickly and easily.



<http://www.murata.com/products/capacitor/>

Detailed Catalogs

For more details, please refer to our printed catalogs and the PDF catalogs on our website.



- | | |
|---|---------------|
| • Chip Monolithic Ceramic Capacitors | Cat. No. C02E |
| • Chip Monolithic Ceramic Capacitors for Automotive | Cat. No. C03E |
| • Safety Standard Certified Ceramic Capacitors/ | |
| High Voltage Ceramic Capacitors | Cat. No. C85E |
| • Ceramic Trimmer Capacitors | Cat. No. T13E |
| • Polymer Aluminum Electrolytic Capacitors | Cat. No. C90E |
| • Radial Lead Type Monolithic Ceramic Capacitors | Cat. No. C49E |

<http://www.murata.com/products/capacitor/catalog/>

Chip Monolithic Ceramic Capacitors

For General Electronic Devices

General-purpose (Temperature Compensating Type)



GRM

TC Code	Series	LxW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ	
C0G	GRM02	0.4X0.2 <01005>	16	0.2pF			47pF								-55 to 125
			10				56pF	100pF							-55 to 125
			6.3				56pF	100pF							-55 to 125
	GRM03	0.6X0.3 <0201>	50	0.1pF			100pF								-55 to 125
	GRM15	1.0X0.5 <0402>	50	0.1pF			1000pF								-55 to 125
	GRM18	1.6X0.8 <0603>	100			10pF	1500pF								-55 to 125
			50			10pF	3900pF								-55 to 125
	GRM21	2.0X1.25 <0805>	250			10pF	330pF								-55 to 125
			100			100pF	3300pF								-55 to 125
			50				1200pF	0.022μF							-55 to 125
U2J	GRM03	0.6X0.3 <0201>	50		1pF	15pF									-55 to 125
			25			18pF	100pF								-55 to 125
	GRM15	1.0X0.5 <0402>	50		1pF	180pF									-55 to 125
			10				1200pF	4700pF							-55 to 125
	GRM18	1.6X0.8 <0603>	50				1000pF	0.01μF							-55 to 125
			10				5600pF	0.022μF							-55 to 125
	GRM21	2.0X1.25 <0805>	250			100pF	5600pF								-55 to 125
			50				0.01μF	0.047μF							-55 to 125
			10				0.056μF	0.10μF							-55 to 125
	GRM31	3.2X1.6 <1206>	2k		10pF	68pF									-55 to 125
			1k		10pF	1000pF									-55 to 125
			630		10pF	4700pF									-55 to 125
			250				2700pF	0.022μF							-55 to 125
	GRM32	3.2X2.5 <1210>	50				0.056μF	0.10μF							-55 to 125
			2k			82pF	220pF								-55 to 125
			1k				1200pF	2200pF							-55 to 125
			630				1200pF	0.01μF							-55 to 125
	GRM42	4.5X2.0 <1808>	3.15k			27pF	100pF								-55 to 125
	GRM43	4.5X3.2 <1812>	1k				2700pF	4700pF							-55 to 125
			630				0.012μF	0.022μF							-55 to 125
	GRM55	5.7X5.0 <2220>	1k				5100pF	0.01μF							-55 to 125
			630				0.027μF	0.047μF							-55 to 125
P2H	GRM15	1.0X0.5 <0402>	50		1pF	27pF									-55 to 125
R2H	GRM03	0.6X0.3 <0201>	25		1pF	100pF									-55 to 125
	GRM15	1.0X0.5 <0402>	50		1pF	33pF									-55 to 125
S2H	GRM03	0.6X0.3 <0201>	25		1pF	100pF									-55 to 125
	GRM15	1.0X0.5 <0402>	50		1pF	39pF									-55 to 125
T2H	GRM03	0.6X0.3 <0201>	25		1pF	100pF									-55 to 125
	GRM15	1.0X0.5 <0402>	50		1pF	100pF									-55 to 125



For more details on each series, please refer to our website.

Product Search ⇒ <http://www.murata.com/products/capacitor/>

Capacitors

General-purpose (High Dielectric Constant Type)



GRM

TC Code	Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											Operating Temperature Range (°C)	
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ		
X7R/X7S/ X7T/X7U	GRM02	0.4X0.2 <01005>	10				68pF	470pF								-55 to 125
	GRM03	0.6X0.3 <0201>	25				100pF	1500pF								-55 to 125
			16				100pF	3300pF							-55 to 125	
			10					2200pF	0.01μF						-55 to 125	
			6.3					4700pF	0.01μF						-55 to 125	
															-55 to 125	
	GRM15	1.0X0.5 <0402>	100				220pF	4700pF								-55 to 125
			50				220pF	0.022μF							-55 to 125	
			25				2200pF	0.047μF							-55 to 125	
			16				3300pF	0.22μF							-55 to 125	
			10					0.068μF	0.10μF						-55 to 125	
	GRM18	1.6X0.8 <0603>	250				220pF	2200pF								-55 to 125
			100				220pF	0.10μF							-55 to 125	
			50				220pF	0.10μF							-55 to 125	
			25				2200pF	1.0μF							-55 to 125	
			16					0.15μF	1.0μF						-55 to 125	
			10					0.33μF	2.2μF						-55 to 125	
			6.3							2.2μF					-55 to 125	
			4							2.2μF					-55 to 125	
	GRM21	2.0X1.25 <0805>	250				1000pF	0.01μF							-55 to 125	
			100					6800pF	0.47μF						-55 to 125	
			50					0.033μF	1.0μF						-55 to 125	
			25					0.068μF	2.2μF						-55 to 125	
			16						0.68μF	4.7μF					-55 to 125	
			10						2.2μF	10μF					-55 to 125	
			6.3								10μF				-55 to 125	
			4									22μF			-55 to 125	
	GRM31	3.2X1.6 <1206>	1k				470pF	4700pF								-55 to 125
			630				1000pF	0.015μF								-55 to 125
			250					0.015μF	0.10μF							-55 to 125
			100					0.015μF	1.0μF						-55 to 125	
			50						0.15μF	4.7μF					-55 to 125	
			25						0.33μF	10μF					-55 to 125	
			16							2.2μF	10μF				-55 to 125	
			10								10μF	22μF			-55 to 125	
			6.3									22μF			-55 to 125	
			4										47μF		-55 to 125	
	GRM32	3.2X2.5 <1210>	1k					6800pF	0.022μF							-55 to 125
			630					0.022μF	0.047μF						-55 to 125	
			250					0.068μF	0.22μF						-55 to 125	
			100						0.68μF	2.2μF					-55 to 125	
			50								4.7μF				-55 to 125	
			35									10μF			-55 to 125	
			25								10μF	22μF			-55 to 125	
			16									22μF			-55 to 125	
			10									22μF	47μF		-55 to 125	
			6.3										47μF		-55 to 125	
4													100μF	-55 to 125		

Continued on the following page.



For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/capacitor/>

Capacitors

TC Code	Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ	
X7R/X7S/ X7T/X7U	GRM43	4.5X3.2 <1812>	1k						0.033μF	0.047μF					-55 to 125
			630						0.068μF	0.10μF					-55 to 125
			250						0.15μF	0.47μF					-55 to 125
	GRM55	5.7X5.0 <2220>	1k						0.068μF	0.10μF					-55 to 125
			630						0.15μF	0.22μF					-55 to 125
			250						0.33μF	1.0μF					-55 to 125
X6S/X6T	GRM03	0.6X0.3 <0201>	6.3						0.015μF	0.047μF					-55 to 105
			4						0.015μF	0.047μF					-55 to 105
	GRM15	1.0X0.5 <0402>	25						0.068μF	0.10μF					-55 to 105
			6.3						0.15μF	0.68μF					-55 to 105
			4						0.15μF	0.68μF					-55 to 105
	GRM18	1.6X0.8 <0603>	25								1.0μF				-55 to 105
			10							1.0μF	2.2μF				-55 to 105
			6.3							1.0μF	2.2μF				-55 to 105
			4							4.7μF	10μF				-55 to 105
			2.5								10μF				-55 to 105
	GRM21	2.0X1.25 <0805>	25								4.7μF				-55 to 105
			16							1.0μF	4.7μF				-55 to 105
			10							4.7μF	10μF				-55 to 105
			6.3							4.7μF	22μF				-55 to 105
			4								22μF				-55 to 105
	GRM31	3.2X1.6 <1206>	25								10μF				-55 to 105
			16							2.2μF	10μF				-55 to 105
			10							10μF	22μF				-55 to 105
			6.3							10μF	47μF				-55 to 105
			4							47μF	100μF				-55 to 105
	GRM32	3.2X2.5 <1210>	25								10μF	22μF			-55 to 105
			10								22μF	47μF			-55 to 105
			6.3								47μF	100μF			-55 to 105
			4									100μF			-55 to 105
X5R	GRM02	0.4X0.2 <01005>	10				68pF		0.01μF						-55 to 85
			6.3				680pF		0.01μF						-55 to 85
	GRM03	0.6X0.3 <0201>	10				1500pF		0.01μF						-55 to 85
			6.3						0.01μF	0.047μF					-55 to 85
	GRM15	1.0X0.5 <0402>	50				1000pF	4700pF							-55 to 85
			25						0.068μF	0.10μF					-55 to 85
			16						0.022μF	0.10μF					-55 to 85
			10						0.033μF	1.0μF					-55 to 85
			6.3						0.15μF	0.68μF					-55 to 85
	GRM18	1.6X0.8 <0603>	50				1000pF	0.022μF							-55 to 85
			25						0.10μF	1.0μF					-55 to 85
			16						0.22μF	2.2μF					-55 to 85
			10						0.68μF	2.2μF					-55 to 85
			6.3						4.7μF	10μF					-55 to 85
	GRM21	2.0X1.25 <0805>	4							10μF	22μF				-55 to 85
			25						1.0μF	4.7μF					-55 to 85
			16						1.0μF	10μF					-55 to 85
			10						2.2μF	10μF					-55 to 85
			6.3						4.7μF	22μF					-55 to 85
	GRM31	3.2X1.6 <1206>	4								22μF				-55 to 85
			50							2.2μF	10μF				-55 to 85
			25							2.2μF	10μF				-55 to 85
			16							4.7μF	22μF				-55 to 85

Continued on the following page. 

For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/capacitor/>

Capacitors

TC Code	Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ	
X5R	GRM31	3.2X1.6 <1206>	10									10μF	47μF		-55 to 85
			6.3									22μF	100μF		-55 to 85
			4										100μF		-55 to 85
	GRM32	3.2X2.5 <1210>	35									10μF			-55 to 85
			25									10μF	22μF		-55 to 85
			16										47μF		-55 to 85
			10										47μF		-55 to 85
			6.3										100μF		-55 to 85

Array (High Dielectric Constant Type)



GaN

TC Code	Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ	
X7R/X7S	GNM1M	1.37X1.0 <0504>	50					1000pF							-55 to 125
			25					2200pF	0.01μF						-55 to 125
			16						0.022μF	0.1μF					-55 to 125
			10						0.022μF	0.1μF					-55 to 125
	GNM21	2.0X1.25 <0805>	50				470pF	1000pF							-55 to 125
			25					2200pF	0.01μF						-55 to 125
			16						0.022μF	0.1μF					-55 to 125
X5R	GNM0M	0.9X0.6 <0302>	16						0.01μF	0.1μF					-55 to 85
			10						0.01μF	0.1μF					-55 to 85
			6.3						0.01μF	0.1μF					-55 to 85
			4								1.0μF				-55 to 85
	GNM1M	1.37X1.0 <0504>	50					1000pF							-55 to 85
			25					2200pF	0.01μF						-55 to 85
			16						0.022μF	1.0μF					-55 to 85
			10						0.022μF	2.2μF					-55 to 85
			6.3							1.0μF	2.2μF				-55 to 85

Low ESL Type

LW Reversed Type



LLL

TC Code	Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ	
X6S	LLL15	0.5X1.0 <0204>	6.3							0.1μF	0.22μF				-55 to 105
X7R/X7S	LLL15	0.5X1.0 <0204>	4								0.47μF				-55 to 125
	LLL18	0.8X1.6 <0306>	50					2200pF	4700pF						-55 to 125
			25						0.01μF	0.022μF					-55 to 125
			16							0.047μF					-55 to 125
			10						0.1μF	0.22μF					-55 to 125
			4							0.47μF	2.2μF				-55 to 125
	LLL21	1.25X2.0 <0508>	50						0.01μF	0.022μF					-55 to 125
			25						0.047μF	0.1μF					-55 to 125

Continued on the following page.



For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/capacitor/>

Capacitors

TC Code	Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ	
X7R/X7S	LLL21	1.25X2.0 <0508>	16								0.22μF				-55 to 125
			10							0.22μF	1.0μF				-55 to 125
			4								2.2μF				-55 to 125
	LLL31	1.6X3.2 <0612>	50						0.01μF	0.1μF					-55 to 125
			25						0.1μF	0.47μF					-55 to 125
			16						0.22μF	1.0μF					-55 to 125
			10							1.0μF	2.2μF				-55 to 125
X5R	LLL31	1.6X3.2 <0612>	6.3								2.2μF	4.7μF			-55 to 125
			6.3								10μF				-55 to 85

LW Reversed Low-profile Type

TC Code	Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ	
X7R/X7S	LLL18	0.8X1.6 <0306>	25							0.01μF					-55 to 125
			16						0.022μF	0.047μF					-55 to 125
			10							0.1μF					-55 to 125
			4							0.22μF					-55 to 125
	LLL21	1.25X2.0 <0508>	50						0.01μF						-55 to 125
			25						0.022μF						-55 to 125
			16						0.047μF	0.1μF					-55 to 125
			10							0.22μF					-55 to 125
			6.3							0.47μF					-55 to 125
			4							1.0μF					-55 to 125
	LLL31	1.6X3.2 <0612>	50						0.01μF	0.022μF					-55 to 125
			25						0.047μF	0.1μF					-55 to 125
			16							0.22μF					-55 to 125
			10							0.47μF					-55 to 125

Controlled ESR Type



LLR

TC Code	Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ	
X7S	LLR18	0.8X1.6 <0306>	4								1.0μF				-55 to 125

8 Terminal Type



LLA

TC Code	Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ	
X7R/X7S	LLA18	1.6X0.8 <0603>	4							0.1μF	2.2μF				-55 to 125
	LLA21	2.0X1.25 <0805>	25						0.01μF	0.047μF					-55 to 125
			16						0.1μF	0.22μF					-55 to 125
			10							0.47μF					-55 to 125
			6.3							1.0μF					-55 to 125
			4							2.2μF	4.7μF				-55 to 125
	LLA31	3.2X1.6 <1206>	16						0.1μF	1.0μF					-55 to 125
			10							1.0μF	2.2μF				-55 to 125
			4							2.2μF					-55 to 125

Continued on the following page.



For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/capacitor/>

Capacitors

8 Terminal Low-profile Type

TC Code	Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											Operating Temperature Range (°C)	
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ		
X7R/X7S	LLA21	2.0X1.25 <0805>	25						0.01μF	0.022μF						-55 to 125
			16						0.047μF	0.1μF						-55 to 125
			10								0.22μF					-55 to 125
			6.3								0.47μF					-55 to 125
			4								1.0μF	4.7μF				-55 to 125
	LLA31	3.2X1.6 <1206>	16								0.22μF					-55 to 125
			10									0.47μF				-55 to 125
			6.3								1.0μF	2.2μF				-55 to 125

10 Terminal Low-profile Type



LLM

TC Code	Series	LxW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											Operating Temperature Range (°C)	
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ		
X7R/X7S	LLM21	2.0X1.25 <0805>	25						0.01μF	0.022μF						-55 to 125
			16						0.047μF	0.1μF					-55 to 125	
			6.3							0.22μF	0.47μF				-55 to 125	
			4							1.0μF	2.2μF			-55 to 125		
	LLM31	3.2X1.6 <1206>	16						0.1μF	0.22μF				-55 to 125		
			10							0.47μF				-55 to 125		
			6.3								2.2μF			-55 to 125		

High-Q Type



GJM

TC Code	Series	LxW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										Operating Temperature Range (°C)	
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ		1000μ
C0G/C0H	GJM03	0.6X0.3 <0201>	25	0.2pF	20pF										-55 to 125
			6.3				22pF	33pF						-55 to 125	
	GJM15	1.0X0.5 <0402>	50	0.1pF	20pF										-55 to 125

High Frequency High-Q Type



GQM

TC Code	Series	LxW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										Operating Temperature Range (°C)	
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ		1000μ
C0G	GQM18	1.6X0.8 <0603>	250	0.1pF	47pF										-55 to 125
			100	0.5pF	6.8pF										-55 to 125
			50		7.0pF										-55 to 125
	GQM21	2.0X1.25 <0805>	250	0.5pF	100pF										-55 to 125
			100	0.5pF	18pF										-55 to 125
			50		20pF										-55 to 125
	GQM22	2.8X2.8 <1111>	500	0.5pF	100pF										-55 to 125



For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/capacitor/>

Capacitors

For Bonding (High Dielectric Constant Type)



GMD

TC Code	Series	LxW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ	
X7R/X5R	GMD03	0.6X0.3 <0201>	25				100pF	1500pF							-55 to 125
			16					1800pF	3300pF						-55 to 125
			10					3900pF	0.01μF						-55 to 125
	GMD15	1.0X0.5 <0402>	50				220pF	4700pF							-55 to 125
			25					5600pF	0.047μF						-55 to 125
			16						0.056μF	0.1μF					-55 to 125
	GMD03	0.6X0.3 <0201>	6.3						0.056μF	0.1μF					-55 to 85
	GMD15	1.0X0.5 <0402>	10						0.12μF	0.47μF					-55 to 85

Monolithic Microchip (High Dielectric Constant Type)



GMA

TC Code	Series	LxW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ	
X7R/X5R	GMA0D	0.38X0.38 <015015>	10						0.01μF						-55 to 125
	GMA05	0.5X0.5 <0202>	100				100pF	1000pF							-55 to 125
			25					1500pF	4700pF						-55 to 125
			10					6800pF	0.022μF						-55 to 125
			6.3							0.1μF					-55 to 85
	GMA08	0.8X0.8 <0303>	100				1500pF	6800pF							-55 to 125
			25					0.01μF	0.022μF						-55 to 125
			10					0.033μF	1.0μF						-55 to 125
			6.3							0.47μF					-55 to 85

Soft Termination Type



GRJ

TC Code	Series	LxW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ	
X7R	GRJ21	2.0X1.25 <0805>	250				1000pF	0.022μF							-55 to 125
	GRJ31	3.2X1.6 <1206>	1k				470pF	4700pF							-55 to 125
			630				1000pF	0.022μF							-55 to 125
			250					0.015μF	0.10μF						-55 to 125
	GRJ32	3.2X2.5 <1210>	1k				6800pF	0.022μF							-55 to 125
			630					0.022μF	0.047μF						-55 to 125
			250					0.068μF	0.22μF						-55 to 125
	GRJ43	4.5X3.2 <1812>	1k					0.033μF	0.047μF						-55 to 125
			630					0.068μF	0.10μF						-55 to 125
			250					0.15μF	0.47μF						-55 to 125
	GRJ55	5.7X5.0 <2220>	1k					0.068μF	0.10μF						-55 to 125
			630					0.15μF	0.22μF						-55 to 125
			250					0.33μF	1.0μF						-55 to 125



For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/capacitor/>

Capacitors

Only for LCD Backlight Inverter Circuit



GRM

TC Code	Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ	
C0G	GRM42	4.5X2.0 <1808>	3.15k			5pF	47pF								-55 to 125

Only for Communication / Information Devices



GR4

TC Code	Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ	
X7R	GR431	3.2X1.6 <1206>	2k				470pF	1000pF							-55 to 125
	GR442	4.5X2.0 <1808>	2k				100pF	1500pF							-55 to 125
	GR443	4.5X3.2 <1812>	2k					1800pF	4700pF						-55 to 125
	GR455	5.7X5.0 <2220>	2k						0.01μF						-55 to 125

Only for Camera Flash Units



GR7

TC Code	Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ	
X7T	GR721	2.0X1.25 <0805>	350						0.01μF	0.027μF					-55 to 125
	GR731	3.2X1.6 <1206>	350						0.01μF	0.047μF					-55 to 125

Safety Standard Certified

- The Electrical Appliance and Material Safety Law of Japan



GA2

TC Code	Series	LXW (mm) <Size Code (inch)>	Rated Voltage (V)	Capacitance Range (F)											Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ	
X7R	GA242	4.5X2.0 <1808>	AC250 (r.m.s.)				470pF	1000pF							-55 to 125
	GA243	4.5X3.2 <1812>	AC250 (r.m.s.)					2200pF	0.047μF						-55 to 125
	GA255	5.7X5.0 <2220>	AC250 (r.m.s.)						0.1μF						-55 to 125

- Type GC (UL, IEC60384-14 X1/Y2 Class)



GA3

TC Code	Series	LXW (mm) <Size Code (inch)>	Rated Voltage (V)	Capacitance Range (F)											Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ	
X7R	GA355	5.7X5.0 <2220>	AC250 (r.m.s.)				100pF	330pF							-55 to 125

Continued on the following page.



For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/capacitor/>

Capacitors

Type GF (IEC60384-14 Y2, X1/Y2 Class)



GA3

TC Code	Series	LxW (mm) <Size Code (inch)>	Rated Voltage (V)	Capacitance Range (F)												Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ		
SL/X7R	GA342	4.5X2.0 <1808>	AC250 (r.m.s.)			10pF		1000pF								-55 to 125
X7R	GA352	5.7X2.8 <2211>	AC250 (r.m.s.)				100pF		1500pF							-55 to 125
	GA355	5.7X5.0 <2220>	AC250 (r.m.s.)					1800pF		4700pF						-55 to 125

Type GD (IEC60384-14 Y3 Class)



GA3

TC Code	Series	LxW (mm) <Size Code (inch)>	Rated Voltage (V)	Capacitance Range (F)												Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ		
SL/X7R	GA342	4.5X2.0 <1808>	AC250 (r.m.s.)			10pF	1500pF									-55 to 125
X7R	GA343	4.5X3.2 <1812>	AC250 (r.m.s.)				1800pF4700pF									-55 to 125

Type GB (UL, IEC60384-14 X2 Class)



GA3

TC Code	Series	LxW (mm) <Size Code (inch)>	Rated Voltage (V)	Capacitance Range (F)												Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ		
X7R	GA355	5.7X5.0 <2220>	AC250 (r.m.s.)						0.01μF	0.056μF					-55 to 125	

Metal Terminal Type



KRM

TC Code	Series	LxW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)												Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ		
X7R	KRM55	6.1X5.3	100										4.7μF	15μF		-55 to 125
			63									10μF	22μF		-55 to 125	
			50									10μF	22μF		-55 to 125	
			25									22μF	47μF		-55 to 125	



For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/capacitor/>

Capacitors

Chip Monolithic Ceramic Capacitors For Automotive

Powertrain / Safety (Temperature Compensating Type)



GCM

TC Code	Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										Operating Temperature Range (°C)	
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ		1000μ
C0G	GCM03	0.6X0.3 <0201>	25		1.0pF		100pF								-55 to 125
	GCM15	1.0X0.5 <0402>	50		1.0pF		470pF								-55 to 125
	GCM18	1.6X0.8 <0603>	100		1.0pF		1500pF								-55 to 125
			50		1.0pF		3900pF							-55 to 125	
	GCM21	2.0X1.25 <0805>	100				100pF		3300pF						-55 to 125
			50				560pF		0.022μF						-55 to 125
	GCM31	3.2X1.6 <1206>	100				1800pF		0.01μF						-55 to 125
			50				4700pF		0.056μF						-55 to 125
U2J	GCM21	2.0X1.25 <0805>	250				100pF		5600pF						-55 to 125
	GCM31	3.2X1.6 <1206>	1k			10pF		1000pF							-55 to 125
			630			10pF		4700pF							-55 to 125
			250					2700pF		0.01μF					-55 to 125
	GCM32	3.2X2.5 <1210>	1k					1200pF		2200pF					-55 to 125
			630					1200pF		0.01μF					-55 to 125
	GCM43	4.5X3.2 <1812>	1k					2700pF		4700pF					-55 to 125
			630						0.012μF	0.022μF					-55 to 125
	GCM55	5.7X5.0 <2220>	1k					5600pF		0.01μF					-55 to 125
			630						0.027μF	0.047μF					-55 to 125

Powertrain / Safety (High Dielectric Constant Type)



GCM

TC Code	Series	LxW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											Operating Temperature Range (°C)	
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ		
X7R/X7S	GCM03	0.6X0.3 <0201>	25				100pF		1500pF							-55 to 125
			16					2200pF		3300pF						-55 to 125
			10						4700pF		0.01μF					-55 to 125
	GCM15	1.0X0.5 <0402>	100				220pF		4700pF							-55 to 125
			50				220pF			0.022μF						-55 to 125
			25						0.01μF		0.047μF					-55 to 125
			16							0.033μF		0.10μF				-55 to 125
	GCM18	1.6X0.8 <0603>	100				1000pF			0.10μF						-55 to 125
			50				1000pF				0.22μF					-55 to 125
			25						0.033μF			1.0μF				-55 to 125
			16							0.10μF			1.0μF			-55 to 125
			6.3										2.2μF			-55 to 125
	GCM21	2.0X1.25 <0805>	250				1000pF			0.01μF						-55 to 125
			100					6800pF			0.10μF					-55 to 125
			50						0.033μF			0.47μF				-55 to 125
			35								0.68μF		1.0μF			-55 to 125
			25								0.15μF			2.2μF		-55 to 125

Continued on the following page.



