Metal Oxide SMD Thermistor

Description:

Walsin multilayer chip varistor is a family of transient voltage surge suppression products. Today, electronic circuits are becoming smaller and more sentive 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 rage make walsin multilayer chip varistor suitable for numerous applications on I/O protection, Vcc protectiion, 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:

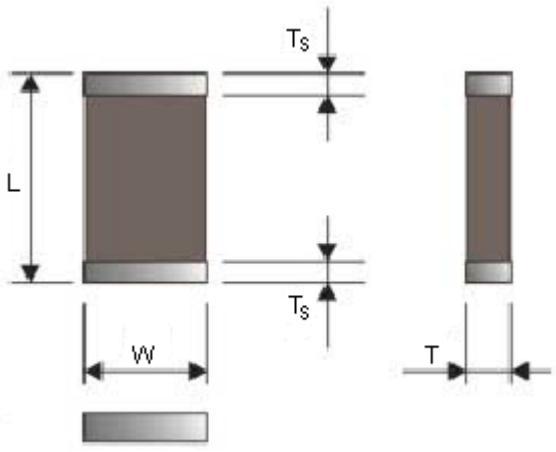
- Multilayer fabrication technology.
- -55.to 125. operating temperature range.
- Operating voltage range VM(DC) at 5.5V to 85V.
- Able to withstand ESD test of IEC-61000-4-2.
- Bi-directional clamping characteristic.

Applications:

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

Electrical Data

Item	General Specification
Continuous Rating : Steady State Applied Voltage : DC voltage Range (VMDC) AC voltage Range (VMDC RMS)	 5.5V to 85V 4V to 60V
Transient Rating : Non-Repetitive Surge Current(8/20ìs) Non-Repetitive Surge Energy, 10/1000ìs Waveform,(WTM) Operating Ambient Temperature Range(TA) Storage Temperature Range (TSTG) Temperature Coefficient(áV) of clamping Voltage (VC) at Specified Test Current	 20A to 100A 0.05J to 1.0J -55°C to 125°C -55°C to 150°C <0.01 %/°C



Metal Oxide SMD Thermistor

Dimensions

Size	VZ0402	VZ0603	VZ0805	VZ1206
L	1.00 ± 0.10	1.60 ± 0.15	2.00 ± 0.20	3.20 ± 0.20
W	0.50 ± 0.10	0.80 ± 0.15	1.25 ± 0.20	1.60 ± 0.20
T	0.50 ± 0.10	0.80 ± 0.15	0.80 ± 0.20	0.80 ±0.10 mm* 1.10 ± 0.20 mm**
Ts	0.25 ± 0.15	0.35 ± 0.15	0.50 ± 0.20	0.65 ± 0.25

Terminal electrode: Ni / Sn electrode.
Note: * means VZ1206 5.5Vdc to 22Vdc items.
** means VZ1206 26Vdc to 85Vdc items.

Specifications Table

Chip Size L x W (in inches)	Style	Rated Voltage (V dc)	Capacitance Tolerance	Termination	Packing	Part Number
04 x 02	Multilayer	5.5	Standard	Green Material	Reeled	MCFT000302
04 x 02	Multilayer	9	Standard	Green Material	Reeled	MCFT000303
04 x 02	Multilayer	11.0	Standard	Green Material	Reeled	MCFT000304
04 x 02	Multilayer	14.0	Standard	Green Material	Reeled	MCFT000305
04 x 02	Multilayer	18.0	Standard	Green Material	Reeled	MCFT000306
06 x 03	Multilayer	5.5	Standard	Green Material	Reeled	MCFT000307
06 x 03	Multilayer	9	Standard	Green Material	Reeled	MCFT000308
06 x 03	Multilayer	14.0	Standard	Green Material	Reeled	MCFT000309
06 x 03	Multilayer	18.0	Standard	Green Material	Reeled	MCFT000310
06 x 03	Multilayer	26.0	Standard	Green Material	Reeled	MCFT000311
06 x 03	Multilayer	30.0	Standard	Green Material	Reeled	MCFT000312
06 x 03	Multilayer	38.0	Standard	Green Material	Reeled	MCFT000313
08 x 05	Multilayer	5.5	Standard	Green Material	Reeled	MCFT000314
08 x 05	Multilayer	9	Standard	Green Material	Reeled	MCFT000315
08 x 05	Multilayer	18.0	Standard	Green Material	Reeled	MCFT000316
08 x 05	Multilayer	22.0	Standard	Green Material	Reeled	MCFT000317
08 x 05	Multilayer	26.0	Standard	Green Material	Reeled	MCFT000318
08 x 05	Multilayer	30.0	Standard	Green Material	Reeled	MCFT000319
08 x 05	Multilayer	38.0	Standard	Green Material	Reeled	MCFT000320
08 x 05	Multilayer	45.0	Standard	Green Material	Reeled	MCFT000321

