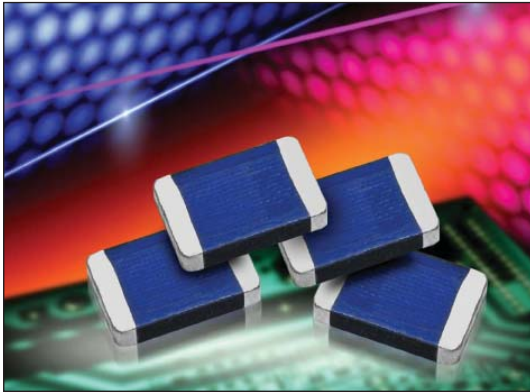


# Single Layer Varistors

## VC32 Series

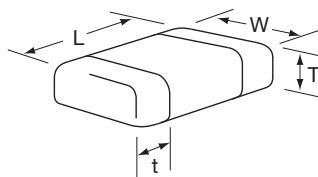


### GENERAL DESCRIPTION

The VC32 Series offers the designer a surface mount solution with higher voltage ratings and transient energy ratings than typical multi-layer varistors (MLVs). Think of this series as *surface mountable MOVs*. This series, based on our proven zinc oxide formulation, operates from -55°C to 125°C. Additionally, the top and bottom surfaces of the chip are protected with a glass coating.

### APPLICATIONS

- MOV (Radial) Replacement
- Industrial Equipment
- Suppression of transient on line voltage
- Mains PSUs
- Electric Meters
- Telecommunications
- Consumer Electronics



### PART DIMENSIONS

mm (inches)

L	W	T	t
7.90 - 8.51 (0.311 - 0.335)	4.70 - 5.26 (0.185 - 0.207)	2.03 MAX (0.080 MAX)	0.40 - 1.30 (0.016 - 0.051)

### PART SPECIFICATIONS

Part No.	V1mA (nominal)	Vrms	Vdc	Leakage Current (max. $\mu$ A)	Maximum Clamping Voltage (80/20 $\mu$ s)		Maximum peak current (8/20 $\mu$ s) Ip(A)				Maximum absorption (10/1000 $\mu$ s)	Typical capacitance 1kHz/0.5V
	V	V	V	$\mu$ A	Vp (V)	Ip (A)	2 Surge	10 Surge	20 Surge	100 Surge	J	pF
VC32M01750K--	270	175	225	200	455	10	200	100	80	50	15.0	135
VC32M00231K--	360	230	300	50	595	10	200	100	80	50	20.0	100
VC32M00251K--	390	250	330	50	650	10	200	100	80	50	21.0	90
VC32M02750K--	430	275	368	50	710	10	200	100	80	50	23.0	80
VC32M00301K--	470	300	385	50	775	10	200	100	80	50	23.0	70

### HOW TO ORDER

**VC32**



**Type**  
VC3220

**M0**



**Series**  
M = General Applications

**0251**



**AC Operating Voltage**  
EIA Coding  
e.g. 0251 = 250V<sub>AC</sub>

**K**

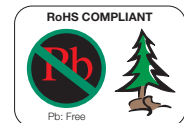


**Tolerance of 1mA**  
K = 10%

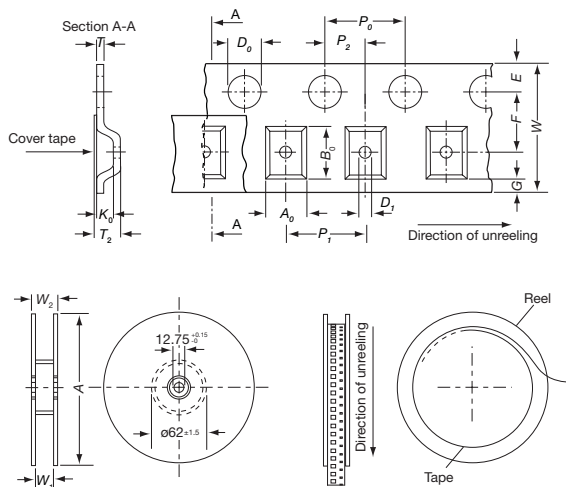
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**Packaging Suffix**  
-- = Bulk  
BG = Tape and Reel



### PACKAGING



### Tape Dimensions

mm (inches)

Tape Size	16 (0.630) VC32	Tolerance
A <sub>0</sub> x B <sub>0</sub>	5.3 x 8.7 (0.209 x 0.043)	±0.50 (0.20)
K <sub>0</sub>	2.50 (0.098)	max.
T <sub>2</sub>	3.00 (0.118)	max.
T	0.30 (0.012)	±0.10 (0.004)
D <sub>0</sub>	1.50 (0.059)	+0.10/-0 (0.004/-0)
D <sub>1</sub>	1.50 (0.059)	min.
P <sub>0</sub>	4.00 (0.157)	±0.10 <sup>1)</sup> (0.004 <sup>1)</sup> )
P <sub>2</sub>	2.00 (0.079)	±0.10 (0.004)
P <sub>1</sub>	8.00 (0.315)	±0.10 (0.004)
W	16.00 (0.630)	±0.30 (0.012)
E	1.75 (0.069)	±0.10 (0.004)
F	7.50 (0.295)	±0.10 (0.004)
G	0.75 (0.030)	min.

