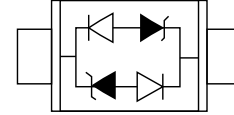


Description

The PTVSLC3D24VB is a low capacitance transient voltage suppressor for high speed data interface that designed to protect sensitive electronics from damage or latch-up due to ESD lightning, and other voltage induced transient events.

All pins are rated to withstand 20kV ESD pulses using the IEC61000-4-2 air discharge method, which can meet the requirement of level 4.



Feature

- 450W peak pulse power per line ($t_P = 8/20\mu s$)
- SOD-323 package
- Replacement for MLV(0805)
- Bidirectional configurations
- Protects one power or I/O port
- ESD protection > 20kV
- Low clamping voltage
- RoHS compliant
- Transient protection for data lines to IEC61000-4-2(ESD) $\pm 30kV$ (air), $\pm 30kV$ (contact); IEC61000-4-4 (EFT) 40A (5/50ns)

Applications

- Ethernet – 10/100/1000 Base T
- Cellular phones
- Handheld-wireless systems
- PDAs
- USB interface

Mechanical Characteristics

- Lead finish:100% matte Sn(Tin)
- Mounting position: Any
- Qualified max reflow temperature:260°C
- Pure tin plating: 7 ~ 17 um
- Pin flatness: $\leq 3mil$

Maximum Ratings and Thermal Characteristics($T_A=25^\circ C$ unless otherwise noted)

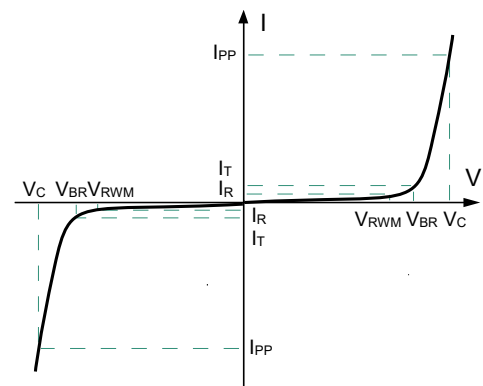
| Parameter | Symbol | Value | Units |
|--------------------------------------|-----------|-------------|------------|
| Peak Pulse Power ($t_P=8/20\mu s$) | P_{pp} | 450 | W |
| Operating Temperature | T_J | -55 to +150 | $^\circ C$ |
| Storage Temperature | T_{STG} | -55 to +150 | $^\circ C$ |

Electrical characteristics per line@25°C (unless otherwise specified)

| Device | V_{RWM} | I_R @ V_{RWM} | V_{BR} @ 1mA | V_C @ $I_P = 1A$ | V_C @ I_{PP} | C_j @ 0V, 1MHz |
|--------------|-----------|----------------------|-------------------|-----------------------|---------------------|---------------------|
| | (V) | (μA) | (V) | (V) | (V) | (pF) |
| PTVSLC3D24VB | 24 | 1 | 29.0 | 36 | 48@6A | 1.5 |

