Description

The SV Series of transient voltage suppressors are epoxy-coated square or rectangular shaped leaded varistors with AC operating voltage ranging 60V to 680V. There are two versions of these varistors.

The standard version of square varistors, featuring extremely high-current and high-energy capabilities and low clamping voltages, provides an increased level of protection necessary for the transients expected in telecommunications and AC power networks. Compared to standard disc varistors, SV series varistors realize electrical equivalent values in smaller nominal dimensions.

In the custom version of the SV series, a customer can design (on their own or with our help) an optimum varistor with minimum dimensions to satisfy a specific application. A customer can choose from the following parameters: non-standard DC/AC operating voltage, leakage current, clamping voltage, maximum surge current, energy absorption level, maximum dissipation power, as well as shape (dimensions being the function of required electrical parameters and vice-versa.

Features

Standard Varistor Types

- AC operating voltage (Vrms) from 60V to 680V
- DC operating voltage (Vdc) from 85V to 895V
- 6 model sizes equivalent to standard disc varistors from 5mm to 23mm
- Smaller nominal dimensions
- Broad range of current and energy handling capabilities
- +85ºC continuous operating temperature
- Low clamping voltage
- Available with straight and crimped leads
- UL, CAC, CEDD approved
- Available in tape and reel for automatic pick and place
- UL1449 & CSAC22.2 File E221545 Section 4.c
- Lead-free RoHS compliant

Full Custom Parameter Design Varistors

- AC operating voltage range (Vrms) from 60V to 1000V
- DC operating voltage (Vdc) from 85V to 1300V
- Indefinite number of both square and rectangular shape, the maximum one being 23x23mm
- Broad range of current and energy handling capabilities
- +125ºC continuous operating temperature
- Electrical parameters available for custom designs are: AC/DC operating voltage, leakage current, clamping voltage, maximum surge current, energy absorption level, maximum dissipation power and threshold voltage temperature coefficient
- Available in tape and reel for automatic pick and place
- Lead-free RoHS compliant

Datasheet.Cloud

General Technical Data		
Climatic Category	40 / 85 / 56	In accordance with IEC 60068-1
Operating Temperature	-40ºC to +85ºC	In accordance with CECC 42 000
Storage Temperature Range	-40ºC to +125ºC	
Minimum Threshold Voltage Temperature Coefficient	-0.001%/ºC	
Isolation Voltage Capability	> 2.5kV	In accordance with CECC 42 000
Response Time	< 25 nS	
Insulation Resistance	> 1Gohm	In accordance with CECC 42 000

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Standard Packaging Options / Quantities

Series	Voltage Range (Vrms)	5mm		7mm		10mm		14mm		20mm		23mm
		TR	Bulk	TR	Bulk	TR	Bulk	TR	Bulk	TR	Bulk	Bulk
SV	60	1,500	1,300	1,500	1,000	1,300	500	600	400	600	250	N/A
	75	1,300	1,300	1,300	1,000	1,300	500	600	400	600	250	N/A
	95	1,300	1,300	1,300	900	1,200	500	600	400	500	250	N/A
	115 - 140	1,300	1,300	1,300	900	1,200	400	500	400	500	250	150
	150 - 175	1,200	1,300	1,200	900	1,000	400	500	400	500	250	150
	230	1,000	900	1,200	900	1,000	400	500	250	500	250	150
	250 - 275	1,000	900	1,000	900	900	400	400	250	400	250	150
	300	N/A	N/A	900	900	800	400	400	250	400	150	150
	320	N/A	N/A	N/A	N/A	800	400	400	250	300	150	100
	385 - 420	N/A	N/A	N/A	N/A	700	300	300	250	300	150	100
	460 - 680	N/A	N/A	N/A	N/A	600	300	300	250	300	150	100

How to Order

1	2	3	4	5	6	7	8	9
S	V	1	4	0	K	1	4	B

Product Series
SV

Vrms
See Device Ratings & Dimensions Table

Tolerance	
Code	Tol
K	10%
S	Special

Disc Diameter
Size (mm)
5
7
10
14
20
23

Packaging	
Code	Description
B	Bulk
T	Tape and Reel

Legacy Part Number (before January 3, 2011):

SEI Type	Lead Style	Vrms	Tolerance	Disc Diameter	Packaging	Special
SV	1	140	K	14	B	XX

