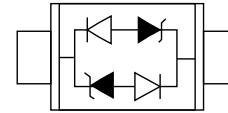


### Description

The PTVSLC3D5VB 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 15kV ESD pulses using the IEC61000-4-2 air discharge method, which can meet the requirement of level 4.



### Feature

- 350W 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
- 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) 80A (5/50ns)

### Applications

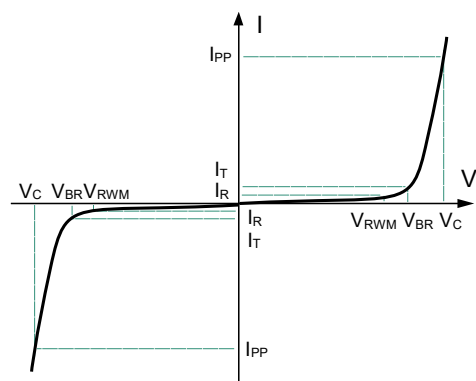
- Ethernet – 10/100/1000 base T
- Cellular phones
- Handheld-wireless systems
- PDAs
- USB interface

### Mechanical Characteristics

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

### Electronics Parameter

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 @ $I_F$



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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Peak Reverse Working Voltage	$V_{RWM}$				5	V
Breakdown Voltage	$V_{BR}$	$I_t = 1mA$	6			V
Reverse Leakage Current	$I_R$	$V_{RWM} = 5V T=25^{\circ}C$			1.0	$\mu A$
Clamping Voltage	$V_C$	$I_{PP} = 1A t_p = 8/20\mu s$			9.8	V
Clamping Voltage	$V_C$	$I_{PP}=21A t_p = 8/20\mu s$			32	V
Junction Capacitance	$C_j$	$V_R=0V f = 1MHz$		4.5		pF

Absolute maximum rating@25°C

Rating	Symbol	Value	Units
Peak Pulse Power ( $t_p=8/20\mu s$ )	$P_{pp}$	350	W
Operating Temperature	$T_J$	-55 to +150	$^{\circ}C$
Storage Temperature	$T_{STG}$	-55 to +150	$^{\circ}C$