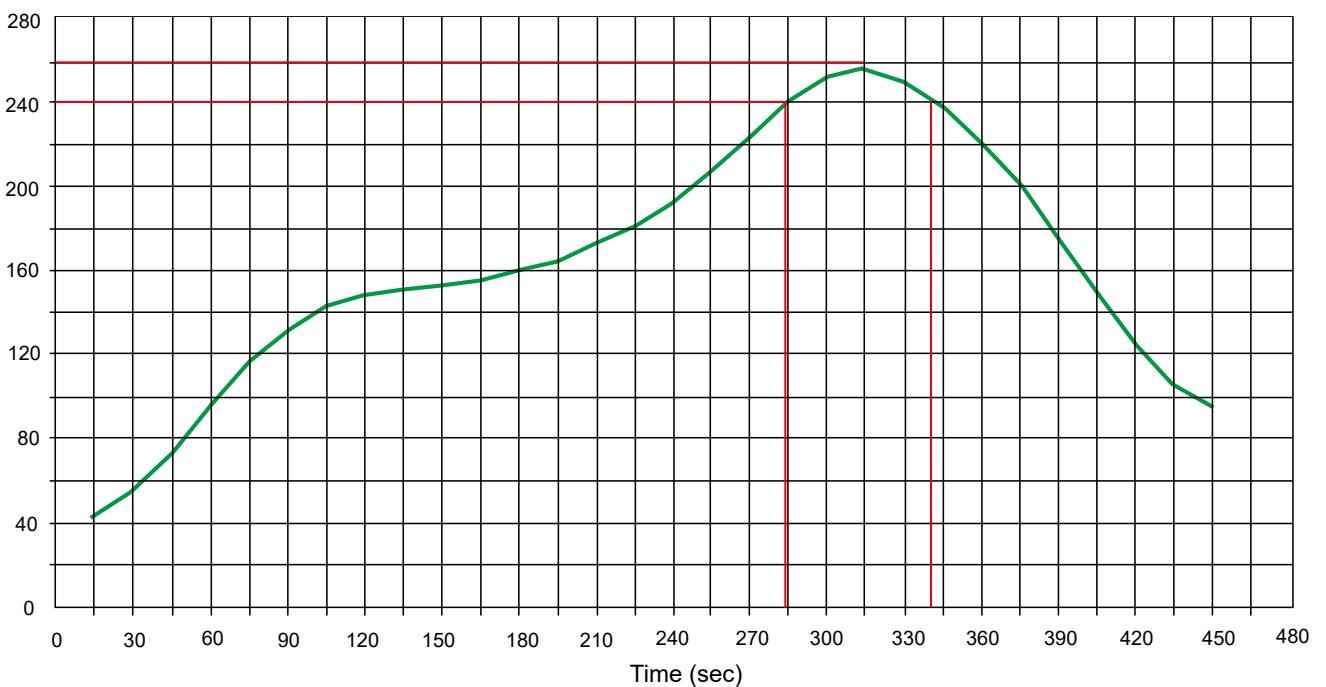
I-V Curve Characteristics

| Symbol | Parameter |
|-----------|-------------------------------------|
| V_{RWM} | Peak Reverse Working Voltage |
| I_R | Reverse Leakage Current @ V_{RWM} |
| V_{BR} | Breakdown Voltage @ I_T |
| I_T | Test Current |
| I_{PP} | Maximum Reverse Peak Pulse Current |
| V_C | Clamping Voltage @ I_{PP} |
| P_{PP} | Peak Pulse Power |
| C_J | Junction Capacitance |
| I_F | Forward Current |
| V_F | Forward Voltage @ I_F |



