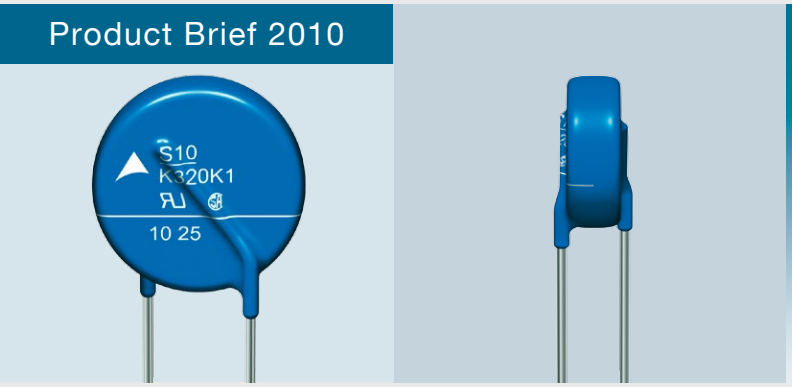
EPCOS

Product Brief 2010



Multiple Pulse (MP) Disk Varistors, S10

for the Protection of Consumer and Industrial Power Supplies

Metal oxide varistors of the newly developed MP series are designed to be used in power supplies as the primary protection against low-level repetitive surge currents.

Their optimized design results in an improved derating performance over time compared to standard varistor series.

These protective components are particularly suited for applications in which repetitive surges are now specified by regulatory authorities in switch-mode power supplies, drives and general overvoltage protection modules.

The extensive range which is already recognized by UL as type 3 SPD components, respectively, and by VDE to Annex Q of IEC 60950-1 cover all standard voltage supply ratings.

AdvanceD-MP series, 10 mm disk

- AC voltage range from 175 up to 680 V AC
- Listed under UL 1449 3rd Edition for type 3 applications
- Tested in accordance to IEC 61051-2
- VDE certified to Annex Q of IEC 60950-1
- Suitable for industrial applications requiring compliance to UL 508C, UL 840

Options

Disk diameters of 14 and 20 mm are also available

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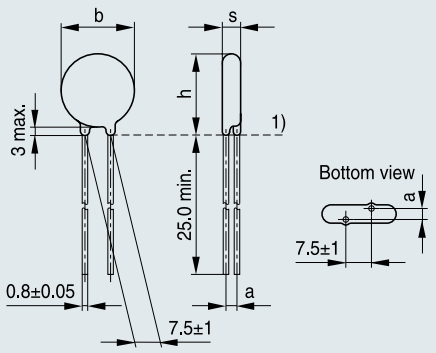
Technical data

Ordering code	B72210P…	2171K101	2271K101	2301K101	2321K101	2351K101
Type	**SIOV-S10K…**	**175E2K1**	**275E2K1**	**300E2K1**	**320E2K1**	**350E2K1**
Dimensions						
b_{max}	mm	12.0	12.0	12.0	12.0	12.5
h_{max}	mm	16.0	16.0	16.0	16.0	16.5
s_{max}	mm	5.1	5.9	6.1	6.3	6.7
a±1	mm	2.4	3.2	3.5	3.7	4.0
Maximum ratings @ T_A = 85 °C						
V_{RMS}	V	175	275	300	320	350
V_{DC}	V	225	350	385	420	460
i_{max} @ 8/20 µs	A	3500	3500	3500	3500	3500
W_{max} @ 2 ms	J	40	60	65	72	77
P_{max}	W	0.4	0.4	0.4	0.4	0.4
Characteristics @ T_A = 25 °C						
V_v @ 1 mA	V	270	430	470	510	560
ΔV_v @ 1 mA	%	±10	±10	±10	±10	±10
Maximum clamping voltage						
v_c @ i_c	V	455	710	775	840	910
i_c	A	25	25	25	25	25
C_{typ} @ 1 kHz	pF	360	180	175	170	150
Duty cycle surge rating @ (8/20 µs)						
3 kA [1]	times	5	5	5	5	5
750 A [1]	times	80	80	80	80	80

[1] The specified current value shows the actual 8/20 µs peak current through the varistor, not the current resulting from the combination wave test.