Typical Characteristics

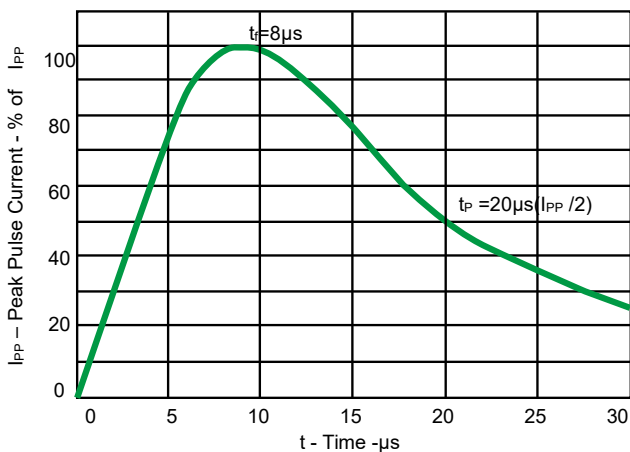


Fig 1.Pulse Waveform

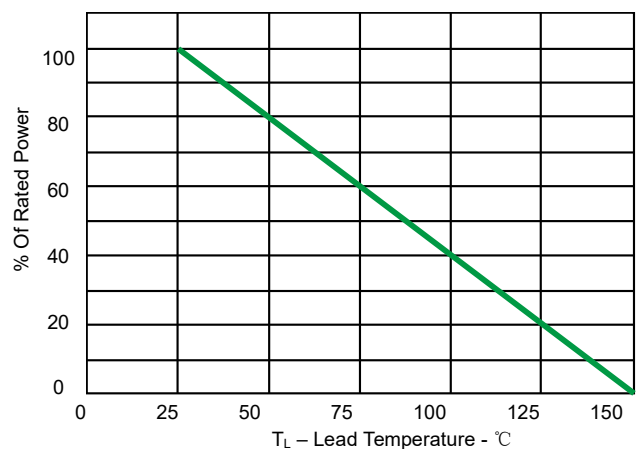


Fig 2.Power Derating Curve

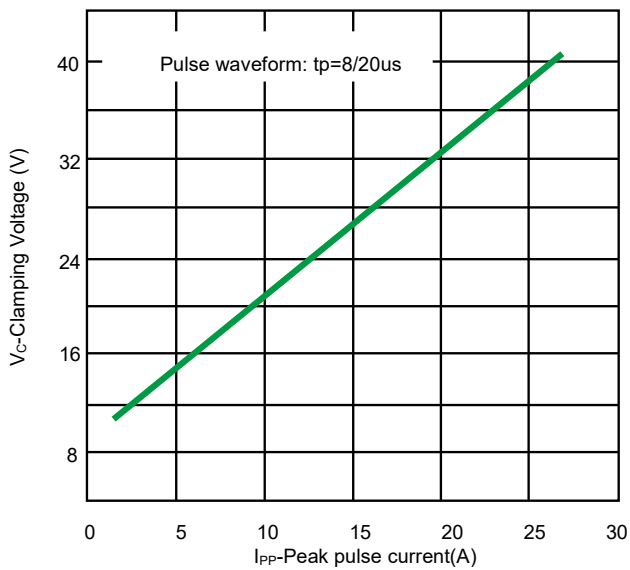


Fig 3. Clamping voltage vs. Peak pulse current

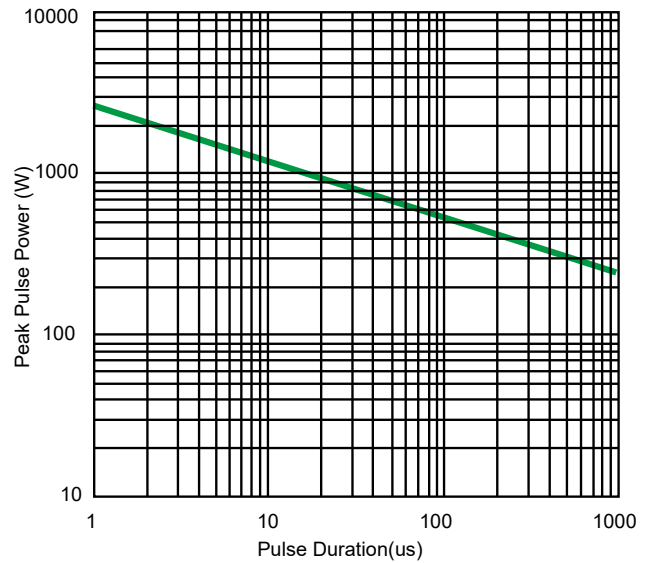
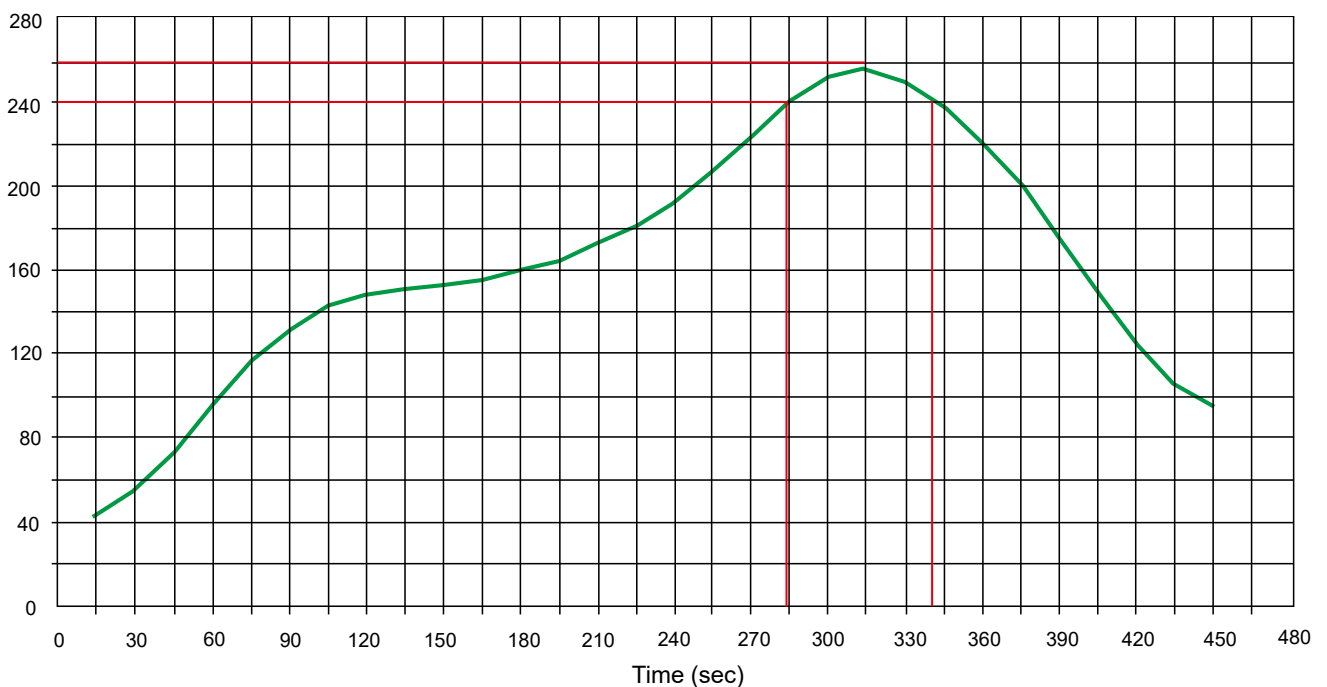


