

## Description

The PESDLC3D3V3BI is a low capacitance transient voltage suppressors 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. .

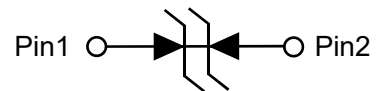
All pins are rated to withstand 30kV ESD pulses using the IEC61000-4-2 air discharge method, which can meet the requirement of level 4.



**SOD-323(Top View)**

## Feature

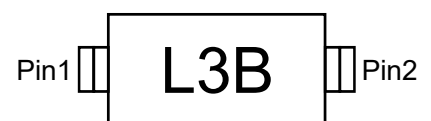
- 200W peak pulse power per line ( $t_p = 8/20\mu s$ )
- Protects one I/O or power line( bidirectional)
- Low clamping voltage
- Working voltages: 3.3V
- Low leakage current
- Transient protection for data lines to  
IEC 61000-4-2(ESD)  $\pm 30kV$ (air),  $\pm 30kV$ (contact);  
IEC 61000-4-4 (EFT) 40A (5/50ns)



**Circuit Diagram**

## Applications

- Cell Phone Handsets and Accessories
- Microprocessor based equipment
- Personal Digital Assistants(PDA's)
- Notebooks , Desktops , and Servers
- Portable Instrumentation
- Peripherals
- USB Interface



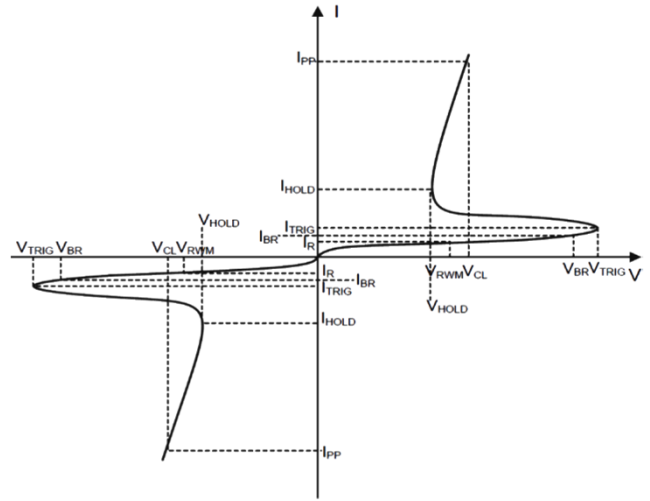
**Marking (Top View)**

## 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	$V_{RWM}$	-	-	-	3.3	V
Breakdown Voltage	$V_{BR}$	$I_t = 1\text{mA}$	3.5	-	7.0	V
Reverse Leakage Current	$I_R$	$V_{RWM} = 3.3\text{V}$	-	-	1.0	$\mu\text{A}$
Clamping Voltage <sup>1)</sup>	$V_C$	TLP = 16A, $t_p = 100\text{ns}$	-	7.5	-	V
Dynamic resistance <sup>1)</sup>	$R_{DYN}$	-	-	0.075	-	$\Omega$
Clamping Voltage <sup>2)</sup>	$V_C$	$I_{PP} = 20\text{A}, t_p = 8/20\mu\text{s}$	-	11	14	V
Junction Capacitance	$C_J$	$V_R = 0\text{V}, f = 1\text{MHz}$	-	1.0	-	pF