For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/capacitor/>

Capacitors

TC Code	Series	LxW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)												Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ		
X7R/X7S	GCM21	2.0X1.25 <0805>	16								0.68μF	4.7μF			-55 to 125	
			10								2.2μF	4.7μF		-55 to 125		
			6.3									10μF		-55 to 125		
	GCM31	3.2X1.6 <1206>	630				1000pF	4700pF						-55 to 125		
			250					0.015μF	0.047μF					-55 to 125		
			100						0.10μF	0.22μF				-55 to 125		
			50						0.33μF	2.2μF				-55 to 125		
			25							2.2μF	4.7μF			-55 to 125		
			16							4.7μF	10μF			-55 to 125		
			10								10μF			-55 to 125		
			6.3									22μF		-55 to 125		
			GCM32	3.2X2.5 <1210>	630					6800pF	0.022μF					-55 to 125
	250								0.068μF	0.1μF				-55 to 125		
	100										2.2μF			-55 to 125		
	50									1.0μF	4.7μF			-55 to 125		
	25										4.7μF	10μF		-55 to 125		
	16										10μF	22μF		-55 to 125		
	10											22μF		-55 to 125		
	6.3												47μF	-55 to 125		
	GCM43	4.5X3.2 <1812>	630						0.033μF	0.047μF				-55 to 125		
			250							0.15μF	0.22μF			-55 to 125		
	GCM55	5.7X5.0 <2220>	630						0.068μF	0.1μF				-55 to 125		
			250							0.33μF	0.47μF			-55 to 125		



GCJ

TC Code	Series	LxW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ	
R/X7R	G CJ21	2.0X1.25 <0805>	250					1000pF	0.022μF						-55 to 125
	G CJ31	3.2X1.6 <1206>	1k					1000pF	4700pF						-55 to 125
			630					1000pF	0.022μF					-55 to 125	
			250						0.015μF	0.1μF				-55 to 125	
	G CJ32	3.2X2.5 <1210>	1k					6800pF	0.022μF						-55 to 125
			630					6800pF	0.047μF					-55 to 125	
			250						0.068μF	0.22μF				-55 to 125	
	G CJ43	4.5X3.2 <1812>	1k						0.033μF	0.47μF					-55 to 125
			630						0.033μF	0.1μF				-55 to 125	
			250							0.15μF	0.47μF			-55 to 125	
	G CJ55	5.7X5.0 <2220>	1k						0.068μF	0.1μF					-55 to 125
			630						0.068μF	0.22μF				-55 to 125	
250									0.33μF	1.0μF			-55 to 125		



For more details on each series, please refer to our website.
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Capacitors

Metal Terminals Type



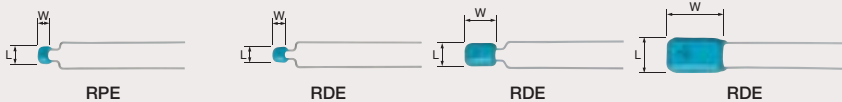
KCM

TC Code	Series	LxW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)												Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ		
X7R	KCM55	6.1X5.3	100									4.7μF	15μF		-55 to 125	
			63									10μF	22μF		-55 to 125	
			50									10μF	22μF		-55 to 125	
			35									17μF	33μF		-55 to 125	
			25									22μF	47μF		-55 to 125	

Lead Type Ceramic Capacitors

For General Electronic Devices

Radial Lead Type (High Dielectric Constant Type)



TC Code	Series	LxW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)												Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ		
F	RPEF1	5.0X3.5*1	50					1000pF	0.47μF							-25 to 85
Y5V	RPEF5	5.0X3.5*1	50					1000pF	0.47μF							-30 to 85
X7R	RDER7	4.0X3.5*1	100					1000pF	0.022μF							-55 to 125
			50				220pF	0.10μF							-55 to 125	
			25							0.10μF						-55 to 125
		4.5X3.5*1	100						0.033μF	0.47μF					-55 to 125	
			50							0.15μF	0.47μF				-55 to 125	
		5.0X3.5	1k				470pF	4700pF							-55 to 125	
			630					1000pF	0.015μF						-55 to 125	
			250					1000pF	0.047μF						-55 to 125	
		5.0X4.5	1k						6800pF	0.022μF						-55 to 125
			630							0.022μF	0.047μF					-55 to 125
			250							0.068μF	0.1μF					-55 to 125
		5.5X4.0	100								0.68μF	1.0μF				-55 to 125
			50								0.68μF	2.2μF				-55 to 125
		5.5X5.0	50									3.3μF				-55 to 125
		7.5X5.5	1k							0.033μF	0.047μF					-55 to 125
			630							0.068μF	0.1μF					-55 to 125
			250								0.15μF	0.22μF				-55 to 125
		7.5X7.5	250								0.33μF	0.47μF				-55 to 125
		7.5X8.0	1k								0.068μF	0.1μF				-55 to 125
			630								0.15μF	0.22μF				-55 to 125
		7.7X12.5	250								0.68μF	1.0μF				-55 to 125
		7.7X13.0	1k								0.22μF					-55 to 125
			630								0.47μF					-55 to 125

*1 Some parts will be different depending on capacitance and lead form.

Continued on the following page.



For more details on each series, please refer to our website.

Product Search ⇒ <http://www.murata.com/products/capacitor/>

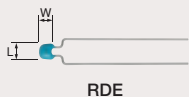
Capacitors

TC Code	Series	LxW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)												Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ		
X7S	RDEC7	4.0X3.5*1	25								0.22μF	1.0μF				-55 to 125
		4.5X3.5*1	25								2.2μF				-55 to 125	
		5.5X4.0	50									4.7μF			-55 to 125	
			25								4.7μF	10μF		-55 to 125		
		5.5X5.0	100							1.5μF	2.2μF			-55 to 125		
			25									22μF		-55 to 125		
		5.5X7.5	100									4.7μF		-55 to 125		
			25										47μF	-55 to 125		
X7T	RDED7	5.0X4.0	630						0.01μF	0.015μF				-55 to 125		
			450						0.01μF	0.047μF			-55 to 125			
			250						0.033μF	0.068μF			-55 to 125			
		5.0X5.0	630						0.022μF	0.047μF			-55 to 125			
			450						0.068μF	0.1μF			-55 to 125			
			250						0.1μF	0.15μF			-55 to 125			
		7.5X5.5	630							0.068μF			-55 to 125			
			450							0.15μF			-55 to 125			
			250						0.22μF	0.33μF			-55 to 125			
		7.5X7.5	450						0.22μF	0.56μF			-55 to 125			
			250						0.47μF	1.0μF			-55 to 125			
			250						0.1μF	0.27μF			-55 to 125			
		7.5X8.0	630									2.2μF		-55 to 125		
			250											-55 to 125		
			630							0.47μF	0.56μF			-55 to 125		
		7.7X12.5	250											-55 to 125		
			630							0.47μF	0.56μF			-55 to 125		
7.7X13.0	450								1.0μF	1.2μF		-55 to 125				
	450											-55 to 125				
F	RDEF1	4.0X3.5*1	50						0.01μF	0.1μF				-25 to 85		
Y5V	RDEF5	4.0X3.5*1	50						0.01μF	0.1μF				-30 to 85		

*1 Some parts will be different depending on capacitance and lead form.

*1 Some parts will be different depending on capacitance and lead form.

Radial Lead Type (Temperature Compensating Type)



RDE

TC Code	Series	LxW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)										Operating Temperature Range (°C)	
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ		1000μ
C0G	RDE5C	4.0X3.5*1	100			10pF		1000pF							-55 to 125
			50			10pF		1000pF							-55 to 125

*1 Some parts will be different depending on capacitance and lead form.

Disc Type (Medium High Voltage)



DES

TC Code	Series	D (mm)	Rated Voltage (Vdc)	Capacitance Range (F)										Operating Temperature Range (°C)	
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ		1000μ
D	DESD3	6 to 17	1k				100pF	4700pF							-25 to 125
		6 to 14	500				100pF	4700pF						-25 to 125	

Continued on the following page.



For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/capacitor/>

Capacitors



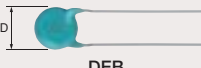
DEH

TC Code	Series	D (mm)	Rated Voltage (Vdc)	Capacitance Range (F)										Operating Temperature Range (°C)	
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ		1000μ
R	DEHR3	7 to 19	3.15k				150pF	2700pF							-25 to 125
		7 to 21	2k				220pF	4700pF							-25 to 125
		7 to 17	1k				220pF	4700pF							-25 to 125
C	DEHC3	6 to 14	500				330pF	4700pF							-25 to 125



DEA

TC Code	Series	D (mm)	Rated Voltage (Vdc)	Capacitance Range (F)										Operating Temperature Range (°C)		
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ		1000μ	
SL	DEA1X	5 to 16	3.15k			10pF	390pF									-25 to 125
		4.5 to 15	2k			10pF	560pF									-25 to 125
		4.5 to 12	1k			10pF	560pF									-25 to 125



DEB

TC Code	Series	D (mm)	Rated Voltage (Vdc)	Capacitance Range (F)											Operating Temperature Range (°C)	
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ		
B	DEBB3	5 to 15	3.15k				100pF	3300pF								-25 to 85
		4.5 to 15	2k				100pF	4700pF							-25 to 85	
		4.5 to 15	1k				100pF	6800pF							-25 to 85	
E	DEBE3	7 to 13	3.15k				1000pF	4700pF								-25 to 85
		6 to 16	2k				1000pF	0.01μF							-25 to 85	
		5 to 13	1k				1000pF	0.01μF							-25 to 85	
F	DEBF3	5 to 12	2k				1000pF	0.01μF								-25 to 85
		6 to 10	1k					2200pF	0.01μF							-25 to 85



DEC

TC Code	Series	D (mm)	Rated Voltage (Vdc)	Capacitance Range (F)										Operating Temperature Range (°C)	
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ		1000μ
SL	DEC1X	7 to 15	6.3k			10pF	150pF								-25 to 85
B	DECB3	9 to 13	6.3k				100pF	1000pF							-25 to 85
E	DECE3	11 to 15	6.3k					1000pF	2200pF						-25 to 85

Disc Type (High Voltage) Only for LCD Backlight Inverter Circuit



DEF

TC Code	Series	D (mm)	Rated Voltage (Vdc)	Capacitance Range (F)												Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ		
CH	DEF2C	7 to 8	6.3k(p-p)		2pF	10pF									-25 to 105	
SL	DEF1X	7 to 9	6.3k(p-p)			10pF	47pF								-25 to 105	



For more details on each series, please refer to our website.

Product Search ⇒ <http://www.murata.com/products/capacitor/>

Capacitors

Disc Type (Safety Standard Certified Type)

Type KY (Basic Insulation Type) -IEC60384-14 X1/Y2 Class



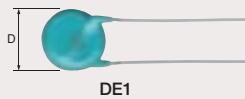
TC Code	Series	D (mm)	Rated Voltage (V)	Capacitance Range (F)										Operating Temperature Range (°C)	
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ		1000μ
SL	DE21X	8	AC250(r.m.s.)			10pF	68pF								-25 to 125
B	DE2B3	7 to 8	AC250(r.m.s.)				100pF	680pF							-25 to 125
E	DE2E3	7 to 10	AC250(r.m.s.)					1000pF	4700pF						-25 to 125
F	DE2F3	14	AC250(r.m.s.)						0.01μF						-25 to 125

Type KH (Basic Insulation Type) -IEC60384-14 X1/Y2 Class



TC Code	Series	D (mm)	Rated Voltage (V)	Capacitance Range (F)										Operating Temperature Range (°C)	
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ		1000μ
B	DE2B3	8 to 9	AC250(r.m.s.)				100pF	680pF							-25 to 125
E	DE2E3	8 to 13	AC250(r.m.s.)					1000pF	4700pF						-25 to 125
F	DE2F3	16	AC250(r.m.s.)						0.01μF						-25 to 125

Type KX (Reinforced Insulation Type) -IEC60384-14 X1/Y1 Class



TC Code	Series	D (mm)	Rated Voltage (V)	Capacitance Range (F)										Operating Temperature Range (°C)	
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ		1000μ
SL	DE11X	9	AC250(r.m.s.)			10pF	68pF								-25 to 125
B	DE1B3	9 to 10	AC250(r.m.s.)				100pF	680pF							-25 to 125
E	DE1E3	8 to 15	AC250(r.m.s.)					1000pF	4700pF						-25 to 125

Type KX Small Type (Reinforced Insulation Type) -IEC60384-14 X1/Y1 Class



TC Code	Series	D (mm)	Rated Voltage (V)	Capacitance Range (F)										Operating Temperature Range (°C)	
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ		1000μ
B	DE1B3	8 to 9	AC250(r.m.s.)				100pF	680pF							-25 to 125
E	DE1E3	7 to 12	AC250(r.m.s.)					1000pF	4700pF						-25 to 125

The Electrical Appliance and Material Safety Law of Japan



TC Code	Series	D (mm)	Rated Voltage (V)	Capacitance Range (F)										Operating Temperature Range (°C)	
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ		1000μ
E	DEJE3	7 to 11	AC250(r.m.s.)					1000pF	4700pF						-25 to 85
F	DEJF3	8 to 11	AC250(r.m.s.)					4700pF	0.01μF						-25 to 85



For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/capacitor/>

Capacitors

Lead Type Ceramic Capacitors

For Automotive

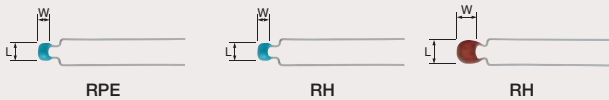
Radial Lead Type (Temperature Compensating Type)



TC Code	Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)											Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ	
CΔ/C0G	RPE□C	5.0X3.5*1	100		1pF										-55 to 125
			50		1pF										-55 to 125
X8G	RHE5G	4.0X3.5	100				100pF								-55 to 150
			50				100pF								-55 to 150

*1 Some parts will be different depending on capacitance and lead form.

Radial Lead Type (High Dielectric Constant Type)



TC Code	Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)											Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ	
R/X7R	RPER3/R7	5.0X3.5*1	100				220pF			0.047μF					-55 to 125
			50				220pF					2.2μF			-55 to 125
			25							0.47μF		1.0μF			-55 to 125
X8L	RHEL8	4.0X3.5	100				1000pF			0.022μF					-55 to 150
			50				1000pF			0.10μF					-55 to 150
		5.7X4.5	100							0.033μF		0.10μF			-55 to 150
			50							0.15μF		1.5μF			-55 to 150
		6.0X5.5	50								2.2μF	4.7μF			-55 to 150
		6.0X8.0	50									10μF			-55 to 150

*1 Some parts will be different depending on capacitance and lead form.

Safety Standard Certified for Automotive

■ Type KJ -IEC60384-14 X1/Y2 Class



TC Code	Series	D (mm)	Rated Voltage (V)	Capacitance Range (F)											Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ	
B	DE6B3	8 to 9	AC250(r.m.s.)				100pF			680pF					-40 to 125
E	DE6E3	7 to 12	AC250(r.m.s.)							1000pF					-40 to 125



For more details on each series, please refer to our website.

Product Search ⇒ <http://www.murata.com/products/capacitor/>

Capacitors

High Voltage Ceramic Capacitors



DHS

(in mm)

TC Code	Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)												Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ		
N4700	DHS4E	—	40k				140pF		2000pF							-20 to 85
			30k				190pF		2700pF						-20 to 85	
			20k				280pF		4000pF						-20 to 85	
			15k				370pF		5300pF						-20 to 85	
			10k				560pF		8000pF						-20 to 85	
Z5V	DHSF4	—	40k				340pF		2700pF						-20 to 85	
			30k				460pF		3600pF						-20 to 85	
			20k				600pF		4800pF						-20 to 85	

Polymer Aluminum Electrolytic Capacitors



ECAS

TC Code	Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)												Operating Temperature Range (°C)
				0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ	1000μ		
—	ECAS	7.3X4.3	16									6.8μF	22μF			-40 to 105
			12.5									10μF	100μF			-40 to 105
			10									10μF	150μF			-40 to 105
			6.3									10μF	220μF			-40 to 105
			4										68μF	330μF		-40 to 105
			2										100μF	470μF		-40 to 105



For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/capacitor/>

Capacitors

Trimmer Capacitors

Trimmer Capacitors are variable capacitance capacitors, used for adjusting characteristics of electronic equipment.

Mounting Method	Soldering Method	Series	Max. Height	Size (WXL)	Rated Voltage	Operating Temperature Range	Remarks
Surface Mounting	Reflow Soldering Methods	 TZR1	0.9mm max.	1.5X1.7mm	25V	-25 to 85°C	
		 TZS2	1.0mm max.	2.2X2.7mm	25V	-25 to 85°C	
		 TZY2	1.25mm max.	2.5X3.2mm	25V	-25 to 85°C	
		 TZV2	1.45mm max.	2.3X3.2mm	25V	-25 to 85°C	
		 TZC3	1.7mm max.	3.2X4.5mm	100V	-25 to 85°C	
		 TZW4	2.6mm max.	4.2X5.2mm	250V	-55 to 125°C	for High Frequency Power
		 TZB4_A	3.2mm max.	4.0X4.5mm	100V/50V	-25 to 85°C	
		 TZB4_B	3.2mm max.	4.0X4.5mm	100V/50V	-25 to 85°C	
		 TZB4_E	3.2mm max.	4.0X4.5mm	100V/50V	-25 to 85°C	
	Flow Soldering Methods	 TZB4_A	3.2mm max.	4.0X4.5mm	100V/50V	-25 to 85°C	with Cover Film
		 TZB4_B	3.2mm max.	4.0X4.5mm	100V/50V	-25 to 85°C	with Cover Film
		 TZB4_E	3.2mm max.	4.0X4.5mm	100V/50V	-25 to 85°C	with Cover Film
PCB Insertion	Manual Insertion	 TZ03_F	5.3mm max.	6.0X6.0mm	100V/50V	-25 to 85°C	
		 TZ03_N	5.3mm max.	6.0X6.0mm	100V/50V	-25 to 85°C	



For more details on each series, please refer to our website.

Product Search ⇒ <http://www.murata.com/products/capacitor/>

Trimmer Potentiometer Selection Guide ⇒ http://www.murata.com/products/capacitor/kt_search/selection.html

Noise Suppression Products/ EMI Suppression Filters

Broad lineup of Noise Suppression Products and EMI Suppression Filters



Summary

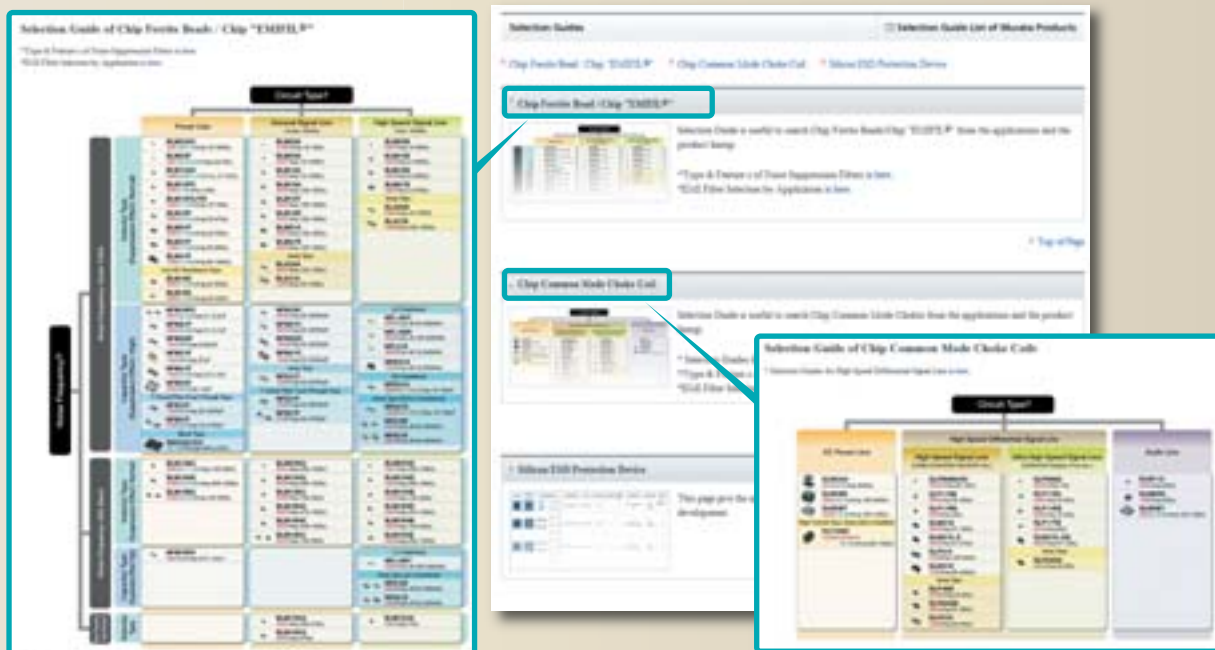
Using Murata's ceramic processing technology and unique material, we offer a variety of Noise Suppression Products and EMI Suppression Filters.

Lineup

- EMI (chip and lead type) ●AC Line Filters
- Noise Suppression Products for Automotive
- Ferrite Cores ●ESD Protection Devices

Selection Guide

The Selection Guide on our website is useful for searching the applications and the product lineup.



http://www.murata.com/products/emc/selection_guide/

Detailed Catalogs

For more details, please refer to our printed catalogs and the PDF catalogs on our website.



- SMD/BLOCK Type EMI Suppression Filters EMIFIL®
- On-Board Type (DC) EMI Suppression Filters (EMIFIL®) for Automotive
- EMI Suppression Filters (Lead Type EMIFIL®)
- EMI Suppression Filters (EMIFIL®) for AC Power Lines
- Noise Suppression by EMIFIL® Digital Equipment Application Manual
- Noise Suppression by EMIFIL® Application Guide Application Manual
- Application Manual for Power Supply Noise Suppression and Decoupling for Digital ICs
- Ferrite Core for EMI Suppression Microwave Absorber

Cat. No. C31E
Cat. No. C50E
Cat. No. C30E
Cat. No. C09E
Cat. No. C33E
Cat. No. C35E
Cat. No. C39E
Cat. No. O63E

<http://www.murata.com/products/emc/catalog/>

Noise Suppression Products/EMI Suppression Filters

Noise Suppression Filters (Chip Ferrite Bead)

		Series	Size Code Inch (mm)	Max. Rated Current (mA)	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	0201 (0603)	1000	10	80	120	240	600	1000								
		BLM15AX	0402 (1005)	1740	10	30	70	120	220	600	1000							
	Signal Lines Type	For General Signal Lines	BLM03AG	0201 (0603)	-	10	80	70	120	240	600	1000						
			BLM15AG	0402 (1005)	-	10	70	120	220	600	1000							
			BLM18A	0603 (1608)	-		220	120	150	330	600	1000						
			BLM21A	0805 (2012)	-		220	120	150	330	600	1000						
			BLM18T	0603 (1608)	-		120	220	600	1000								
			BLA2AA (4 circuits array)	0804 (2010)	-		120	220	600	1000								
			BLA31A (4 circuits array)	1206 (3216)	-	30	60	120	220	600	1000							
			BLM03B	0201 (0603)	-	10	22	33	47	75	120	240	470					
			BLM15B	0402 (1005)	-	5	10	22	33	47	75	120	220	470	1800			
		BLM18B	0603 (1608)	-	5	10	22	47	60	75	140	220	420	600	1500	2200		
		BLM21B	0805 (2012)	-	5		75	60	120	150	220	330	470	750	1500	2200	2700	
		BLA2AB (4 circuits array)	0804 (2010)	-	10	22	47	75	120	220	470	1000						
		BLA31B (4 circuits array)	1206 (3216)	-		120	220	470	1000									
	For Digital Interface Lines	BLM18R	0603 (1608)	-		120	220	470	1000									
		BLM21R	0805 (2012)	-		120	220	470	1000									
		BLM03P*	0201 (0603)	1800		33 (0.75A/1.5A) 22 (0.9A/1.8A)	80 (1.0A)											
		BLM15P*	0402 (1005)	2200	10 (1A)	30 (2.2A) 60 (1.7A)	80 (1.5A) 120 (1.3A/1.8A)											
	Power Lines Type	BLM18P*	0603 (1608)	3000		33 (3A) 30 (1A)	120 (2A) 60 (0.5A)	220 (1.4A) 180 (1.5A)	470 (1A) 330 (1.2A)									
		BLM21P*	0805 (2012)	6000		30 (4A) 22 (6A)	220 (2A) 60 (3.5A)	470 (1.5A) 120 (3A)	330 (1.5A)									
		BLM31P*	1206 (3216)	6000		50 (3.5A) 33 (6A)	390 (2A) 120 (3.5A)	600 (1.5A)										
		BLM41P*	1806 (4516)	6000		75 (3.5A) 60 (6A)	470 (2A) 180 (3.5A)	1000 (1.5A)										
		BLM18K* (Low DC Resistance Type)	0603 (1608)	6000		30 (5A) 26 (6A)	70 (3.5A) 100 (3A)	220 (2.2A) 120 (3A)	470 (1.5A) 330 (1.7A)	600 (1.3A)								
		BLM18S* (Low DC Resistance Type)	0603 (1608)	6000		70 (4A) 26 (6A)	220 (2.5A) 120 (3A)	470 (1.5A) 330 (1.5A)										
BLM15EG*		0402 (1005)	1500		220 (0.7A) 120 (1.5A)													
BLM18EG*		0603 (1608)	2000		120 (2A) 100 (2A)	330 (0.5A) 220 (2A/1A)	470 (0.5A) 390 (0.5A)	600 (0.5A)										
Signal Lines Type	BLM03HG	0201 (0603)	-					600	1000									
	BLM03HD	0201 (0603)	-					600	330	470	1000							
	BLM15HG	0402 (1005)	-					600	1000									
	BLM15HD	0402 (1005)	-					600	1000	1800								
	BLM15HB	0402 (1005)	-		120	220												
	BLM18HG	0603 (1608)	-					600	470	1000								
	BLM18HE*	0603 (1608)	-					1000 (0.6A) 600 (0.8A)	1500 (0.5A)									
	BLM18HD	0603 (1608)	-					600	470	1000								
	BLM18HB	0603 (1608)	-		120	220	330											
	BLM18HK	0603 (1608)	-					600	330	470	1000							

Continued on the following page. 

For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Noise Suppression Products/EMI Suppression Filters

For High-GHz Band Noise	Signal Lines Type	Series	Size Code Inch (mm)	Max. Rated Current (mA)	Impedance (Ω) at 100MHz			Effective Frequency Range			
					10	100	1000	10kHz	1MHz	100MHz	10GHz
		BLM155GG	0402 (1005)	-		220	470				
		BLM15GA	0402 (1005)	-		75					
		BLM18GG	0603 (1608)	-			470				

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

Noise Suppression Filters (Chip 3 Terminal Capacitor)

	Series	Size Code Inch (mm)	Max. Rated Current (mA)	Capacitance (F)							Effective Frequency Range			
				10p	100p	1000p	10000p	0.1 μ	1 μ	10 μ	10kHz	1MHz	100MHz	10GHz
Signal Lines Type	NFM18C	0603 (1608)	-			470	2200							
	NFM21C	0805 (2012)	-		22	47	100	220	1000	22000				
	NFM3DC	1205 (3212)	-		22	47	100	220	1000	22000				
	NFM41C	1806 (4516)	-		22	47	100	220	1000	22000				
	NFA31C (4 circuits array)	1206 (3216)	-		22	47	100	220	1000	22000				
Power Lines Type	NFM18P	0603 (1608)	4000						0.22	1.0				
	NFM21P	0805 (2012)	6000						0.1	0.47	2.2			
	NFM3DP*	1205 (3212)	2000				22000							
	NFM31P	1206 (3216)	6000							27				
	NFM31K*	1206 (3216)	10000				15000 (10A)	10000 (10A)	0.1 (6A)					
	NFM41P	1806 (4516)	6000						0.2	1.5				
	NFM55P	2220 (5750)	6000						1.5					
Universal Type [Power Lines / Signal Lines]	NFE31P	1206 (3216)	6000		22	47	100	220	1500					
	NFE61P	2706 (6816)	2000			100	360	1000						

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

Noise Suppression Filters (Chip LC/RC Filter)

	Series	Size Code Inch (mm)	Max. Rated Current (mA)	Cut-off Frequency (MHz)							Effective Frequency Range			
				10		100		500			10kHz	1MHz	100MHz	10GHz
Signal Lines Type	NFL15ST	0402 (1005)	-					150	200	300	500			
	NFL18ST	0603 (1608)	-			50	70	100	200	300	500			
	NFL18SP	0603 (1608)	-					150	200	300	500			
	NFL21S	0805 (2012)	-								500			
	NFA18S (4 circuits array)	0603 (1608)	-	10	20	50	70	100	150	200	300	400		
	NFA21S (4 circuits array)	0805 (2012)	-			50		130	180	220	300	350	480	
	NFW31S	1206 (3216)	-			50	80		200	280	310	300	330	
	NFR21G	0805 (2012)	-	10	20	50	100	150	200	300	500			
	NFA31G (4 circuits array)	1206 (3216)	-											



For more details on each series, please refer to our website.
Product Search $\Rightarrow$ <http://search.murata.co.jp/>

Noise Suppression Products/EMI Suppression Filters

Noise Suppression Filters (Chip Common Mode Choke Coil)

		Series	Size Code Inch (mm)	Max. Rated Current (mA)	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	0504 (1210)	-			600				
		 DLM2HG	1008 (2520)	-			600				
	For Ultra High Speed Signal Lines	 DLP0NS	03025 (0806)	-	28 90 15 67 120						
		 DLP11S	0504 (1210)	-	67 240 35 90 120 160 200 280 330						
		 DLP11R	0504 (1210)	-	15 40 45						
		 DLP11TB	0504 (1210)	-	80						
		 DLP31S	1206 (3216)	-	120 220 550						
		 DLP1ND (2 circuits array)	05025 (1506)	-	35 90 67						
		 DLP2AD (2 circuits array)	0804 (2010)	-	35 90 240 67 120 160 200 280						
		 DLP31D (2 circuits array)	1206 (3216)	-	90 130 200 320 440						
		 DLW21S	0805 (2012)	-	90 260 370 500 67 120 180						
		 DLW21H	0805 (2012)	-	90 260 370 500 67 120 180						
		 DLW31S	1206 (3216)	-	90 160 260 600 1000 2200						
Universal Type [Power Lines / Signal Lines]		 DLW5BS*/DLW5AH	2020 /2014 (5050)/(5036)	5000	190 350 1500 4000 1000 3000						
		 DLW5AT*	2014 (5036)	5000	110 (5A) 400 (2A) 850 (1.5A) 2700 (1A)						
		 DLW5BT*	2020 (5050)	6000	100 250 500 1000 1400						
Large Current Type for Auto-motive Available		 PLT10HH*	-	-	400 900 500 1000 (at 10MHz)						

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

Noise Suppression Filters (Block Type)

		Series	Height (mm)	Max. Rated Current (mA)	Rated Voltage (Vdc)	Rated Current (A)	Effective Frequency Range			
							10kHz 100kHz	1MHz 10MHz	100MHz 1GHz	10GHz
Power Lines Type	SMD Type	 BNX022*	3.1	-	50	10				
		 BNX023*	3.1	-	100	15				
		 BNX024*	3.5	-	50	15				
		 BNX025*	3.5	-	25	15				
	Lead Type	 BNX002	13 max.	-	50	10				
		 BNX003	13 max.	-	150	10				
		 BNX005	13.5 max.	-	50	15				
		 BNX012*	8.0 max.	-	50	15				
		 BNX016*	8.0 max.	-	25	15				

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

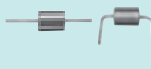
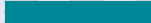
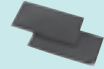
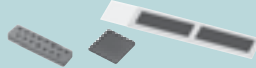
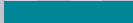


For more details on each series, please refer to our website.

