

Description:

ZOV Series of varistors are square shaped components that feature a wide range of surge current and energy absorption capabilities over an operating voltage range from 60 to 680 Vrms. There are two versions of these varistors.

The standard version is available in 5 model sizes from 23mm to 60mm, with single-pulse (8/20 us) surge capabilities ranging from 15kA to 80kA. Offered in both block format and rigid leaded construction, these varistors provide excellent protection against high-energy transients such as inductively coupled lightning strikes, line switching load surges, and other transient events where large amounts on current are present.



The second version features a broad range of custom parameters to meet specific over-voltage protection requirements. Customers are given the opportunity to design the optimum varistor with minimum dimensions to satisfy a custom TVS application. Available customized parameters are: non-standard AC/DC operating voltages, maximum surge current, maximum dissipation power and the varistors shape, the dimensions being a function of required electrical parameters and vice-versa.

Both of these groups are offered in two versions: epoxy coated with rigid terminals and metalized varistor blocks. The first version is designed to provide secondary surge protection in outdoor and service entrance environments (distribution panels), in computers and also in industrial applications for motor controls and power supplies for equipment in oil-drilling, mining and transportation. The second version is intended for applications with special contact or installation requirements. The electrode finish of these devices is solderable, and can also be used with pressure contacts for stacking applications..

Features:

Standard Varistor Types

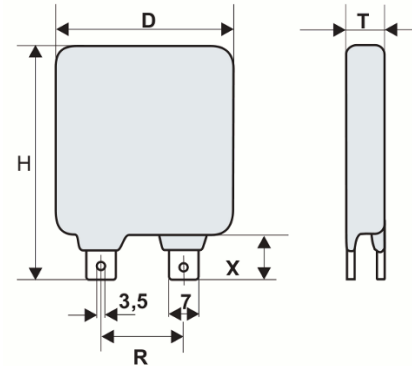
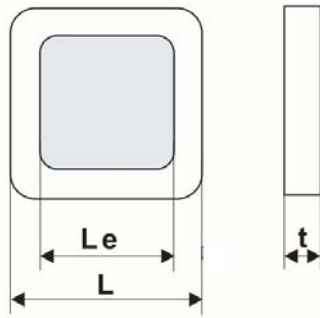
- AC operating voltage (Vrms) from 60V to 680V
- DC operating voltage (Vdc) from 85V to 895V
- Available either as epoxy coated varistors with rigid terminals or as metalized varistor blocks
- Broad range of current and energy handling capabilities
- Low limiting voltage @ Ip/2
- +85°C continuous operating temperature
- 5 model sizes available 23, 25, 32, 40 and 60 mm
- In-house testing according to VDE 0675
- UL, CAC, CEDD approved

Full Custom Parameter Design Varistors

- AC operating voltage range (Vrms) from 60V to 680V
- DC operating voltage (Vdc) from 85V to 895V
- Indefinite number of sizes of both square and rectangular shape, the maximum one being 45x90mm
- Broad range of current and energy handling capabilities
- +85°C continuous operating temperature
- Available customized parameter are: AC/DC operating voltage, leakage current, clamping voltage, maximum surge current, energy absorption level, maximum dissipation power and threshold voltage temperature coefficient
- Available either as epoxy coated varistors with rigid terminals or as metalized varistor blocks

How to Order

SEI Type		Vrms	Tolerance		Model Size	Design	
ZOV		680	J		60	E	
Code	Description		Code	Tolerance	Size (mm)	Code	Description
ZOV	High Energy Varistor		J	5%	23	E	Epoxy coated varistor with rigid terminals
			K	10%	25	M	Metalized varistor block
			L	15%	32	ME	Uncoated block with rigid terminals
			M	20%	40		
			S	Special	60		



Size Parameters

Metallised Varistor Block			Epoxy Coated Varistor Block			
Size	Lmax mm	Lemax mm	Size	Dmax mm	R ± 1 mm	Hmax mm
23	23	18	23	25	18.5	43
25	23	20	25	25	18.5	43
32	30	28	32	35	25.4	53
40	34	31	40	36.5	25.4	56
60	43	39	60	48	25.4	66

General Technical Data

	Standard Values		Custom Designed Values
Climatic Category	40 / 85 / 56	In accordance with IEC 60068-1	40 / 85 / 56
Operating Temperature	-40°C to +85°C	In accordance with CECC 42 000	-40°C to +85°C
Storage Temperature Range	-40°C to +125°C		-40°C to +125°C
Threshold Voltage Temperature	< +0.05% / °C		< +0.05% / °C
Isolation Voltage Capability	> 2.5kV	In accordance with CECC 42 000	> 2.5kV
Response Time	< 25 nS		< 25 nS
Insulation Resistance	> 1 Gohm	In accordance with CECC 42 000	> 1 Gohm

Standard Packaging Options / Quantities

Series	Voltage Range	Varistor Sizes	Varistor Configuration Options (Available on All Sizes)
ZOV	60 - 680	23	Epoxy coated with rigid terminals
	60 - 680	25	
	60 - 680	32	
	60 - 680	40	Non-coated with rigid terminals
	130 - 680	60	
			Metalized varistor blocks

ZOVs will be packaged in resilient polystyrene plastic containers. The quantity per container will depend upon voltage, size and configuration. Quantities generally range between 50 and 100 pieces per box, contact Stackpole for exact count.