1) ±0.2 (0.008) over 10 sprocket holes

### Reel Dimensions

Size	VC 32
A (mm)	330 <sub>-2</sub>
W <sub>1</sub>	16.4 <sub>+1.5/-0</sub>
W <sub>2</sub>	22.4

### Packing Quantity

Type	Pieces/reel
VC 32	1000



# Single Layer Varistors VC32 Series



## RELIABILITY TESTING

Test Description	Test Condition	Test Requirement
SURGE CURRENT (8/20 $\mu$ s Waveform)	CECC 42000 Test C 2.1 100 surges in the same direction at 2 pulses/min at the max. peak current	$\Delta V/V \leq 10\%$ No visible damage
SOLDERABILITY	IEC 68-2-20, 235°C $\pm$ 2°C, 4s $\pm$ 1s	Coverage > 90%
TEMPERATURE CYCLING	IEC 68-2-14 Ta = -40°C $\pm$ 3°C; Tb = +125°C $\pm$ 2°C Duration: 1 Hr / cycle, 5 cycles	$\Delta V/V \leq 5\%$ No visible damage.
ENVIRONMENTAL TESTING	CECC 42000, Test 4.16 a) Dry heat - Test Ba. (IEC 68-2-2) Temperature: 125°C Duration: 2H b) Damp heat cyclic (IEC 68-2-30) Temperature: 55°C $\pm$ 2°C Duration: 24H Humidity: 95 - 100% RH c) Cold - Test Aa (IEC 68-2-1) Temperature: -40°C $\pm$ 3°C Duration: 2H d) Damp heat cyclic test (IEC 68-2-30) 5 humidity cycles 24H/cycle	$\Delta V/V \leq 10\%$ Insulation Resistance $\geq 1M\Omega$ No visible damage
LIFE TEST	IEC 68-2-2 Applied voltage: max continuous AC Voltage Temperature: 125°C $\pm$ 2°C Duration: 1000H	$\Delta V/V \leq 10\%$ Insulation Resistance $\geq 1M\Omega$ No visible damage
DAMP HEAT, STEADY STATE	IEC 68-2-3 Tested with no voltage applied and 10% of maximum continuous DC voltage applied Temperature: 40°C $\pm$ 2°C Duration: 56 days Humidity: 93% +2, -3% RH	Delta V/V $\leq 10\%$ Insulation Resistance min 1M $\Omega$ No visible damage
FLAMMABILITY NEEDLE FLAME	IEC 695-2-2 Duration: 10 s +0s, -1s Orientation: Vertical	Visual No spreading of fire

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### AMERICAS

#### AVX Myrtle Beach, SC Corporate Offices

Tel: 843-448-9411  
FAX: 843-448-1943

#### AVX Northwest, WA

Tel: 360-699-8746  
FAX: 360-699-8751

#### AVX North Central, IN

Tel: 317-848-7153  
FAX: 317-844-9314

#### AVX Mid/Pacific, CA

Tel: 510-661-4100  
FAX: 510-661-4101

#### AVX Midwest, MN

Tel: 952-974-9155  
FAX: 952-974-9179

#### AVX Southwest, AZ

Tel: 602-678-0384  
FAX: 602-678-0385

#### AVX South Central, TX

Tel: 972-669-1223  
FAX: 972-669-2090

#### AVX Southeast, GA

Tel: 404-608-8151  
FAX: 770-972-0766

#### AVX Canada

Tel: 905-238-3151  
FAX: 905-238-0319

#### AVX South America

Tel: ++55-11-2193-7200  
FAX: ++55-11-2193-7210

### EUROPE

#### AVX Limited, England European Headquarters

Tel: ++44 (0) 1252-770000  
FAX: ++44 (0) 1252-770001

#### AVX/ELCO, England

Tel: ++44 (0) 1638-675000  
FAX: ++44 (0) 1638-675002

#### AVX S.A., France

Tel: ++33 (1) 69-18-46-00  
FAX: ++33 (1) 69-28-73-87

#### AVX GmbH, Germany

Tel: ++49 (0) 8131-9004-0  
FAX: ++49 (0) 8131-9004-44

#### AVX srl, Italy

Tel: ++390 (0)2 614-571  
FAX: ++390 (0)2 614-2576

#### AVX Czech Republic

Tel: ++420 465-358-111  
FAX: ++420 465-323-010

### ASIA-PACIFIC

#### AVX/Kyocera, Singapore Asia-Pacific Headquarters

Tel: (65) 6286-7555  
FAX: (65) 6488-9880

#### AVX/Kyocera, Hong Kong

Tel: (852) 2-363-3303  
FAX: (852) 2-765-8185

#### AVX/Kyocera, Korea

Tel: (82) 2-785-6504  
FAX: (82) 2-784-5411

#### AVX/Kyocera, Taiwan

Tel: (886) 2-2698-8778  
FAX: (886) 2-2698-8777

#### AVX/Kyocera, Malaysia

Tel: (60) 4-228-1190  
FAX: (60) 4-228-1196

#### Elco, Japan

Tel: 045-943-2906/7  
FAX: 045-943-2910

#### Kyocera, Japan - AVX

Tel: (81) 75-604-3426  
FAX: (81) 75-604-3425

#### Kyocera, Japan - KDP

Tel: (81) 75-604-3424  
FAX: (81) 75-604-3425

#### AVX/Kyocera, Shanghai, China

Tel: 86-21 6341 0300  
FAX: 86-21 6341 0330

#### AVX/Kyocera, Beijing, China

Tel: 86-10 8458 3385  
FAX: 86-10 8458 3382

### ASIA-KED

#### KED, Hong Kong

Tel: (852) 2305 1080  
FAX: (852) 2305 1405

#### KED, Shanghai

Tel: (86) 21 6859 9898  
FAX: (86) 21 5887 2542

#### KED, Beijing

Tel: (86) 10 5869 4655  
FAX: (86) 10 5869 4677

#### KED, South Korea

Tel: (82) 2 783 3288  
FAX: (82) 2 783 3207

#### KED, Taiwan

Tel: (886) 2 2950 0268  
FAX: (886) 2 2950 0520

#### KED, Singapore

Tel: (65) 6255 3122  
FAX: (65) 6255 5092



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