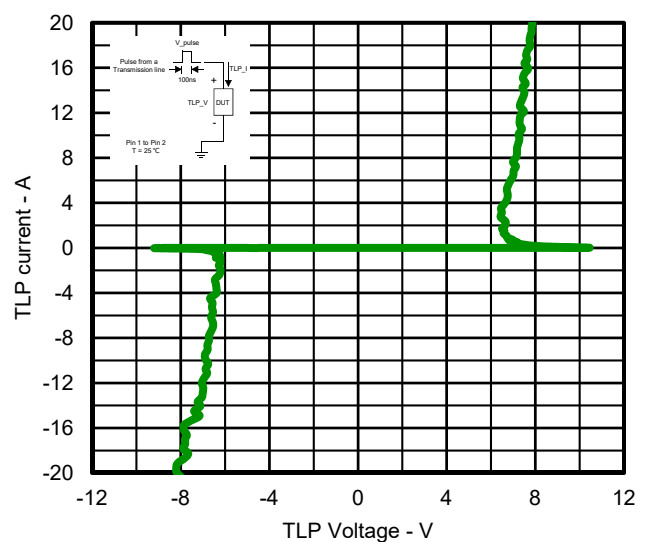
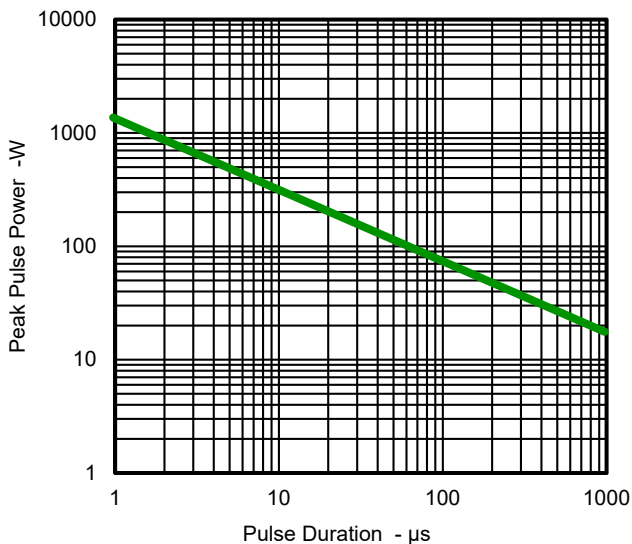
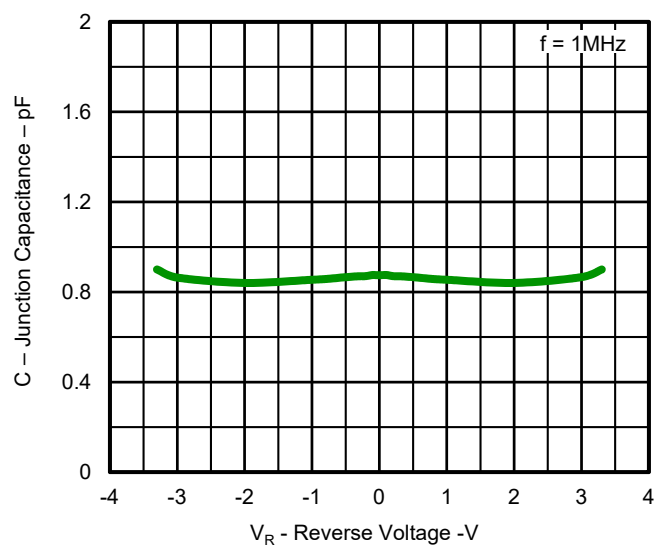
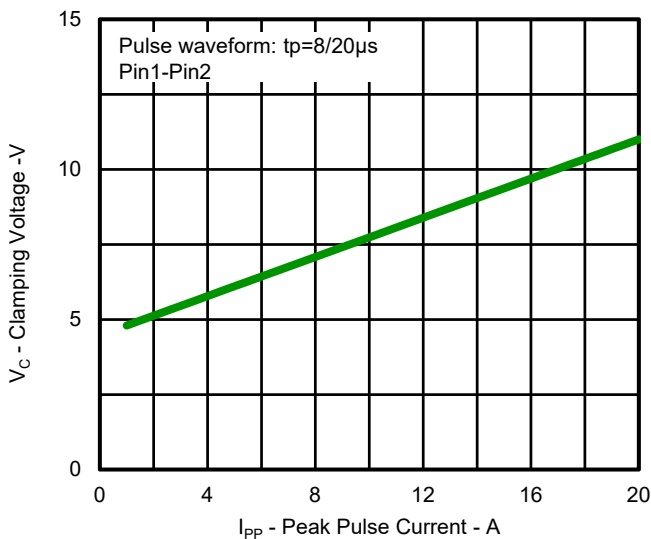
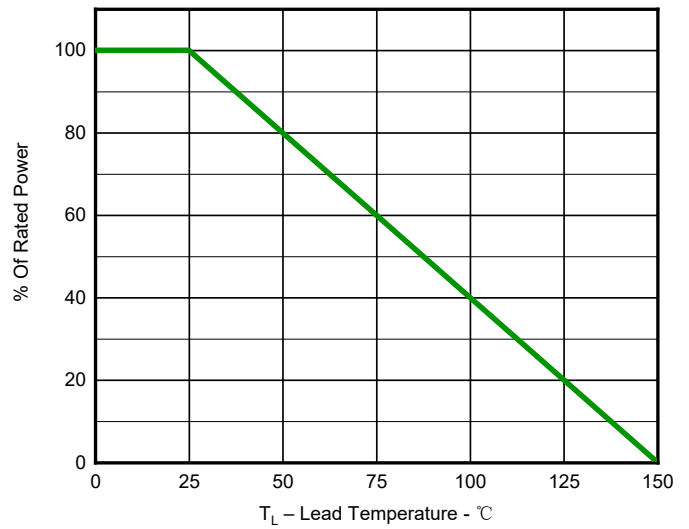
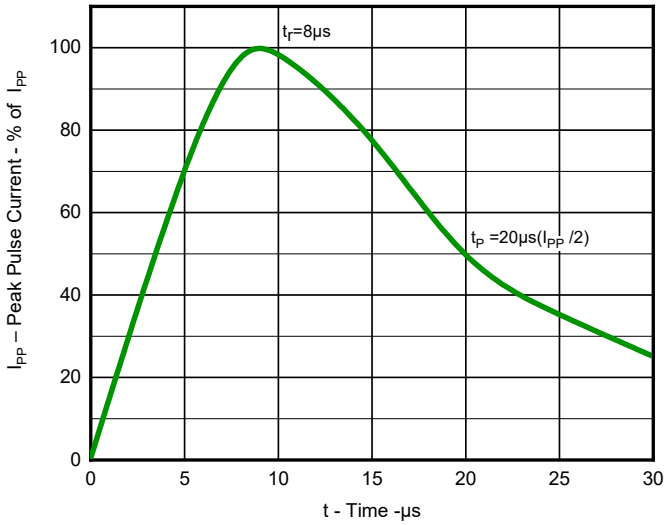
Notes:

1. TLP parameter:  $Z_0 = 50\Omega$ ,  $t_p = 100\text{ns}$ ,  $t_r = 2\text{ns}$ , averaging window from 70ns to 90ns.  $R_{DYN}$  is calculated from 4A to 16A.
2. Non-repetitive current pulse, according to IEC61000-4-5.

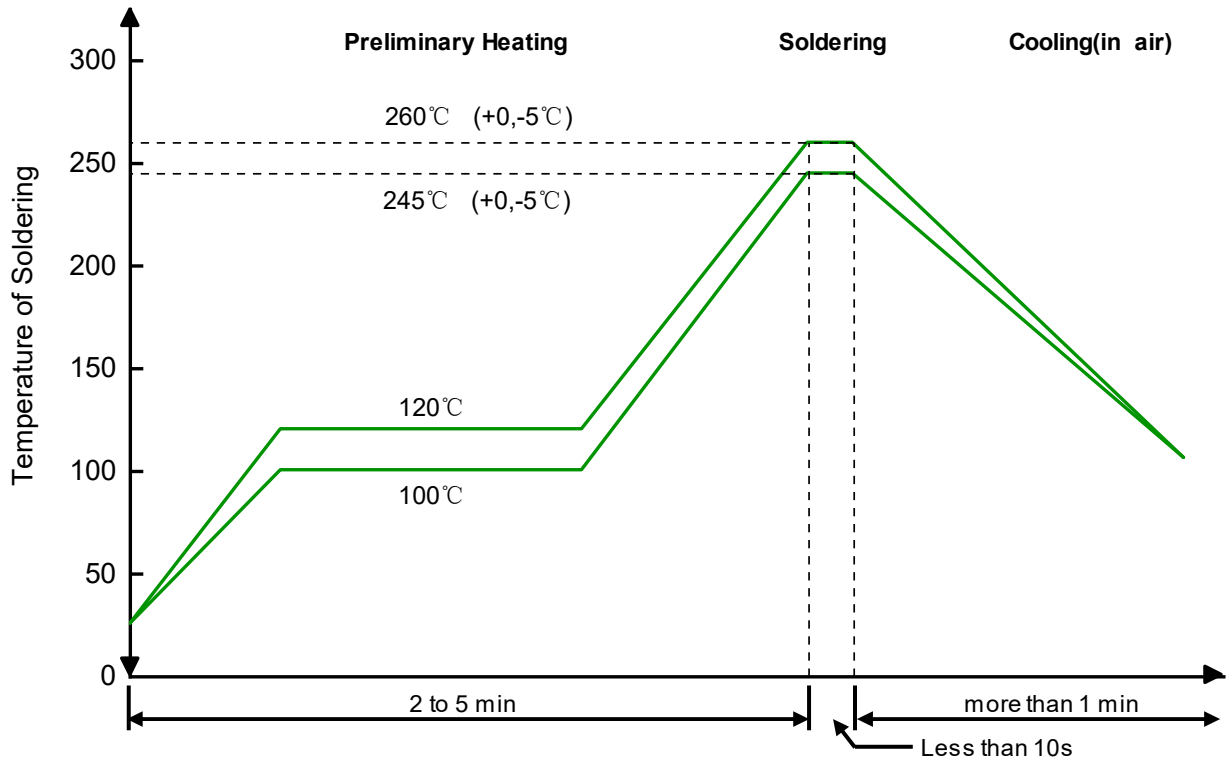
## Absolute maximum rating@25°C

Rating	Symbol	Value	Units
Peak Pulse Power ( $t_p = 8/20\mu\text{s}$ )	$P_{PP}$	200	W
Peak Pulse Current ( $t_p = 8/20\mu\text{s}$ )	$I_{PP}$	20	A
Lead Soldering Temperature	$T_L$	260 (10 sec)	$^{\circ}\text{C}$
