

APPROVAL SHEET

MULTILAYER CHIP VARISTOR

For Surge Protection

Size 1206

VZ1206 Green Material Series

*Contents in this sheet are subject to change without prior notice.

DESCRIPTION

Walsin Multilayer Chip Varistor is a family of Transient Voltage Surge Suppression products. Today, electronic circuits are becoming smaller and more sensitive to external interference. Walsin Multilayer Chip Varistor is designed to protect components from destruction of transients and ESD (Electronic Static Discharge). The wide operating voltage and energy range make Walsin Multilayer Chip Varistor suitable for numerous applications on I/O protection, Vcc protection, Keyboard protection, LCD protection, Sensor protection...etc. The Walsin Chip Varistor is manufactured by Multilayer fabrication technology providing excellent voltage clamping ability and is supplied in leadless, surface mount form, compatible with modern reflow and wave soldering procedures.

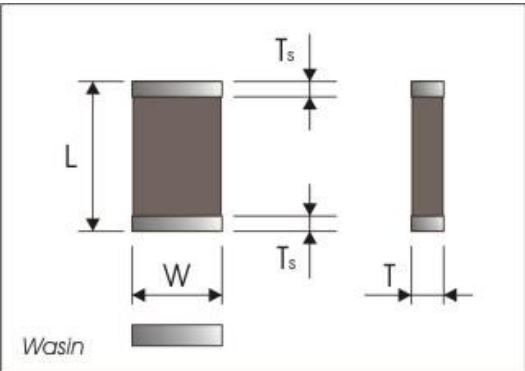
FEATURES

1. Multilayer Fabrication Technology
2. Small size (0402, 0603, 0805 and 1206 Available)
3. -40°C to $+125^{\circ}\text{C}$ Operating Temperature Range
4. Operating Voltage Range (DC) from 5.5V~85V
5. Able to withstand high surge current
6. Bi-directional Clamping Characteristic
7. Low Capacitance Chip Varistor Types Available
8. Environmentally conscious design

APPLICATIONS

1. Protection of cellular phones, PDA, High Speed Data Line...etc.
2. ESD Protection for components sensitive to IEC 61000-4-2, Provides Circuit Board Transient Voltage Protection for Transistors.
3. Protection of Video & Audio Ports.

DIMENSIONS

Figure	Symbol	VZ1206 Series
	L	$3.20 \pm 0.20 \text{ mm}$
	W	$1.60 \pm 0.20 \text{ mm}$
	T	1.70 mm (max.)
	Ts	$0.60 \pm 0.35 \text{ mm}$

Terminal electrode : Ni / Sn electrode

DEVICE RATING AND SPECIFICATIONS

Part Number	MAXIMUM RATINGS					SPECIFICATIONS		
	Max. Continuous Working Voltage		Maximum Non-Repetitive Surge Current (8/20 μ s)	Maximum Non-Repetitive Surge Energy (10/1000 μ s)	Max. Clamping Voltage at Specified Current (8/20 μ s)	Nominal Voltage At 1mA (DC) Current		Typical Capacitance
								@1KHz
	V _{M(DC)}	V _{M(AC)}	I _{TM}	W _{TM}	V _c	V _{N(DC)Min.}	V _{N(DC)Max.}	C
	(V)	(V)	(A)	(J)	(V)	(V)	(V)	(pF)
VZ1206M050CGTN	5.5	4.0	200	0.3	23 at 1A	8	13	1500
VZ1206M140CGTN	14	10	200	0.5	36 at 1A	18	21.6	640
VZ1206M180AGTN	18	14	150	0.4	40 at 1A	19.8	24.2	1800
VZ1206M180CGTN	18	14	200	0.4	40 at 1A	19.8	24.2	650
VZ1206M220CGTN	22	17	200	0.3	48 at 1A	24.3	30.7	650
VZ1206M300CGTN	30	25	200	1.0	69 at 1A	35.1	43.9	550
VZ1206M380CGTN	38	30	200	1.1	81 at 1A	42.3	52.7	500
VZ1206M560CGTN	56	40	200	1.0	110 at 1A	63	77	180
VZ1206M650AGTN	65	50	100	0.5	138 at 1A	76	92	250

STANDARD TESTING CONDITION

Unless otherwise specified


- Temperature : 15 ~ 35°C
- Humidity : 25%RH ~ 85%RH
- Atmospheric pressure : 86kPa ~ 106kPa