Product Search ⇒ <http://search.murata.co.jp/>

Noise Suppression Products/EMI Suppression Filters

Noise Suppression Filters (Lead Type), Others

	Series									Effective Frequency Range			
										10kHz	1MHz	100MHz	10GHz
										100kHz	10MHz	1GHz	
Lead Type EMIFIL®	 BL01	 BL02		 BL03	 DSN6	 DSN9(H)	 DSS6		 DSS9(H)	 DST9(H)			
EMIGUARD®	 VFR3V	 VFS6V	 VFS9V										
AC Line Filters	 PLA	 PLH	 PLY										
Common Mode Choke Coils	 PLT09H												
Microwave Absorbers	 EA10	 EA20/21/30											
Ferrite Core	 FSRH	 FSRB	 FSRC		 FSMA		 FSSA						

➔ Please refer to p.74 for ESD Protection Devices.

➔ For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Inductors (Coils)

Broad lineup of Chip Inductors and Power Inductors



Summary

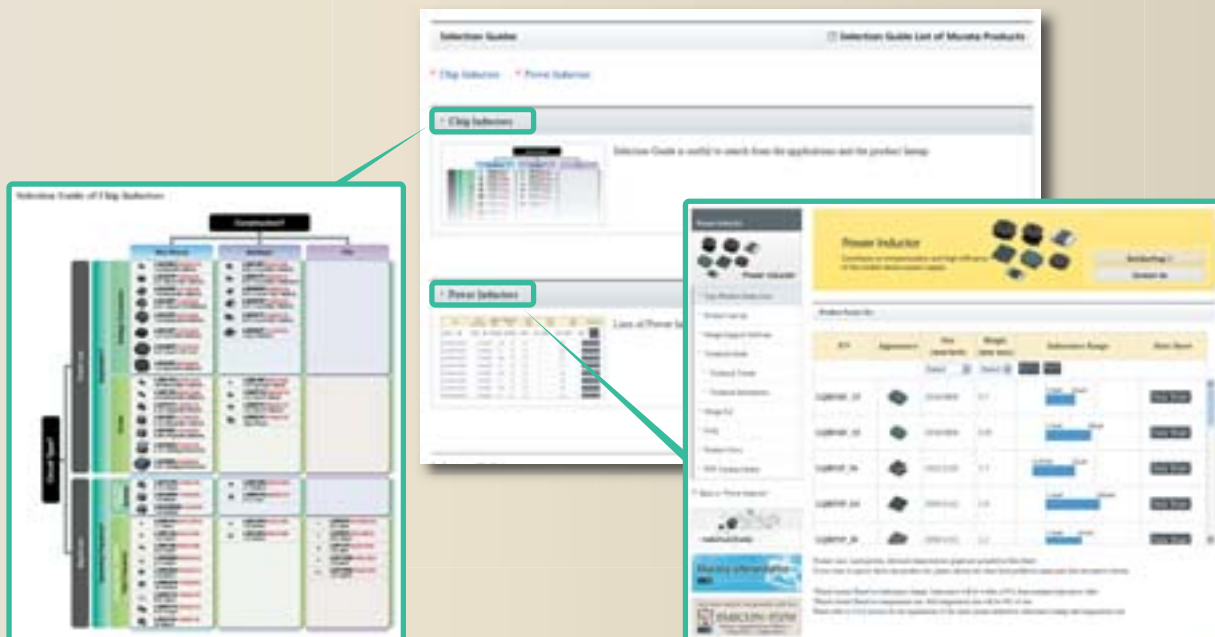
Using Murata's ceramic processing technology and unique material we offer a variety of inductor products that are suitable for the demands of many applications.

Lineup

- Inductors for Power Circuits (power inductors and choke inductors)
- Chip Inductors (for general purpose, RF circuits and automotive)

Selection Guide

The Selection Guide on our website is useful for searching the applications and the product lineup.



http://www.murata.com/products/inductor/selection_guide/

Detailed Catalogs

For more details, please refer to our printed catalogs and the PDF catalogs on our website.



- Chip Inductors (Chip Coils) Cat. No. O05E

<http://www.murata.com/products/inductor/catalog/>

Inductors (Coils)

General Purpose Inductors for Power Circuits

	Series	Structure	Size Code Inch (mm)	Inductance Range								Rated Current (mA)			
				1n	10n	100n	1μ	10μ	100μ	1m	10m	10	100	1000	10000
Inductor for Power Lines (Power Inductor)	LQM18P_B0	Magnetically Shielded Multilayer	0603 (1608)				1.5μH						600		
	LQM18P_C0		0603 (1608)				1.8μH						700		
	LQM18P_F0		0603 (1608)				1.0μH						600		
	LQM18P_FR		0603 (1608)			220nH		4.7μH					620	1250	
	LQM21P_C0		0805 (2012)			470nH		2.2μH					600	1100	
	LQM21P_G0		0805 (2012)			540nH		3.3μH					800	1300	
	LQM21P_GC		0805 (2012)			1.0μH		2.2μH					800	900	
	LQM21P_GR		0805 (2012)			1.0μH		4.7μH					800	1300	
	LQM2MP_G0		0806 (2016)			470nH		4.7μH					1100	1600	
	LQM2HP_J0		1008 (2520)			1.0μH		3.3μH					1000	1500	
	LQM2HP_JC		1008 (2520)			1.0μH		2.2μH					1000	1500	
	LQM2HP_G0		1008 (2520)			470nH		4.7μH					1100	1800	
	LQM2HP_GC		1008 (2520)			1.0μH		4.7μH					800	1500	
	LQM2HP_E0		1008 (2520)				560nH							1500	
	LQM31P_00		1206 (3216)			470nH		4.7μH					700	1400	
	LQM31P_C0		1206 (3216)			470nH		2.2μH					900	1300	
	LQM32P_G0		1210 (3225)			1.0μH								1800	
	LQH2MC_02	Wire Wound	0806 (2016)			1.0μH		82μH					90	485	
	LQH2MC_52		0806 (2016)			1.0μH		22μH					130	595	
	LQH2HP_G0		1008 (2520)			2.2μH		100μH					130	1000	
	LQH2HP_M0		1008 (2520)			2.2μH		4.7μH					800	1250	
	LQH3NP_M0		1212 (3030)			1.0μH		100μH					200	1400	
	LQH3NP_MR		1212 (3030)			1.0μH		47μH					320	1600	
	LQH3NP_J0		1212 (3030)			1.0μH		47μH					200	1620	
	LQH3NP_G0		1212 (3030)			1.0μH		250μH					80	1525	
	LQH32P_N0		1210 (3225)			470nH		120μH					170	2550	
	LQH32P_NC		1210 (3225)			470nH		22μH					550	2900	
	LQH43P_26		1812 (4532)			1.0μH		220μH					220	3300	
	LQH44P_P0		1515 (4040)			1.0μH		22μH					790	2450	
	LQH44P_J0		1515 (4040)			1.0μH		47μH					300	1530	
	LQH5BP_T0		2020 (5050)			470nH		22μH					1050	4000	
	LQH55P_R0		2220 (5852)			1.2μH		22μH					670	2600	
Chokes	LQM18F	Magnetically Shielded Multilayer	0603 (1608)			1.0μH		10μH					50	150	
	LQM21D		0805 (2012)			1.0μH		47μH					7	60	
	LQM21F		0805 (2012)			1.0μH		47μH					7	220	
	LQM31F	Wire Wound	1206 (3216)					10μH						70	
	LQW15C		0402 (1005)		18nH		200nH						390	1400	
	LQW18C		0603 (1608)		4.9nH		650nH						430	2600	



For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Continued on the following page.

Inductors (Coils)

Inductance Lineup

: E-24 or Higher

: E-12

: Other

*There are some items that do not match to E step.

	Series	Structure	Size Code Inch (mm)	Inductance Range								Rated Current (mA)			
				1n	10n	100n	1μ	10μ	100μ	1m	10m	10	100	1000	10000
Inductor for Power Lines (Power Inductor)	LQH31C	Wire Wound	1206 (3216)				120nH				100μH		80	970	
	LQH32C_23/_33		1210 (3225)				150nH				560μH		60	1450	
	LQH32C_53		1210 (3225)				1.0μH				100μH		100	1000	
	LQH43C_03		1812 (4532)				1.0μH				470μH		90	1080	
	LQH43C_33		1812 (4532)				560nH				3.9μH			1600	2950
	LQH55D		2220 (5750)				120nH				10mH		50	6000	
General Purpose Inductor	LQH66S	Magnetically Shielded	2525 (6363)				270nH				10mH		50	6000	
	LQM18N	Magnetically Shielded Multilayer	0603 (1608)				47nH				2.2μH		15	50	
	LQM21N		0805 (2012)				100nH				4.7μH		30	250	
	LQH31M	Wire Wound (ferrite core)	1206 (3216)				150nH				100μH		45	250	
	LQH32M		1210 (3225)				1.0μH				560μH		40	445	
	LQH43M(N)		1812 (4532)				1.0μH				2.2mH		30	500	

CAUTION: Use rosin-based flux, but not strong acidic flux (with chlorine content exceeding 0.2wt%) when soldering chip inductor (chip coil).
Do not use water-soluble flux.

RF Inductors

	Series	Structure	Size Code Inch (mm)	Inductance Range								Rated Current (mA)			
				1n	10n	100n	1μ	10μ	100μ	1m	10m	10	100	1000	10000
RF Inductor	LQG15H	Multilayer	0402 (1005)	1.0nH			270nH						110	300	
	LQG18H		0603 (1608)	1.2nH			100nH						300	500	
	LQP02T	Film	01005 (0402)				0.4nH to 18nH						140	320	
	LQP03T_02		0201 (0603)				0.6nH to 120nH						40	850	
	LQP15T		0402 (1005)	1.0nH			18nH						80	300	
	LQP15M		0402 (1005)	1.0nH			33nH						60	400	
	LQP18M		0603 (1608)	1.3nH			100nH						50	300	
	LQW04A	Wire Wound (air core)	03015 (0804)	1.1nH			33nH						140	990	
	LQW15A		0402 (1005)	1.3nH			120nH						110	1200	
	LQW18A		0603 (1608)	2.2nH			470nH						75	1400	
	LQW2BH		0805 (2015)	2.7nH			470nH						160	1900	
	LQW2BA		0805 (2015)	2.8nH			820nH						180	800	
	LQW2UA		1008 (2520)	12nH			4.7μH						260	1000	
	LQW31H		1206 (3216)	8.8nH			100nH						230	750	
	LQW21H		0805 (2012)				470nH				2.2μH		75	160	
	LQH31H	Wire Wound (ferrite core)	1206 (3216)				54nH				880nH		180	920	

CAUTION: Use rosin-based flux, but not strong acidic flux (with chlorine content exceeding 0.2wt%) when soldering chip inductor (chip coil).
Do not use water-soluble flux.



For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Resistors

Full lineup for various applications



Summary

Using Murata's ceramic processing technology and unique material, we offer a variety of resistor products.

Lineup

- Trimmer Potentiometers
- High Voltage Resistors

Resistors

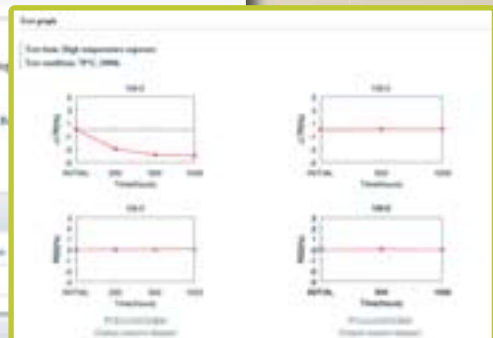
Web Content

Introducing Trimmer Potentiometer content on our website.

Trimmer Potentiometer Basic Knowledge



Trimmer Potentiometer Technical Guides



<http://www.murata.com/products/resistor/>

Detailed Catalogs

For more details, please refer to our printed catalogs and the PDF catalogs on our website.



- Trimmer Potentiometers Cat. No. R50E

<http://www.murata.com/products/resistor/catalog/>

Resistors

Trimmer Potentiometers

Trimmer Potentiometers are used for trimming the resistance value of electronic equipment.
Murata offers a broad range of Trimmer Potentiometers using both carbon and cermet materials.

Mounting	Structure	Resistive Element Type	Adjustment Angle	Adjustment Turns	Size	Series		Remarks	
Surface Mounting	Open Type	Carbon	Top Adjustment	1	2mm		PVZ2A	Low Profile (0.85mm max.)	
					3mm		PVZ3A	Automatic Adjustment	
							PVZ3G	Low Profile (1.25mm max.)	
							PVZ3H		
		Cermet	Rear Adjustment	1	2mm		PVZ2R	Low Profile with Smaller Footprint (0.9mm max.)	
					3mm		PVZ3K		
	Sealed Type	Cermet	Top Adjustment	1	2mm		PVA2A	Automatic Adjustment	
					3mm		PVG3A	Automatic Adjustment with Rotational Stop	
							PVG3G	with Rotational Stop	
			4mm		PVM4				
				11	5mm		PVG5A		
				11	5mm		PVG5H		
PCB Insertion	Sealed Type	Cermet	Top Adjustment	1	6mm		PV32H	with Rotational Stop	
				4	7mm		PV12P		
				12	6mm		PV37W		
				25	10mm		PV36W		
			Side Adjustment	1	6mm		PV32N	with Rotational Stop	
				4	7mm		PV12T		
				12	6mm		PV37X		
				25	10mm		PV36X		

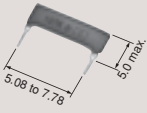


For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Resistors

High Voltage Resistors

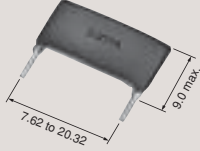
High Voltage Resistors are used for home and office equipment such as printers, copies and air-conditioners. Murata offers the High Voltage Resistors "MHR Series".



MHR03 Series



MHR04 Series



MHR06 Series

(in mm)

Series	Resistance (min.) (MΩ)	Resistance (max.) (MΩ)	Maximum Operating Voltage (Single Use) (kV)	Maximum Operating Voltage (Molded Use) (kV)	Rated Power (W)
MHR03	1	500 to 1000	2 to 8	3 to 14	0.3 to 1.0
MHR04	1	1000	3.5 to 9	10 to 16	0.6 to 1.3
MHR06	1	1000	3.5 to 9	10 to 18	0.8 to 1.5

We have many products with various specifications.
For resistance value and ratio of B circuit, please contact us.



For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Resonators

A stable timing source for microprocessors in various electronic devices



Summary

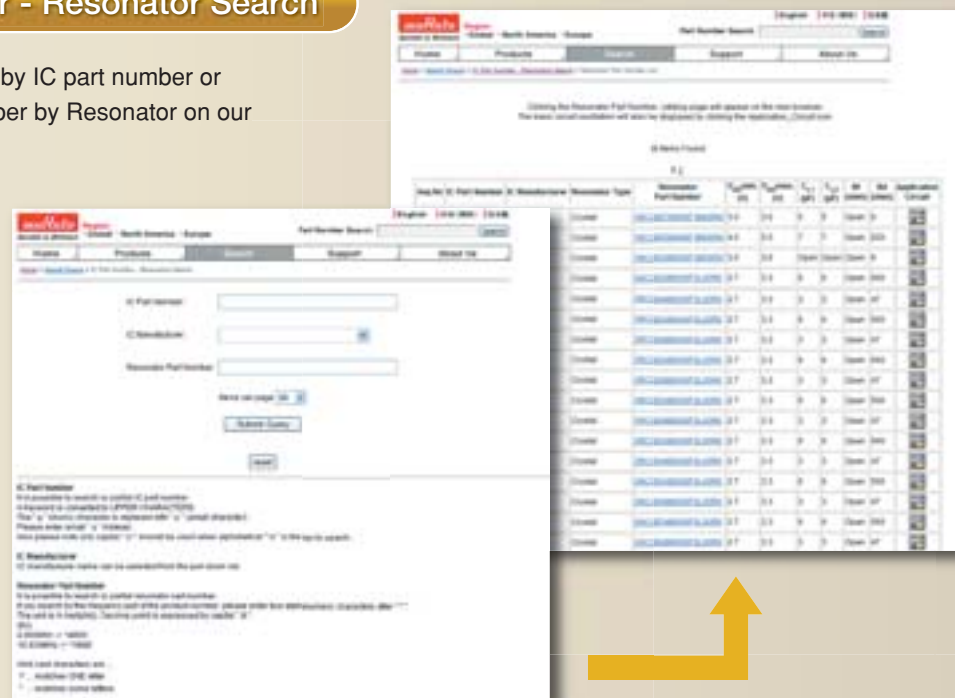
Murata's ceramic processing technology and unique piezoelectric material has led to the development of a range of small and thin ceramic resonators that offer high oscillation frequency and remarkable oscillation tolerance.

Lineup

- Crystal Resonators
- Ceramic Resonators CERALOCK®

IC Part Number - Resonator Search

Search for Resonators by IC part number or search for IC part number by Resonator on our website.



<http://search.murata.co.jp/Ceramy/ICsearchAction.do?sLang=en>

Detailed Catalogs

For more details, please refer to our printed catalogs and the PDF catalogs on our website.



- Ceramic Resonators (CERALOCK®)
- Ceramic Resonator (CERALOCK®) Application Manual
- Crystal Resonator

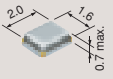
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Cat. No. P17E
Cat. No. P79E

<http://www.murata.com/products/resonator/catalog/>

I Resonators

Crystal Resonators

Available in the applications to be necessary for high accuracy resonator.
Especially, the communication clocks such as S-ATA and USB2.0/3.0.



(in mm)

Series	Nominal Frequency (MHz)	Frequency Tolerance (25±3°C)	Equivalent Series Resistance (Ω)	Temperature Stability	Drive Level (μW)	Load Capacitance (pF)
XRCGB	24.0000 to 29.9999	±100ppm max.	150 max.	±50ppm max. (-30 to 85°C)	300 max.	6
	30.0000 to 48.0000	±100ppm max.	100 max.	±50ppm max. (-30 to 85°C)	300 max.	6

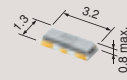
Ceramic Resonators CERALOCK®

Wide variety of product lineup for automotive and consumer use by SMD and lead package.

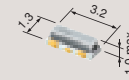
MHz Chip Type for Automotive (Tight Frequency Tolerance)



CSTCR_G15C



CSTCE_G15C

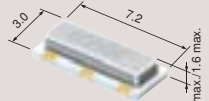
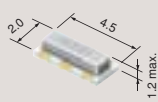


CSTCE_V13C

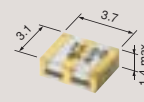
(in mm)

Series	Frequency Range (MHz)																Temperature Stability (%)	Temperature Range (°C)	
	1	2	3	4	5	6	7	8	9	10	20	30	40	50	70	100			
CSTCR_G15C				4.00±0.1%						7.99±0.1%								±0.13	-40 to 125
CSTCE_G15C								8.00±0.1%					13.99±0.1%					±0.13	-40 to 125
CSTCE_V13C										14.00±0.1%				20.00±0.1%				±0.13	-40 to 125

MHz Chip Type for Automotive (Standard Frequency Tolerance)





(in mm)

Series	Frequency Range (MHz)																Temperature Stability (%)	Temperature Range (°C)	
	1	2	3	4	5	6	7	8	9	10	20	30	40	50	70	100			
CSTCC_G_A		2.00±0.5%								3.99±0.5%								±0.4 (15pF) -0.6/+0.3 (47pF)	-40 to 125
CSTCR_G_B			4.00±0.5%							7.99±0.5%								±0.15	-40 to 125
CSTCE_G_A					8.00±0.5%								13.99±0.5%					±0.2	-40 to 125
CSTCE_V_C								14.00±0.5%					20.00±0.5%					±0.15	-40 to 125
CSTCV_X_Q											20.01±0.5%				70.00±0.5%			±0.3	-40 to 125
CSACV_X_Q (No built-in load capacitance)											20.01±0.5%				70.00±0.5%			±0.3	-40 to 125



For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

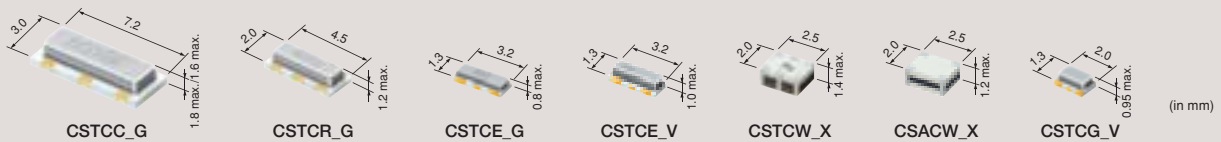
Resonators

MHz Chip Type for Consumer Electronics (Tight Frequency Tolerance)



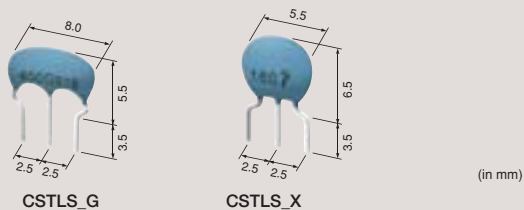
Series	Frequency Range (MHz)																Temperature Stability (%)	Temperature Range (°C)
	1	2	3	4	5	6	7	8	9	10	20	30	40	50	70	100		
CSTCR_G15L				4.00±0.1%						7.99±0.1%							±0.08	0 to 70
CSTCE_G15L								8.00±0.1%									±0.08	0 to 70
CSTCE_V13L										14.00±0.1%				20.00±0.1%			±0.08	0 to 70
CSTCW_X11											20.01±0.1%					48.00±0.1%	±0.1	0 to 70

MHz Chip Type for Consumer Electronics (Standard Frequency Tolerance)



Series	Frequency Range (MHz)																Temperature Stability (%)	Temperature Range (°C)									
	1	2	3	4	5	6	7	8	9	10	20	30	40	50	70	100											
CSTCC_G	2.00±0.5%				3.99±0.5%													±0.3 (15pF) ±0.4 (47pF)	-20 to 80								
CSTCR_G		4.00±0.5%						7.99±0.5%													±0.2	-20 to 80					
CSTCE_G				8.00±0.5%						13.99±0.5%													±0.2	-20 to 80			
CSTCE_V							14.00±0.5%						20.00±0.5%													±0.3	-20 to 80
CSTCW_X										20.01±0.5%						70.00±0.5%			±0.2	-20 to 80							
CSACW_X (No built-in load capacitance)										20.01±0.5%						70.00±0.5%			±0.2	-20 to 80							
CSTCG_V										20.00±0.5%						33.86±0.5%			±0.3	-20 to 80							

MHz Lead Type for Consumer Electronics (Standard Frequency Tolerance)



Series	Frequency Range (MHz)																Temperature Stability (%)	Temperature Range (°C)
	1	2	3	4	5	6	7	8	9	10	20	30	40	50	70	100		
CSTLS_G		3.40±0.5%									10.00±0.5%						±0.2 (15pF) -0.4/+0.2 (47pF)	-20 to 80
CSTLS_X										16.00±0.5%					70.00±0.5%		±0.2	-20 to 80



For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Filters for Audio Visual Equipment

Signal extraction for visual and audio in electronic devices



Summary

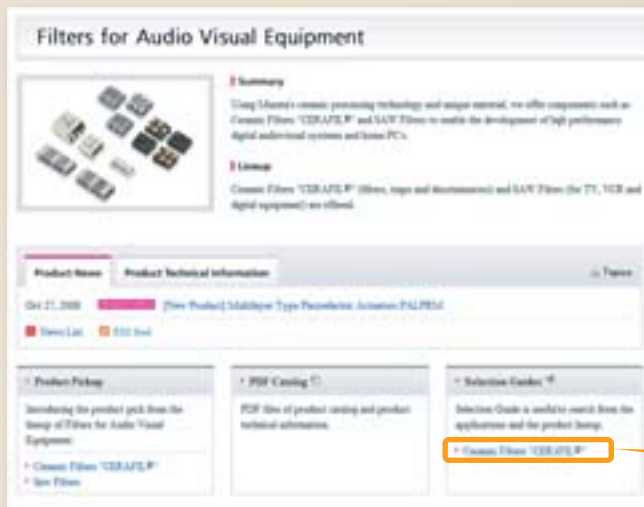
Using Murata's ceramic processing technology and unique material, we offer components such as Ceramic Filters CeraFIL® and SAW Filters to enable the development of high-performance digital audio/visual systems and home PCs.