Device Ratings and Dimensions

Part Number	V _{RMS}	V _{DC}	V _N @ 1 Ma	V _C @ IC	I _C	W _{MAX} 10/1000 µs	P _{MAX}	I _{MAX} 8/20 µs	C @ 1 kHz	t _{MAX}	T _{MAX}
	(volts)	(volts)	(volts)	(volts)	(amps)	(joules)	(watts)	(amps)	(pF)	(mm)	(mm)
ZOV 60 K 23	60	85	100	165	100	90	1.0	18,000	3850	1.0	7.7
ZOV 60 K 25	60	85	100	165	150	125	1.0	20,000	4850	1.0	7.7
ZOV 60 K 32	60	85	100	165	200	250	1.2	30,000	9700	1.0	7.7
ZOV 60 K 40	60	85	100	165	300	300	1.4	45,000	12000	1.0	7.7
ZOV 75 K 23	75	100	120	200	100	100	1.0	18,000	3500	1.1	7.9
ZOV 75 K 25	75	100	120	200	150	145	1.0	20,000	4500	1.1	7.9
ZOV 75 K 32	75	100	120	200	200	280	1.2	30,000	8900	1.1	7.9
ZOV 75 K 40	75	100	120	200	300	340	1.4	45,000	11000	1.1	7.9
ZOV 95 K 23	95	125	150	250	100	135	1.0	18,000	2950	1.3	8.1
ZOV 95 K 25	95	125	150	250	150	190	1.0	20,000	3680	1.3	8.1
ZOV 95 K 32	95	125	150	250	200	380	1.2	30,000	7470	1.3	8.1
ZOV 95 K 40	95	125	150	250	300	450	1.4	45,000	9200	1.3	8.1
ZOV 130 K 23	130	170	205	340	100	180	1.0	18,000	2310	1.5	8.1
ZOV 130 K 25	130	170	205	340	150	250	1.0	20,000	2900	1.5	8.1
ZOV 130 K 32	130	170	205	340	200	500	1.2	30,000	5780	1.5	8.1
ZOV 130 K 40	130	170	205	340	300	600	1.4	45,000	7200	1.5	8.1
ZOV 130 K 60	130	170	205	340	500	960	1.6	80,000	11520	1.5	8.1
ZOV 150 K 23	150	200	240	395	100	215	1.0	18,000	1990	1.7	8.3
ZOV 150 K 25	150	200	240	395	150	300	1.0	20,000	2480	1.7	8.3
ZOV 150 K 32	150	200	240	395	200	600	1.2	30,000	4960	1.7	8.3
ZOV 150 K 40	150	200	240	395	300	720	1.4	45,000	6100	1.7	8.3
ZOV 150 K 60	150	200	240	395	500	1150	1.6	80,000	9760	1.7	8.3
ZOV 230 K 23	230	300	360	595	100	320	1.0	18,000	1320	2.4	9.0
ZOV 230 K 25	230	300	360	595	150	450	1.0	20,000	1650	2.4	9.0
ZOV 230 K 32	230	300	360	595	200	900	1.2	30,000	3300	2.4	9.0
ZOV 230 K 40	230	300	360	595	300	1080	1.4	45,000	4060	2.4	9.0
ZOV 230 K 60	230	300	360	595	500	1730	1.6	80,000	6490	2.4	9.0
ZOV 250 K 23	250	320	390	650	100	350	1.0	18,000	1220	2.6	9.2
ZOV 250 K 25	250	320	390	650	150	490	1.0	20,000	1530	2.6	9.2
ZOV 250 K 32	250	320	390	650	200	970	1.2	30,000	3050	2.6	9.2
ZOV 250 K 40	250	320	390	650	300	1160	1.4	45,000	3760	2.6	9.2
ZOV 250 K 60	250	320	390	650	500	1860	1.6	80,000	6050	2.6	9.2
ZOV 275 K 23	275	350	430	710	100	380	1.0	18,000	1100	2.8	9.4
ZOV 275 K 25	275	350	430	710	150	530	1.0	20,000	1380	2.8	9.4
ZOV 275 K 32	275	350	430	710	200	1060	1.2	30,000	2770	2.8	9.4
ZOV 275 K 40	275	350	430	710	300	1280	1.4	45,000	3400	2.8	9.4
ZOV 275 K 60	275	350	430	710	500	2050	1.6	80,000	5440	2.8	9.4
ZOV 300 K 23	300	385	470	775	100	440	1.0	18,000	1010	3.1	9.7
ZOV 300 K 25	300	385	470	775	150	615	1.0	20,000	1270	3.1	9.7
ZOV 300 K 32	300	385	470	775	200	1225	1.2	30,000	2540	3.1	9.7
ZOV 300 K 40	300	385	470	775	300	1470	1.4	45,000	3130	3.1	9.7
ZOV 300 K 60	300	385	470	775	500	2350	1.6	80,000	5000	3.1	9.7