Specifications Table

Chip Size L x W (in inches)	Style	Rated Voltage (V dc)	Capacitance Tolerance	Termination	Packing	Part Number
12 x 06	Multilayer	5.5	Standard	Green Material	Reeled	MCFT000322
12 x 06	Multilayer	14.0	Standard	Green Material	Reeled	MCFT000323
12 x 06	Multilayer	18.0	Standard	Green Material	Reeled	MCFT000324
12 x 06	Multilayer	22.0	Standard	Green Material	Reeled	MCFT000325
12 x 06	Multilayer	26.0	Standard	Green Material	Reeled	MCFT000326
12 x 06	Multilayer	30.0	Standard	Green Material	Reeled	MCFT000327
12 x 06	Multilayer	38.0	Standard	Green Material	Reeled	MCFT000328
12 x 06	Multilayer	45.0	Standard	Green Material	Reeled	MCFT000329
12 x 06	Multilayer	56.0	Standard	Green Material	Reeled	MCFT000330
12 x 06	Multilayer	65.0	Standard	Green Material	Reeled	MCFT000331
12 x 06	Multilayer	85.0	Standard	Green Material	Reeled	MCFT000332

Standard Testing Condition

Unless otherwise specified

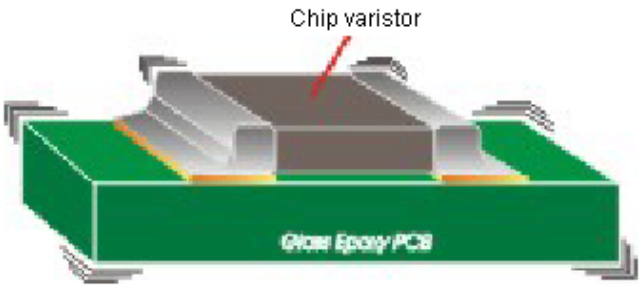
Temperature :15 to 35°C.
Humidity :25%RH to 85%RH.
Atmospheric pressure :86kPa to 106kPa.

Specification

1. Electrical Reliability

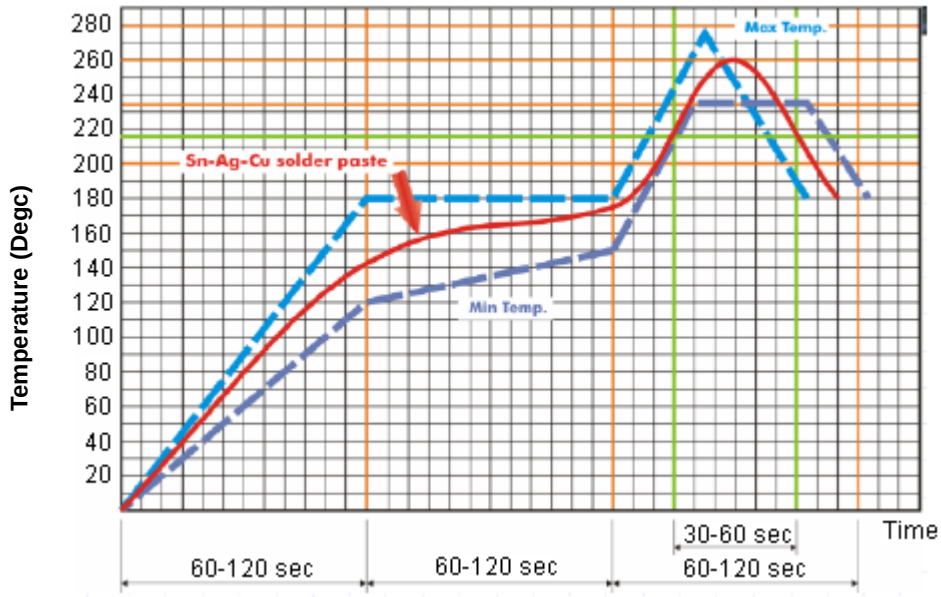
Test item	Test condition / Test method	Specification
High temperature storage	+125 ±3°C for 1000 hours Measurement to be made after keeping at room temperature for 24 ±2hr	ΔV at 1mA < 10%
Low temperature storage	-40 ±3°C for 1000 hours Measurement to be made after keeping at room temperature for 24 ±2hr	
Humidity storage	40 ±2°C , 90 to 95%RH for 500 hours Measurement to be made after keeping at room temperature for 24 ±2hr	
Temperature cycles	**Times : 5 cycles** Step / temperature(°C) / Time(minimum) 1 / -55 ±3 / 30 ±3 2 / Room temperature / 2 to 3 3 / +125°C3°C / 30 ±2 4 / Room temperature / 2 to 3 Measurement to be made after keeping at room temperature for 24 ±2hr	