Lineup

- Ceramic Filters CeraFIL® (Filters, Traps and Discriminators)
- SAW Traps

Web Content

View the CeraFIL® Selection Guide on our website.



http://www.murata.com/products/av_filter/

Application Lineup of CeraFIL®

		Applications				
		Hi-Fi Audio	Portable Audio	Car Audio	TV / VCR	RKE / TPMS
Ceramic Filters	450kHz	●	●	●		●
	10.7MHz	●	●	●	●	●
	2.3 to 6.5MHz	●			●	
Ceramic Discriminators	450kHz					●
	10.7MHz	●	●	●		
Ceramic Traps	4.5 to 6.5MHz				●	

CeraFIL® Selection Guide



Detailed Catalogs

For more details, please refer to our printed catalogs and the PDF catalogs on our website.



- CeraFIL® (Filters/Traps/Discriminators) for Audio/Visual Equipment
Cat. No. P50E
- CERAMIC FILTER (CeraFIL®) Application Manual
Cat. No. P11E

http://www.murata.com/products/av_filter/catalog/

Filters for Audio Visual Equipment

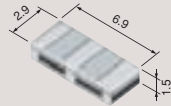
Ceramic Filters CERAFIL®

CERAFIL® 10.7MHz Chip Type

This series is suitable for FM radio and VICS/RKE/TPMS receiver use.
This series enables customers to design thinner and smaller circuits.



SFECF Series



SFECK / SFECV Series

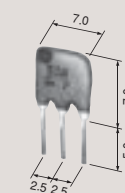
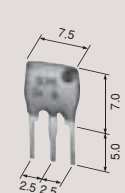
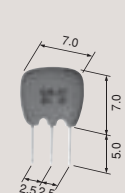
(in mm)

Type	Series	3dB Bandwidth (kHz)						
		D	E	F	G	H	J	K
		350	330	280	230	180	150	110
Standard Type	SFECF10M7□	●	●	●	●	●	—	—
High-reliability Type	SFECK10M7□	—	—	—	—	—	●	●
Standard Type	SFECV10M7□	—	—	—	—	—	●	●
Standard Type	SFECV15M0□	—	●	—	—	—	—	—

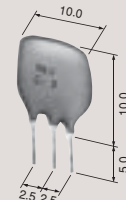
□ is filled in with a letter denoting 3dB bandwidth.

CERAFIL® 10.7MHz Lead Type

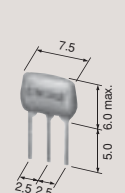
This series is suitable for FM radio, car-audio or AM up-conversion use.

SFELF Series
(Standard Type)SFELF Series
(Low Loss Type)SFELF Series
(Low Spurious Response Type)

SFVLF Series



SFKLF Series



SFELG Series

(in mm)

Type	Series	3dB Bandwidth (kHz)							
		F	G	H	J	K	L	M	N
		280	230	180	150	110	80	50	35
Standard Type	SFELF10M7□	●	●	●	—	●	—	—	—
Low Loss Type		●	●	●	●	—	—	—	—
Low Spurious Response Type		●	●	●	●	●	—	—	—
Narrow Bandwidth Type	SFVLF10M7□	—	—	—	—	—	●	●	—
Narrow Bandwidth Type	SFKLF10M7□	—	—	—	—	—	—	—	●
Low Profile Type	SFELG10M7□	●	●	●	●	●	—	—	—

□ is filled in with a letter denoting 3dB bandwidth.



For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

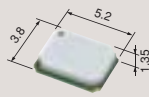
Filters for Audio Visual Equipment

CERAFIL® 2.3 to 6.5MHz Chip Type

SFSKA Series has distinctive features such as wide bandwidth and stable filter performance, enabling customers to design smaller products.
SFSKB Series is suitable for low frequency range.



SFSKA Series



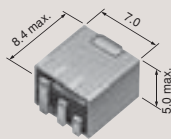
SFSKB Series

(in mm)

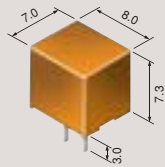
Series	Center Frequency (MHz)												3dB Bandwidth (kHz)
	2.3	2.8	3.2	3.8	4.3	4.5	4.8	5.2	5.5	5.7	6.0	6.5	
SFSKA	—	—	—	—	—	●	—	—	●	—	●	●	±60 min.
SFSKB	●	●	●	●	●	—	●	●	—	●	—	—	±75 min.

CERAFIL® 450kHz

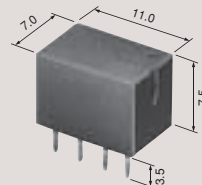
This series features high selectivity, high stability and adjustment-free operation, suitable for intermediate filters for AM radios.



SFPKA Series



SFPLA / CFULA Series



CFWLA Series

(in mm)

Type	Series	6dB Bandwidth (kHz) min.					
		D ±10	E ±7.5	F ±6	G ±4.5	H ±3	J ±2
Chip Standard Type	SFPKA450K□	—	—	—	●	●	—
Lead Standard Type	SFPLA450K□ / CFULA450K□	●	●	●	●	●	●
Lead High-selectivity Type	CFWLA450K□	●	●	●	●	●	●

□ is filled in with a letter denoting 6dB bandwidth.

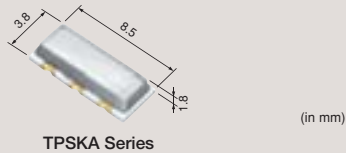


For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Filters for Audio Visual Equipment

Ceramic Traps

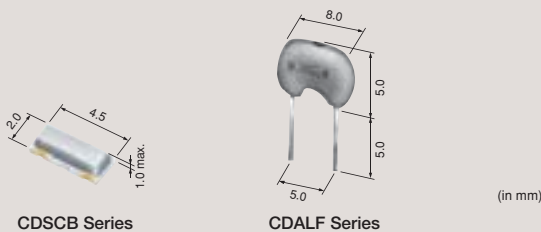
TPSKA Series has distinctive features such as high attenuation and high performance group delay time, enabling customers to design smaller products.



Series	Center Frequency (MHz)	Attenuation (dB)
TPSKA	4.500/5.500/6.000/6.500	35 min.

Ceramic Discriminators

In combination with ICs, this type obtains stable demodulation characteristics in a wide bandwidth.



Series	Center Frequency
CDSCB	10.700MHz±30kHz
CDALF	10.700MHz±30kHz

Recommended part number depends on IC specifications. Please contact us with the IC part number to be applied.

SAW Traps

Features: Wide pass band width, Highly selective attenuation band, High performance, Small size, Chip Size Package



SAW Filters and SAW Duplexers must be used only for the below equipment:

Mobile phones, cordless telephones (except automobile telephone), smartphones, tablet PC, PC (including laptop/netPC), game machines, cameras (except for business use and for security), STB, electronic dictionaries, and digital audio instruments. Please contact us for other usages.



For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Filters for Communication Equipment

Broad lineup of Filters for RF/Local, Duplexers and Filters for IF



Summary

Using Murata's ceramic processing technology and unique material, we offer miniaturized filters with excellent properties for advanced communication equipment.

Lineup

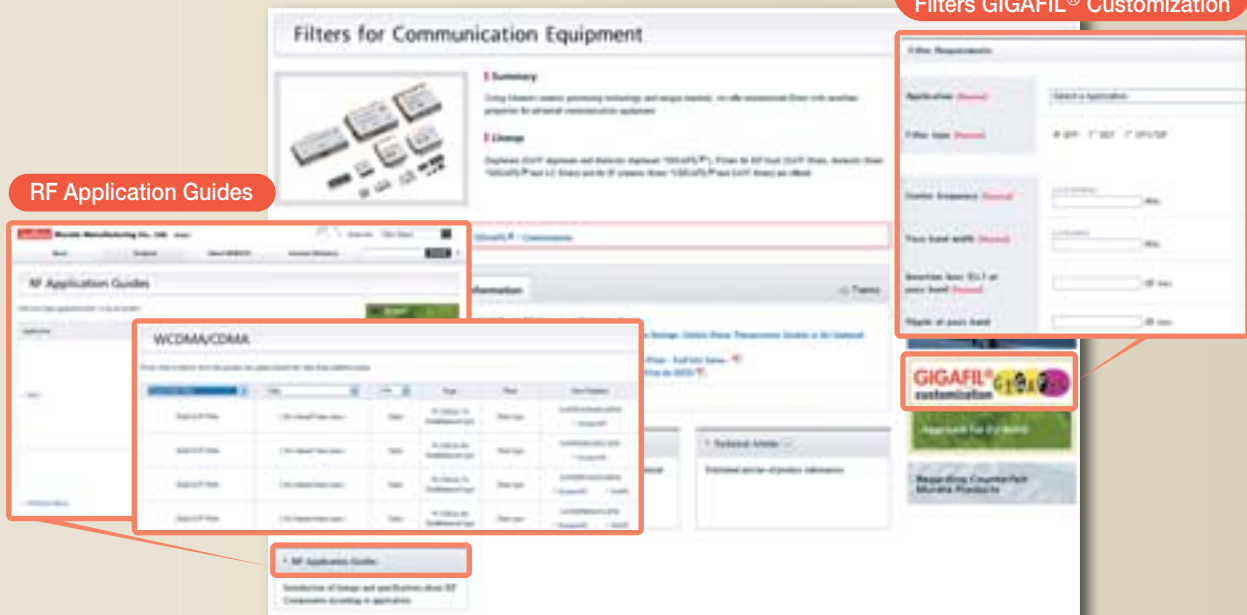
- SAW Filters for Mobile Communications
- Dielectric Filters GIGAFIL®
- Chip Multilayer LC Filters
- Ceramic Filters CERAFIL®
- Ceramic Discriminators

Web Content

For more details on communication equipment, please refer to our website.

Contact Form for Dielectric Filters GIGAFIL® Customization

RF Application Guides



http://www.murata.com/products/comm_filter/

Detailed Catalogs

For more details, please refer to our printed catalogs and the PDF catalogs on our website.



- Ceramic Filters (CERAFIL®)/Ceramic Discriminators for Communications Equipment
Cat. No. P05E

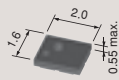
http://www.murata.com/products/comm_filter/catalog/

Filters for Communication Equipment

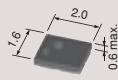
SAW Filters for Mobile Communications

SAW Duplexers

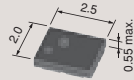
Features: Low Loss, High attenuation performance, Small size, Highly selective pass band, Chip Size Package



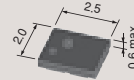
SAWFH Series



SAYRF Series



SAYFP Series



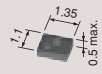
SAYRJ Series

(in mm)

RF Filters

Features: Low Loss, High attenuation performance, Small size, Highly selective pass band, Chip Size Package

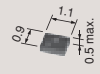
Single Filter



SAFEA Series



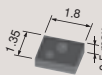
SAFEB Series



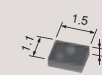
SAFFB Series

(in mm)

Dual Filter



SAWEN Series



SAWFD Series

(in mm)

SAW Bank

This module, which has matching components, can simplify the connection to RFIC.



Filter Bank

Please contact us if you have any questions regarding our SAW Bank products.

DPX Bank

Please contact us if you have any questions regarding our DPX Bank products.

SAW Filters and SAW Duplexers must be used only for the below equipment:

Mobile phones, cordless telephones (except automobile telephone), smartphones, tablet PC, PC (including laptop/netPC), game machines, cameras (except for business use and for security), STB, electronic dictionaries, and digital audio instruments. Please contact us for other usages.



For more details on each series, please refer to our website.

Product Search ⇒ <http://search.murata.co.jp/>

RF Application Guides ⇒ <http://www.murata.com/products/apps/rf/>

Filters for Communication Equipment

Dielectric Filters GIGAFIL®

Suitable for the cellular base stations and other telecom infrastructure systems.

Customized proposal responded to the request characteristics is also available in our applicable range mentioned below.

										
DFYH Series		DFCH Series								
	Series	100	1000	2000	3000	4000	5000	Number of Resonators	Input Power Range	
Duplexers	DFYH	700	2600					5 to 10	1 to 10W*	
RF/IF/Local Filter	DFCH	600	3800					2 to 6	1 to 10W*	

*Power depends upon specifications.



Characteristic customization is available. You can contact us also from our website.
Contact Form ⇒ https://www.murata.co.jp/en/contact/product_gigafil/

Chip Multilayer LC Filters

Ultra-small and low-profile filters based on ceramic multilayer technology.

Band Pass Filters

					(in mm)
LFB15 Series	LFB18 Series	LFB21 Series	LFB2H Series	LFB31 Series	

Low Pass Filters

			(in mm)
LFL15 Series	LFL18 Series	LFL21 Series	



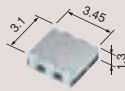
For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>
RF Application Guides ⇒ <http://www.murata.com/products/apps/rf/>

Filters for Communication Equipment

Ceramic Filters CERAFIL®

Small and light Filters for IF in communications equipment using unique piezo-electric material.

CERAFIL® 10.7MHz Chip Type

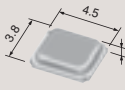


(in mm)

SFECF Series

Type	Series	3dB Bandwidth (kHz)				
		D	E	F	G	H
		350	330	280	230	180
Standard Type	SFECF10M7□	●	●	●	●	●

□ is filled in with a letter denoting 3dB bandwidth.



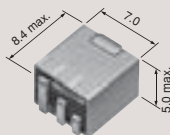
(in mm)

SFSCE Series

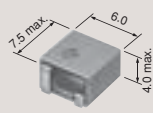
Type	Series	3dB Bandwidth (kHz) min.		
		03	04	05
		±500	±400	±325
Wide Bandwidth	SFSCE10M7WF□□	●	●	●

□ is filled in with a number denoting 3dB bandwidth.

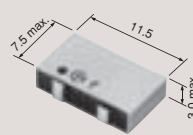
CERAFIL® 450/455kHz Chip Type



SFPKA Series



CFUKG / CFUKF Series



CFWKA Series

(in mm)

Type	Series	6dB Bandwidth (kHz) min.							
		A	B	C	D	E	F	G	H
		±17.5	±15	±12.5	±10	±7.5	±6	±4.5	±3
High-selectivity	SFPKA455K□ (4 Elements)	—	—	—	●	●	●	●	●
High-selectivity Miniature	CFUKG455K□ (4 Elements)	—	—	—	●	●	●	●	—
GDT Flat Type Miniature	CFUKF455K□ (4 Elements)	●	●	●	●	●	—	—	—
High-selectivity	CFWKA450K□ (6 Elements)	—	—	—	●	●	●	●	—

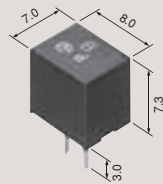
□ is filled in with a letter denoting 6dB bandwidth.



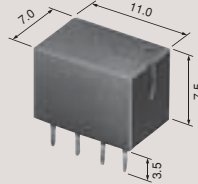
For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Filters for Communication Equipment

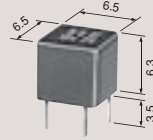
CERAFIL® 450/455kHz Lead Type



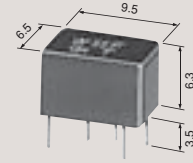
CFULA Series



CFWLA Series



CFULB Series



CFWLB Series

(in mm)

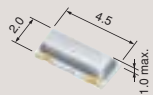
Type	Series	6dB Bandwidth (kHz) min.							
		B	C	D	E	F	G	H	J
		±15	±12.5	±10	±7.5	±6	±4.5	±3	±2
High-selectivity Low-profile	CFULA455K□ (4 Elements)	●	●	●	●	●	●	●	—
High-selectivity Low-profile	CFWLA455K□ (6 Elements)	●	●	●	●	●	●	●	●
High-selectivity Miniature	CFULB455K□ (4 Elements)	●	●	●	●	●	●	●	●
High-selectivity Miniature	CFWLB455K□ (6 Elements)	●	●	●	●	●	●	●	●

□ is filled in with a letter denoting 6dB bandwidth.

Ceramic Discriminators

In combination with ICs, Ceramic Discriminators obtain stable demodulation characteristics.

Ceramic Discriminators 10.7MHz Type



CDSCB Series

(in mm)

Series	Center Frequency
CDSCB	10.700MHz±30kHz

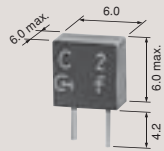
Recommended part number depends on IC specifications. Please contact us with the IC part number to be applied.



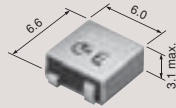
For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Filters for Communication Equipment

Ceramic Discriminators 450/455kHz Type



CDBLB Series



CDBKB Series

(in mm)

Series	Center Frequency (kHz)
CDBLB	450/455
CDBKB	450/455

Recommended part number depends on IC specifications. Please contact us with the IC part number to be applied.



For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

RF Components

Broad lineup of RF Components for RF/Local circuits in communications equipment



Summary

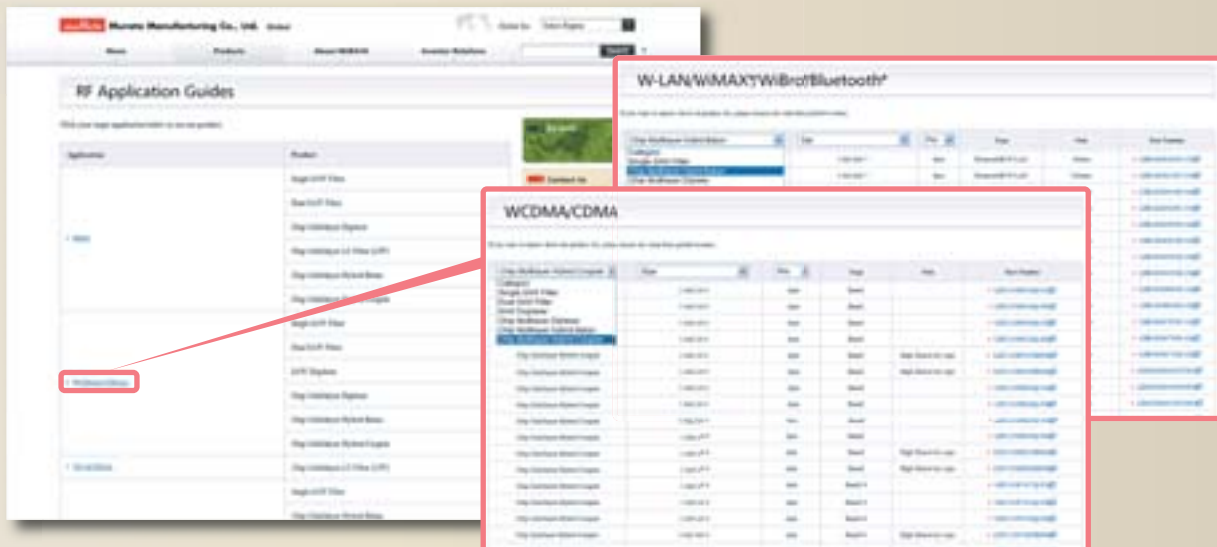
To enhance the technical advantages of communication equipment, Murata offers miniaturized, sophisticated components to meet the demands of many applications.

Lineup

- Antennas ●Isolators ●GaAs Switch ICs
- RF Diode Switches ●Baluns (Chip Multilayer and Wire Wound/Film type) ●Couplers (Chip Multilayer and Film type) ●Chip Multilayer Components (Hybrid Dividers and Diplexers) ●High Frequency Coaxial Connectors ●Single Layer Microchip Capacitors ●Thin Film Circuit Substrate RUSUB®

RF Application Guides

The RF Application Guide on our website is useful for searching applications.



<http://www.murata.com/products/apps/rf/>

Detailed Catalogs

For more details, please refer to our printed catalogs and the PDF catalogs on our website.



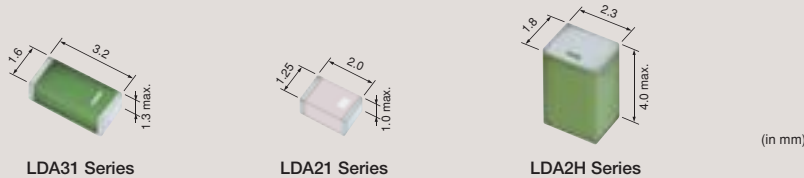
- High Frequency Single Layer Microchip Capacitors
Cat. No. C01E

<http://www.murata.com/products/microwave/catalog/>

Antennas

Chip Antennas LDA Series

Ultra small size antennas for W-LAN, Bluetooth®, ZigBee®, etc.



LDA31 Series

LDA21 Series

LDA2H Series

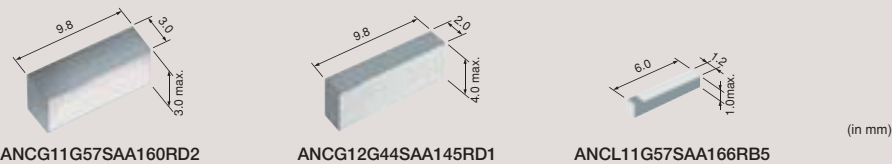
(in mm)

Series	Center Frequency (MHz)	Applications	Use Form
LDA31	2442/3500/5800	WLAN / BT / ZigBee®, etc.	GND Clearance
LDA21	2442	WLAN / BT / ZigBee®, etc.	GND Clearance
LDA2H	2442	WLAN / BT / ZigBee®, etc.	On GND

Operating Temperature Range: -40°C to 85°C

Chip Antennas ANC Series

Small size antennas for GPS, ISM2.4, etc.



ANCG11G57SAA160RD2

ANCG12G44SAA145RD1

ANCL11G57SAA166RB5

(in mm)

Main Part Number	Center Frequency (MHz)	Applications	Use Form
ANCG11G57SAA160RD2	1575	GPS	On GND
ANCG12G44SAA145RD1	2442	WLAN / BT / ZigBee®, etc.	On GND
ANCL11G57SAA166RB5	1575	GPS	GND Clearance

Operating Temperature Range: -40°C to 85°C

*We have other products for various applications and sizes, please contact us about your requirements.
Some items of the ANC Series are the multiband type.



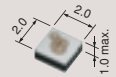
For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

RF Components

Isolators

Passing signals in the forward direction and blocking signals in the reverse direction

For Mobile Phones

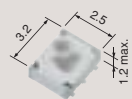


CEG23 Series

(in mm)

Series	Adaptive Frequency Range (MHz)				Size (mm)	Rating Power (W)
	100	1000	2000	3000		
CEG23		700	2000		2.0×2.0×1.0 max.	1.2 max.

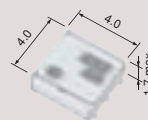
For Base Stations



CES20 Series



CES30 Series



CES40 Series

(in mm)

Series	Adaptive Frequency Range (MHz)				Size (mm)	Rating Power (W)
	100	1000	2000	3000		
CES20			1900	2600	3.2×2.5×1.2 max.	2.5 max.
CES30		1400	2200		3.2×3.2×1.6 max.	2.5 max.
CES40		830	950		4.0×4.0×1.7 max.	2.5 max.



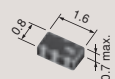
For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

RF Components

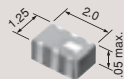
Baluns

SMD baluns constructed with a copper conductor and ceramic material. Ideal for high-frequency applications. Small-size and low-loss baluns can be customized for balance impedance of 100Ω to 200Ω.

Chip Multilayer Type



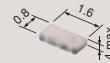
LDB18 Series



LDB21 Series



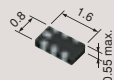
LDM15 Series



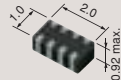
LDM Series

(in mm)

Film Type



DXP18B Series



DXP2AB Series

(in mm)

Wire Wound Type



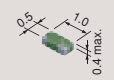
DXW21B Series

(in mm)

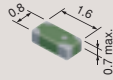
Couplers

An ultra-small, low-profile directional coupler based on ceramic multilayer technology. This coupler achieves ultra-small size, low insertion loss and high isolation.

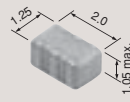
Chip Multilayer Type



LDC15 Series

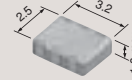


LDC18 Series



LDC21 Series

*It is available with Integrated LPF for LDC21 Series.

LDC32 Series
(3dB Hybrid)

(in mm)



For more details on each series, please refer to our website.

Product Search ⇒ <http://search.murata.co.jp/>

RF Application Guides ⇒ <http://www.murata.com/products/apps/rf/>

RF Components

Film Type

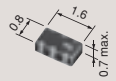


DXP18C Series

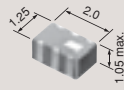
(in mm)

Chip Multilayer Hybrid Dividers

Power divider with a multilayer low pass filter in an ultra-compact package.



LDD18 Series

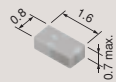


LDD21 Series

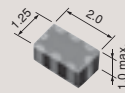
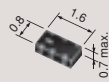
(in mm)

Chip Multilayer Diplexers

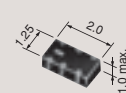
A diplexer branching low and high band.
Suitable for band-switching for dual-band system.



LFD18 Series



LFD21 Series



(in mm)



For more details on each series, please refer to our website.

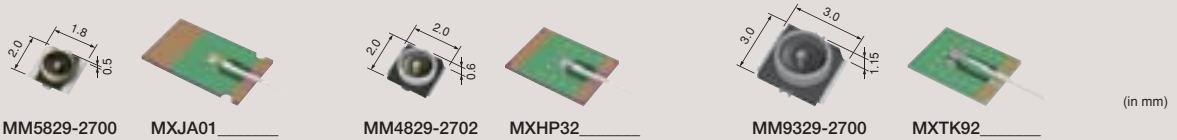
Product Search ⇒ <http://search.murata.co.jp/>

RF Application Guides ⇒ <http://www.murata.com/products/apps/rf/>

High Frequency Coaxial Connectors

High Frequency Coaxial Cable Connectors

The mating height is only 1.0mm maximum by new mechanical design. Suitable for low profile design.



MM5829-2700

MXJA01

MM4829-2702

MXHP32

MM9329-2700

MXTK92

(in mm)

Type	Receptacle Part Number	Rated Voltage (Vrms)	Frequency Rating (GHz)	Temperature Range	VSWR	Cable Number	Mating Height (mm)
JSC	MM5829-2700	30	to 12	-40 to 85°C	1.3 max. (DC to 3GHz)	MXJA01	1.0 max.
HSC	MM4829-2702	250	to 6	-40 to 85°C	1.3 max. (DC to 3GHz)	MXHP32	1.2 max.
GSC	MM9329-2700	250	to 6	-40 to 90°C	1.2 max. (DC to 3GHz)	MXTK92	2.0 max.

Nominal impedance: 50Ω

High Frequency Coaxial Connectors with Switch

The coaxial connector with switch is very useful for characteristic measurement in cellular phones and microwave circuits.



