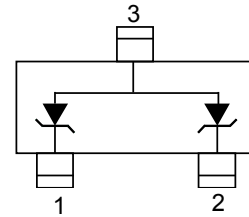


### Description

The PESDA6V1L is a TVS that designed to protect components which are connected to data and transmission lines against electrostatic discharge(ESD), electrical fast transients(EFT), and lightning. 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

- 100W peak pulse power ( $t_p=8/20\mu s$ )
- Low clamping voltage
- Protects one bidirectional or two unidirectional lines
- Working voltage: 5V
- Low leakage current
- ESD Protection > 15kV
- RoHS compliant transient protection for data lines to IEC61000-4-2(ESD) $\pm 15kV$ (air), $\pm 8kV$ (contact)

### Applications

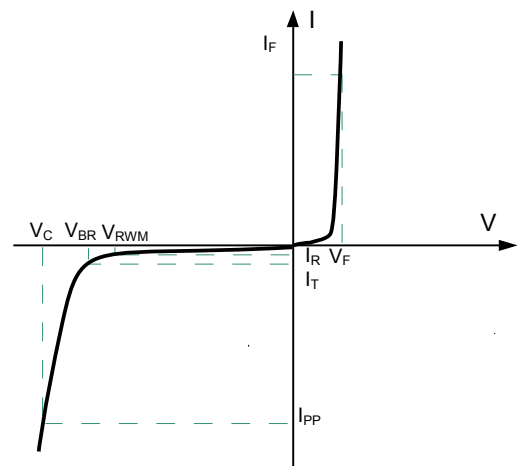
- Cellular handsets and accessories
- Portable electronics
- Control & monitoring systems
- Servers, notebooks, and desktop PCs
- Set-top box
- Communication systems

### Mechanical Characteristics

- Lead finish:100% matte Sn(Tin)
- Mounting position: Any
- Qualified max reflow temperature: $260^{\circ}C$
- Device meets MSL 1 requirements
- Pure tin plating: 7 ~ 17 um
- 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
Reverse Stand-off Voltage	$V_{RWM}$				5	V
Reverse Breakdown Voltage	$V_{BR}$	$I_t = 1mA$	6.2	6.7	7.1	V
Reverse Leakage Current	$I_R$	$V_{RWM} = 5V T=25^\circ C$			20	$\mu A$
Clamping Voltage	$V_C$	$I_{PP} = 1A t_p = 8/20\mu s$			9.0	V
Clamping Voltage	$V_C$	$I_{PP}=5A t_p = 8/20\mu s$			12.5	V
Junction Capacitance	$C_j$	$V_R=0V f = 1MHz$		120		pF

Absolute maximum rating@25°C

Rating	Symbol	Value	Units
Lead Soldering Temperature	$T_L$	260 (10 sec)	$^\circ C$
Operating Temperature	$T_J$	-55 to +125	$^\circ C$
Storage Temperature	$T_{STG}$	-55 to +150	$^\circ C$