Type
SV

Lead Style	Description
1	Straight
5	Kinked

Code	Tolerance
K	10%
S	Special

Size (mm)
5
7
10
14
20
23

Code	Description
B	Bulk
R	Tape & Reel

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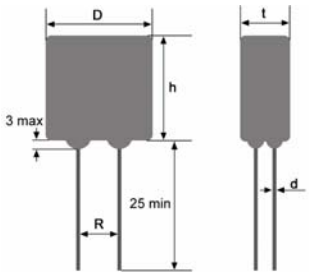

Device Ratings and Dimensions

Part Number	Vrms (V)	Vdc (V)	Vn @ 1mA (V)	Vc (V)	Ic (A)	Wmax 10/1000 µs (J)	P max (W)	Imax 8/20 µs (A)	C typ. 1 kHz (pF)	D max (mm)	t max (mm)	R (mm)	d (mm)	h max (mm)
SV60K5	60	85	100	155	5	4	0.10	600	370	7	3.5	5	0.6	9.5
SV60K7	60	85	100	155	10	9	0.25	1,750	900	9	3.5	5	0.6	11.5
SV60K10	60	85	100	155	25	20	0.40	3,500	1,380	12	4.1	7.5	0.8	15
SV60K14	60	85	100	155	50	42	0.60	8,000	2,300	16	4.2	7.5	0.8	19
SV60K20	60	85	100	155	100	89	1.00	12,000	3,400	22.5	4.5	10	0.8	26
SV75K5	75	100	120	190	5	5	0.10	600	300	7	3.6	5	0.6	9.5
SV75K7	75	100	120	190	10	11	0.25	1,750	720	9	3.6	5	0.6	11.5
SV75K10	75	100	120	190	25	26	0.40	3,500	1,080	12	4.2	7.5	0.8	15
SV75K14	75	100	120	190	50	51	0.60	8,000	1,850	16	4.2	7.5	0.8	19
SV75K20	75	100	120	190	100	101	1.00	12,000	3,100	22.5	4.6	10	0.8	26
SV95K5	95	125	150	240	5	7	0.10	600	240	7	3.8	5	0.6	9.5
SV95K7	95	125	150	240	10	14	0.25	1,750	580	9	3.8	5	0.6	11.5
SV95K10	95	125	150	240	25	31	0.40	3,500	870	12	4.3	7.5	0.8	15
SV95K14	95	125	150	240	50	64	0.60	8,000	1,480	16	4.3	7.5	0.8	19
SV95K20	95	125	150	240	100	133	1.00	12,000	2,700	22.5	4.6	10	0.8	26
SV115K5	115	150	180	290	5	8	0.10	600	200	7	4.0	5	0.6	9.5
SV115K7	115	150	180	290	10	16	0.25	1,750	480	9	4.0	5	0.6	11.5
SV115K10	115	150	180	290	25	37	0.40	3,500	750	12	4.3	7.5	0.8	15
SV115K14	115	150	180	290	50	78	0.60	8,000	1,230	16	4.4	7.5	0.8	19
SV115K20	115	150	180	290	100	147	1.00	12,000	2,200	22.5	4.8	10	0.8	26
SV130K5	130	170	205	320	5	9	0.10	600	180	7	4.0	5	0.6	9.5
SV130K7	130	170	205	320	10	19	0.25	1,750	430	9	4.0	5	0.6	11.5
SV130K10	130	170	205	320	25	42	0.40	3,500	670	12	4.5	7.5	0.8	15
SV130K14	130	170	205	320	50	85	0.60	8,000	1,100	16	4.6	7.5	0.8	19
SV130K20	130	170	205	320	100	177	1.00	12,000	2,150	22.5	5.0	10	1.0	26
SV130K23	130	170	205	320	100	222	1.00	15,000	3,390	25	5.0	10	1.0	27
SV140K5	140	180	220	340	5	9	0.10	600	170	7	4.1	5	0.6	9.5
SV140K7	140	180	220	340	10	22	0.25	1,750	400	9	4.1	5	0.6	11.5
SV140K10	140	180	220	340	25	46	0.40	3,500	620	12	4.6	7.5	0.8	15
SV140K14	140	180	220	340	50	94	0.60	8,000	1,020	16	4.7	7.5	0.8	19
SV140K20	140	180	220	340	100	196	1.00	12,000	1,900	22.5	5.4	10	1.0	26
SV140K23	140	180	220	340	100	247	1.00	15,000	3,340	25	5.4	10	1.0	27
SV150K5	150	200	240	360	5	11	0.10	600	160	7	4.3	5	0.6	9.5
SV150K7	150	200	240	360	10	23	0.25	1,750	380	9	4.3	5	0.6	11.5
SV150K10	150	200	240	360	25	51	0.40	3,500	590	12	4.8	7.5	0.8	15
SV150K14	150	200	240	360	50	101	0.60	8,000	690	16	4.8	7.5	0.8	19
SV150K20	150	200	240	360	100	213	1.00	12,000	1,740	22.5	5.6	10	1.0	26
SV150K23	150	200	240	360	100	270	1.00	15,000	3,050	25	5.6	10	1.0	27
SV175K5	175	225	270	420	5	11	0.10	600	140	7	4.8	5	0.6	9.5
SV175K7	175	225	270	420	10	26	0.25	1,750	330	9	4.8	5	0.6	11.5
SV175K10	175	225	270	420	25	58	0.40	3,500	500	12	5.0	7.5	0.8	15
SV175K14	175	225	270	420	50	119	0.60	8,000	830	16	5.0	7.5	0.8	19
SV175K20	175	225	270	420	100	241	1.00	12,000	1,630	22.5	5.8	10	1.0	26
SV175K23	175	225	270	420	100	305	1.00	15,000	2,870	25	5.8	10	1.0	27
SV230K5	230	300	360	550	5	16	0.10	600	110	7	4.8	5	0.6	9.5
SV230K7	230	300	360	550	10	35	0.25	1,750	250	9	4.8	5	0.6	11.5
SV230K10	230	300	360	550	25	78	0.40	3,500	400	12	5.4	7.5	0.8	15
SV230K14	230	300	360	550	50	157	0.60	8,000	650	16	5.5	7.5	0.8	19
SV230K20	230	300	360	550	100	322	1.00	12,000	1,220	22.5	5.9	10	1.0	26
SV230K23	230	300	360	550	100	407	1.00	15,000	2,020	25	5.9	10	1.0	27