Solder Reflow Recommendation

Peak Temp=257°C, Ramp Rate=0.802deg. °C/sec



Ratings and Characteristic Curves $T_A=25^\circ\text{C}$ unless otherwise noted

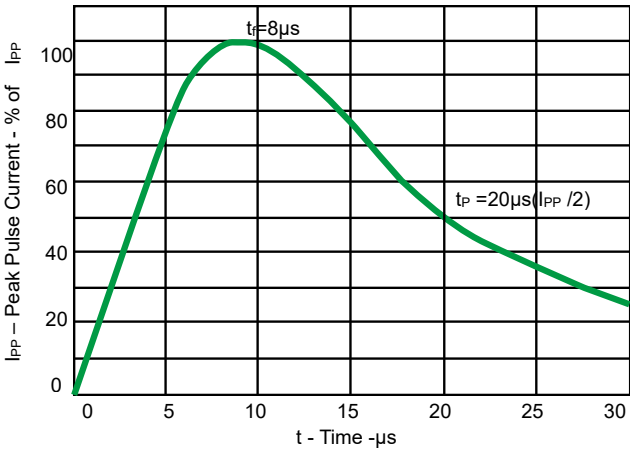


Fig 1. Pulse Waveform

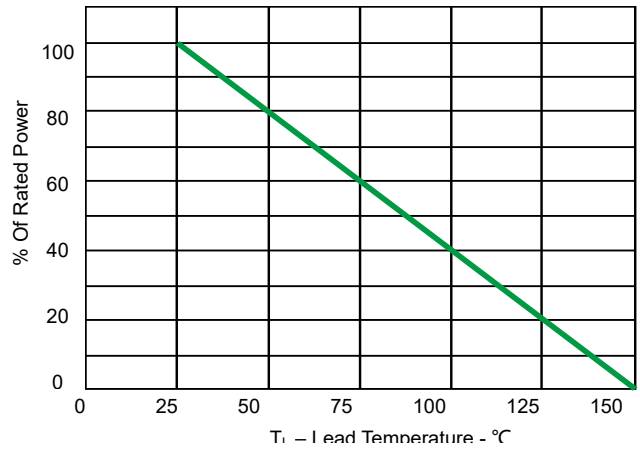


Fig 2. Power Derating Curve

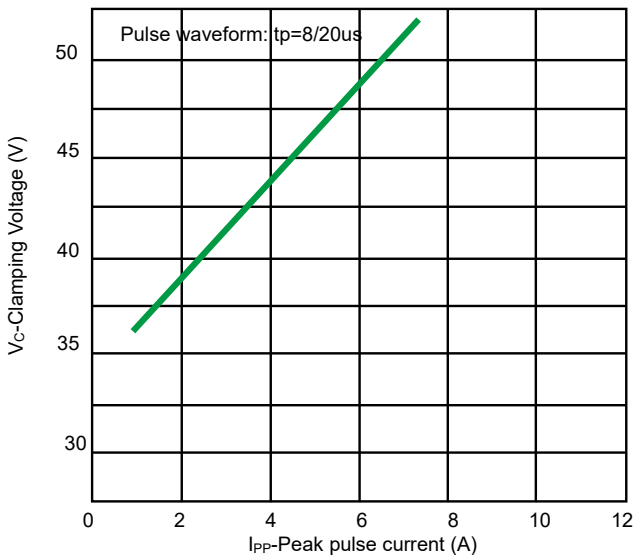


Fig 3. Clamping voltage vs. Peak pulse current

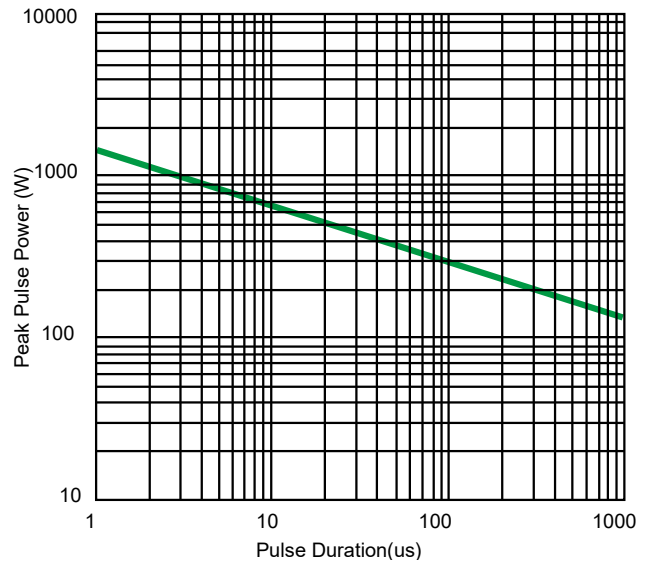


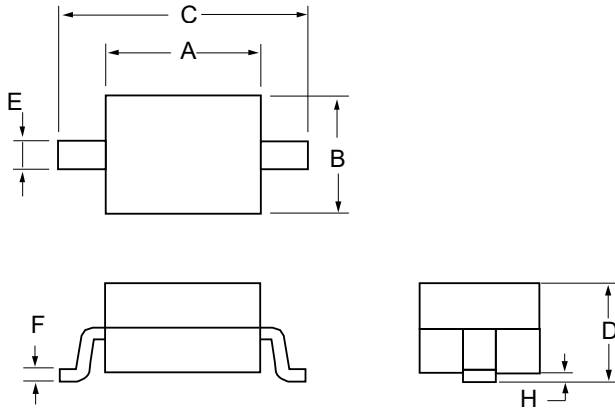
Fig 4. Non Repetitive Peak Pulse Power vs. Pulse time

PCB Design

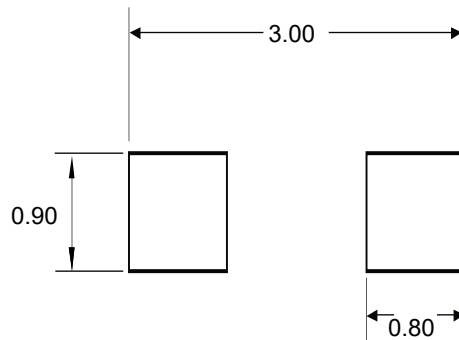
For TVS diodes a low-ohmic and low-inductive path to chassis earth is absolutely mandatory in order to achieve good ESD protection. Novices in the area of ESD protection should take following suggestions to heart:

- Do not use stubs, but place the cathode of the TVS diode directly on the signal trace.
- Do not make false economies and save copper for the ground connection.
- Place via holes to ground as close as possible to the anode of the TVS diode.
- Use as many via holes as possible for the ground connection.
- Keep the length of via holes in mind! The longer the more inductance they will have.

