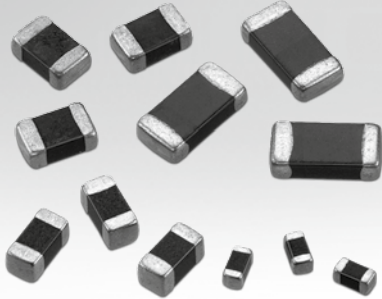


WE-VS

SMD Varistor

Size 0402 / 0603 / 0805



Characteristics

- Fast response time
- Low leakage current
- Nickel barrier for leadfree soldering
- Operating temperature: -40 °C to +85 °C

Notes

V_{RMS}/V_{DC} max. operating voltage
 V_{typ} typ. varistor voltage
 i_{BR} max. surge current (8/20 μ s)
 W_{max} max. energy absorption (10/1000 μ s)
 V_{Clamp} max. clamping voltage
 i_{Clamp} Test current for clamping voltage (8/20 μ s)
 C_{cn} capacitance (1 MHz)

Applications

- Protection of DC distribution
- Protection of power supply
- Protection of bus systems and communication lines
- Limiting of overvoltages
- Protection of semiconductors
- Surge protection in accordance with EN 61000-4-5
- ESD protection in accordance with EN 61000-4-2

QR-Code



Electrical properties: Size 0402

Order Code	V_{RMS} (V)	V_{DC} (V)	V_{BR} (V)	i_{peak} (A)	W_{max} (J)	V_{Clamp} (V)	i_{Clamp} (A)	C_{cn} (pF)	Typical Applications	Qty.
825 37 040	4	5.5	8	20	0.04	21	1	220	Microprocessor Protection	10000
825 57 060	6	9	12	20	0.05	20		190		
825 37 110	11	14	18	10	0.02	38		70	12V DC Distribution	
825 57 140	14	18	24	20	0.05	39		93	12V / 15V DC Distribution	

Electrical properties: Size 0603

Order Code	V_{RMS} (V)	V_{DC} (V)	V_{BR} (V)	i_{peak} (A)	W_{max} (J)	V_{Clamp} (V)	i_{Clamp} (A)	C_{cn} (pF)	Typical Applications	Qty.
825 36 040	4	5.5	8	30	0.1	21	1	200	Microprocessor Protection	4000
825 56 060	6	9	12	30	0.1	20		680		
825 36 110	11	14	18	30	0.1	38		100	12 V DC Distribution	
825 56 140	14	18	24	30	0.1	40		270	12 V/15 V DC Distribution	
825 36 140	14	18	25	30	0.1	45		100	12 V/15 V DC Distribution	
825 56 170	17	22	27	30	0.1	45		235		
825 56 200	20	26	33	30	0.1	54		200	24 V DC Distribution	
825 56 250	25	30	39	30	0.1	65		120	24 V DC Distribution	
825 56 300	30	38	47	30	0.1	77	100			

Electrical properties: Size 0805

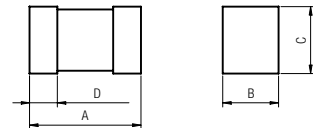
Order Code	V_{RMS} (V)	V_{DC} (V)	V_{BR} (V)	i_{peak} (A)	W_{max} (J)	V_{Clamp} (V)	i_{Clamp} (A)	C_{cn} (pF)	Typical Applications	Qty.
825 50 040	4	5.5	8	80	0.1	16	1	1600	Microprocessor Protection	3000
825 50 060	6	9	12	80	0.1	20		1180		
825 50 110	11	14	18	100	0.1	30		750		
825 50 140	14	18	24	100	0.2	40		550	12 V/15 V DC Distribution	
825 50 200	20	26	33	100	0.3	54		350	24 V DC Distribution	
825 50 250	25	30	39	100	0.3	65		310	24 V DC Distribution	
825 50 300	30	38	47	100	0.3	77		280		

Note

Varistors do not have an endless lifetime. Also a well dimensioned varistor may fail due to enormous overload. This will result in heating, smoke emission and/or disposure of varistor itself. Therefore we recommend to place varistors separate within a box on PCB.

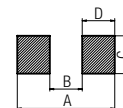
Furthermore a fuse should be used in the varistor's current path, which trips when varistor is destroyed. This fuse avoids secondary currents and therewith caused damages.

Dimensions



Size	A (mm)	B (mm)	C (mm)	D (mm)
0402	1.0 $^{+0.15}$	0.5 $^{+0.1}$	0.6 max.	0.25 $^{+0.15}$
0603	1.6 $^{+0.2}$	0.8 $^{+0.2}$	0.9 max.	0.3 $^{+0.2}$
0805	2.0 $^{+0.2}$	1.25 $^{+0.2}$	1.2 max.	0.3 $^{+0.2}$

Land pattern



Size	A (mm)	B (mm)	C (mm)	D (mm)
0402	1.0 ~ 1.8	0.4 ~ 0.6	0.6 ~ 0.7	0.6 ~ 1.2
0603	1.7 ~ 3.0	0.8 ~ 1.2	1.2 ~ 1.6	0.9 ~ 1.8
0805	2.1 ~ 3.8	1.0 ~ 1.5	1.5 ~ 2.1	1.1 ~ 2.3