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Devices Ratings and Dimensions

Part Number	Vrms (V)	Vdc (V)	Vn @ 1mA (V)	Vc (V)	Ic (A)	Wmax 10/1000 µs (J)	P max (W)	Imax 8/20 µs (A)	C typ. 1 kHz (pF)	D max (mm)	t max (mm)	R (mm)	d (mm)	h max (mm)
SV250K5	250	320	390	590	5	17	0.10	600	100	7	5	5	0.6	9.5
SV250K7	250	320	390	590	10	38	0.25	1,750	240	9	5	5	0.6	11.5
SV250K10	250	320	390	590	25	85	0.40	3,500	370	12	5.6	7.5	0.8	15
SV250K14	250	320	390	590	50	169	0.60	8,000	600	16	5.7	7.5	0.8	19
SV250K20	250	320	390	590	100	345	1.00	12,000	1,130	22.5	6.1	10	1.0	26
SV250K23	250	320	390	590	100	437	1.00	15,000	1,980	25	6.1	10	1.0	27
SV275K5	275	350	430	680	5	20	0.10	600	90	7	5.6	5	0.6	9.5
SV275K7	275	350	430	680	10	44	0.25	1,750	220	9	5.6	5	0.6	11.5
SV275K10	275	350	430	680	25	97	0.40	3,500	350	12	6	7.5	0.8	15
SV275K14	275	350	430	680	50	187	0.60	8,000	550	16	6	7.5	0.8	19
SV275K20	275	350	430	680	100	380	1.00	12,000	1,030	22.5	6.3	10	1.0	26
SV275K23	275	350	430	680	100	481	1.00	15,000	1,800	25	6.3	10	1.0	27
SV300K7	300	385	470	700	10	46	0.25	1,750	200	9	5.8	5	0.6	11.5
SV300K10	300	385	470	700	25	102	0.40	3,500	320	12	6.1	7.5	0.8	15
SV300K14	300	385	470	700	50	211	0.60	8,000	510	16	6.1	7.5	0.8	19
SV300K20	300	385	470	700	100	437	1.00	12,000	940	22.5	6.6	10	1.0	27
SV300K23	300	385	470	700	100	554	1.00	15,000	1,650	25	6.6	10	1.0	29
SV320K10	320	420	510	760	25	144	0.40	3,500	300	12	6.5	7.5	0.8	15
SV320K14	320	420	510	760	50	230	0.60	8,000	480	16	6.8	7.5	0.8	19
SV320K20	320	420	510	760	100	485	1.00	12,000	860	22.5	6.8	10	1.0	27
SV320K23	320	420	510	760	100	611	1.00	15,000	1,520	25	6.8	10	1.0	29
SV385K10	385	505	620	900	25	116	0.40	3,500	270	12	6.9	7.5	0.8	15
SV385K14	385	505	620	900	50	241	0.60	8,000	410	16	6.9	7.5	0.8	19
SV385K20	385	505	620	900	100	495	1.00	12,000	710	22.5	7.5	10	1.0	27
SV385K23	385	505	620	900	100	624	1.00	15,000	1,250	25	7.5	10	1.0	29
SV420K10	420	560	680	980	25	121	0.40	3,500	240	12	7.3	7.5	0.8	15
SV420K14	420	560	680	980	50	253	0.60	8,000	380	16	7.4	7.5	0.8	19