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55~+150	$^{\circ}\text{C}$
ESD Protection-Contact Discharge	$V_{ESD}$	$\pm 30$	kV
ESD Protection-Air Discharge	$V_{ESD}$	$\pm 30$	kV

Typical Characteristics



Solder Reflow Recommendation



Remark: Pb free for 260°C; Pb for 245°C.

## PCB Design

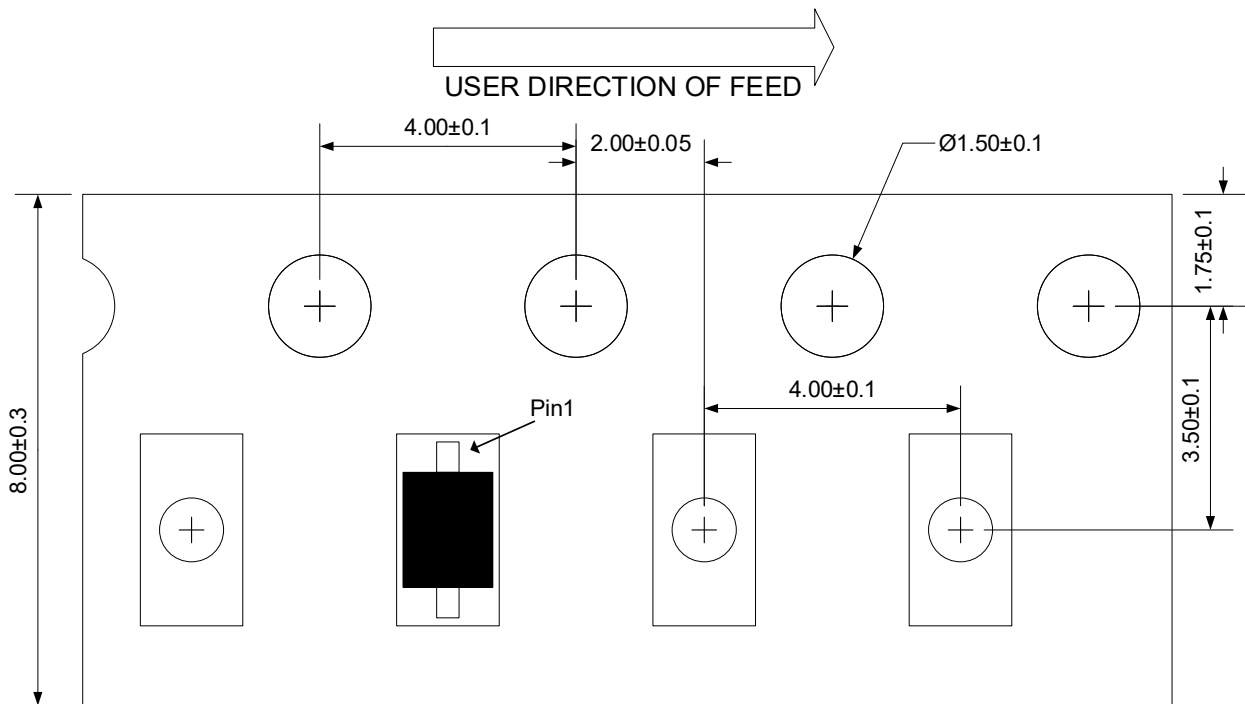
For TVS diodes a low-ohmic and low-inductive path to chassis earth is absolutely mandatory in order to achieve good ESD protection. Novices in the area of ESD protection should take following suggestions to heart:

- 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.

## Ordering information

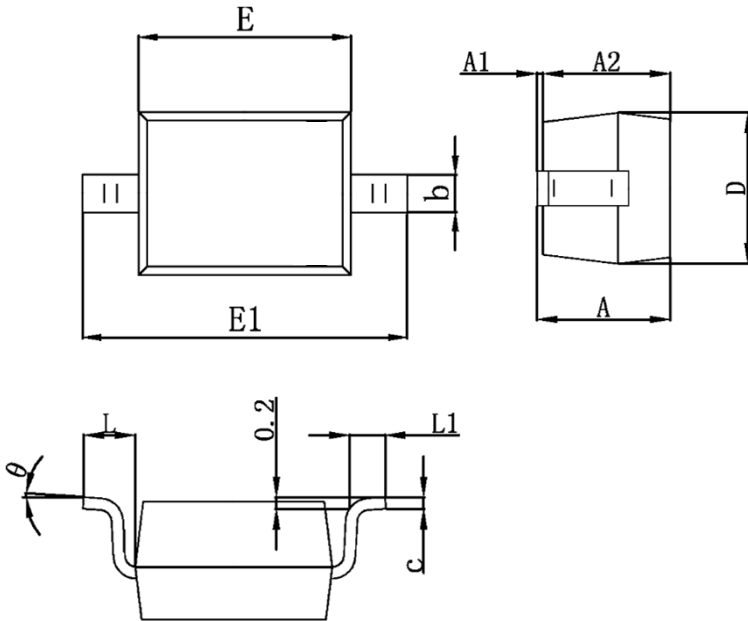
Package	Reel	Shipping
SOD-323	7"	3000 / Tape & Reel

## Load with information

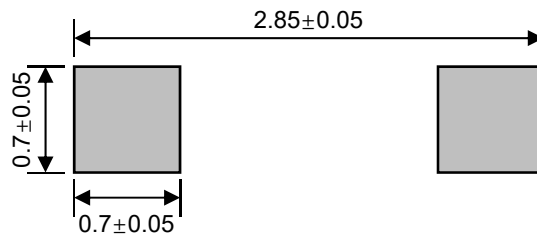


Unit:mm

Product dimension (SOD-323)




Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	0.80	1.10	0.031	0.043
A1	0.00	0.10	0.000	0.004
A2	0.80	1.00	0.031	0.039
b	0.25	0.40	0.010	0.016
c	0.08	0.18	0.003	0.007
D	1.15	1.45	0.045	0.057
E	1.55	1.90	0.061	0.075
E1	2.30	2.70	0.091	0.106
L	0.475 Ref.		0.019 Ref.	
L1	0.25	0.40	0.010	0.016
$\theta$	0°	8°	0°	8°



Unit: mm

Suggested PCB Layout


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