ZVX Series

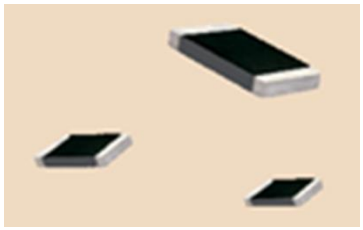
Low Energy, Low Capacitance SMD Varistor

Stackpole Electronics, Inc.

Resistive Product Solutions

Description:

The ZVX Series are low-energy (0.1 joules) 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, 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 the competition. Further, this series is offered in 0603, 0805 and 1206 sizes, with an expanded range of voltages from 14V to 38Vdc.

Features:

- AC operating voltage (Vrms) from 11V to 30V
- DC operating voltage (Vdc) from 11V to 38V
- Bi-directional, low clamping voltages
- Exceptionally low capacitance ratings
- 3 model sizes available 0603, 0805, 1206
- +125ºC continuous operating temperature
- Dimensional and weight savings on PC board
- AgPd end terminations
- Non-coated chips guarantee excellent flammability rating
- Contact Stackpole for larger reel inquiries
- RoHS compliant by means of exemption 7c-I
- Halogen free
- REACH compliant

Applications:

- ESD protection for components sensitive to IEC 1000-4-2, MIL-STD 883C Method 3015.7 and other industry specifications
- Excellent for I/O line protection, operating at high-speed data transfer rates, due to very low capacitance values
- Replaces larger surface mount TVS diodes in many applications

General Technical Data	
Operating Temperature	-55 ºC to +125 ºC
Storage Tempertature Range	-55 ºC to +150 ºC
Threshold Voltage Temperture Coefficient	<-0.05 %/ºC
Response Time	<1 ns
Ag/Pd Terminations	Recommended and suitable for Pb-containing soldering
Nickel Barrier Terminations	Recommended and suitable for Pb-contaning and Pb-free soldering

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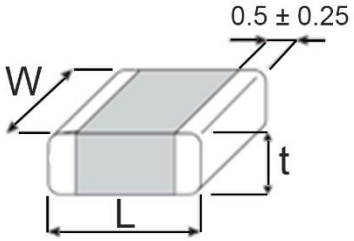
Mechanical Specifications



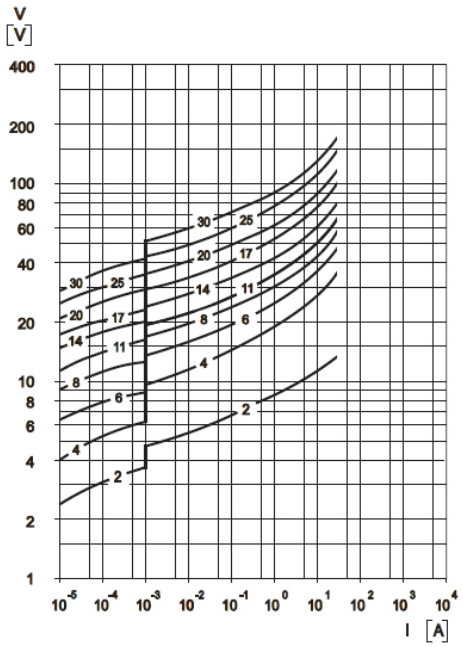
Type/Code	L	W	t Max	Unit
ZVX...0603	0.063 ± 0.008 1.60 ± 0.20	0.031 ± 0.004 0.80 ± 0.10	0.035 0.90	inches mm
ZVX...0805	0.079 ± 0.010 2.00 ± 0.25	0.049 ± 0.008 1.25 ± 0.20	0.039 1.00	inches mm
ZVX...1206	0.126 ± 0.012 3.20 ± 0.30	0.063 ± 0.008 1.60 ± 0.20	0.039 1.00	inches mm