Dimensional drawing



1) Seating plane to IEC 60717

VAR0660-S-E

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2381K101	2421K101	2461K101	2511K101	2551K101	2621K101	2681K101
385E2K1	**420E2K1**	**460E2K1**	**510E2K1**	**550E2K1**	**625E2K1**	**680E2K1**
12.5	12.5	12.5	13.0	13.0	13.0	13.0
16.5	16.5	16.5	17.0	17.0	17.0	17.0
7.7	8.1	8.4	8.8	9.3	9.8	10.4
4.3	4.6	5.0	5.3	5.8	6.3	6.9
385	420	460	510	550	625	680
505	560	615	670	745	825	895
3500	3500	3500	3500	3500	3500	3500
82	87	92	92	97	105	115
0.4	0.4	0.4	0.4	0.4	0.4	0.4
620	680	750	820	910	1000	1100
±10	±10	±10	±10	±10	±10	±10
1025	1120	1240	1355	1500	1650	1815
25	25	25	25	25	25	25
145	125	105	100	90	80	75
5	5	5	5	5	5	5
80	80	80	25	25	25	25

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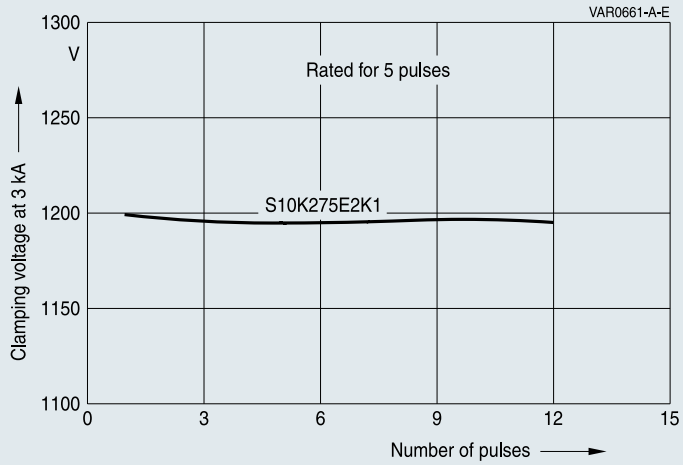
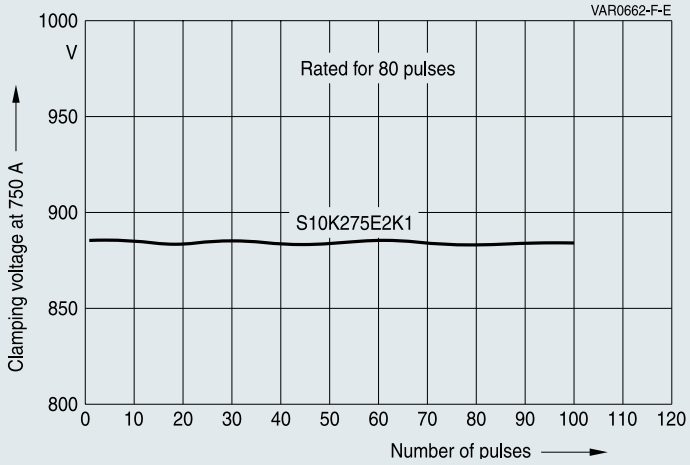
Typical repetitive surge current capability





Symbol and terms

Symbol	Term
C	Capacitance
C_{typ}	Typical capacitance
i	Current
i_c	Current at which $v_{c, max}$ is measured
i_{max}	Maximum surge current (also termed peak current)
I_{nom}	Nominal discharge current
P_{max}	Maximum average power dissipation
T_A	Ambient temperature
v	Voltage

Symbol	Term
V_{clamp}	Clamping voltage
$v_{c, max}$	Maximum clamping voltage at specified current i_c
V_{DC}	DC operating voltage
v_{max}	Maximum voltage
V_{RMS}	AC operating voltage, root-mean-square value
V_V	Varistor voltage
ΔV_V	Tolerance of varistor voltage
W_{max}	Maximum energy absorption
e	Lead spacing

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