Typical Characteristics

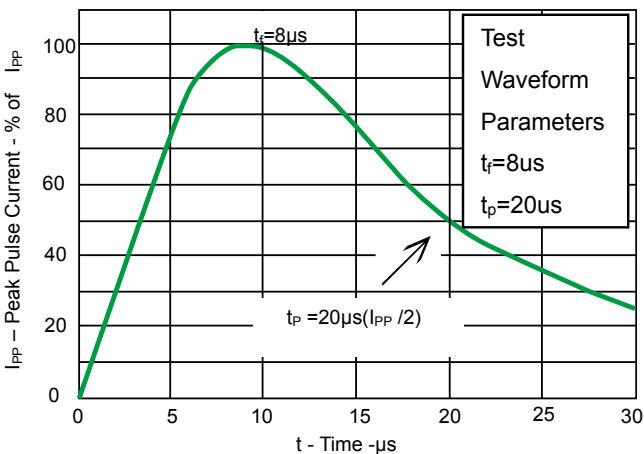


Fig 1.Pulse Waveform

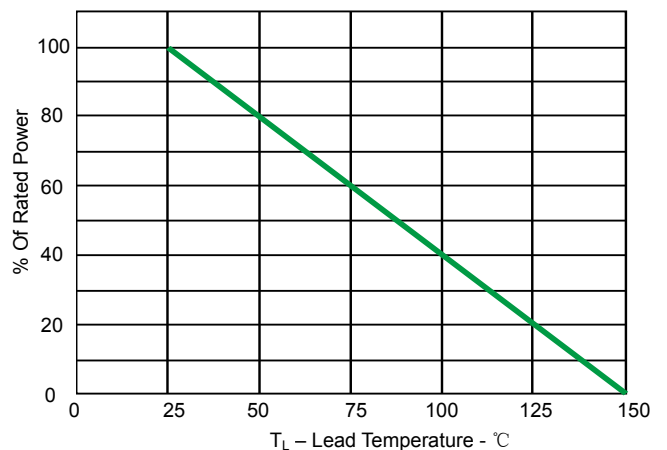


Fig 2.Power Derating Curve

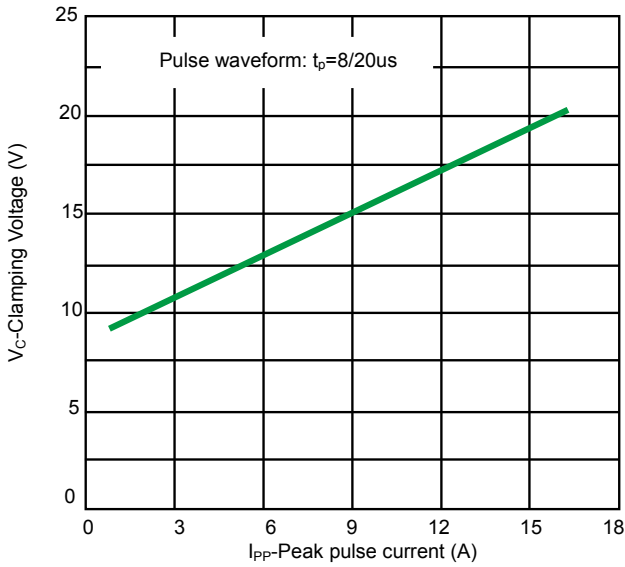


Fig 3. Clamping voltage vs. Peak pulse current

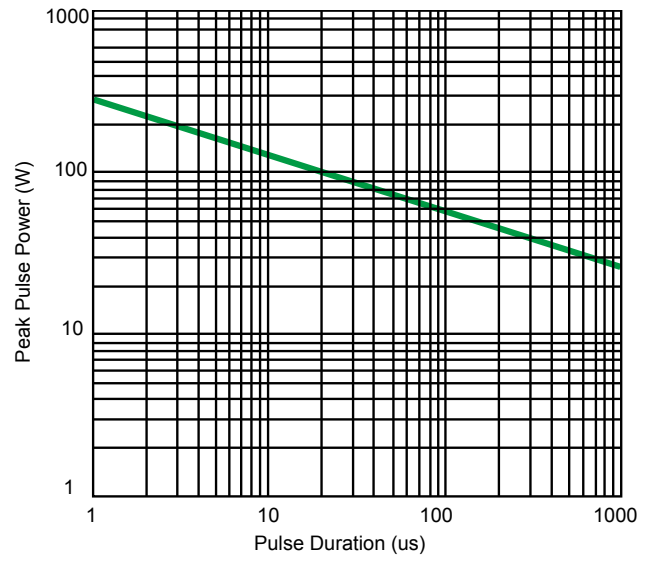
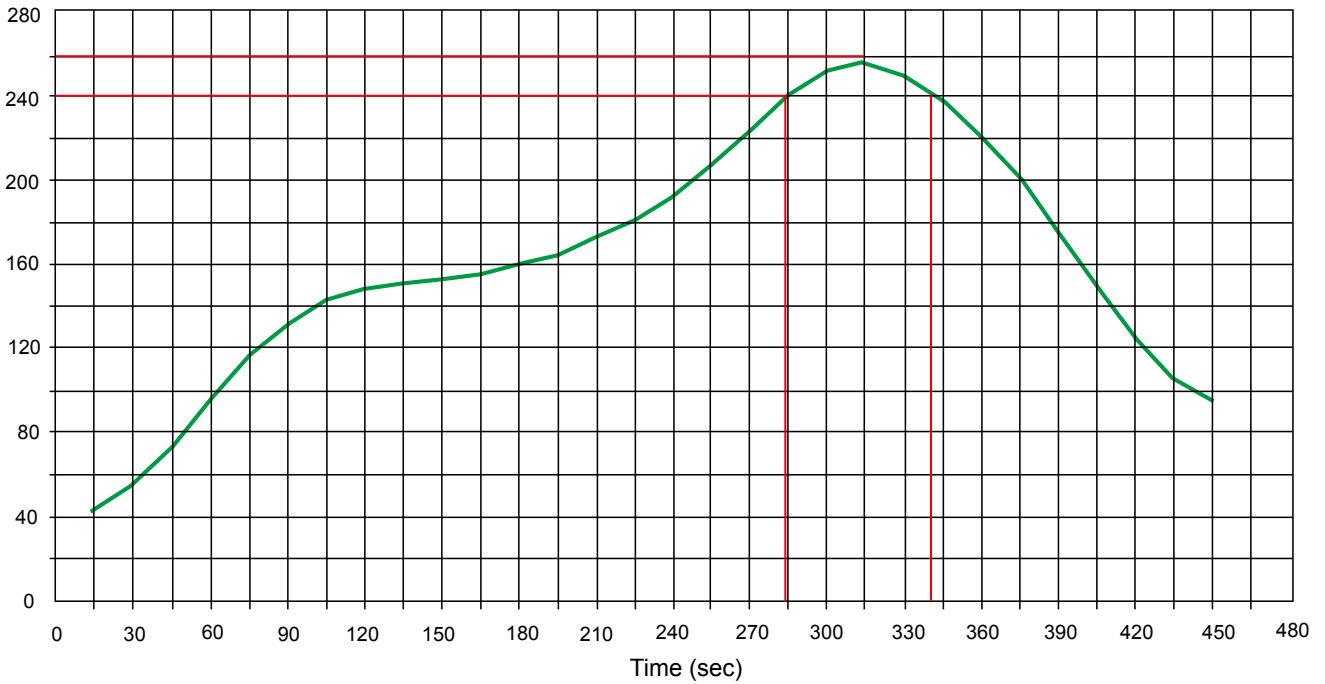


