Multilayer Chip Varistor
MCVZ1206 Green Material Series

Description:

Multilayer Chip Varistor is a family of Transient Voltage Surge Suppression products. Today, electronic circuits are becoming smaller and more sensitive to external interference. 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 Multilayer Chip Varistor suitable for numerous applications on I/O protection , Vcc protection , Keyboard protection , LCD protection , Sensor protection etc. The Chip Varistor is manufactured by Multilayer fabrication technology providing excellent voltage clamping ability and is supplied in lead less , surface mount form , compatible with modern reflow and wave soldering procedures.

Features:

- Multilayer fabrication technology
- Small size (0402, 0603, 0805 and 1206 Available)
- -55°C to +125°C operating temperature range
- Operating voltage range $V_{M(DC)}$ at 5.5V to 85V
- Able to withstand high surge current
- Bi-directional Clamping Characteristic
- Low Capacitance Chip Varistor Types Available
- Environmentally conscious design

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.

Device Rating And Specifications:

Part Number	Maximum Ratings					Specifications		
	Max. Continuous Working Voltage		Max. Non-Repetitive Surge Current (8/20µs)	Max. Non- Repetitive Surge Energy (10/1000µs)	Max. Claiming Voltage at Specified Current (8/20µs)	Nominal Voltage At 1mA (DC) Current		Typical Capacitance @1KHz
	$V_{M(DC)}$	$V_{M(AC)}$	I_{TM}	W_{TM}	Vc	$V_{N(DC)}$ Min.	$V_{N(DC)}$ Max.	C
	(V)	(V)	(A)	(J)	(V)	(V)	(V)	(pF)
MCVZ1206M050AGT	5.5	4	100	0.2	20 at 1A	8	11	3,200
MCVZ1206M140AGT	14	10	100	0.3	30 at 1A	15.3	20.7	1,150
MCVZ1206M180AGT	18	14	100	0.3	38 at 1A	21.6	26.4	900
MCVZ1206M220AGT	22	17	100	0.4	44 at 1A	24.3	29.7	840
MCVZ1206M260AGT	26	20	100	0.5	54 at 1A	29.7	36.3	490
MCVZ1206M300AGT	30	25	100	0.6	65 at 1A	35.1	42.9	440
MCVZ1206M380AGT	38	30	100	0.7	77 at 1A	42.3	51.7	400
MCVZ1206M450AGT	45	35	100	0.8	90 at 1A	50.4	61.6	310
MCVZ1206M560AGT	56	40	100	1	110 at 1A	61.2	74.8	280

Multilayer Chip Varistor
MCVZ1206 Green Material Series

Part Number	Maximum Ratings					Specifications		
	Max. Continuous Working Voltage		Max. Non-Repetitive Surge Current (8/20μs)	Max. Non- Repetitive Surge Energy (10/1000μs)	Max. Claiming Voltage at Specified Current (8/20μs)	Nominal Voltage At 1mA (DC) Current		Typical Capacitance @1KHz
	$V_{M(DC)}$	$V_{M(AC)}$	I_{TM}	W_{TM}	Vc	$V_{N(DC)}$ Min.	$V_{N(DC)}$ Max.	C
	(V)	(V)	(A)	(J)	(V)	(V)	(V)	(pF)
MCVZ1206M650AGT	65	50	100	0.5	135 at 1A	73.8	90.2	240
MCVZ1206M850AGT	85	60	100	0.6	165 at 1A	90	110	160

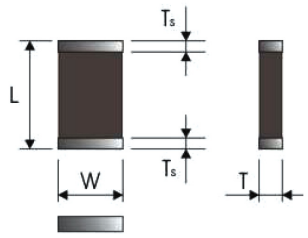
The capacitance value and energy only for reference. It is not formal specification.

Standard Testing Condition

Unless otherwise specified

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

Dimensions:



Symbol	MCVZ1206 Series
L	3.2 ±0.2mm
W	1.6 ±0.2mm
T	1.2mm (max.)
Ts	0.65 ±0.25mm

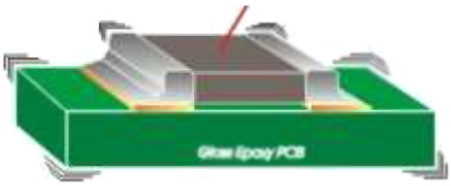
Terminal electrode : Ni / Sn electrode

Specifications:

Electrical Reliability

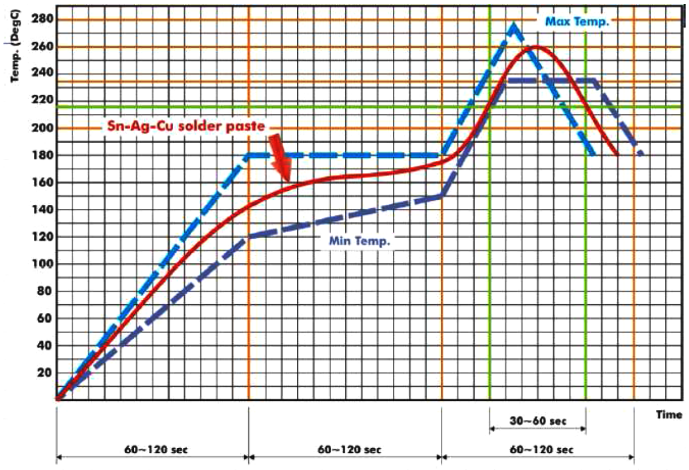
Test Item	Test condition / Test method	Specification
High temperature storage	+125±3°C for 1,000 hours Measurement to be made after keeping at room temp. for 24 ±2hr	ΔV at 1mA < 10%
Low temperature storage	-40±3°C for 1,000 hours Measurement to be made after keeping at room temp. for 24 ±2hr	ΔV at 1mA < 10%
Humidity storage	40±2°C , 90 to 95%RH for 500 hours Measurement to be made after keeping at room temp. for 24 ±2hr	ΔV at 1mA < 10%
Temperature cycles	Times : 5 cycles 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 Measurement to be made after keeping at room temp. for 24 ±2hr	ΔV at 1mA < 10%

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°C to 150°C, 60sec Solder temp. : 260 ±5°C Immersion time : 10 ±1sec Measurement to be made after keeping at room temp. 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 Chip varistor  	No visible damage
Vibration	Solder chip on PCB. Frequency : 10Hz ~ 55Hz ~ 10 Hz (1min) Oscillation amplitude : 1.5mm Times : 2hrs 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 1mm and then the pressure shall be maintained for 5 sec.	No visible damage ΔV at 1mA < 10%

Soldering Condition:

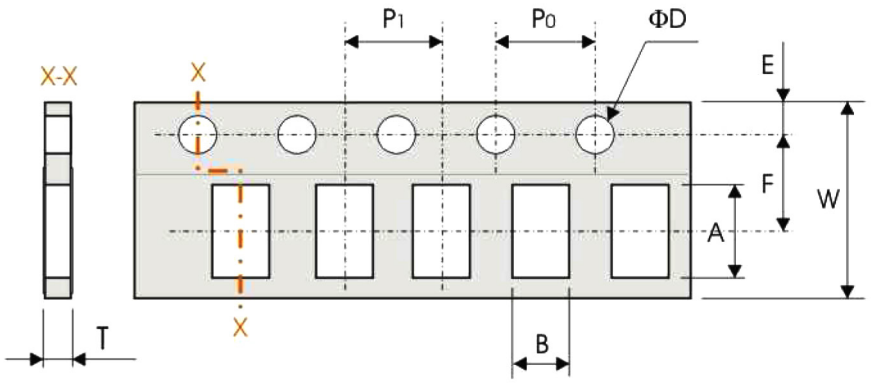
Typical examples of soldering processes that provide reliable joints without any damage are given in figure below:



Infrared soldering profile

Packaging:

Paper Tape specifications and Packaging quantity



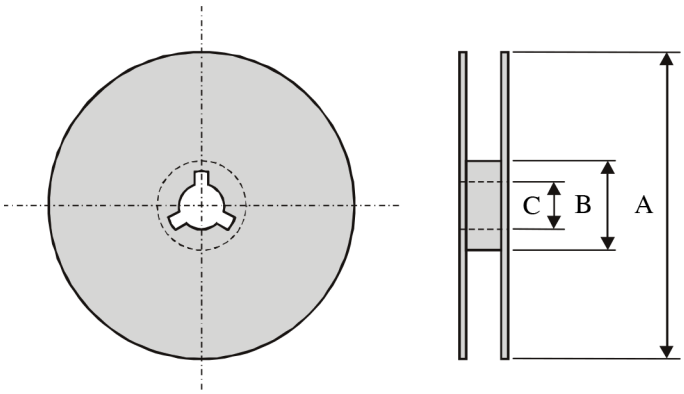
Series	A	B	E	F	ØD
MCVZ1206 Series	3.5 ±0.05	1.88 ±0.05	1.75 ±0.05	3.5 ±0.05	1.55 ±0.05

Series	P0	P1	T	W	Quantity/Reel
MCVZ1206 Series	4 ±0.1	2 ±0.1	1.24 ±0.05	8 ±0.2	3Kpcs

Tape Material : Paper tape

Dimensions : Millimetres

Reel Dimensions:



Index	A	B	C
Dimension (mm)	178	60	13.5