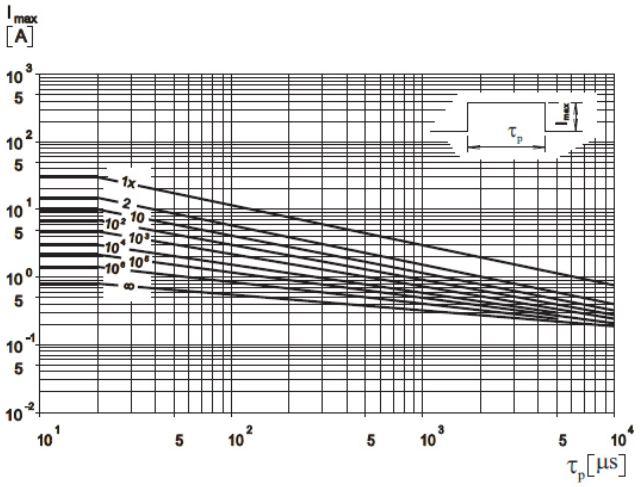
Device Ratings and Characteristics

Part Number	V_{RMS} (volts)	V_{DC} (volts)	V_N (1 mA) (volts)	V_C (volts)	I_C (8/20 uSec) (amps)	W_{MAX} (10/1000 uSec) (joules)	P_{MAX} (watts)	I_{MAX} (8/20 uSec) (amps)	C_{TYP} (@ 1 kHz) (pF)	L_{TYP} (100 mA/nSec) (nH)
ZVX11S0603...300	11	14	16.5 - 20.3	30	1	0.1	0.003	30	120	1.0
ZVX11S0805...400	11	14	16.5 - 20.3	30	1	0.1	0.005	40	200	1.5
ZVX11S1206...400	11	14	16.5 - 20.3	30	1	0.1	0.008	40	500	1.8
ZVX14S0603...300	14	18	22.9 - 28.0	40	1	0.1	0.003	30	110	1.0
ZVX14S0805...400	14	18	22.9 - 28.0	40	1	0.1	0.005	40	165	1.5
ZVX14S1206...400	14	18	22.9 - 28.0	40	1	0.1	0.008	40	250	1.8
ZVX17S0603...300	17	22	25.2 - 31.3	48	1	0.1	0.003	30	100	1.0
ZVX17S0805...400	17	22	25.2 - 31.3	48	1	0.1	0.005	40	145	1.5
ZVX17S1206...400	17	22	25.2 - 31.3	48	1	0.1	0.008	40	210	1.8
ZVX20S0603...300	20	26	31.0 - 38.0	58	1	0.1	0.003	30	100	1.0
ZVX20S0805...400	20	26	31.0 - 38.0	58	1	0.1	0.005	40	140	1.5
ZVX20S1206...400	20	26	31.0 - 38.0	58	1	0.1	0.008	40	200	1.8
ZVX25S0603...300	25	30	37.0 - 46.9	65	1	0.1	0.003	30	90	1.0
ZVX25S0805...400	25	30	37.0 - 46.9	65	1	0.1	0.005	40	110	1.5
ZVX25S1206...400	25	30	37.0 - 46.9	65	1	0.1	0.008	40	180	1.8
ZVX30S0603...300	30	38	42.3 - 51.7	77	1	0.1	0.003	30	80	1.0
ZVX30S0805...400	30	38	42.3 - 51.7	77	1	0.1	0.005	40	100	1.5
ZVX30S1206...400	30	38	42.3 - 51.7	77	1	0.1	0.008	40	165	1.8