MM8030-2610

MM8130-2600

MM8430-2610

(in mm)

Type	Receptacle Part Number	Rated Voltage (Vrms)	Frequency Rating (GHz)	Temperature Range	VSWR	Standard Measurement Probe Part Number
SWG	MM8030-2610	250	to 11	-40 to 85°C	1.2 max. (DC to 3GHz)	MM126310 MXHQ87WA3000
SWF	MM8130-2600	250	to 6	-40 to 85°C	1.2 max. (DC to 3GHz)	MM126036 MXHS83QE3000
SWD	MM8430-2610	250	to 6	-40 to 85°C	1.2 max. (DC to 3GHz)	MXHS83QH3000

Nominal impedance: 50Ω



For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Single Layer Microchip Capacitors

Very reliable performance and excellent frequency characteristics



Temperature Compensation Type

Capacitance Change	Series	Size (mm)	Rated Voltage (Vdc)	Capacitance Range at 25°C (pF)					Operating Temperature Range (°C)
				0.1	1	10	100	1000	
0±30ppm/°C	CLB0A	0.25×0.25	100	0.1					-25 to 85
	CLB0C	0.35×0.25	100	0.2					-25 to 85
	CLB0D	0.38×0.38	100	0.2	0.4				-25 to 85
	CLB05	0.5×0.5	100	0.3	0.6				-25 to 85
	CLB0E	0.55×0.38	100	0.5	0.6				-25 to 85
	CLB0F	0.64×0.64	100	0.3	1				-25 to 85
	CLB0G	0.7×0.5	100	0.7	1				-25 to 85
	CLB0H	0.71×0.38	100	0.7	0.8				-25 to 85
	CLB0J	0.76×0.76	100	0.4	1.3				-25 to 85
	CLB09	0.9×0.9	100	0.5	1.8				-25 to 85
	CLB1A	1.00×0.64	100	1.1	1.6				-25 to 85
	CLB1B	1.09×0.76	100	1.5	2				-25 to 85
	CLB1C	1.27×1.27	100	1	3.6				-25 to 85
	CLB1E	1.49×0.9	100	2	2.7				-25 to 85
	CLB1G	1.73×1.27	100	3.9	4.7				-25 to 85
	CLB1H	1.78×1.78	100	1.8	6.8				-25 to 85
	CLB2C	2.19×1.27	100	5.1					-25 to 85
	CLB2E	2.29×2.29	100	3	10				-25 to 85
	CLB2L	2.95×1.78	100	7.5	10				-25 to 85
	CLB3G	3.71×2.29	100	11	16				-25 to 85
-750±60ppm/°C	CLB0A	0.25×0.25	100	0.3	0.7				-25 to 85
	CLB0B	0.30×0.25	100	0.8					-25 to 85
	CLB0C	0.35×0.25	100	0.9					-25 to 85
	CLB0D	0.38×0.38	100	0.9	1.6				-25 to 85
	CLB05	0.5×0.5	100	1	2.4				-25 to 85
	CLB0E	0.55×0.38	100	1.8	2.4				-25 to 85
	CLB0F	0.64×0.64	100	2	4.3				-25 to 85
	CLB0G	0.7×0.5	100	2.7	3				-25 to 85
	CLB0H	0.71×0.38	100	2.7					-25 to 85
	CLB0J	0.76×0.76	100	3	6.2				-25 to 85
	CLB09	0.9×0.9	100	3.3	6.8				-25 to 85
	CLB1A	1.00×0.64	100	4.7	6.2				-25 to 85
	CLB1B	1.09×0.76	100	6.8	7.5				-25 to 85
	CLB1C	1.27×1.27	100	7.5	15				-25 to 85
	CLB1E	1.49×0.9	100	7.5	9.1				-25 to 85
	CLB1H	1.78×1.78	100	13	15				-25 to 85
	CLB2E	2.29×2.29	100	20					-25 to 85

Some capacitances are not available in the CLB05 Series.
All Single Layer Microchip Capacitors are produced after receiving an order.

Continued on the following page.



For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

RF Components

Capacitance Change	Series	Size (mm)	Rated Voltage (Vdc)	Capacitance Range at 25°C (pF)					Operating Temperature Range (°C)
				0.1	1	10	100	1000	
-2200±500ppm/°C	CLB0A	0.25×0.25	100		0.8	1.3			-25 to 85
	CLB0B	0.30×0.25	100		1.5	1.6			-25 to 85
	CLB0C	0.35×0.25	100		1.8				-25 to 85
	CLB0D	0.38×0.38	100		1.8	3			-25 to 85
	CLB05	0.5×0.5	100		2.2	4.7			-25 to 85
	CLB0E	0.55×0.38	100		3.3	4.3			-25 to 85
	CLB0F	0.64×0.64	100		3.6	7.5			-25 to 85
	CLB0G	0.7×0.5	100		5.1	5.6			-25 to 85
	CLB0H	0.71×0.38	100		4.7	5.1			-25 to 85
	CLB0J	0.76×0.76	100		5.6	11			-25 to 85
	CLB09	0.9×0.9	100		6.2	13			-25 to 85
	CLB1A	1.00×0.64	100		8.2	11			-25 to 85
	CLB1B	1.09×0.76	100		12				-25 to 85
	CLB1C	1.27×1.27	100		15	22			-25 to 85
	CLB1E	1.49×0.9	100		15	16			-25 to 85
	CLB1G	1.73×1.27	100			33			-25 to 85
	CLB1H	1.78×1.78	100			27			-25 to 85
	CLB2E	2.29×2.29	100			39	47		-25 to 85

Some capacitances are not available in the CLB05 Series.

All Single Layer Microchip Capacitors are produced after receiving an order.

High Dielectric Constant Type

Capacitance Change	Series	Size (mm)	Rated Voltage (Vdc)	Capacitance Range at 25°C (pF)					Operating Temperature Range (°C)
				0.1	1	10	100	1000	
±10%	CLB0A	0.25×0.25	100		2 to 3	4.7 to 12			-25 to 85
	CLB0B	0.30×0.25	100		3.3	3.6	13	15	-25 to 85
	CLB0C	0.35×0.25	100		3.9	4.3	16	18	-25 to 85
	CLB0D	0.38×0.38	100		5.1 to 7.5	11 to 30			-25 to 85
	CLB05	0.5×0.5	100		5.6	43			-25 to 85
	CLB0E	0.55×0.38	100		8.2	10	33	43	-25 to 85
	CLB0F	0.64×0.64	100		10	75			-25 to 85
	CLB0G	0.7×0.5	100			47	68		-25 to 85
	CLB0H	0.71×0.38	100			47	56		-25 to 85
	CLB0J	0.76×0.76	100			15	110		-25 to 85
	CLB09	0.9×0.9	100			16	130		-25 to 85
	CLB1A	1.00×0.64	100			82	120		-25 to 85
	CLB1C	1.27×1.27	100			33 to 62	75 to 200		-25 to 85
	CLB1E	1.49×0.9	100			150	160		-25 to 85
	CLB1G	1.73×1.27	100			300			-25 to 85
	CLB1H	1.78×1.78	100			130	430		-25 to 85
	CLB2E	2.29×2.29	100			200	620		-25 to 85
+30, -80%	CLB0A	0.25×0.25	100			27	33		-25 to 85
	CLB0B	0.30×0.25	100			36	39		-25 to 85
	CLB0C	0.35×0.25	100			43	51		-25 to 85
	CLB0D	0.38×0.38	100			62	82		-25 to 85
	CLB05	0.5×0.5	100			75	130		-25 to 85
	CLB0E	0.55×0.38	100			91	120		-25 to 85
	CLB0F	0.64×0.64	100			130	220		-25 to 85

Some capacitances are not available in the CLB0A/B/C/D/E, CLB1C Series.

All Single Layer Microchip Capacitors are produced after receiving an order.

Continued on the following page. 



For more details on each series, please refer to our website.

Product Search ⇒ <http://search.murata.co.jp/>

RF Components

Capacitance Change	Series	Size (mm)	Rated Voltage (Vdc)	Capacitance Range at 25°C (pF)						Operating Temperature Range (°C)
				0.1	1	10	100	1000		
+30, -80%	CLB0G	0.7×0.5	100				150	200		-25 to 85
	CLB0H	0.71×0.38	100				130	150		-25 to 85
	CLB0J	0.76×0.76	100				200	300		-25 to 85
	CLB09	0.9×0.9	100				200	390		-25 to 85
	CLB1A	1.00×0.64	100				240	360		-25 to 85
+30, -90%	CLB0A	0.25×0.25	100				36	56		-25 to 85
	CLB0D	0.38×0.38	100				91	150		-25 to 85
	CLB05	0.5×0.5	100				130	220		-25 to 85
	CLB0F	0.64×0.64	100				220	390		-25 to 85
	CLB0J	0.76×0.76	100				330	560		-25 to 85
	CLB09	0.9×0.9	100				390	680		-25 to 85

Some capacitances are not available in the CLB0A/B/C/D/E, CLB1C Series.
All Single Layer Microchip Capacitors are produced after receiving an order.

Thin Film Circuit Substrate RUSUB®

Suitable for Photo diode module.

Features

- RUSUB® technology provides a single-layer capacitor and thin film resistor formed in one chip. It reduces not only the number of parts to build a device, but also the assembly costs. It will also contribute to making a device smaller.
- The single-layer structure makes its self-resonant frequency higher. It allows stable operation even at a high frequency range.
- The short distance between the capacitor and thin film resistor makes the residue inductance smaller and contributes to attenuating unnecessary noise so the device can work at its best characteristics.
- Since it has a gold electrode, it is feasible to be installed inside a module, and it allows wire-bonding with gold wire.
- AuSn pre-coating finish is also available.
- It is very suitable for APD (Avalanche Photo Diode), because the capacitor has a withstanding voltage of 100V.



RUCYT101 Series



RUCYT201 Series

(in mm)

- Six types of standard samples of RUSUB® C+R (Capacitor + Resistor) are available.
- Custom substrate size, capacity, resistance value, and electrode pattern shape is available upon request.

Part Number	Size (mm) (L×W×T)	Capacitance (pF)	Resistance (Ω)	Temperature Characteristics of Capacitance at -25 to 85°C	Capacitor Rated Voltage (V)	Temperature Coefficient of Resistance (ppm/°C)	Resistor Rated Power (mW/mm²)
RUCYT101K00009GNTC	1.0×0.5×0.11	100±10%	50±20%	±10%	100	-70±50	100
RUCYT101K00011GNTC	1.0×0.5×0.11	100±10%	100±20%				
RUCYT101K00012GNTC	1.0×0.5×0.11	100±10%	200±20%				
RUCYT201K00010GNTC	1.0×1.0×0.12	200±10%	50±20%				
RUCYT201K00013GNTC	1.0×1.0×0.12	200±10%	100±20%				
RUCYT201K00014GNTC	1.0×1.0×0.12	200±10%	200±20%				



For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Sensors

Offering sensing elements for various applications



Summary

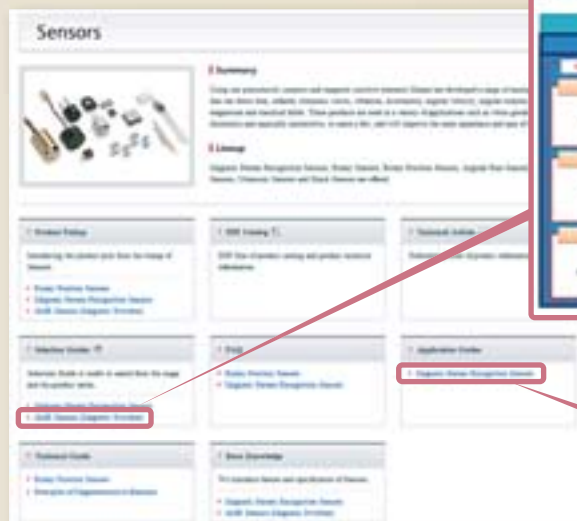
Using our piezoelectric ceramics and magnetic resistive elements Murata has developed a range of sensing technologies that can detect heat, infrared, ultrasonic waves, vibration, acceleration, angular velocity, angular rotation, rotation, magnetism and electrical fields. These products are used in a variety of applications such as white goods, audio/visual electronics and especially automotive, to name a few, improving the user's experience.

Lineup

- Infrared Sensors ● Ultrasonic Sensors ● Rotary Sensors ● Magnetic Pattern Recognition Sensors ● Magnetic Switches
- Shock Sensors ● Angular Velocity Sensors ● Rotary Position Sensors ● Temperature Sensors (Thermistors)

Web Content

Introducing Sensor details on our website.



<http://www.murata.com/products/sensor/>

Detailed Catalogs

For more details, please refer to our printed catalogs and the PDF catalogs on our website.



- MR Sensors
- Rotary Position Sensors
- Pyroelectric Infrared Sensors
- Angular Rate Sensors (ENC Series)
- Ultrasonic Sensor Application Manual
- NTC Thermistors
- POSISTOR® for Circuit Protection

- Cat. No. S45E
- Cat. No. R51E
- Cat. No. S21E
- Cat. No. S42E
- Cat. No. S15E
- Cat. No. R44E
- Cat. No. R90E

<http://www.murata.com/products/sensor/catalog/>

Product Pickup

Rotary Position Sensors

The output voltage of contact type rotary position sensors are proportional to the rotational angle of a rotor in potentiometer fashion.



SV Series

For more details, please refer to our website.
<http://www.murata.com/products/sensor/>

Magnetic Pattern Recognition Sensors

Magnetic pattern recognition sensors are suitable for differentiation of bank note types and patterns printed with magnetic ink.

Murata's magnetic pattern recognition sensors combine InSb (indium antimonide) magnetoresistive elements with a permanent magnet, enabling weak magnetic information to be easily detected. The features of these sensors are wide dynamic range, wide gap characteristic, and high output, enabling detection of either ferromagnetic or magnetic patterns.



BS05 Series

For more details, please refer to our website.
<http://www.murata.com/products/sensor/>

Magnetic Switches (AMR Sensors)

Magnetic switches are used for opening and shutting detection in products such as cellular phones, notebook PCs, and digital cameras. You can choose the best product from our wide range of features such as the direction of the magnetic field detection, the package, the sampling period, and the sensitivity standard.



AS Series

For more details, please refer to our website.
<http://www.murata.com/products/sensor/>

Temperature Sensors NTC/PTC Thermistors

NTC/PTC Thermistors are used to detect overheating. Murata offers a variety of thermistor products to meet the demands of various temperatures.



NCP Series



NXF Series



PRF Series



PTF Series

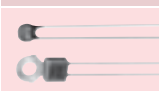
For more details on Thermistors, please refer to p.58.

For more details, please refer to our website.
<http://www.murata.com/products/thermistor/>

Sensors

Lineup

Applications

Lineup				AV Equipment					Communications Devices						
Detection	Murata's Sensors			TV	Audio	DVD, CD	Digital Video Camera	Digital Camera	PC	Scanner	Multifunction Machine	Printer	FAX	Electronic Bulletin Board	
	Products	Series or Main Part Number	Dimensions (mm)												
Infrared	Pyroelectric Infrared Sensors	IRS Series	 4.9×4.7×2.4	●	●	●			●	●	●	●	●	●	
Ultrasonic	Ultrasonic Sensors Open Structure Type	MA40S4R (for Receiver) MA40S4S (for Transmitter)	 ø9.9 H7.1											●	
	Ultrasonic Sensors Enclosed Type	MA58MF14-0N (for Dual Use)	 ø14.0 H9.0												
	Ultrasonic Sensors High Frequency Type	MA300D1-1 (for Dual Use)	 ø9.9 H7.3							●	●	●			
Magnetic	Rotary Sensors	FR05CM21AR	 ø12.7 H20												
	Magnetic Pattern Recognition Sensors	BS05 Series	 11.15×8.8×12.5 193.0×16.0×7.5												
	Magnetic Switches (AMR Sensors)	AS Series	 1.2×1.2×0.37				●	●	●						
Accel-eration	Shock Sensors	PKGS Series	 3.2×2.0×1.05						●						
Angle Velocity	Angular Rate Sensors	ENC Series	 8.0×4.0×2.0				●	●							
		MEV Series	 10.0×6.2×5.25												
Angle	Rotary Position Sensors	SV Series	 11×12×2.1	●				●			●	●			
Temperature	NTC Thermistors	Chip Type NCP Series	 NCP03: 0.6×0.3×0.3 NCP15: 1.0×0.5×0.5 NCP18: 1.6×0.8×0.8 NCP21: 2.0×1.25×0.85	●	●	●	●	●	●	●	●	●	●	●	
		Lead Type NXF Series	 ø1.2 L25 to 150	●	●				●	●	●	●	●	●	
	PTC Thermistors POSISTOR®	Chip Type PRF Series	 PRF15: 1.0×0.5×0.5 PRF18: 1.6×0.8×0.8 PRF21: 2.0×1.25×0.9	●	●	●	●	●	●	●	●	●	●	●	
		Chip Type PTF Series	 ø5.0 max. T4.0 max. ø7.5 T3.0	●	●				●	●	●	●	●	●	



For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Sensors

Applications																									
	Home Electronics										Security				Car Electronics		Toy	Others							
	Refrigerator	Electric Rice-cooker	Air Conditioner	Air Purification System	Humidifier	Cleaner	Laundry Machine	Food Fan	Water Heater	Toilet Seats with a Warm-water Shower Feature	Lighting	Security Camera	Security Light	Indoor Security Sensor	Intrusion Detection Sensor	Navigation System	Climate Control	Parking Assist	Radio Control (Attitude Control)	Game Controller	Machine Tool	ATM, CD	Vending Machine	Amusement Machine	
	Murata's Sensors																								
	Products																								
	●		●	●	●				●	●	●	●	●	●	●							●	●	●	Pyroelectric Infrared Sensors
			●												●										Ultrasonic Sensors Open Structure Type
																		●							Ultrasonic Sensors Enclosed Type
																						●			Ultrasonic Sensors High Frequency Type
																					●				Rotary Sensors
																						●	●		Magnetic Pattern Recognition Sensors
	●	●		●	●	●	●			●														●	Magnetic Switches (AMR Sensors)
																									Shock Sensors
																			●	●					Angular Rate Sensors (ENC Series)
																●									Angular Rate Sensors (MEV Series)
	●		●				●		●	●	●	●					●	●		●	●			●	Rotary Position Sensors
	●	●	●	●	●	●	●	●	●	●	●						●				●		●	●	NTC Thermistors
	●	●	●	●	●	●	●	●	●	●	●												●	●	
	●	●	●	●	●	●	●	●	●	●	●						●				●			●	PTC Thermistors POSISTOR®
					●	●	●	●	●	●	●													●	

Thermistors

Facilitate your designs and products utilizing our thermal design and thermistor products.



Summary

Using Murata's semi-conductive ceramics and electrode printing technologies, such as PTC and NTC Thermistors, provides vital protection and sensing within electronic equipment. Simulation software tools are also available for your convenience.

Lineup

- NTC Thermistors (for temperature sensor/compensation, inrush current suppression and automotive)
- PTC Thermistors POSISTOR® (for overheat sensing, overcurrent protection, motor starters, heater and automotive)

Features

●Chip Type NTC Thermistor for Temperature Sensor/ Compensation

We have many series of thermistor products with a wide variety of resistance and B-Constant.

The line-up is still expanding, for example,

1. Small size 0201(inch) size
2. Tighter tolerance series like as +/-0.5% on resistance value.

●Lead Type NTC Thermistor for Sensing Temperature

Thermistoring products which consist of SMD type NTC with lead wire.

This product has the following advantages:

1. Small head size due to 0402 sized chip NTC (NCP15 Series) inside.
2. Soft lead wire
3. Excellent thermal response

●Chip Type PTC Thermistor for Overheat Sensing

PTC thermistor detects abnormal temperatures.

The sensing temperature range is 65°C to 150°C.

We have devised the PRF15 (0402 inch size) Series, which are the smallest PTC thermistors in the world with a tight sensing temperature tolerance of $\pm 3^{\circ}\text{C}$.

●Chip Type PTC Thermistor for Overcurrent Protection

Our PRG Series of PTC thermistor can be used as a resettable fuse.

Murata provides a variety of PRG Series in different sizes: 0603 and 0805 inch (PRG18 or PRG21).

The hold current is up to 500mA.

●Lead Type PTC Thermistor for Overcurrent Protection

Murata has many series of lead type PTC products; some of our series have a hold current up to 1200mA and maximum voltage is up to 265V.

Some series have a resistance tolerance of $\pm 10\%$.

Web Content

Introducing Thermistor content on our website.

Product Lineup $\Rightarrow$ <http://www.murata.com/products/thermistor/>

Product Search $\Rightarrow$ <http://search.murata.co.jp/>

We offer simulation software tools.

Design Tool $\Rightarrow$ http://www.murata.com/products/thermistor/design_support/

Thermistors

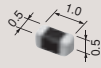
NTC Thermistors (for Temperature Sensor/Temperature Compensation)

Chip Type

Chip NTC Thermistors have Ni barrier terminations, provide excellent solderability and offer high stability in harsh environments due to their unique inner construction.



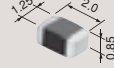
NCP03 Series



NCP15 Series



NCP18 Series



NCP21 Series

(in mm)

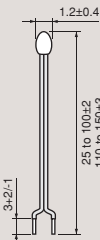
Series	Size Code Inch (mm)	Resistance (25°C) (Ω)	B-Constant (25-50°C) (K)	Permissible Operating Current (25°C) (mA)	Rated Electric Power (25°C) (mW)	Typical Dissipation Constant (25°C) (mW/°C)	Operating Temperature Range (°C)
NCP03	0201 (0603)	1.0k to 220k	3500 to 4485	0.06 to 9.5	100	1	-40 to 125
NCP15	0402 (1005)	22 to 470k	3100 to 4500	0.04 to 6.7	100	1	-40 to 125
NCP18	0603 (1608)	100 to 470k	3250 to 4500	0.04 to 3.1	100	1	-40 to 125
NCP21	0805 (2012)	220 to 100k	3500 to 4250	0.14 to 3.0	200	2	-40 to 125

Rated Electric Power shows the required electric power that causes Thermistor's temperature to rise to 125°C by self heating, at ambient temperature of 25°C.

There are also items for automotive use in the NCP Series.

Thermo String Type

Small flexible lead type NTC Thermistors with a small head and a thin lead wire.

Twist
NXFT15_1B SeriesWithout twist
NXFT15_2B Series

(in mm)

Series	Resistance (25°C) (Ω)	B-Constant (25-50°C) (K)	Operating Current for Sensor (25°C) (mA)	Thermal Time Constant (25°C) (s)	Full Length (mm)	Operating Temperature Range (°C)
NXFT15	10k to 100k	3380 to 4250	0.04 to 0.12	4	25 to 150	-40 to 125

Operating Current for Sensor rises Thermistor's temperature by 0.1°C.

There are also items for automotive use in the NXF Series.

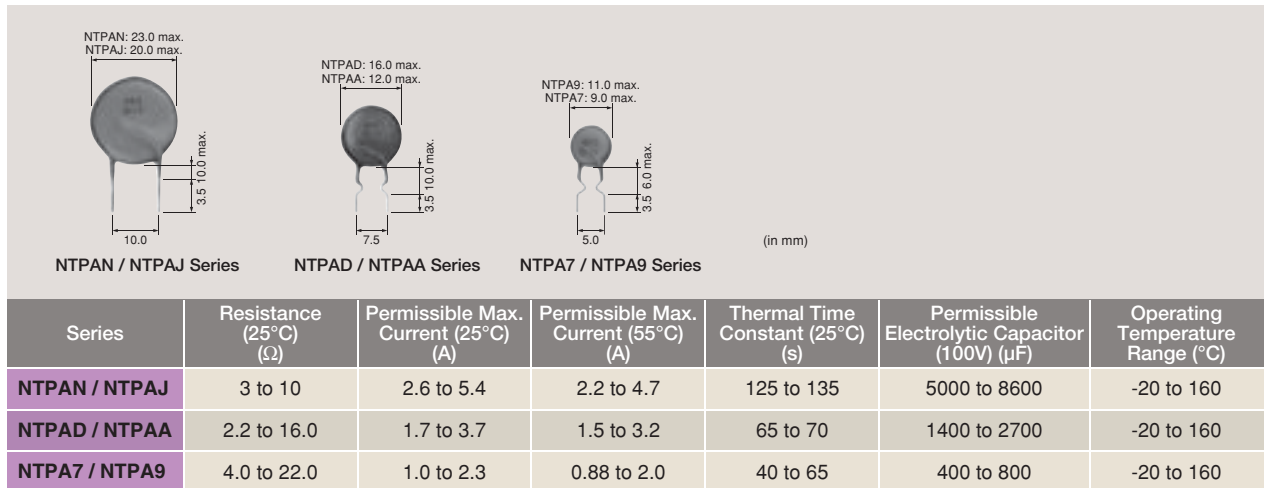


For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Thermistors

NTC Thermistors (for Inrush Current Suppression)

Effectively suppresses surge currents that are generated when switching power regulators are turned on.



PTC Thermistors POSISTOR® (for Overheat Sensing)

Chip Type

For overheat sensing for power transistors, power diodes and power ICs in hybrid circuits.



Series	Sensing Temperature Range (°C)										Sensing Temperature Tolerance (°C)	Maximum Voltage (V)	Size Code Inch (mm)
	60	70	80	90	100	110	120	130	140	150			
PRF15			●	●	●	●	●	●	●	●	±3/±5	32	0402 (1005)
PRF18		●	●	●	●	●	●	●	●	●	±3/±5	32	0603 (1608)
PRF21			●	●	●	●	●	●	●	●	±5	32	0805 (2012)

There are also items for automotive use in the PRF Series.

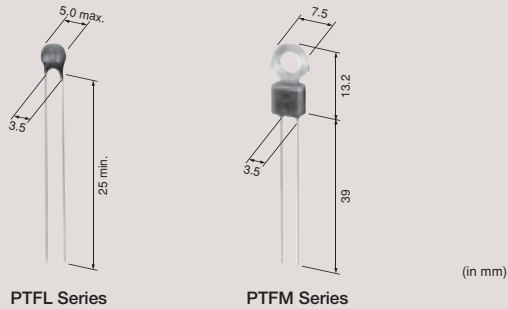


For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Thermistors

Lead Type

For protecting power transistors, stereo main amplifiers, etc. from overheating, and also for sensing the temperature of other components which may be overheated.



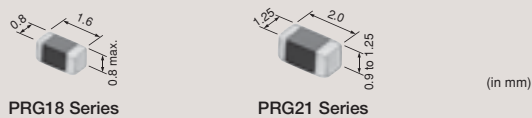
Series	Sensing Temperature Range (TS) (°C)										Maximum Voltage (V)	Resistance (at 25°C) (max.) (Ω)	Resistance (TS-10°C) (max.) (Ω)	Resistance (TS°C) (min.) (Ω)
	60	70	80	90	100	110	120	130	140	150				
PTF□_471Q	●	●	●	●	●	●	●				16	100	330	470
PTF□_222Q	●	●	●	●	●	●	●				16	330	1.5k	2.2k

A blank is filled with type codes. (L: Lead type, M: with lug-terminal)
Operating Temperature Range is -10 to TS+10°C.

PTC Thermistors POSISTOR® (for Overcurrent Protection)

Chip Type

Overcurrent Protection device with resettable function suitable for current limiting resistor.



Series	Maximum Voltage (V)	Hold Current (60°C) (mA)	Trip Current (-10°C) (mA)	Maximum Current (A)	Resistance (25°C) (Ω)	Size Code Inch (mm)
PRG18	6 to 24	7 to 220	25 to 850	0.06 to 7.5	1.0 to 470	0603 (1608)
PRG21	6 to 24	30 to 500	110 to 2000	1.1 to 10	0.2 to 22	0805 (2012)

Maximum Current shows typical transformer capacities that can be used.
There are also items for automotive use in the PRG Series.

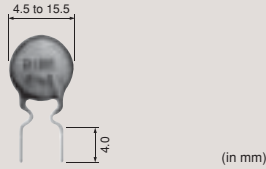


For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Thermistors

Lead Type

Best suited to meet the requirements for power supplies and motor protection.
Error-free operations are assured by rush current.