2. Mechanical Reliability

Test item	Test condition / Test method	Specification
Solderability	Solder temperature : 230 ±5°C Immersion time : 2 ±0.5 sec Immersion and emersion rates : 25mm/s	Minimum 90% electrode shall be covered with solder.
Resistance to Soldering Heat	Pre-heating :120 to 150°C, 60 sec Solder temperature :260 ±5°C Immersion time :10 ±1 sec Measurement to be made after keeping at room temperature for 24 ±2h	ΔV 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. 	No visible damage
Vibration	Solder chip on PCB. Frequency : 10 Hz to 55 Hz to 10 Hz (1minimum) Oscillation amplitude : 1.5 mm Times : 2 hrs in each of three perpendicular direction	
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 1mm and then the pressure shall be maintained for 5 sec.	No visible damage ΔV 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

Caution of Handing

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.

- Aircraft equipment.
- Aerospace equipment.
- Undersea equipment.
- Medical equipment.
- Traffic signal equipment.
- Applications of similar complexity and /or reliability requirements to the applications listed in the above.

Storage condition

- Products should be used in 6 months from the day of WALSIN outgoing inspection, which can be confirmed.
- 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.

Part Number Table

Description	Part Number
Varistor, 0402, 4VAC	MCFT000302
Varistor, 0402, 6VAC	MCFT000303
Varistor, 0402, 8VAC	MCFT000304
Varistor, 0402, 11VAC	MCFT000305
Varistor, 0402, 14VAC	MCFT000306
Varistor, 0603, 4VAC	MCFT000307
Varistor, 0603, 6VAC	MCFT000308
Varistor, 0603, 11VAC	MCFT000309
Varistor, 0603, 14VAC	MCFT000310
Varistor, 0603, 20VAC	MCFT000311
Varistor, 0603, 25VAC	MCFT000312
Varistor, 0603, 30VAC	MCFT000313
Varistor, 0805, 4VAC	MCFT000314
Varistor, 0805, 6VAC	MCFT000315
Varistor, 0805, 14VAC	MCFT000316
Varistor, 0805, 17VAC	MCFT000317
Varistor, 0805, 20VAC	MCFT000318
Varistor, 0805, 25VAC	MCFT000319
Varistor, 0805, 30VAC	MCFT000320
Varistor, 0805, 35VAC	MCFT000321
Varistor, 1206, 4VAC	MCFT000322
Varistor, 1206, 11VAC	MCFT000323
Varistor, 1206, 14VAC	MCFT000324
Varistor, 1206, 17VAC	MCFT000325
Varistor, 1206, 20VAC	MCFT000326
Varistor, 1206, 25VAC	MCFT000327
Varistor, 1206, 30VAC	MCFT000328
Varistor, 1206, 35VAC	MCFT000329
Varistor, 1206, 40VAC	MCFT000330
Varistor, 1206, 50VAC	MCFT000331
Varistor, 1206, 60VAC	MCFT000332