Product dimension (SOD-323)



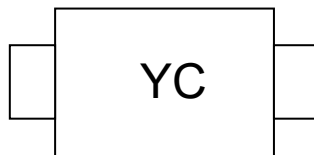
| Dim | Inches | | Millimeters | |
|-----|--------|-------|-------------|------|
| | MIN | MAX | MIN | MAX |
| A | 0.063 | 0.075 | 1.60 | 1.90 |
| B | 0.045 | 0.057 | 1.15 | 1.45 |
| C | 0.090 | 0.106 | 2.30 | 2.70 |
| D | 0.031 | 0.043 | 0.80 | 1.10 |
| E | 0.010 | 0.01 | 0.25 | 0.40 |
| F | 0.004 | 0.007 | 0.09 | 0.18 |
| H | 0.000 | 0.004 | 0.00 | 0.10 |



Suggested PCB Layout

Unit:mm

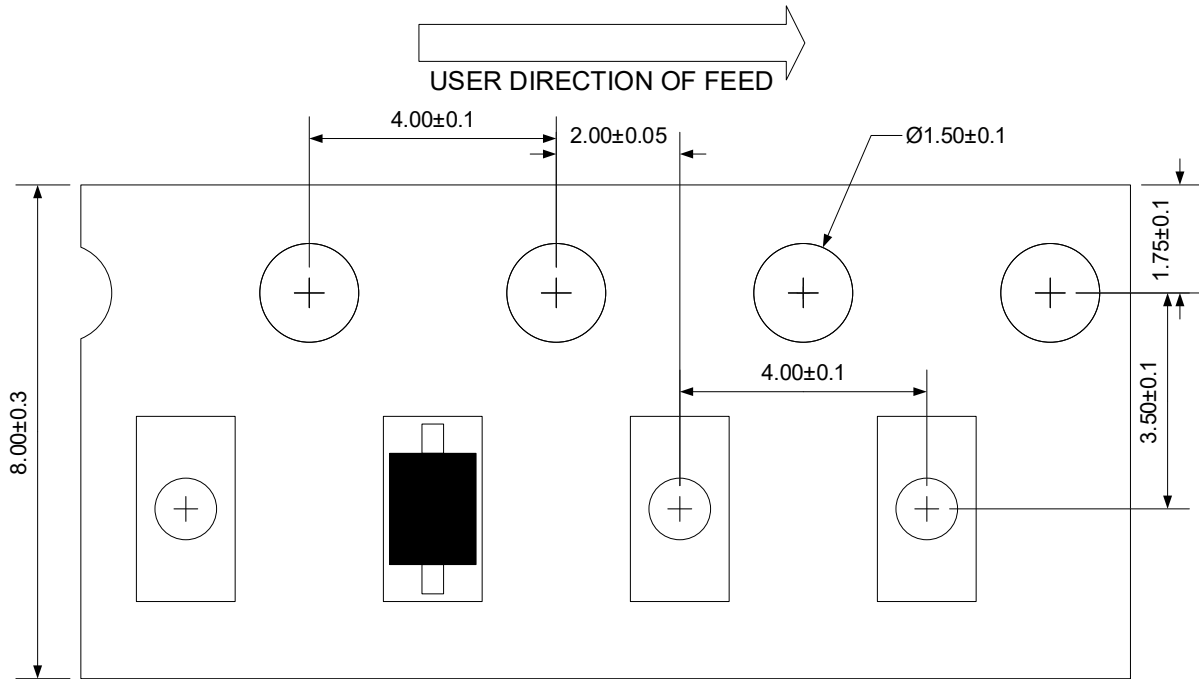
Marking information



Ordering information


| Device | Package | Reel | Shipping |
|--------------|-------------------|------|--------------------|
| PTVSLC3D24VB | SOD-323 (Pb-Free) | 7" | 3000 / Tape & Reel |

Load with information



Unit:mm


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