PTGL Series

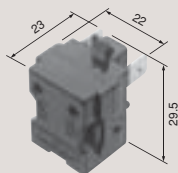
*The Lead shape is an example.

Series	Maximum Voltage (V)	Hold Current (60°C) (mA)	Trip Current (-10°C) (mA)	Maximum Current (A)	Resistance (25°C) (Ω)
PTGL	16	370 to 1200	1040 to 3360	2.0 to 10.0	0.15 to 1.0
	24	80 to 180	320 to 710	2.0	2.2 to 10
	30	122 to 685	240 to 1900	0.7 to 7.0	0.8 to 13
	32	30 to 60	140 to 240	1.5	15 to 47
	51	213 to 749	332 to 1168	1.0 to 5.0	1.2 to 10
	56	90 to 380	240 to 980	1.0 to 2.5	3.3 to 22
	60	88 to 439	175 to 867	1.0 to 5.0	2.2 to 22
	80	50 to 310	135 to 860	0.7 to 5.5	3.7 to 55
	125	30 to 420	75 to 1050	0.3 to 2.0	3.3 to 180
	140	74 to 340	147 to 780	0.5 to 3.5	4.7 to 56
	250	90 to 100	280 to 300	0.5 to 0.6	12 to 39
	265	28 to 300	78 to 830	0.2 to 4.1	6.0 to 180

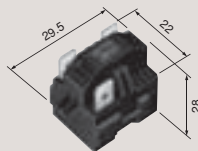
Maximum Current shows typical transformer capacities that can be used.
There are also items for automotive use in the PTGL Series.

PTC Thermistors POSISTOR® (for Motor Starters)

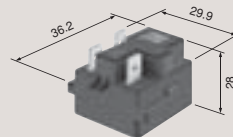
This series is specifically designed for appliance application in refrigerators and freezers.



PTH7M Series



PTH8M Series



PTHM Series

*It is effective solution for the power saving.

Series	Resistance (25°C) (Ω)	Maximum Voltage (V)	Maximum Current (A)	Operating Time (25°C) (s)	Starting System
PTH7M	4.7 to 33	180 to 355	6 to 12	0.2 to 2.2	CSR/RSIR/RSCR
PTH8M	4.7 to 33	180 to 355	6 to 12	0.2 to 3.5	CSR/RSIR/RSCR
PTHM	4.7 to 47	180 to 400	5 to 12	0.2 to 2.2	RSCR



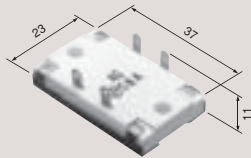
For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Thermistors

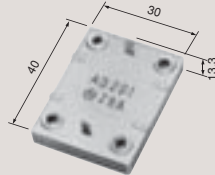
PTC Thermistors POSISTOR® (for Heater)

Standard Type

These POSISTOR® are designed for various applications for constant temperature heating purpose.



PTWS Series



PTWT Series

(in mm)

Series	Curie Point (°C)	Rated Voltage (V)	Maximum Voltage (V)	Inrush Current (A)	Steady State Current (at 120Vrms) (mA)	Steady State Current (at 220Vrms) (mA)
PTWS / PTWT	92 to 280	120/220	260	5.0/10.0	28 to 65	17 to 75

Inrush Current Based on 220Vrms.

Operating Temperature Range PTWSB1: -20 to 60°C, PTWSB2: -20 to 85°C, PTWTA: 0 to 60°C

Detailed Catalogs

For more details, please refer to our printed catalogs and the PDF catalogs on our website.



- NTC Thermistors
- POSISTOR® for Circuit Protection
- POSISTOR® for Heater
- PTC Thermistor (POSISTOR®) Application Manual
- NTC/PTC Thermistors for Automotive
- PTC - NTC for Surface Mounting Application

Cat. No. R44E
Cat. No. R90E
Cat. No. R19E
Cat. No. R16E
Cat. No. R03E
Cat. No. R01E

<http://www.murata.com/products/thermistor/catalog/>



For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Power Supplies

Eco-friendly and high quality power supplies



Summary

To meet consumer needs Murata offers power supply products that can be used with a variety of equipment, such as video equipment, household information appliances and communication/transfer equipment. Murata provides standard and customized products using highly reliable, Murata-made components utilizing advanced design and high-density packaging technology.

Lineup

- DC-DC Converters ●Switching Power Supplies
- High Voltage Power Supplies ●Ionizer Modules

Web Content

Introducing DC-DC Converter content on our website.

DC-DC Converter Selection Guide

The collage displays the Murata website's DC-DC Converter Selection Guide. It includes a summary page with a product image and text, a detailed table of products with columns for Input Voltage, Output Voltage, Power, Efficiency, and more. It also shows a selection guide with filters for Input Voltage, Output Voltage, Power, and Efficiency, and a list of product links for further information.

<http://www.murata.com/products/power/>

Power Supplies

DC-DC Converters

DC-DC Converters are vital to the demands of electronic equipment.

Murata offers DC-DC Converters that set the standard for miniaturization, low profile, high efficiency, power-saving, low noise power supplies. Murata provides standard products and customized products, ultra-low-profile products and products for FPGA.

Non-isolated Type



Part Number	Package	Input Voltage (V)	Nominal Output Power (W)	Output Voltage (V)	Current (A)	Efficiency (%)	Size (mm) L×W×H
MPDRX002S	SMD	3.0 to 5.5	28.8	0.8 to 1.8	16	90	33.0×13.5×8.5
MPDRX103S	SIL	10.8 to 13.2	28.8	0.8 to 1.8	16	86	50.8×5.8×14.0
MYGTM01210BZN	SIL	17 to 40	120	5 to 12	10	97.3	40×40.3×29.2
MYGTR01205BZN	SIL	17 to 40	36	5 to 12	3 to 5.2	93	25.1×12×27
MYSSM0123EBENL	SMD	14 to 40	42	5 to 12	3.5	96	30.2×20.9×12
MYUSP3R303FMP	SMD	3.0 to 5.5	9.9	0.7 to 3.3	3	94	11.0×8.5×5.6
OKL-T/3-W5N-C	SMD	2.7 to 5.5	10.9	0.6 to 3.63	3	95.3	12.2×12.2×6.2
MPDRX312S	SMD	3.0 to 5.5	28.8	0.8 to 1.8	16	86.5	27.8×15.4×4.2

These are just a few examples of our large assortment of power products.



For more details on our product lineup, please refer to our website.

Product Search ⇒ <http://search.murata.co.jp/>

Power Supplies Contents ⇒ <http://www.murata.com/products/power/>

Power Supplies

Isolated Type



MPD5D01*S Series

MPD6D10*S/20*S Series
MPD7D06*S SeriesMPD6D12*S Series
MPD7D05*S/13*S/12*S Series

Part Number	Package	Input Voltage (V)	Nominal Output Power (W)	Output Voltage (V)	Current (A)	Efficiency (%)	Size (mm) L×W×H
MPD5D013S	SMD	36.0 to 75.0	5	1.5	0.8	70	27.0×14.6×4.7
MPD6D101S	SMD	36.0 to 75.0	10	12	0.8	88	39.9×22.4×4.2
MPD6D207S	SMD	18.0 to 36.0	30	3.3	9	91	39.3×30.1×8.0
MPD7D067S	SMD	36.0 to 75.0	35	3.3	10.6	90	39.3×30.1×8.0
MPD6D122S	SMD	36.0 to 75.0	30	1.2	12	84	45.0×45.0×4.4
MPD7D052S	SMD	36.0 to 75.0	50	1.2	16	86	45.0×36.2×4.2
MPD7D137S	SMD	36.0 to 75.0	80	3.3	24	92	45.0×45.0×8.5
MPD7D128S	SMD	36.0 to 75.0	100	5	20	92.5	45.0×45.0×8.5

These are just a few examples of our large assortment of power products.

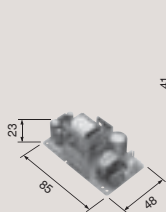


For more details on our product lineup, please refer to our website.

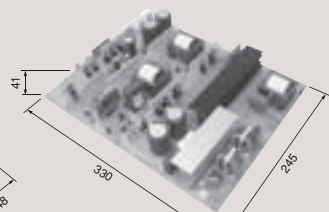
Product Search ⇒ <http://search.murata.co.jp/>

Power Supplies Contents ⇒ <http://www.murata.com/products/power/>

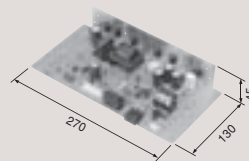
Switching Power Supplies



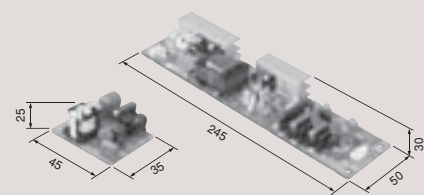
For SOHO Equipment



For Wide-screen LCD Panel



For PBX



LED Lighting

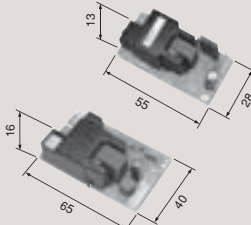
(in mm)

Applications	Input Voltage	Output Voltage	Safety Standard	EMI Standard	Remarks
SOHO Equipment	115V AC	50V 0.3A/24V 4.5A (PEAK)	Facsimile voluntary standard, UL, CSA	VCCI, FCC	Models that provide a power-saving standby mode are also available.
	230V AC	24V 1.0A (RATE)	IEC	VDE, CISPR	
For Wide-screen LCD Panel	100/115V /230V AC	24V 20A/15V 4A/5V 0.3A	Electrical safety, UL, CSA, IEC	VCCI, FCC, VDE, CISPR	W/W input type is available. Models that provide a power-saving standby mode are also available.
PBX	115V/30V AC	5V 5.0A/12V 1.0A/-48V 2.5V	UL, IEC	FCC, CISPR	Provided with Pb battery charging function.
LED Lighting	100V/200V AC	10W (Constant current output) Output 10 to 24V	Electrical Appliance and Materials Safety Law of Japan	VCCI	PWM Dimming, Accepted for triac dimming
		80W (Constant current output) Output 30V			

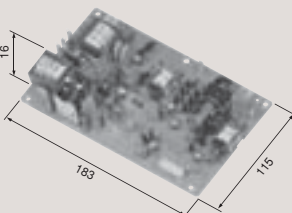
For more details on our products, please contact us.

Power Supplies

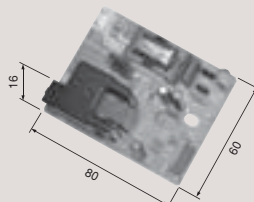
High Voltage Power Supplies



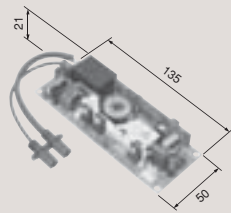
MPH1000/2000 Series



MPH7000 Series



MPH4000 Series
(for Air Cleaner)



MPL3000/8000 Series
(AC/DC Ballast)

(in mm)

Series	Input Voltage Vin	Power Supply Type		Output Voltage Vout	Output Current Iout	Adjustable Range
MPH1000	24V DC	DC Constant Voltage		6kV	(350μA)	Vout: 4 to 6.5kV
MPH2000		DC Constant Current		(6kV)	350μA	Iout: 150 to 400μA
MPH7000		DC Constant Current		(6kV)	250μA	Iout: 200 to 300μA
		DC Constant Voltage		0.6kV	(1μA)	Vout: 550 to 650μV
		Switching	DC Constant Current	(-1.5kV)	-3μA	Iout: -2 to -4μA
			DC Constant Voltage	1.5kV	(0.5μA)	Vout: 1.4 to 1.6kV
		AC Constant Voltage		1.5kV rms	(250μA rms)	Vout: 1.3 to 1.7kV rms
MPH4000 (for Air Cleaner)		DC Constant Voltage		±6kV	±400μA	—
		DC Constant Current		(±6kV)	±400μA	—

Series	Applications	Input Voltage Vin	Output Power	Other Specification
MPL3000	Projector/Rear projection TV	250 to 420V DC	to 350W	For extra-high pressure mercury lamp

For more details on our products, please contact us.



For Ionizer Modules, please refer to p.73.

Sound Components

Piezoelectric ceramic materials that expand and shrink by applying voltage are used in piezoelectric sound components.



Summary

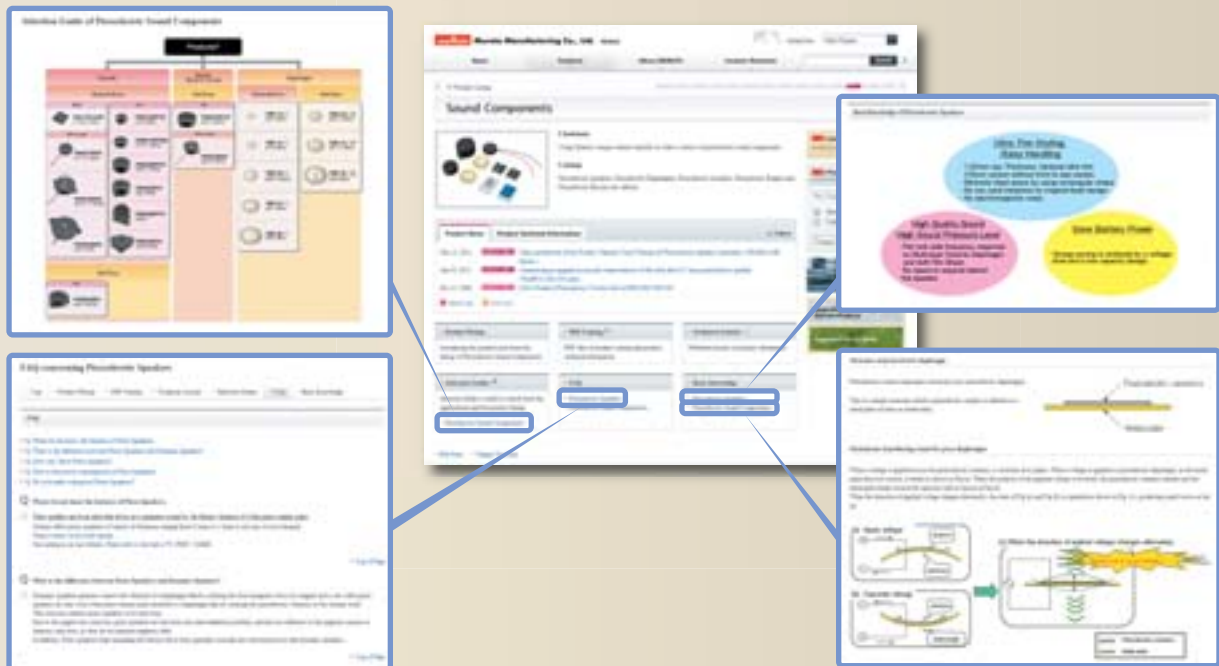
Using Murata's unique ceramic material we offer a variety of piezoelectric sound components.

Lineup

- Piezoelectric Speakers
- Piezoelectric Sounders
- Piezoelectric Buzzers
- Piezoelectric Diaphragms

Web Content

Introducing Sound Component content on our website.



<http://www.murata.com/products/sound/>

Detailed Catalogs

For more details, please refer to our printed catalogs and the PDF catalogs on our website.



- Waterproof Piezoelectric Speaker Cat. No. P83E
- Piezoelectric Speaker Cat. No. P82E
- Piezoelectric Sound Components Cat. No. P37E
- Piezoelectric Sound Components Application Manual Cat. No. P15E

<http://www.murata.com/products/sound/catalog/>

Sound Components

Piezoelectric Speakers

Ultra thin styling, high sound pressure and high sound quality

Suitable for mobile equipment such as Smartphone/Tablet PC/MID/E-book/Solid State Audio/DSC/IC Recorder/etc.

					(in mm)
VSLBP1913	VSLBP2115	VSLBF1913	VSLBG1914	VSLBG2216	
Type	Main Part Number	Sound Pressure Level (dB)	Measurement Condition of Sound Pressure Level		
Standard Type	VSLBP1913E1400-T1	92.0±3.0	Input Signal: 5.0Vrms, Sine Wave, at 100mm, Average at 1.5k, 2.0k, 2.5k, 3.0kHz		
	VSLBP2115E1100-T1	93.5±3.0	Input Signal: 5.0Vrms, Sine Wave, at 100mm, Average at 1.0k, 1.25k, 1.5k, 2.0kHz		
Low-profile Type	VSLBF1913E1400-T1	92.0±3.0	Input Signal: 5.0Vrms, Sine Wave, at 100mm, Average at 1.5k, 2.0k, 2.5k, 3.0kHz		
Waterproof Type	VSLBG1914E1400-T0	92.0±3.0	Input Signal: 5.0Vrms, Sine Wave, at 100mm, Average at 1.5k, 2.0k, 2.5k, 3.0kHz		
	VSLBG2216E1100-T0	93.5±3.0	Input Signal: 5.0Vrms, Sine Wave, at 100mm, Average at 1.0k, 1.25k, 1.5k, 2.0kHz		

Piezoelectric Sounders

Low power consumption, lightweight

Suitable for office equipment/home appliances/audio equipment

PKLCS1212E2400

PKM13EPYH

PKM22EPH

PKM22EPPH

PKM17EWH

PKM24SPH

PKLCS1212E4001

PKM17EPP

(in mm)

Drive Type	Mounting Type	Main Part Number	Sound Pressure Level (dB)	Measurement Condition of Sound Pressure Level
External Drive	Surface Mounting Type	PKLCS1212E2400-R1	75 min.	[3Vp-p, 2.4kHz, square wave, 10cm]
		PKLCS1212E4001-R1	75 min.	[3Vp-p, 4kHz, square wave, 10cm]
	Pin Type	PKM13EPYH4000-A0	70 min.	[3Vp-p, 4kHz, square wave, 10cm]
		PKM17EPP-2002-B0	70 min.	[3Vp-p, 2kHz, square wave, 10cm]
		PKM22EPH2001	75 min.	[3Vp-p, 2kHz, square wave, 10cm]
		PKM22EPPH2001-B0	70 min.	[3Vp-p, 2kHz, square wave, 10cm]
	Lead Type	PKM17EWH4000	75 min.	[3Vp-p, 4kHz, square wave, 10cm]
Self Drive	Pin Type	PKM24SPH3805	90 min.	[12Vdc, 10cm]



For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Sound Components

Piezoelectric Buzzers

This is a unified piezoelectric sounder connected to a built-in self drive circuit, and it easily generates sound with only a DC power supply.

Suitable for gas detector alarms/burglar alarms/home-electronic appliances



PKB24SPCH

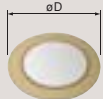
(in mm)

Drive Type	Mounting Type	Main Part Number	Sound Pressure Level (dB)	Measurement Condition of Sound Pressure Level
Self Drive	Pin Type	PKB24SPCH3601-B0	90 min.	[12Vdc, 10cm]

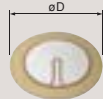
Piezoelectric Diaphragms

Low power consumption, lightweight

Suitable for Clocks/Calculators/Digital cameras/Various alarms (Burglar alarms, etc.)



7BB-□□-□



7BB-□□-□C

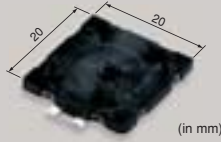
Drive Type	Main Part Number	Plate Size (2D)
External Drive	7BB-12-9	212.0mm
	7BB-15-6	215.0mm
	7BB-20-6	220.0mm
	7BB-27-4	227.0mm
Self Drive	7BB-20-6C	220.0mm
	7BB-27-4C	227.0mm



For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Microblowers

Tiny air pumps without a motor



■ Features

Microblowers are designed to function as an air pump, using the ultrasonic vibrations of Piezoelectric ceramics, which can generate high pressure air from a thin and extremely compact unit.

■ Applications

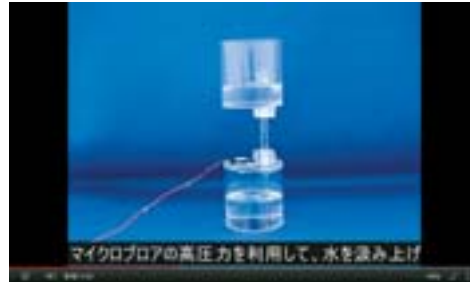
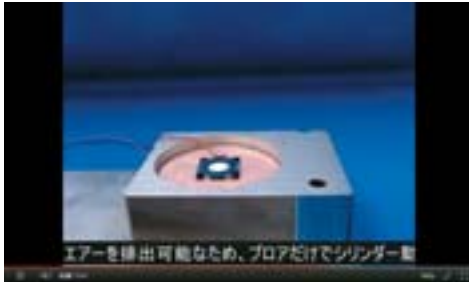
Air freshener, Gas & Alcohol Sensor, Air ionizer, Amusement, Spot Cooling for tiny devices

Part Number	Size	Air Flow	Static Pressure	Voltage of Operation
MZB1001T02	20(W)×20(L)×1.85(H)mm without the nozzle 20(W)×20(L)×3.45(H)mm with the nozzle	≥0.7L/min@15Vp-p	≥1.42kPa@15Vp-p	10 to 20Vp-p



Microblower demonstration videos

<http://www.murata.com/products/micromechatronics/demonstration/microblower/>



Piezoelectric Actuators

Quick response and high-accuracy position control.



PALPRM Series

■ Features

Piezoelectric actuators, utilizing the deformation properties of the Piezoelectric ceramics itself, are used for position control within the autofocus system of cellular camera modules and within the image stabilization system of digital still cameras. The features of Murata's piezoelectric actuators contribute to miniaturization of various modules, due to its very usable displacement in spite of its small size and a low profile.

*Please contact us for custom-made specifications.



For more details on Micromechatronics products, please refer to our website.

<http://www.murata.com/products/micromechatronics/>

Others

Wireless Communication Modules

Available for a wide range of applications such as automotive, mobile computing devices, and household appliances.

Wi-Fi™ Modules / Bluetooth® · Wi-Fi™ Combo Modules



■ Features

Compact, highly efficient and flexible custom-made correspondence

■ Applications

Mobile phones, automotive, tablet PC, POS, HT, electric equipment, smart grid etc.

Bluetooth® Modules / Bluetooth® Low Energy Modules



■ Features

Compact, highly efficient and flexible custom-made correspondence

■ Applications

Mobile phones, automotive, PMP, POS, HT, healthcare, wireless remote control etc.



Please contact us about Wireless Communication Modules.

Others

Ceramic Applied Products

Contribution to high integration and miniaturization requirements of the automotive industry and RF modules.

LTCC (Low Temperature Co-fired Ceramics) Multilayer Substrates



LTCC, Low Temperature Co-fired Ceramics is a multi-layer, glass ceramic substrate that is co-fired with low resistance metal conductors. What makes Murata's LTCC special is our unique "Zero Shrinking Sintering Process," which restricts the ceramic shrinkage to only thickness.

Murata's LTCC multilayer substrates LFC® are useful in a wide range of electronic equipment such as substrates for highly-reliable electronic control units equipping vehicles and functional substrates for miniaturized high-frequency modules in cellular phones.

LFC® Series

Murata's LFC® Series LTCC substrate meets high integration and miniaturization requirements necessary for the automotive industry.

AWG Series

Utilized in low profile, small outline RF modules, the AWG Series features ultra-thin ceramic tapes, multiple material tape lamination and enhanced board strength.



For more details on Ceramic Applied Products, please refer to our website and the PDF catalogs on our website.
<http://www.murata.com/products/ceramic/>



Cat.No. N20E

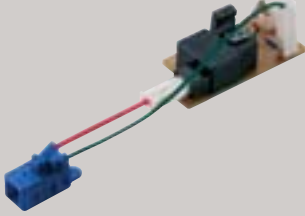
Others Ionizer Modules Ionissimo®

High-concentration ion, compact design, ozone control

Ionissimo® is an ionizer module with unprecedented compactness and high efficiency, capable of generating the largest amount of ions in the industry* owing to Murata's own high-voltage technology and structural design. The ion generator is connected to the driving power supply for modularization and ease of incorporating into equipment.

*Surveyed by Murata (As of March 2011)

MHM Series



■ Features

- Ion is generated at low voltage (~2.0kV) with high efficiency, resulting in high ion concentration.
- Compact equipment may be designed due to small ionizer element and driving power supply.
- Ozone amounts may be optimized for specific applications by controlling the generation of ozone without changing the number of ions.



For more details on the Ionizer Modules, please refer to our website.
<http://www.murata.com/products/ionizer/>



View a demonstration video of Ionizer Modules Ionissimo® on our website

Others

Wireless Power Transmission Modules

Realization of wireless charging systems

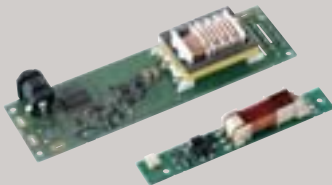
Murata has begun mass production of the capacitive coupling type* of wireless power transmission modules capable of charging at 10W.

This module makes wireless charging systems a reality (Wireless charging systems are capable of charging equipment placed on a charging pad without the need for cable connection).

*Capacitive coupling system

The capacitive coupling system is a method that involves transmitting energy using the electrical fields generated between these electrodes. Since the electric field is generated between the electrodes, it is also called an electric field coupling system.

LXWS Series



■ Features

- Wide charging area
- Ease of mounting
- No heat generation in the wireless power transmission area



For more details on Wireless Power Transmission Modules, please refer to our website.
http://www.murata.com/products/wireless_power/



View demonstration videos of Wireless Power Transmission Modules on our website

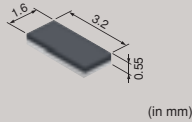
Others

RFID Devices

Built-in IC module for high functional and robust small RFID tags

MAGICSTRAP®

LXMS31 Series



(in mm)

MAGICSTRAP® can be easily assembled by means of reflow soldering and adhesive (electrically conductive or non-conductive). Even if non-conductive adhesive is used, communication will take place when MAGICSTRAP® is bonded onto the antenna, and the RFID tag will function correctly.

MAGICSTRAP® complies with international standard EPC/gC1G2. It is an ultra-miniature (3.2x1.6x0.55mm typ.) robust package with impedance transformation function. MAGICSTRAP® can be bonded onto the antenna over a wide range ($\pm 500\mu\text{m}$). In addition, MAGICSTRAP® supports wide UHF band (860-960MHz) for worldwide use in a single design.



An example using the grand pattern of the PCB board as an antenna.



For more details on RFID Devices, please refer to our website.
<http://www.murata.com/products/rfid/>



View demonstration videos of MAGICSTRAP® on our website

Others

ESD Protection Devices

Support ESD protection for various kinds of electronic devices

Ceramic ESD Protection Devices

Applying Murata original ceramic technology to have excellent ESD suppression performance and ultra-small capacitance value

LXES_A Series



LXES-100



LXES-098

(in mm)

Silicon ESD Protection Devices

Applying accumulated design technology to have excellent ESD suppression performance

LXES_B Series



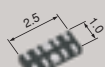
LXES-008



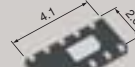
LXES-013



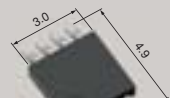
LXES-026



LXES-028



LXES-046



LXES-027

(in mm)



For more details on each series, please refer to our website.