SV420K20	420	560	680	980	100	523	1.00	12,000	680	22.5	7.8	10	1.0	27
SV420K23	420	560	680	980	100	670	1.00	15,000	1,200	25	7.8	10	1.0	29
SV460K10	460	615	750	1,080	25	132	0.40	3,500	230	12	7.8	7.5	0.8	15
SV460K14	460	615	750	1,080	50	275	0.60	8,000	350	16	7.8	7.5	0.8	19
SV460K20	460	615	750	1,080	100	572	1.00	12,000	620	22.5	8.2	10	1.0	27
SV460K23	460	615	750	1,080	100	728	1.00	15,000	1,080	25	8.2	10	1.0	29
SV510K10	510	670	820	1,200	25	144	0.40	3,500	210	12	8.2	7.5	0.8	15
SV510K14	510	670	820	1,200	50	284	0.60	8,000	330	16	8.2	7.5	0.8	19
SV510K20	510	670	820	1,200	100	598	1.00	12,000	570	22.5	8.7	10	1.0	27
SV510K23	510	670	820	1,200	100	750	1.00	15,000	1,000	25	8.7	10	1.0	29
SV550K10	550	745	910	1,350	25	168	0.40	3,500	200	12	8.8	7.5	0.8	15
SV550K14	550	745	910	1,350	50	330	0.60	8,000	310	16	8.8	7.5	0.8	19
SV550K20	550	745	910	1,350	100	644	1.00	12,000	510	22.5	9.2	10	1.0	27
SV550K23	550	745	910	1,350	100	815	1.00	15,000	900	25	9.2	10	1.0	29
SV575 K 10	575	750	950	1,400	25	172	0.40	3,500	190	12	8.9	7.5	0.8	15
SV575 K 14	575	750	950	1,400	50	340	0.60	8,000	300	16	8.9	7.5	0.8	19
SV575 K 20	575	750	950	1,400	100	670	1.00	12,000	490	22.5	9.4	10	1.0	27
SV575 K 23	575	750	950	1,400	100	850	1.00	15,000	850	25	9.4	10	1.0	29
SV625 K 10	625	825	1,000	1,450	25	185	0.40	3,500	180	12	9.1	7.5	0.8	15
SV625 K 14	625	825	1,000	1,450	50	360	0.60	8,000	280	16	9.5	7.5	0.8	19
SV625 K 20	625	825	1,000	1,450	100	720	1.00	12,000	460	22.5	9.7	10	1.0	27
SV625 K 23	625	825	1,000	1,450	100	900	1.00	15,000	750	25	9.7	10	1.0	29
SV680 K 10	680	895	1,100	1,700	25	197	0.40	3,500	170	12	9.7	7.5	0.8	15
SV680 K 14	680	895	1,100	1,700	50	390	0.60	8,000	270	16	10.1	7.5	0.8	19
SV680 K 20	680	895	1,100	1,700	100	780	1.00	12,000	430	22.5	10.3	10	1.0	27
SV680 K 23	680	895	1,100	1,700	100	980	1.00	15,000	730	25	10.3	10	1.0	29

Type SV …K20 with Imax = 1 x 15 kA @ 8/20 µs available upon request
Type SV …K23 with Imax = 1 x 20 kA @ 8/20 µs available upon request

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