SPECIFICATION

1. Electrical Reliability

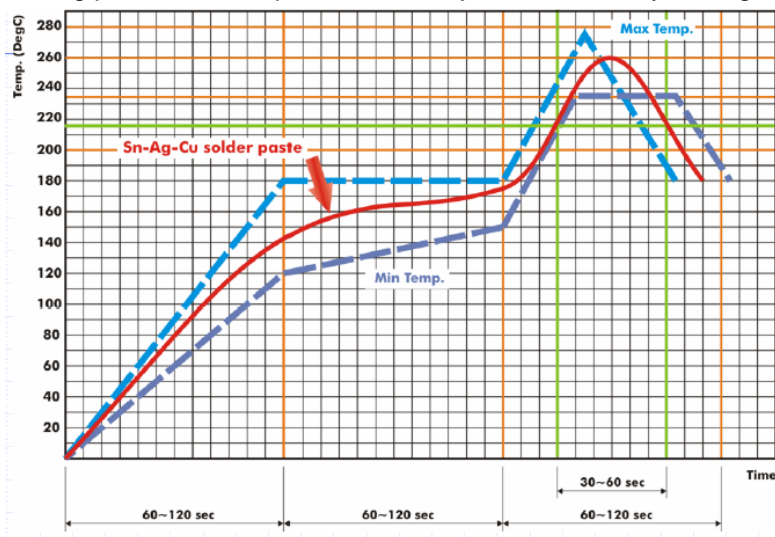
Test item	Test condition / Test method	Specification															
High temperature storage	+125±3°C for 1000 hours Measurement to be made after keeping at room temp. for 24 ±2hr	△V at 1mA < 10%															
Low temperature storage	-40±3°C for 1000 hours Measurement to be made after keeping at room temp. for 24 ±2h	△V at 1mA < 10%															
Humidity storage	40±2°C , 90 ~95%RH for 500 hours Measurement to be made after keeping at room temp. for 24 ±2h	△V at 1mA < 10%															
Temperature cycles	Times : 5 cycles <table border="1"> <thead> <tr> <th>Step</th><th>Temp.(°C)</th><th>Time(min.)</th></tr> </thead> <tbody> <tr> <td>1</td><td>-55±3</td><td>30±3</td></tr> <tr> <td>2</td><td>room temp.</td><td>2~3</td></tr> <tr> <td>3</td><td>+125±3°C</td><td>30±2</td></tr> <tr> <td>4</td><td>room temp.</td><td>2~3</td></tr> </tbody> </table> Measurement to be made after keeping at room temp. for 24 ±2h	Step	Temp.(°C)	Time(min.)	1	-55±3	30±3	2	room temp.	2~3	3	+125±3°C	30±2	4	room temp.	2~3	△V at 1mA < 10%
Step	Temp.(°C)	Time(min.)															
1	-55±3	30±3															
2	room temp.	2~3															
3	+125±3°C	30±2															
4	room temp.	2~3															

2. Mechanical Reliability

Test item	Test condition / Test method	Specification
Solderability	Solder temp. : 230±5°C Immersion time : 2±0.5 sec Immersion and emersion rates : 25mm/s	Min 90% electrode shall be covered with solder.
Resistance to Soldering Heat	Pre-heating : 120~ 150°C , 60 sec Solder temp. : 260±5°C Immersion time : 10±1 sec Measurement to be made after keeping at room temp. for 24 ±2h	△V at 1mA < 10% Disappearance of electrode due to immersion into solder shall not exceed 25% of edges of each electrode.
Adhesive Strength of Termination	Solder chip on PCB and applied 0805/1206 Series: 10N(1Kgf) for 10 sec 0402/0603 Series: 5N(0.5Kgf) for 10 sec Chip varistor 	No visible damage
Vibration	Solder chip on PCB. Frequency : 10 Hz~55 Hz~ 10 Hz (1min) Oscillation amplitude : 1.5 mm Times : 2 hrs in each of three perpendicular direction	No visible damage
Bending Test	The middle part of substrate shall be pressurized by means of the pressurizing rod at a rate of 1mm per second until the deflection becomes 1 mm and then the pressure shall be maintained for 5 sec..	No visible damage △V at 1mA < 10%

SOLDERING CONDITION

Typical examples of soldering processes that provide reliable joints without any damage are given in figure below:



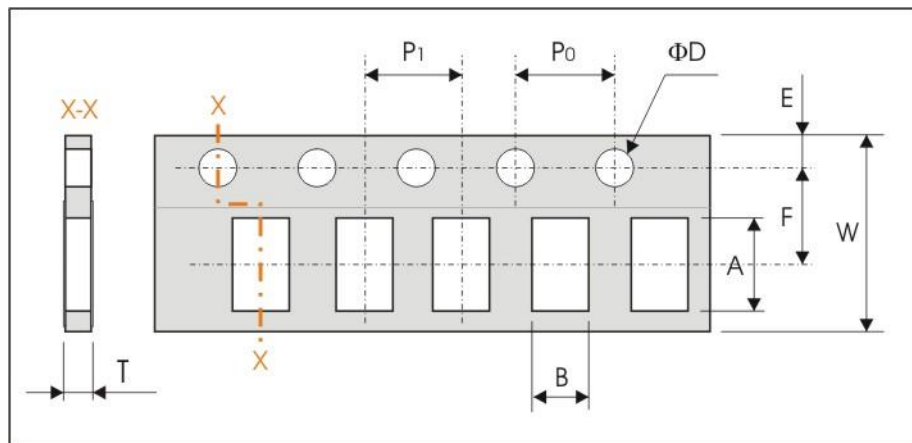
Infrared soldering profile

ORDERING CODE

VZ	1206	M	050	A	G	T	
Type Code	Chip Size	Style	Rated Voltage	Capacitance Tolerance	Termination	Packing	Internal Code
VZ: Walsin Varistor	1206 = 1.2 * 0.6 inch	M: Multilayer A: Array	050 = 5.5V 070 = 7V 090 = 9V 140 = 14V 180 = 18V	A: Standard C: High Current	G: Green Material	T: Reeled B: Bulk	Blank: None N: New item

PACKAGING

Paper Tape specifications (unit :mm) and Packaging quantity

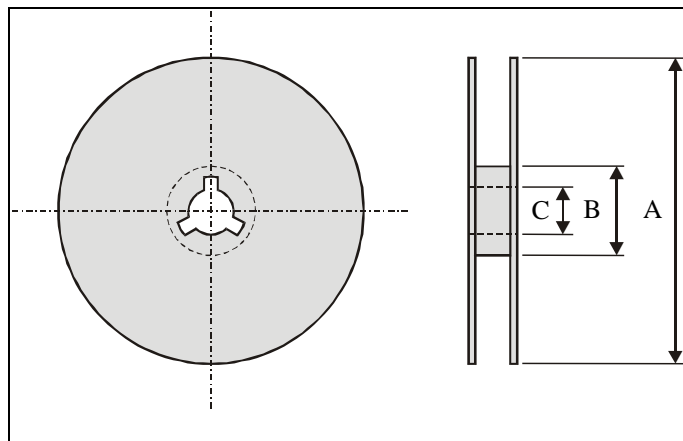


Label	A	B	E	F	ΦD
VZ1206 Series	3.50 ± 0.05	1.88 ± 0.05	1.75 ± 0.05	3.50 ± 0.05	1.55 ± 0.05

Label	G0	G1	T	W	Quantity/Reel
VZ1206 Series	4.00 ± 0.10	2.00 ± 0.10	1.24 ± 0.05	8.00 ± 0.20	3Kpcs

- Tape Material : Paper tape.

Reel dimensions



Index	A	B	C
Dimension (mm)	Φ178	Φ60.0	Φ13.5

CAUTION OF HANDLING

Limitation of Applications

Please contact us before using our products for the applications listed below which require especially high reliability for the prevention of defects, which might directly cause damage to the third party's life, body or property.

- (1) Aircraft equipment
- (2) Aerospace equipment
- (3) Undersea equipment
- (4) Medical equipment
- (5) Traffic signal equipment
- (6) Applications of similar complexity and /or reliability requirements to the applications listed in the above.

Storage condition

- (1) Products should be used in 6 months from the day of WALSIN outgoing inspection, which can be confirmed.
- (2) Storage environment condition.
 - Products should be storage in the warehouse on the following conditions.
 - Temperature : -10 to +40°C
 - Humidity : 30 to 70% relative humidity
 - Don't keep products in corrosive gases such as sulfur. Chlorine gas or acid or it may cause oxidization of electrode, resulting in poor solderability.
 - Products should be storage on the palette for the prevention of the influence from humidity, dust and son on.
 - Products should be storage in the warehouse without heat shock, vibration, direct sunlight and so on.
 - Products should be storage under the airtight packaged condition.