Product Lineup ⇒ http://www.murata.com/products/emc/selection_guide/emc3/

Product Search ⇒ <http://search.murata.co.jp/>

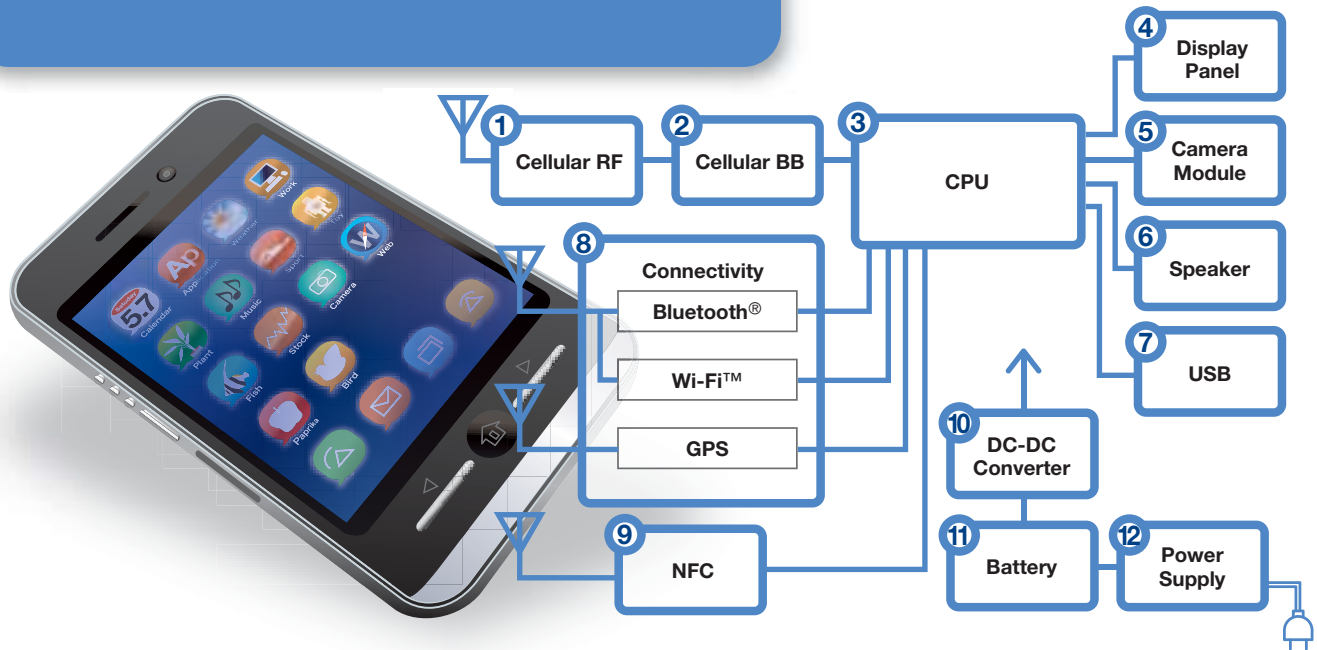
<Category Search> Primary: "Noise Suppression Products/EMI Suppression Filters" Secondary: "ESD Protection Device"

<Part Number Search> Part Number: "LXES"



Application Guides

Mobile Phones



1 Cellular RF

Chip Antennas
LDA/ANC Series



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SWITCHPLEXER®
LMSP Series



Chip Multilayer Duplexers
LFD Series



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SAW Duplexers
SAY Series



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SAW Filters
SAF Series



p40

Chip Multilayer LC Filters



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Chip Multilayer Hybrid Baluns
LDB/LDM Series



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Chip Multilayer Hybrid Dividers
LDD Series



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Coaxial Connectors



p50

GaAs Switch IC



Isolators
CEG23 Series



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Micro DC-DC Converters
LXDC Series



Trimmer Capacitors
TZS2 Series



p20

ESD Protection Devices
LXES Series



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Thermistors
NCP Series



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2 Cellular BB

Micro DC-DC Converters
LXDC Series



3 Terminal Capacitors
NFM Series



p23

Chip Common Mode Choke Coils
DLW/DLP Series



p24

Thermistors
PRF/NCP Series



p59

Microblowers



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3 CPU

Crystal Resonators
XRCGB Series



p33

Chip Ferrite Beads
BLM Series



p22

3 Terminal Capacitors
NFM Series



p23

4 Display Panel

Micro DC-DC Converters
LXDC Series



Ceramic Resonators CERALOCK®
CSTCE Series



p33

EMI Suppression Filters EMIFIL®
NFA Series



p23

Chip Common Mode Choke Coils
DLW/DLP Series



p24

Chip Inductors (Chip Coils)
LQW/LQP Series



p27

Trimmer Potentiometers
PVZ2 Series



p30

ESD Protection Devices
LXES Series



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Thermistors
PRF/NCP Series



p59

5 Camera Module

Micro DC-DC Converters
LXDC Series



Monolithic Ceramic Capacitors
for Medium Voltage
GR7 Series



p10

Actuators
PALPRM Series



p71

Chip Ferrite Beads
BLM Series



p22

Trimmer Potentiometers
PVZ2 Series



p30

ESD Protection Devices
LXES Series



p74

Thermistors
NCP Series



p59

6 Speaker

Micro DC-DC Converters
LXDC Series



Piezoelectric Speakers
VSLBP Series



p69

Chip Common Mode Choke Coils
DLM Series



p24

ESD Protection Devices
LXES Series



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7 USB

Micro DC-DC Converters
LXDC Series



Chip Common Mode Choke Coils
DLW/DLP Series



p24

Chip Ferrite Beads
BLM Series



p22

ESD Protection Devices
LXES Series



p74

10 DC-DC Converter

Micro DC-DC Converters
LXDC Series



Metal Terminal Type
Monolithic Ceramic Capacitors
KRM Series



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Polymer Aluminum Electrolytic Capacitors
ECAS Series



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Thermistors
NCP Series



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11 Battery

Thermistors
NCP/PRF/PRG Series



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8 Connectivity

Bluetooth® Modules



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Wi-Fi™ Modules



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GPS Modules



Chip Antennas
LDA/ANC Series



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Dielectric Antennas
ANH Series



SAW Filters
SAF Series



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Chip Multilayer LC Filters



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Chip Multilayer Hybrid Baluns
LDB/LDM Series



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Coaxial Connectors



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Micro DC-DC Converters
LXDC Series



ESD Protection Devices
LXES Series



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9 NFC

NFC Modules



Micro DC-DC Converters
LXDC Series



Crystal Resonators
XRCGB Series



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Chip Ferrite Beads
BLM Series



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Chip Inductors (Chip Coils)
LQM/LQH Series



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Trimmer Capacitors
TZS2 Series



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ESD Protection Devices
LXES Series



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12 Power Supply

Wireless Power
Transmission Modules



p73

Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



p3

Medium High Voltage
Ceramic Capacitors
DEA/DES Series



p15

Safety Standard Certified
Ceramic Capacitors
Type KX/KY



p17

Chip Inductors (Chip Coils)
LQM/LQH Series



p27

General Purpose

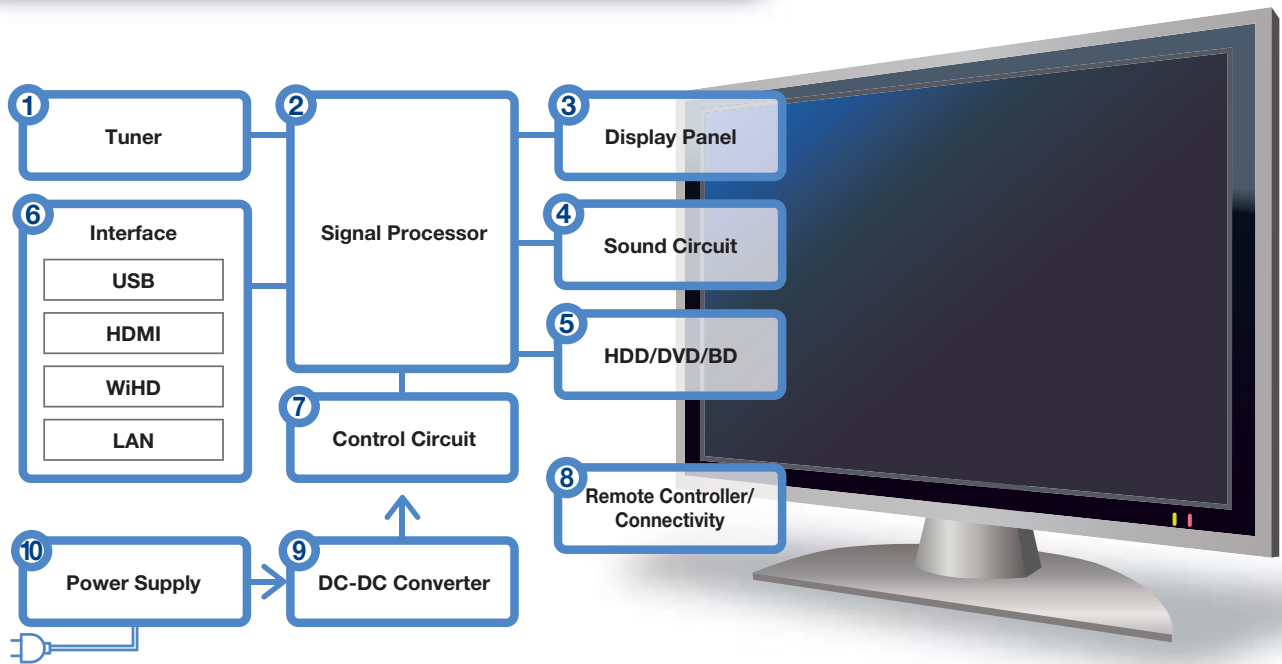
Monolithic Ceramic Capacitors	GRM/GJM Series	Impedance Matching		p3
Monolithic Ceramic Capacitors	GRM/GNM Series	Coupling/Decoupling/For Step-up		p3
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup		p19
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance		p27
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion		p27
Chip Ferrite Beads	BLM Series	Noise Suppression		p22
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression		p23
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression		p24
Microwave Absorbers	EA Series	Noise Suppression		p25
Ferrite Cores	FS Series	Noise Suppression		p25
Thin Type Sandwich Cores	FSSA Series	Noise Suppression		p25



7 LAN Monolithic Ceramic Capacitors for Medium Voltage GR4 Series  p10 Chip Common Mode Choke Coils DLW/DLP Series   p24	8 USB3.0/USB2.0 Micro DC-DC Converters LXDC Series  Polymer Aluminum Electrolytic Capacitors ECAS Series  p19 Crystal Resonators XRCGB Series  p33 Chip Ferrite Beads BLM Series  p22 Chip Common Mode Choke Coils DLW/DLP Series   p24 ESD Protection Devices LXES Series  p74 Thermistors PRG Series  p61
9 HDMI/Display Port Chip Common Mode Choke Coils DLW/DLP Series   p24 ESD Protection Devices LXES Series  p74 Thermistors PRG Series  p61	10 DC-DC Converter Micro DC-DC Converters LXDC Series  Metal Terminal Type Monolithic Ceramic Capacitors KRM Series  p11 Polymer Aluminum Electrolytic Capacitors ECAS Series  p19 Thermistors PRF/NCP Series  p59
11 Battery Ceramic Resonators CERALOCK® CSTCE/CSTCR Series   p33 Thermistors PRF/PRG/NXF Series    p59	12 Power Supply Micro DC-DC Converters LXDC Series  Monolithic Ceramic Capacitors for Medium Voltage GR/GA Series  p3 Medium High Voltage Ceramic Capacitors DEA/DES Series  p15 Safety Standard Certified Ceramic Capacitors Type KX/KY  p17 Ceramic Resonators CERALOCK® CSTCE/CSTCR Series   p33 Trimmer Potentiometers PVG3 Series  p30 Chip Common Mode Choke Coils DLW/DLP Series   p24 Thermistors NTP Series  p60
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Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	 p19
Radial Lead Type Monolithic Ceramic Capacitors	RDE Series	Coupling/Decoupling	 p14
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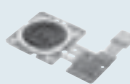
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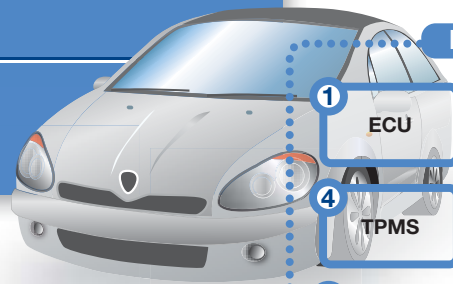
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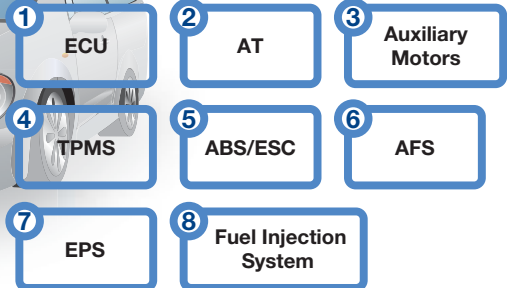
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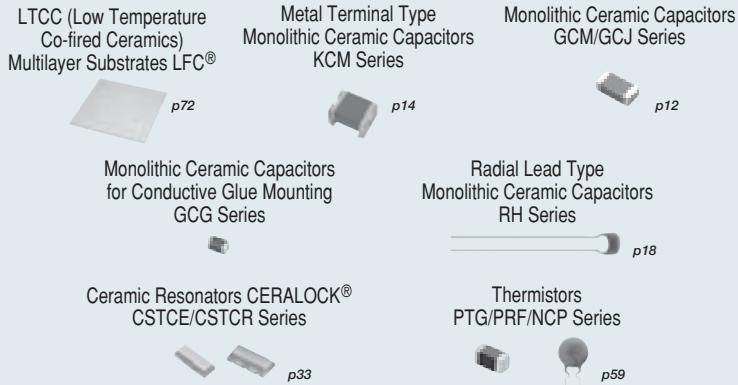
Automotive



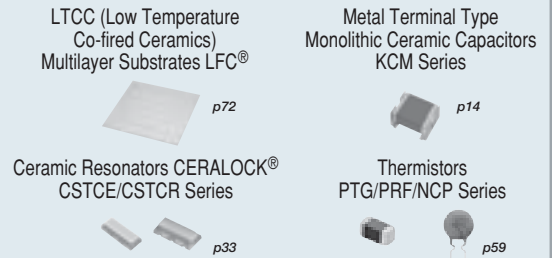
Powertrain/Safety



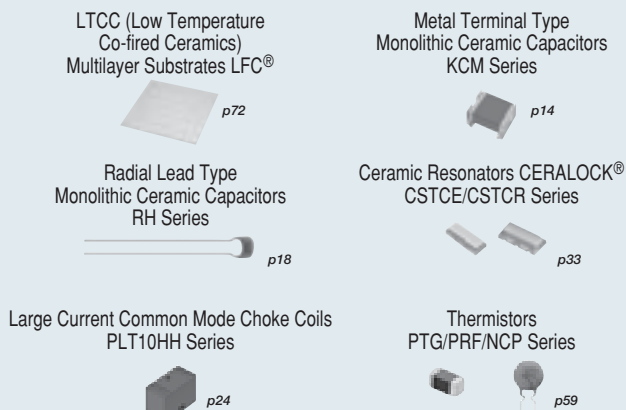
1 ECU



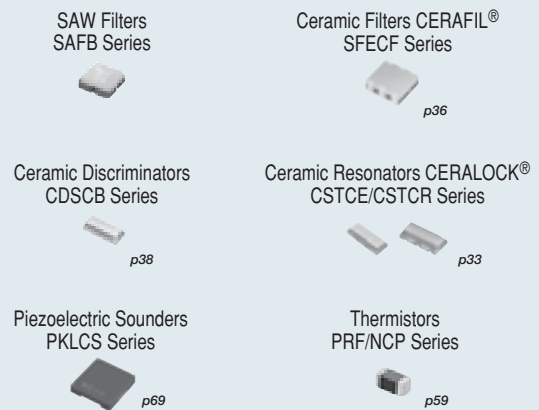
2 AT



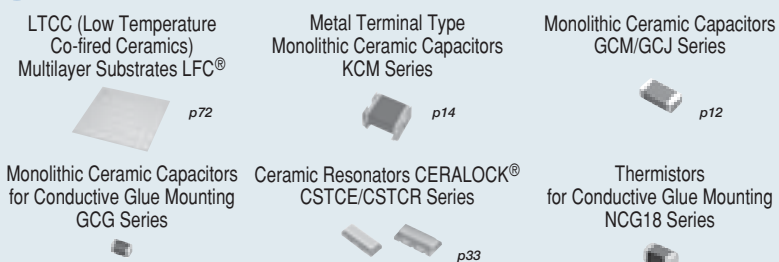
3 Auxiliary Motors



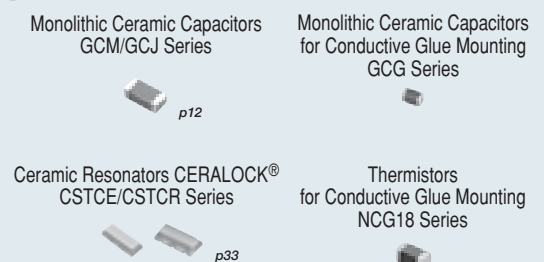
4 TPMS



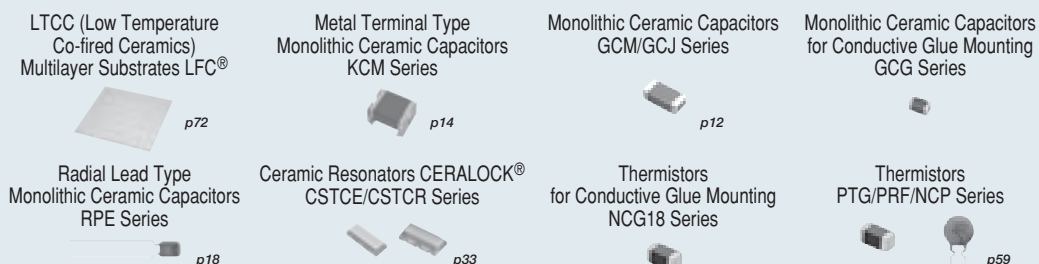
5 ABS/ESC



6 AFS

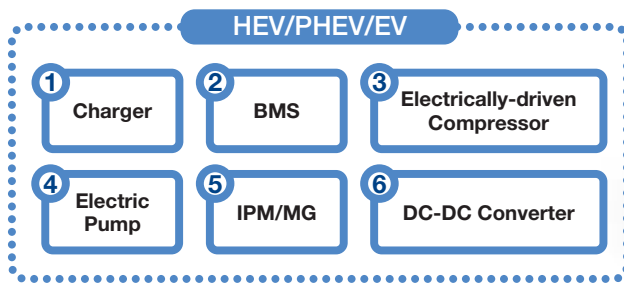


7 EPS

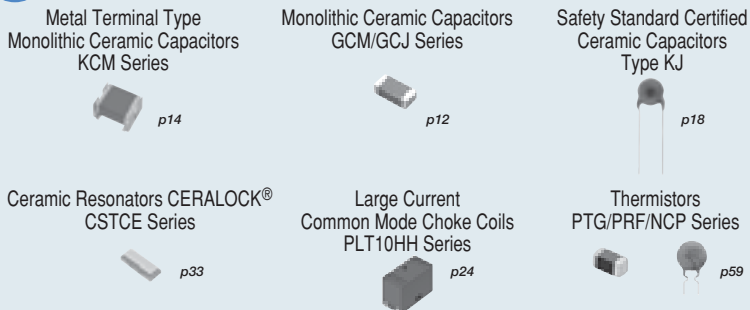


8 Fuel Injection System

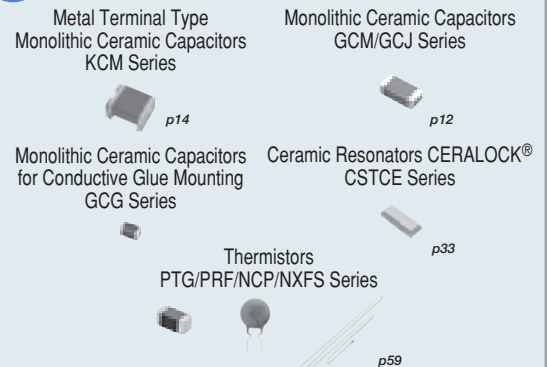




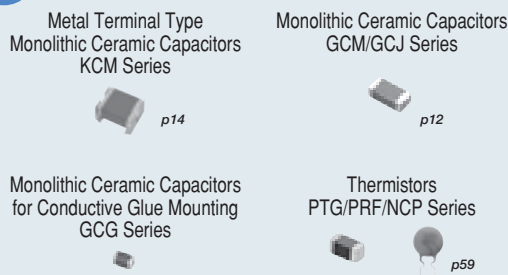
1 Charger



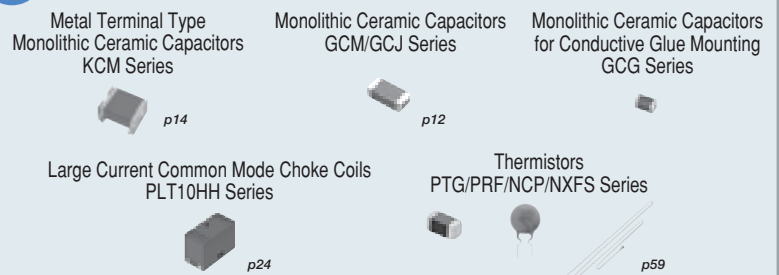
2 BMS



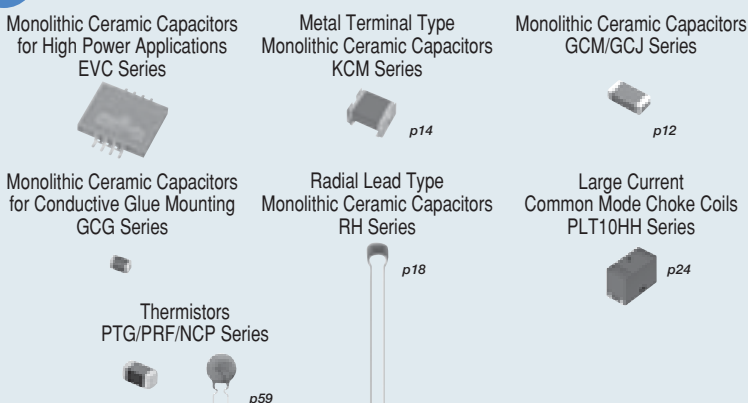
3 Electrically-driven Compressor



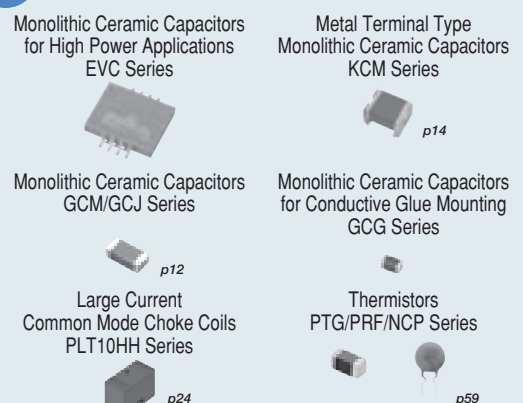
4 Electric Pump



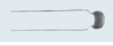
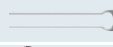
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High Reliability

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Navigation/PND

2

RKE

3

ETC/DSRC

4

Power Seat/
Power Mirror

5

Parking Assist

1 Navigation/PND

Angular Rate Sensors
MEV Series



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Rotary Position Sensors
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SAW Filters
SAFB Series



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Ceramic Discriminators
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4 Power Seat/Power Mirror

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Ceramic Resonators CERALOCK®
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Ceramic Resonators CERALOCK®
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PTG/PRF/NCP Series



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General Purpose

Monolithic Ceramic Capacitors

GRM Series

Coupling/Decoupling



p3

Monolithic Ceramic Capacitors for Medium Voltage

GRM Series

For Snubber

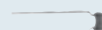


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Radial Lead Type Monolithic Ceramic Capacitors

RPE Series

Noise Suppression/Decoupling



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Chip Inductors (Chip Coils)

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EMI Suppression Filters EMIFIL®

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DLW Series

Common Mode Noise Suppression



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Ferrite Cores

FS Series

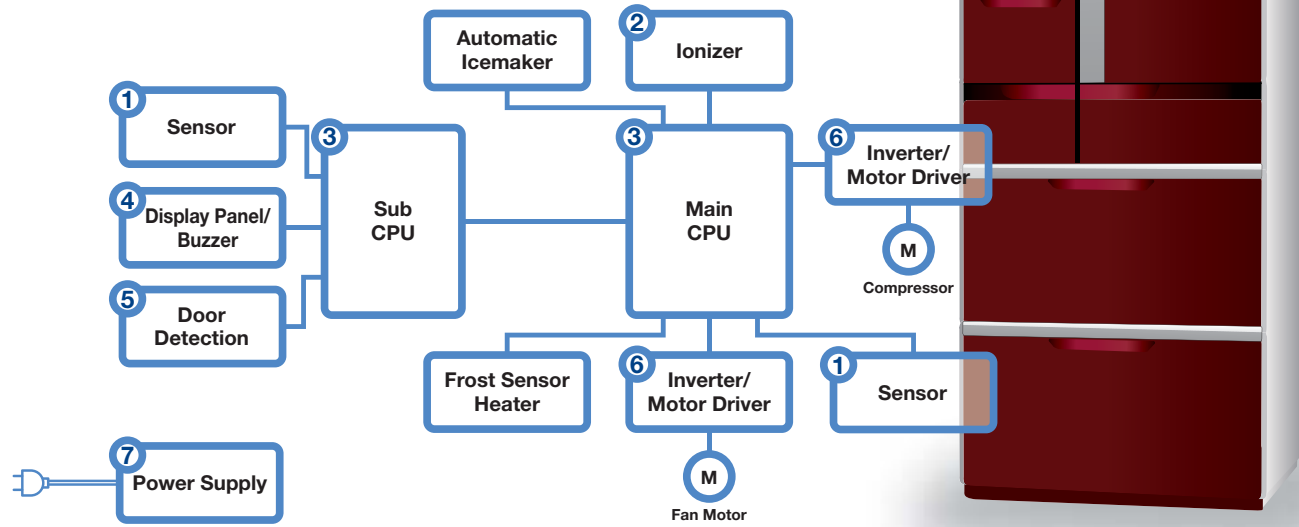
Noise Suppression



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Refrigerator



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Pyroelectric Infrared Sensors
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Thermistors
PRF/NCP/NXFT Series

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Ionizer Modules Ionissimo®
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4 Display Panel/Buzzer

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Medium High Voltage Ceramic Capacitors
DEA/DES Series