Device Ratings and Dimensions

Part Number	V _{RMS}	V _{DC}	V _N @ 1 Ma	V _C @ 1C	I _C	W _{MAX} 10/1000 μs	P _{MAX}	I _{MAX} 8/20 μs	C @ 1 kHz	t _{MAX}	T _{MAX}
	(volts)	(volts)	(volts)	(volts)	(amps)	(joules)	(watts)	(amps)	(pF)	(mm)	(mm)
ZOV 320 K 23	320	420	510	840	100	480	1.0	18,000	990	3.2	9.9
ZOV 320 K 25	320	420	510	840	150	680	1.0	20,000	1240	3.2	9.9
ZOV 320 K 32	320	420	510	840	200	1350	1.2	30,000	2470	3.2	9.9
ZOV 320 K 40	320	420	510	840	300	1620	1.4	45,000	3050	3.2	9.9
ZOV 320 K 60	320	420	510	840	500	2600	1.6	80,000	4880	3.2	9.9
ZOV 385 K 23	385	505	620	1025	100	500	1.0	18,000	810	3.8	10.6
ZOV 385 K 25	385	505	620	1025	150	690	1.0	20,000	1020	3.8	10.6
ZOV 385 K 32	385	505	620	1025	200	1390	1.2	30,000	2040	3.8	10.6
ZOV 385 K 40	385	505	620	1025	300	1660	1.4	45,000	2500	3.8	10.6
ZOV 385 K 60	385	505	620	1025	500	2660	1.6	80,000	4000	3.8	10.6
ZOV 420 K 23	420	560	680	1120	100	530	1.0	18,000	740	4.4	10.9
ZOV 420 K 25	420	560	680	1120	150	740	1.0	20,000	930	4.4	10.9
ZOV 420 K 32	420	560	680	1120	200	1480	1.2	30,000	1850	4.4	10.9
ZOV 420 K 40	420	560	680	1120	300	1780	1.4	45,000	2280	4.4	10.9
ZOV 420 K 60	420	560	680	1120	500	2850	1.6	80,000	3650	4.4	10.9
ZOV 460 K 23	460	615	750	1240	100	580	1.0	18,000	670	4.8	11.4
ZOV 460 K 25	460	615	750	1240	150	810	1.0	20,000	840	4.8	11.4
ZOV 460 K 32	460	615	750	1240	200	1610	1.2	30,000	1680	4.8	11.4
ZOV 460 K 40	460	615	750	1240	300	1930	1.4	45,000	2060	4.8	11.4
ZOV 460 K 60	460	615	750	1240	500	3090	1.6	80,000	3300	4.8	11.4
ZOV 510 K 23	510	670	820	1355	100	600	1.0	18,000	610	5.2	11.8
ZOV 510 K 25	510	670	820	1355	150	840	1.0	20,000	770	5.2	11.8
ZOV 510 K 32	510	670	820	1355	200	1680	1.2	30,000	1530	5.2	11.8
ZOV 510 K 40	510	670	820	1355	300	2010	1.4	45,000	1900	5.2	11.8
ZOV 510 K 60	510	670	820	1355	500	3220	1.6	80,000	3040	5.2	11.8
ZOV 550 K 23	550	745	910	1500	100	650	1.0	18,000	550	5.9	12.5
ZOV 550 K 25	550	745	910	1500	150	900	1.0	20,000	690	5.9	12.5
ZOV 550 K 32	550	745	910	1500	200	1810	1.2	30,000	1380	5.9	12.5
ZOV 550 K 40	550	745	910	1500	300	2170	1.4	45,000	1700	5.9	12.5
ZOV 550 K 60	550	745	910	1500	500	3470	1.6	80,000	2720	5.9	12.5
ZOV 680 K 23	680	895	1100	1815	100	770	1.0	18,000	460	6.9	13.5
ZOV 680 K 25	680	895	1100	1815	150	1080	1.0	20,000	570	6.9	13.5
ZOV 680 K 32	680	895	1100	1815	200	2160	1.2	30,000	1150	6.9	13.5
ZOV 680 K 40	680	895	1100	1815	300	2590	1.4	45,000	1400	6.9	13.5
ZOV 680 K 60	680	895	1100	1815	500	4140	1.6	80,000	2240	6.9	13.5