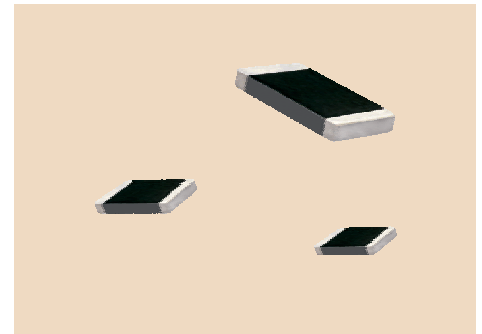


LOW CAPACITANCE & LOW ENERGY VARICONS® ZVX SERIES


Description

The ZVX Series are low-energy (0.1 J) varistor chips, designed specifically for the protection of I/O line drivers and other sensitive semiconductor gates from the damaging effects of high voltage, low energy transients such as ESD events. Unlike other competitive low-energy varistors, however, the ZVX Series offers all the protection features of standard varistor chips, *and exceptionally low values of capacitance*. In these applications, as the frequency of data transfer increases, lower capacitance is required to eliminate possible skewing of the data signals due to capacitive loading.



In most cases, the 1KHz capacitance values of the ZVX Series are less than one half that of competition. Further, this series is offered in 0603, 0805 and 1206 sizes, with an expanded range of voltages from 3V to 38Vdc. The ZVX Series offers a circuit design engineer the greatest range of high-frequency, low energy SMD varicon chips available in the marketplace today.

Features

- Operating voltage range V_{dc}3 V to 38 V.
- + 125 °C maximum continuous operating temperature
- 3 Model sizes available... 0603, 0805, 1206.
- **Exceptionally low capacitance ratings.**
- Short response time.
- Inherent bi-directional clamping, low clamping voltages.
- Dimensional and weight savings on the board.
- Non-sensitive to mildly activated fluxes (see Soldering Recommendations, page 25).
- End termination : AgPd or barrier type suitable for Pb-free soldering process - barrier type end terminations solderable with Pb-free solders according to JEDEC J-STD-020C and IEC60068-2-58.
- No plastic coating guarantees better flammability rating.
- U11449, C22.2 - File E221545 Section8.
- RoHS conform components complying  to 2002/95/EC and 2003/11/EC.
- AEC-Q200 qualified Grade 1.

Applications

- Suppression of inductive switching or other transient events such as surge voltage at the circuit board level
- Excellent for I/O line protection, operating at hi-speed data transfer rates, due to very low capacitance values
- ESD protection for components sensitive to IEC 1000-4-2, MIL-STD 883C Method 3015.7, AEC-Q200-002 and other industry spec.
- Replace larger surface mount TVS Zeners in many applications
- Used to achieve electromagnetic compliance of end products
- Provides on-board transient voltage protection of ICs and transistors

Absolute Maximum Ratings

Continuous :

Steady State Applied Voltage :

DC Voltage Range (V_{dc})

AC Voltage Range (V_{rms})

Transient :

Peak Single Pulse Surge Current, 8/20 μ s Waveform, (I_{max})

Single Pulse Surge Energy, 10/1000 μ s Waveform (W_{max})

Operating Ambient Temperature

Storage Temperature Range

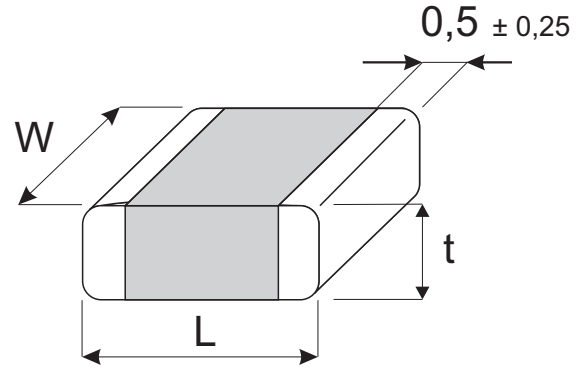
Threshold Voltage Temperature Coefficient

Response Time

Climatic Category

Units	Value
V	3 to 38
V	2 to 30
A	30 to 40
J	0.1
°C	-55 to +125
°C	-55 to +150
%/°C	< + 0.05
ns	< 1
	55 / 125 / 56