Safety Standard Certified Ceramic Capacitors
Type KX/KY

Trimmer Potentiometers
PVG3 Series

Thermistors
PTG/NTP Series

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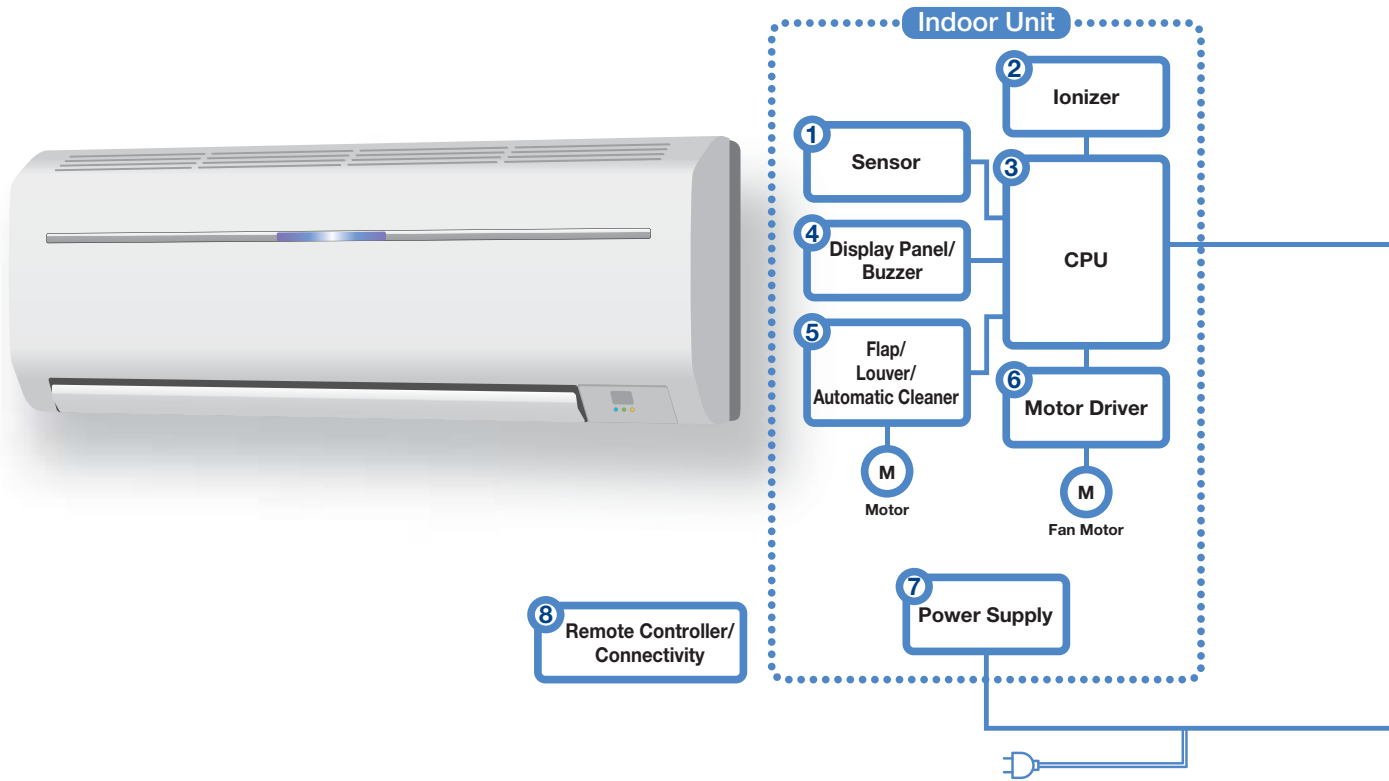
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General Purpose

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Piezoelectric Sounders PKM/PKLC Series  p69

5 Flap/Louver/Automatic Cleaner

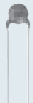
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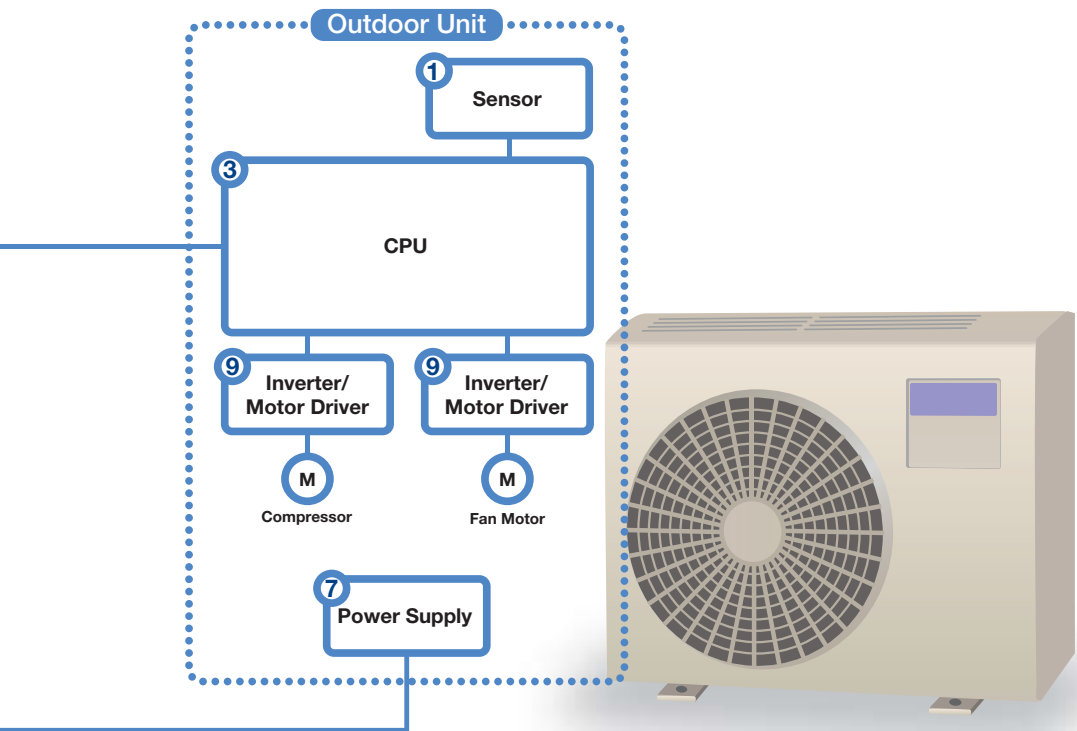
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9 Inverter/Motor Driver

Trimmer Potentiometers PVG3 Series



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Thermistors PRF/NCP/NXFT Series



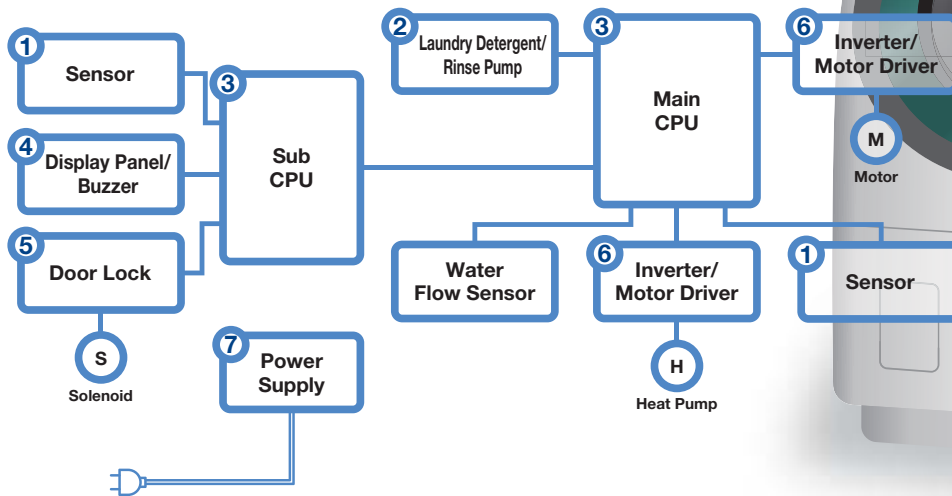
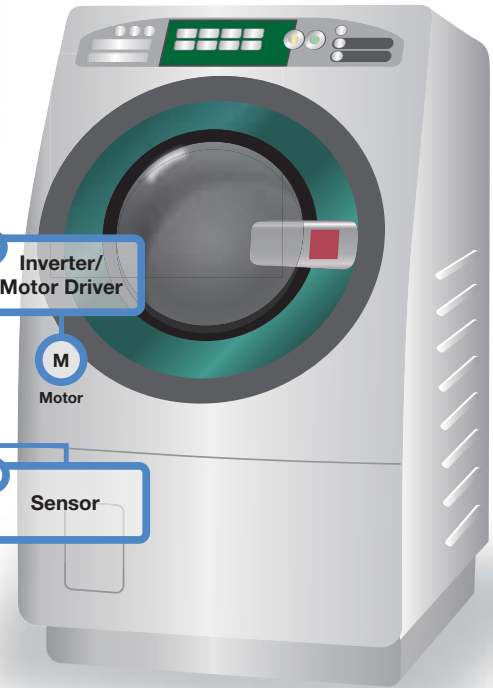
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Washing Machine



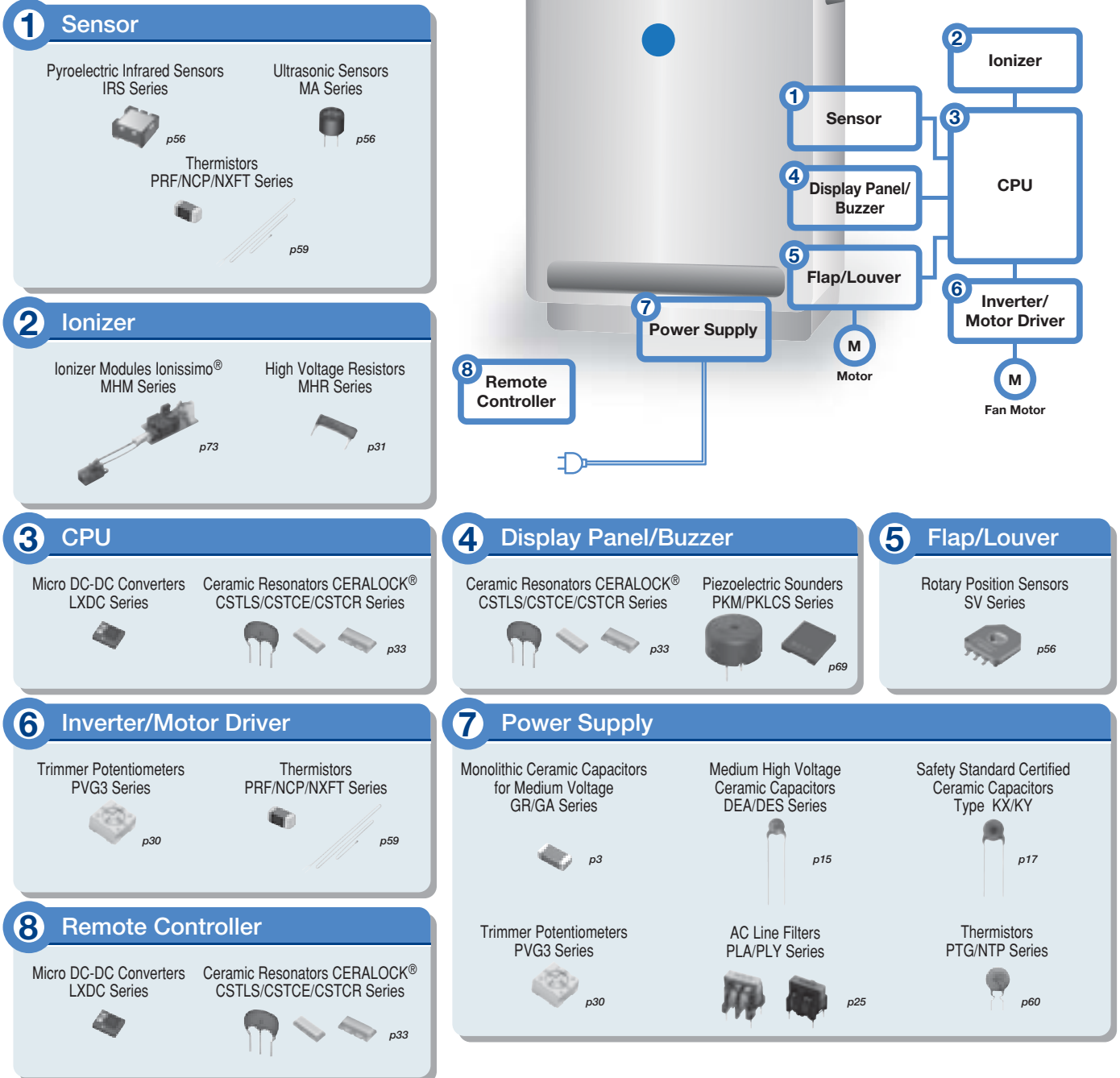
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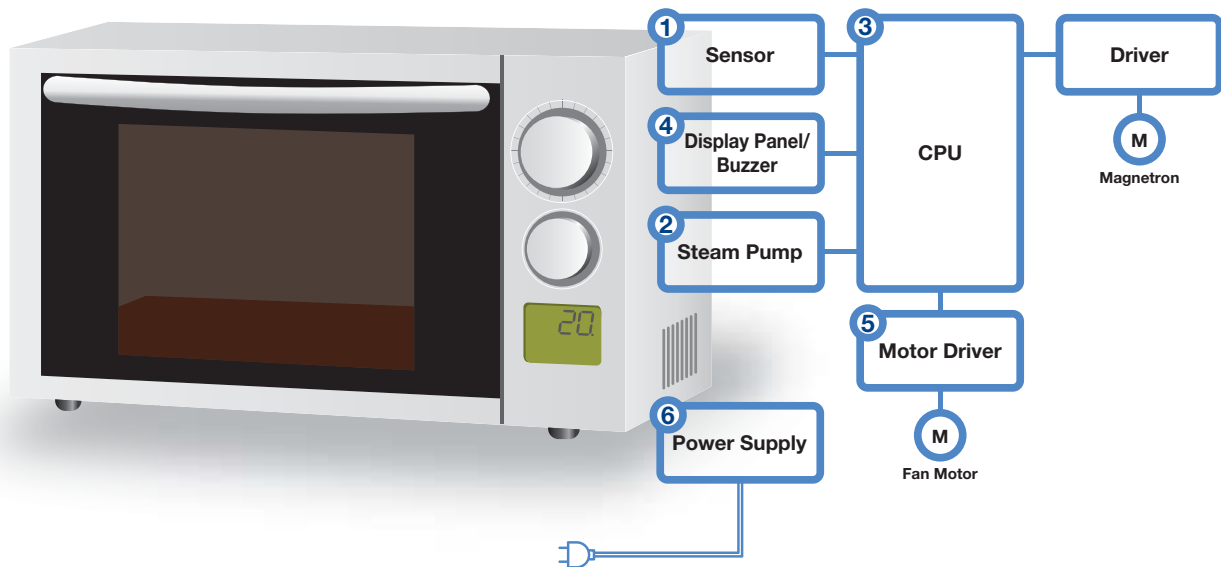
Air Purifier



General Purpose

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Microwave Oven



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PRF/NCP/NXFT Series



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2 Steam Pump

Microblowers



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3 CPU

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CSTLS/CSTCE/CSTCR Series



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5 Motor Driver

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4 Display Panel/Buzzer

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Piezoelectric Sounders
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6 Power Supply

Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



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Medium High Voltage
Ceramic Capacitors
DEA/DES Series



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Safety Standard Certified
Ceramic Capacitors
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Trimmer Potentiometers
PVG3 Series



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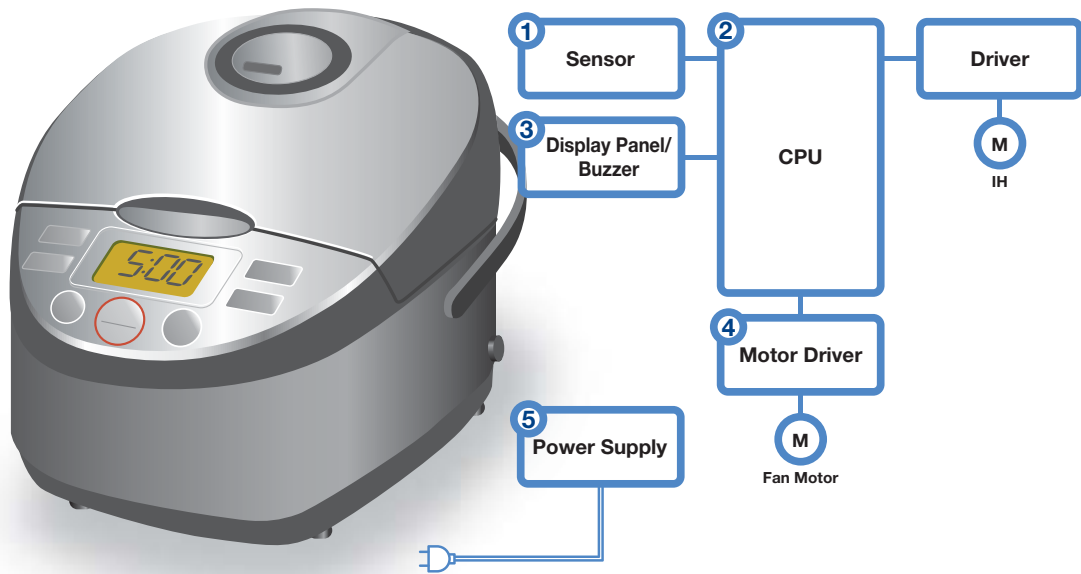
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IH Rice Cooker



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3 Display Panel/Buzzer
Ceramic Resonators CERALOCK®
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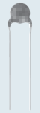
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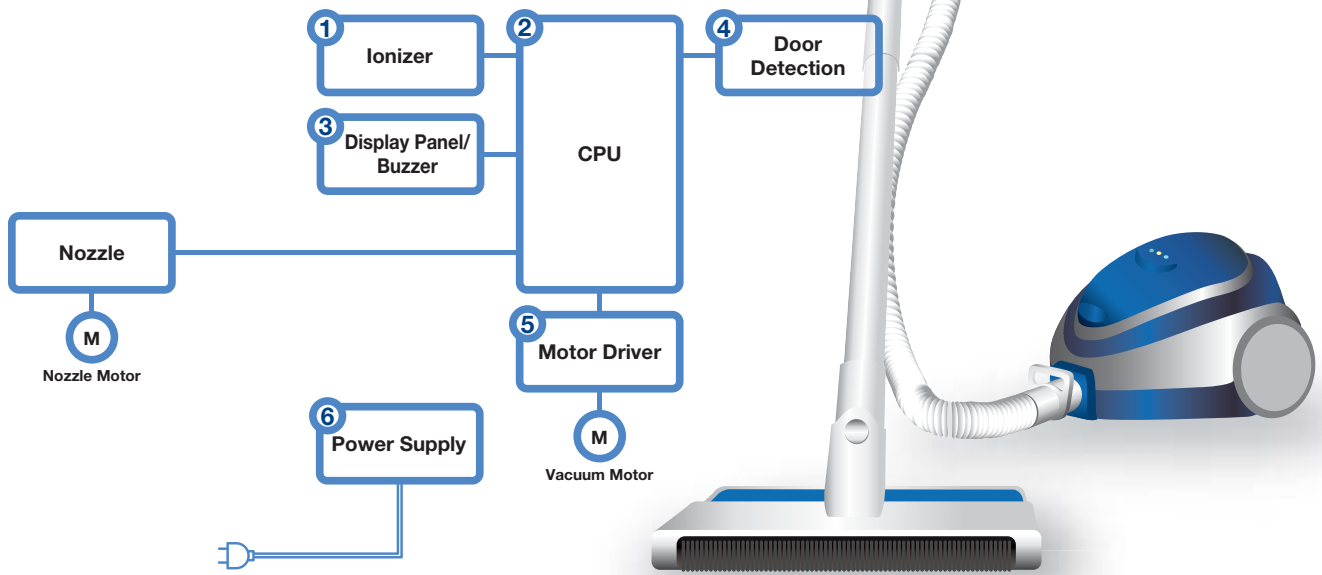
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Vacuum Cleaner



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MHR Series

2 CPU

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series

3 Display Panel/Buzzer

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR SeriesPiezoelectric Sounders
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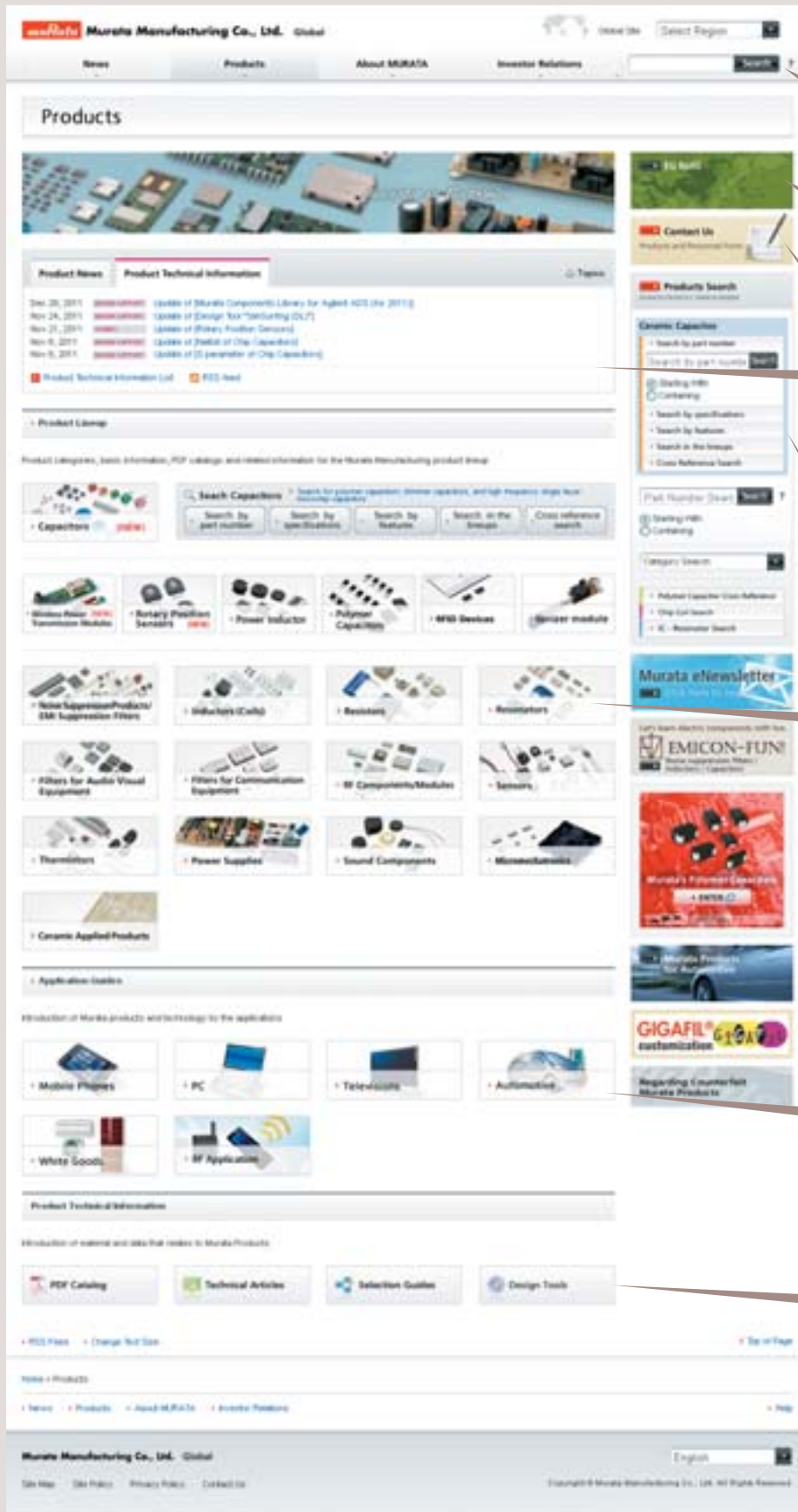
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 - Capacitor
 - DC bias characteristics (Absolute cap / change ratio)
 - Temperature characteristics (Absolute cap / change ratio)
 - Ripple exothermic characteristic (Absolute cap / change ratio)
 - AC voltage characteristics (Absolute cap / change ratio)
 - Inductor
 - DC bias characteristics (L-DC current @ each temp.)
 - Temperature characteristics of Inductance (L-Temperature @ each bias current)
 - Temperature characteristics of DC resistance (DCR-Temp.)
 - Magnetic loss
- Download SPICE Netlist / S-parameter

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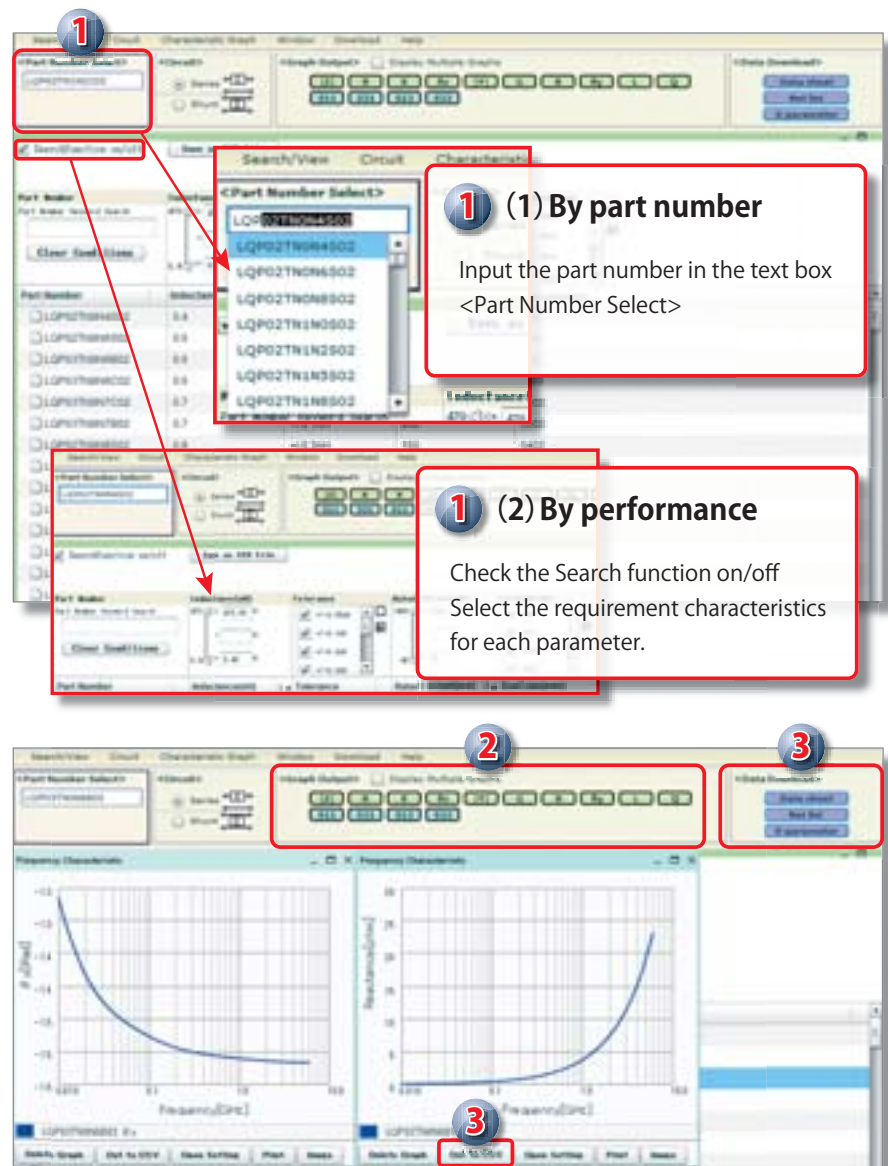
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