Fig 4. Non Repetitive Peak Pulse Power vs. Pulse time

### Solder Reflow Recommendation

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

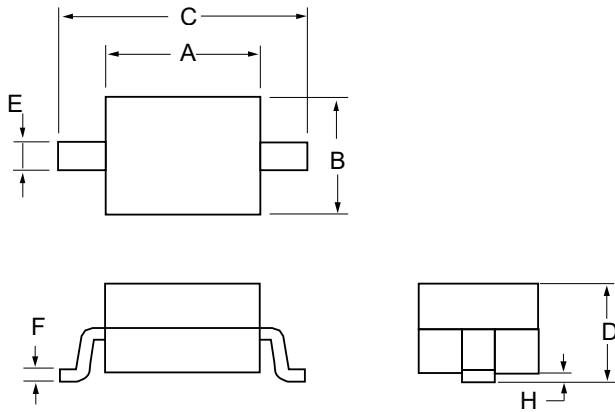


### PCB Design

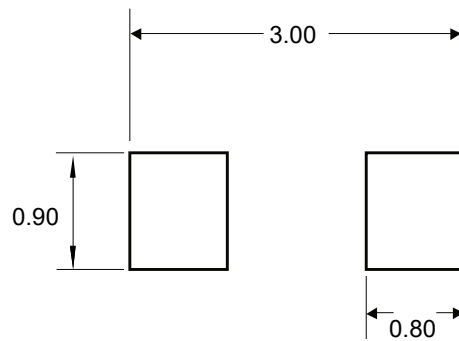
For TVS diodes a low-ohmic and low-inductive path to chassis earth is absolutely mandatory in order to achieve good ESD protection. Novices in the area of ESD protection should take following suggestions to heart:

- 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)



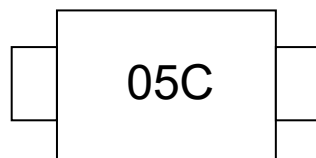
Dim	Inches		Millimeters	
	MIN	MAX	MIN	MAX
A	0.063	0.075	1.60	1.90
B	0.045	0.057	1.15	1.45
C	0.090	0.106	2.30	2.70
D	0.031	0.043	0.80	1.00
E	0.010	0.01	0.25	0.40
F	0.004	0.007	0.09	0.18
H	0.000	0.004	0.00	0.10



Suggested PCB Layout

Unit:mm


Marking information



Ordering information

Device	Package	Reel	Shipping
PTVSLC3D5VB	SOD-323 (Pb-Free)	7"	3000 / Tape & Reel


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