

Multilayer Varistor ESD Suppressor MLVB Series



Surface Mount Device

Description

Cooper Bussmann® MLVB Series of multilayer varistors are designed to protect electronic circuits from ESD damage. The MLVB Series has the low capacitance necessary to protect a wide range of data speeds, including protection against high speed transient voltages.

Features

- Zinc oxide based ceramic chip
- Low capacitance to meet the need for high speed transient voltage protection
- Provides ESD protection with fast response time (<1ns) allowing equipment to pass IEC 61000-4-2 Level 4 Test
- Low profile designs for board space savings
- Low and stable leakage current reduces power consumption
- Low clamping voltage
- Lead free, halogen free and RoHS compliant for global applications

Applications

- Computers and peripherals
- Digital still cameras
- Cell phones
- Medical equipment
- DVD Players
- MP3/Multimedia players
- LCD TV / Monitor
- External storage
- Cable/DSL Modems
- USB 2.0
- Set top boxes

Part Numbering System: MLVB 04 V18 C001

Product Family _____
Size _____
Working DC Voltage _____
Capacitance in pF* _____

* Part numbers use "R" to denote decimal point for decimal values of pico farads.

Packaging

- Size 0402: 10,000 pieces per reel - EIA (EIAJ)
- Size 0603: 4000 pieces per reel - EIA (EIAJ)

Specifications

Part Number	Size	Working Voltage (Vdc)	Varistor Voltage @1mA _{dc}	Clamping Voltage	Capacitance pF	Leakage Current (μA)
MLVB04V18C0R5	0402	18	90-120	250*	0.5	<10
MLVB04V18C001	0402	18	46-60	110*	1	<10
MLVB04V18C003	0402	18	22-34	58	3	<10
MLVB04V09C005	0402	9	11-17	35	5	<10
MLVB06V18C0R5	0603	18	90-120	250*	0.5	<10
MLVB06V18C001	0603	18	46-60	110*	1	<10
MLVB06V18C003	0603	18	22-34	58	3	<10
MLVB06V09C005	0603	9	11-17	35	5	<10

* Maximum peak voltage across the varistor with 8/20μs waveform and 0.5A pulse current.

Working Voltage (Vdc) - Maximum DC operating voltage the varistor can maintain and not exceed 10μA leakage current.

Varistor Voltage - Voltage across the device measured at 1mA DC current. Equivalent to V_B, "breakdown voltage."

Clamping Voltage - Maximum peak voltage across the varistor with 8/20μs waveform and 1A pulse current.

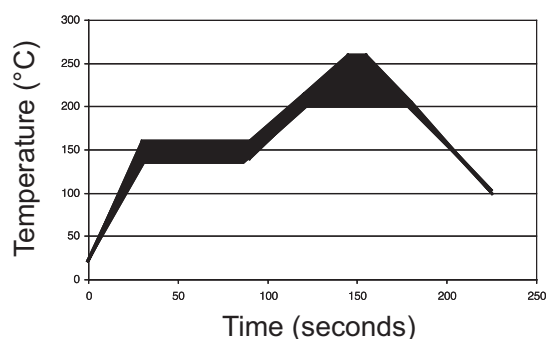
Capacitance - Device capacitance measured with zero volt bias 1V_{rms} at 1MHz.

Environmental Specifications

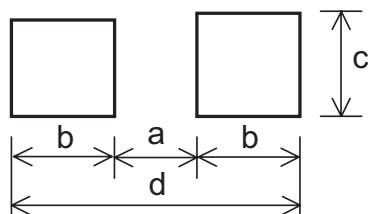
Characteristic	Value
Bias Humidity:	+40°C, 90% RH for 1000 hours
Thermal Shock:	-40°C to +85°C, 30 minute cycle, 5 cycles
Operating Temperature Range:	-40°C to +85°C
Storage Temperature Range:	-40°C to +85°C

Soldering Recommendations

- Compatible with lead and lead-free solder reflow processes
- Peak reflow temperatures and durations:
 - IR Reflow = 260°C max for 30 sec. max.
 - Wave Solder = 260°C max. for 10 sec. max.
- Recommended IR Reflow Profile:

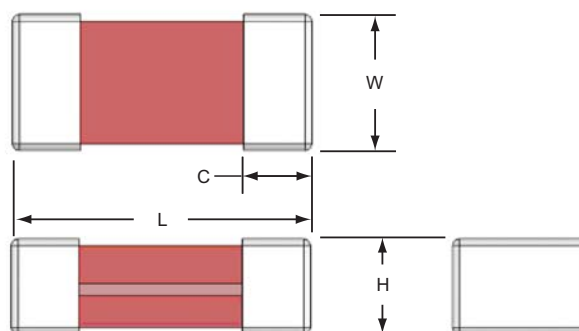


Recommended Pad Layout - mm (in)



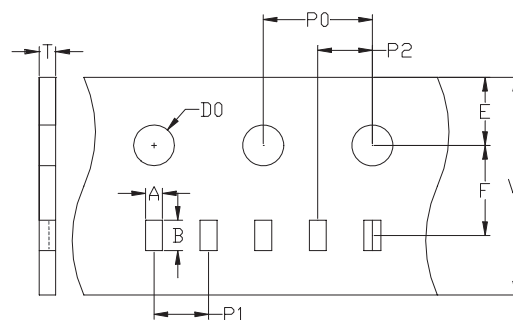
Size	a	b	c	d
0402	0.51 (0.020)	0.61 (0.024)	0.51 (0.020)	1.70 (0.067)
0603	0.50 (0.020)	1.02 (0.040)	0.76 (0.030)	2.54 (0.100)

Dimensions - mm



Size	L	W	H	C
0402	1.00±0.15	0.50±0.10	0.50±0.10	0.25±0.15
0603	1.60±0.20	0.80±0.20	0.80±0.20	0.30±0.20

Tape Packaging Specifications - mm



0402 Carrier Dimensions									
A	B	W	E	F	P0	P1	P2	D0	T
0.58 ±0.03	1.2 ±0.03	8.0 ±0.1	1.75 ±0.05	3.5 ±0.05	4.0 ±0.1	2.0 ±0.05	2.0 ±0.05	1.55 ±0.05	0.60 ±0.03
0603 Carrier Dimensions									
0.90 ±0.20	1.80 ±0.20	8.0 ±0.30	1.75 ±0.10	3.50 ±0.05	4.00 ±0.10	-	2.00 ±0.05	1.50 ±0.10	-

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