Device Ratings and Characteristics



ZVX 2 S 0603 300.....ZVX 30 S 1206 400

Type	V _{rms} V	V _{dc} V	V _n 1 mA V	V _c V	I _c 8/20 μs A	W _{max} 10/1000 μs J	P _{max} W	I _{max} 8/20 μs A	C _{typ} 1kHz pF	L _{typ} 100 mA/nS nH	L mm	W mm	t _{max} mm
ZVX 2 S 0603 300	2	3,3	4,1 - 6,0	10	1	0,1	0,003	30	200	1,0	1,6 ± 0,20	0,80 ± 0,10	0,9
ZVX 2 S 0805 400	2	3,3	4,1 - 6,0	10	1	0,1	0,005	40	500	1,5	2,0 ± 0,25	1,25 ± 0,20	1,0
ZVX 2 S 1206 400	2	3,3	4,1 - 6,0	10	1	0,1	0,008	40	840	1,8	3,2 ± 0,30	1,60 ± 0,20	1,0
ZVX 4 S 0603 300	4	5,6	7,6 - 9,3	15,5	1	0,1	0,003	30	165	1,0	1,6 ± 0,20	0,80 ± 0,10	0,9
ZVX 4 S 0805 400	4	5,6	7,6 - 9,3	15,5	1	0,1	0,005	40	340	1,5	2,0 ± 0,25	1,25 ± 0,20	1,0
ZVX 4 S 1206 400	4	5,6	7,6 - 9,3	15,5	1	0,1	0,008	40	720	1,8	3,2 ± 0,30	1,60 ± 0,20	1,0
ZVX 6 S 0603 300	6	9	11,0 - 14,0	20	1	0,1	0,003	30	145	1,0	1,6 ± 0,20	0,80 ± 0,10	0,9
ZVX 6 S 0805 400	6	9	11,0 - 14,0	20	1	0,1	0,005	40	290	1,5	2,0 ± 0,25	1,25 ± 0,20	1,0
ZVX 6 S 1206 400	6	9	11,0 - 14,0	20	1	0,1	0,008	40	620	1,8	3,2 ± 0,30	1,60 ± 0,20	1,0
ZVX 8 S 0603 300	8	12	14,0 - 18,3	25	1	0,1	0,003	30	135	1,0	1,6 ± 0,20	0,80 ± 0,10	0,9
ZVX 8 S 0805 400	8	12	14,0 - 18,3	25	1	0,1	0,005	40	275	1,5	2,0 ± 0,25	1,25 ± 0,20	1,0
ZVX 8 S 1206 400	8	12	14,0 - 18,3	25	1	0,1	0,008	40	540	1,8	3,2 ± 0,30	1,60 ± 0,20	1,0
ZVX 11 S 0603 300	11	14	16,5 - 20,3	30	1	0,1	0,003	30	120	1,0	1,6 ± 0,20	0,80 ± 0,10	0,9
ZVX 11 S 0805 400	11	14	16,5 - 20,3	30	1	0,1	0,005	40	200	1,5	2,0 ± 0,25	1,25 ± 0,20	1,0
ZVX 11 S 1206 400	11	14	16,5 - 20,3	30	1	0,1	0,008	40	500	1,8	3,2 ± 0,30	1,60 ± 0,20	1,0
ZVX 14 S 0603 300	14	18	22,9 - 28,0	40	1	0,1	0,003	30	110	1,0	1,6 ± 0,20	0,80 ± 0,10	0,9
ZVX 14 S 0805 400	14	18	22,9 - 28,0	40	1	0,1	0,005	40	165	1,5	2,0 ± 0,25	1,25 ± 0,20	1,0
ZVX 14 S 1206 400	14	18	22,9 - 28,0	40	1	0,1	0,008	40	250	1,8	3,2 ± 0,30	1,60 ± 0,20	1,0
ZVX 17 S 0603 300	17	22	25,2 - 31,3	48	1	0,1	0,003	30	100	1,0	1,6 ± 0,20	0,80 ± 0,10	0,9
ZVX 17 S 0805 400	17	22	25,2 - 31,3	48	1	0,1	0,005	40	145	1,5	2,0 ± 0,25	1,25 ± 0,20	1,0
ZVX 17 S 1206 400	17	22	25,2 - 31,3	48	1	0,1	0,008	40	210	1,8	3,2 ± 0,30	1,60 ± 0,20	1,0
ZVX 20 S 0603 300	20	26	31,0 - 38,0	58	1	0,1	0,003	30	100	1,0	1,6 ± 0,20	0,80 ± 0,10	0,9
ZVX 20 S 0805 400	20	26	31,0 - 38,0	58	1	0,1	0,005	40	140	1,5	2,0 ± 0,25	1,25 ± 0,20	1,0
ZVX 20 S 1206 400	20	26	31,0 - 38,0	58	1	0,1	0,008	40	200	1,8	3,2 ± 0,30	1,60 ± 0,20	1,0
ZVX 25 S 0603 300	25	30	37,0 - 46,9	65	1	0,1	0,003	30	90	1,0	1,6 ± 0,20	0,80 ± 0,10	0,9
ZVX 25 S 0805 400	25	30	37,0 - 46,9	65	1	0,1	0,005	40	110	1,5	2,0 ± 0,25	1,25 ± 0,20	1,0
ZVX 25 S 1206 400	25	30	37,0 - 46,9	65	1	0,1	0,008	40	180	1,8	3,2 ± 0,30	1,60 ± 0,20	1,0
ZVX 30 S 0603 300	30	38	42,3 - 51,7	77	1	0,1	0,003	30	80	1,0	1,6 ± 0,20	0,80 ± 0,10	0,9
ZVX 30 S 0805 400	30	38	42,3 - 51,7	77	1	0,1	0,005	40	100	1,5	2,0 ± 0,25	1,25 ± 0,20	1,0
ZVX 30 S 1206 400	30	38	42,3 - 51,7	77	1	0,1	0,008	40	165	1,8	3,2 ± 0,30	1,60 ± 0,20	1,0