

# MLVB

## Multilayer varistor ESD suppressor



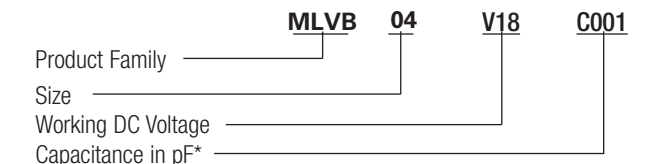
Surface Mount Device

### 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

### 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



\* 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 <sub>dc</sub> | 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.

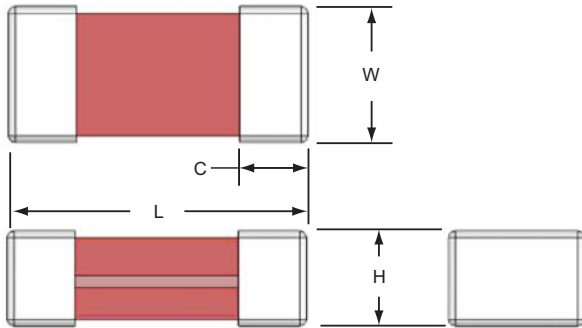
Varistor Voltage - Voltage across the device measured at 1mA DC current. Equivalent to V<sub>B</sub>, "breakdown voltage." Clamping Voltage - Maximum peak voltage across the varistor with 8/20μs waveform and 1A pulse current.

Capacitance - Device capacitance measured with zero volt bias 1V<sub>rms</sub> at 1MHz.



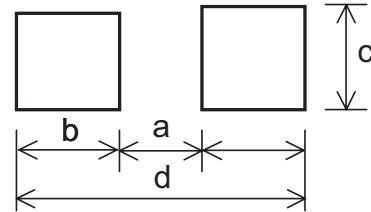
Powering Business Worldwide

Dimensions - mm



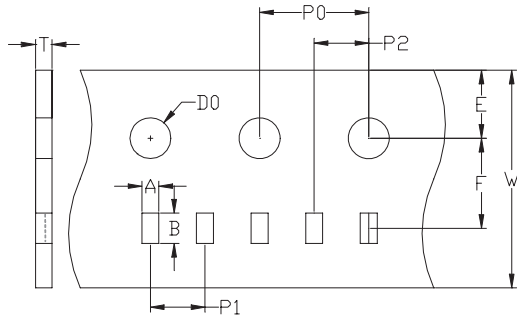
| Size | L         | W         | H         | C         |
|------|-----------|-----------|-----------|-----------|
| 0402 | 1.00±0.15 | 0.50±0.10 | 0.50±0.10 | 0.25±0.15 |
| 0603 | 1.60±0.20 | 0.80±0.20 | 0.80±0.20 | 0.30±0.20 |

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) |

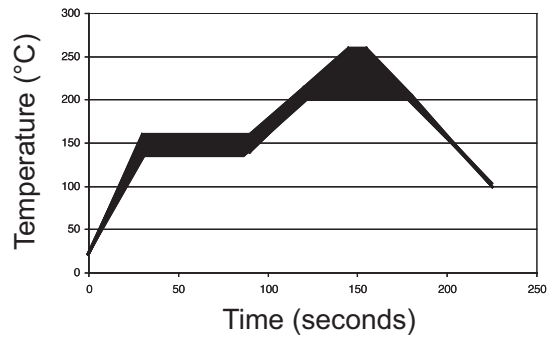
Tape Packaging Specifications - mm



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