WE-VS

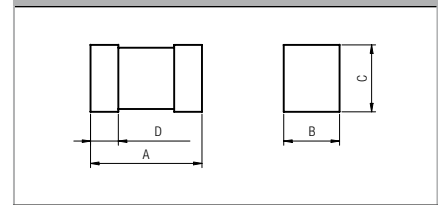
SMD Varistor

Size 1206 / 1210 / 1812 / 2220

Electrical properties: Size 1206

	Order Code	V _{RMS} (V)	V _{DC} (V)	V _{BR} (V)	i _{peak} (A)	W _{max} (J)	V _{Clamp} (V)	i _{Clamp} (A)	C _{cn} (pF)	Typical Applications	Qty.
	825 31 040	4	5.5	8	150	0.4	19	1	3600	Microprocessor Protection	4000
⚡	825 41 110	11	14	18	200	0.5	35		1500	12 V DC Distribution	3000
	825 31 140	14	18	22	150	0.4	40		1800	12 V/15 V DC Distribution	4000
	825 51 140	14	18	24	100	0.3	40		900	12 V/15 V DC Distribution	3000
	825 51 200	20	26	33	100	0.5	54		490	24 V DC Distribution	3000
	825 51 250	25	30	39	100	0.6	65		440	24 V DC Distribution	3000
⚡	825 41 250	25	30	39	200	1.0	72		620	24 V DC Distribution	3000
	825 51 300	30	38	47	100	0.7	77		400		3000
⚡	825 41 300	30	38	47	200	1.1	85		550		3000
⚡	825 41 350	35	45	56	200	1.1	100		400		3000
	825 31 400	40	56	70	200	1.0	110		180	48 V DC Distribution	4000

Dimensions

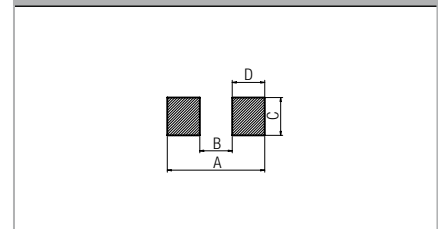


Size	A (mm)	B (mm)	C (mm)	D (mm)
1206	3.2 ^{+0.2}	1.6 ^{+0.2}	1.5 max.	0.5 ^{+0.3}
1210	3.2 ^{+0.2}	2.5 ^{+0.2}	1.5 max.	
1812	4.5 ^{+0.2}	3.2 ^{+0.2}	2.0 max.	
2220	5.7 ^{+0.2}	5.0 ^{+0.2}	2.5 max.	

Electrical properties: Size 1210

	Order Code	V _{RMS} (V)	V _{DC} (V)	V _{BR} (V)	i _{peak} (A)	W _{max} (J)	V _{Clamp} (V)	i _{Clamp} (A)	C _{cn} (pF)	Typical Applications	Qty.
⚡	825 43 140	14	18	24	400	1.4	45	2.5	2380	12 V/15 V DC Distribution	2000
⚡	825 43 200	20	26	33	400	1.9	60		1400	24 V DC Distribution	
⚡	825 43 250	25	30	39	400	1.9	72		1180	24 V DC Distribution	
⚡	825 33 300	30	38	47	400	2.0	85		1000		
	825 53 350	35	45	56	250	2.0	90		470		
	825 53 400	40	56	68	250	2.3	110		390	48 V DC Distribution	

Land pattern



Electrical properties: Size 1812

	Order Code	V _{RMS} (V)	V _{DC} (V)	V _{BR} (V)	i _{peak} (A)	W _{max} (J)	V _{Clamp} (V)	i _{Clamp} (A)	C _{cn} (pF)	Typical Applications	Qty.
	825 55 140	14	18	24	500	1.7	40	5	3930	12 V/15 V DC Distribution	1000
⚡	825 35 250	25	30	39	800	3.7	72		2950	24 V DC Distribution	
⚡	825 35 300	30	38	47	800	4.2	85		2550		
⚡	825 45 350	35	45	56	800	4.2	100		2400		

Size	A (mm)	B (mm)	C (mm)	D (mm)
1206	3.0 ~ 5.8	1.8 ~ 2.5	1.8 ~ 2.6	1.2 ~ 3.3
1210	3.2 ~ 6.1	1.8 ~ 2.5	2.8 ~ 3.8	1.3 ~ 3.5
1812	4.0 ~ 7.3	2.5 ~ 3.5	3.3 ~ 4.5	1.5 ~ 3.8
2220	5.0 ~ 8.5	3.5 ~ 4.6	5.2 ~ 6.2	1.5 ~ 3.9

Electrical properties: Size 2220

	Order Code	V _{RMS} (V)	V _{DC} (V)	V _{BR} (V)	i _{peak} (A)	W _{max} (J)	V _{Clamp} (V)	i _{Clamp} (A)	C _{cn} (pF)	Typical Applications	Qty.
⚡	825 42 140	14	18	24	1200	5.8	45	10	13600	12 V/15 V DC Distribution	1000
⚡	825 32 250	25	30	39	1200	9.6	72		8900	24 V DC Distribution	
⚡	825 32 300	30	38	47	1200	12.0	85		5700		
⚡	825 42 350	35	45	56	1200	12.0	100		4800		

Notes
V_{RMS}/V_{DC} max. operating voltage
V_{BR} typ. varistor voltage
i_{peak} max. surge current (8/20 μs)
W_{max} max. energy absorption (10/1000 μs)
V_{Clamp} max. clamping voltage
i_{Clamp} Test current for clamping voltage (8/20 μs)
C_{cn} capacitance (1 MHz)
⚡ High-Surge Types