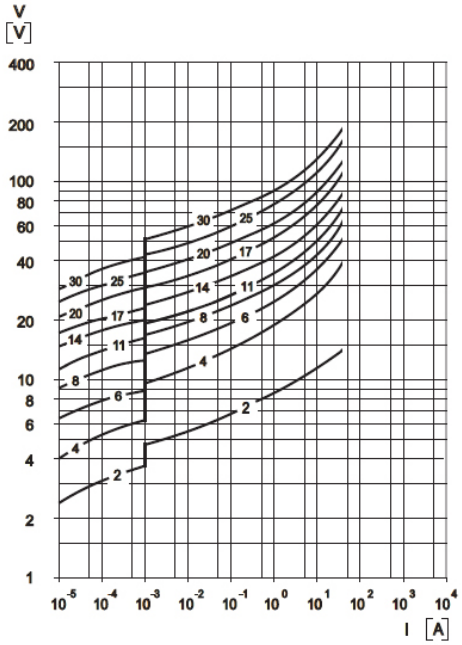
Protection Level

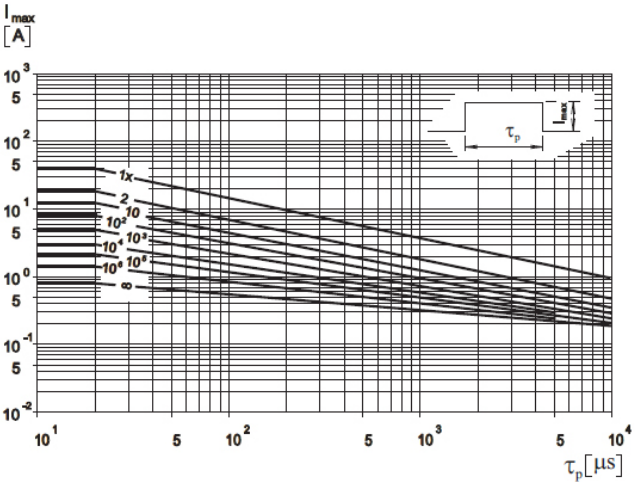
Model Size 0603
ZVX11…30S





Model Size 0805
ZVX11…30S

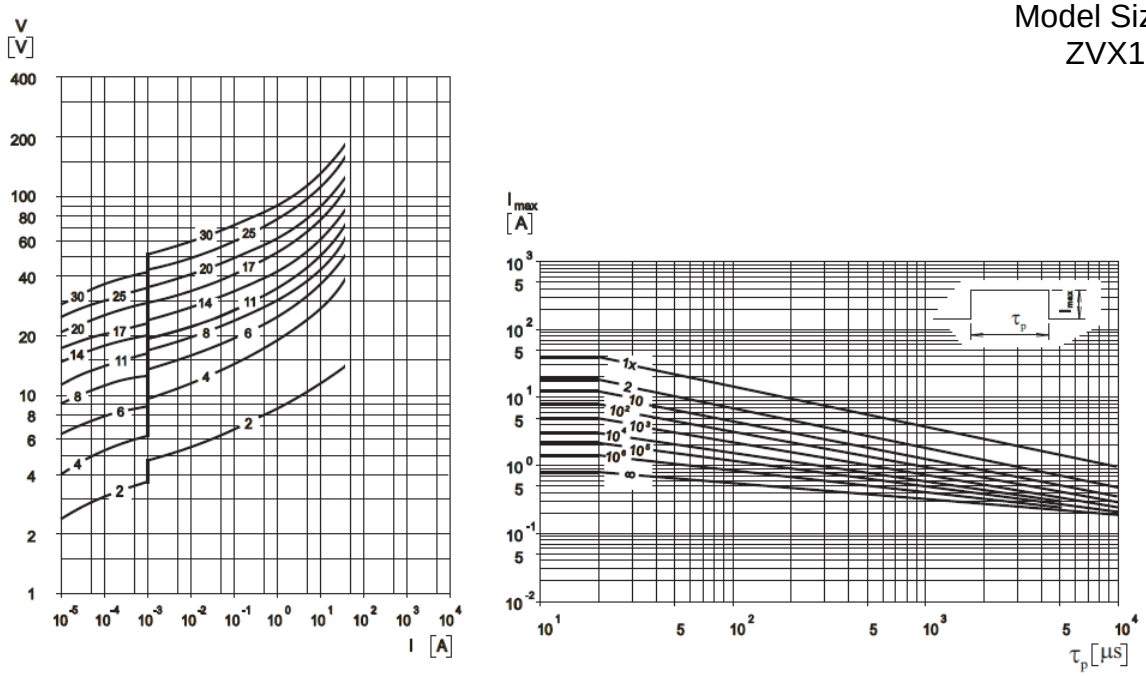




(With the worst-case condition in the tolerance region)

Protection Level

Model Size 1206
ZVX11…30S



(With the worst-case condition in the tolerance region)

RoHS Compliance

Stackpole Electronics has joined the worldwide effort to reduce the amount of lead in electronic components and to meet the various regulatory requirements now prevalent, such as the European Union's directive regarding "Restrictions on Hazardous Substances" (RoHS 3). As part of this ongoing program, we periodically update this document with the status regarding the availability of our compliant components. All our standard part numbers are compliant to EU Directive 2011/65/EU of the European Parliament as amended by Directive (EU) 2015/863/EU as regards the list of restricted substances.

RoHS Compliance Status

Standard Product Series	Description	Package / Termination Type	Standard Series RoHS Compliant	Lead-Free Termination Composition	Lead-Free Mfg. Effective Date (Std Product Series)	Lead-Free Effective Date Code (YY/WW)
ZVX	Low Energy, Low Capacitance SMD Varistor	SMD	YES Compliant by means of exemption 7c-I	Proprietary Barrier Termination (special designation "N") for lead-free assembly; AgPd for Pb-containing assembly	Always	Always

"Conflict Metals" Commitment

We at Stackpole Electronics, Inc. are joined with our industry in opposing the use of metals mined in the "conflict region" of the eastern Democratic Republic of the Congo (DRC) in our products. Recognizing that the supply chain for metals used in the electronics industry is very complex, we work closely with our own suppliers to verify to the extent possible that the materials and products we supply do not contain metals sourced from this conflict region. As such, we are in compliance with the requirements of Dodd-Frank Act regarding Conflict Minerals.

Compliance to "REACH"

We certify that all passive components supplied by Stackpole Electronics, Inc. are SVHC (Substances of Very High Concern) free and compliant with the requirements of EU Directive 1907/2006/EC, "The Registration, Evaluation, Authorization and Restriction of Chemicals", otherwise referred to as REACH. Contact us for complete list of REACH Substance Candidate List.

Environmental Policy

It is the policy of Stackpole Electronics, Inc. (SEI) to protect the environment in all localities in which we operate. We continually strive to improve our effect on the environment. We observe all applicable laws and regulations regarding the protection of our environment and all requests related to the environment to which we have agreed. We are committed to the prevention of all forms of pollution.

How to Order

Z	V	X	1	4	S	1	2	0	6	T	4	0	0	N

Product Series

ZVX	Low Energy, Low Capacitance, SMD Varistor

Voltage Range

Code	Vrms
11 to 30	11 to 30

Tolerance

Code	Tol
S	Special

Size

Code
0603
0805
1206

Packaging

Code	Size	Vrms	Quantity	Description
K	All sizes	All	1000	7" Plastic Reel
T	All sizes	11 - 14	4000	
	0603, 0805	17 - 30	3500	
	1206	17 - 30	2500	

Surge Current

Code	Amps
400	400

Termination

Code	Description
(blank)	Ag/Pd Termination
N	Nickel Barrier Termination