BUSSMANN SERIES

MLVB Multilayer varistor ESD suppressor





Surface Mount Device

Product 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 cameras
- Mobile phones
- Medical equipment
- DVD Players
- MP3/Multimedia players
- LCD TV / Monitor
- External storage
- Cable/DSL Modems
- USB 2.0
- Set top boxes

| | MLVB | 04 | <u>V18</u> | C001 |
|----------------------|------|----|------------|------|
| Product Family ——— | | | | |
| Size — | | | | |
| Working DC Voltage — | | | | |
| Canacitance in nF* — | | | | |

* 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 @1mAdc | 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 | | | |

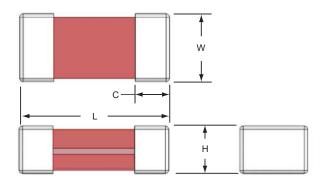
 $^{^{\}star}$ Maximum peak voltage across the varistor with 8/20 μ s waveform and 0.5A pulse current. Working Voltage (Vdc) - Maximum DC operating voltage the varistor can maintain and not exceed 10 μ A leakage current.

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



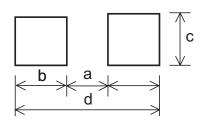
Varistor Voltage - Voltage across the device measured at 1mA DC current. Equivalent to $V_{B,}$ "breakdown voltage." Clamping Voltage - Maximum peak voltage across the varistor with 8/20 μ s waveform and 1A pulse current.

Dimensions - mm



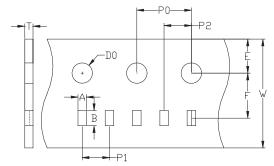
| Size | L | L W | | С | |
|------|-----------|-----------|-----------|-----------|--|
| 0402 | 1.00±0.15 | 0.50±0.10 | 0.50±0.10 | 0.25±0.15 | |
| 0603 | 1.60±0.20 | 0.80±0.20 | 0.80±0.20 | 0.30±0.20 | |

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) |

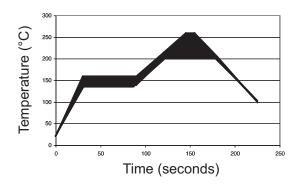
Tape Packaging Specifications - mm



| _ | | | | | | | | | | |
|---|-------------------------|---------------|--------------|---------------|---------------|---------------|--------------|---------------|---------------|---------------|
| | 0402 Carrier Dimensions | | | | | | | | | |
| | Α | В | W | Е | 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 | - |

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:



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