Fig 4. Non repetitive peak pulse power vs. Pulse time

Solder Reflow Recommendation

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

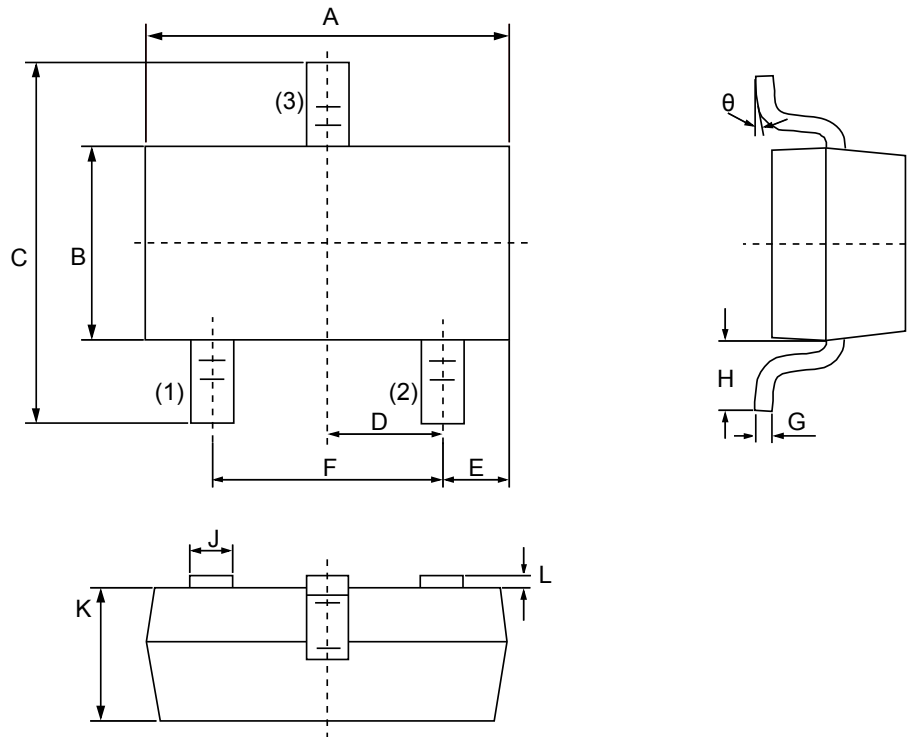


PCB Design

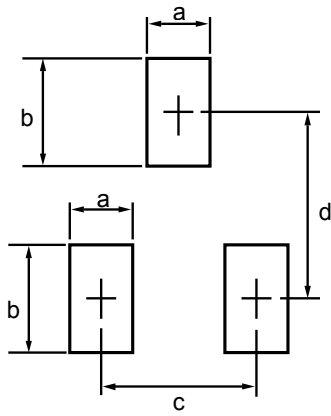
For TVS diodes a low-ohmic and low-inductive path to chassis earth is absolutely mandatory in order to achieve good ESD protection. Novices in the area of ESD protection should take following suggestions to heart:

- 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(SOT-23)



Dim	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	2.80	3.00	0.1102	0.1197
B	1.20	1.40	0.0472	0.0551
C	2.10	2.50	0.0830	0.0984
D	0.89	1.02	0.0350	0.0401
E	0.45	0.60	0.0177	0.0236
F	1.78	2.04	0.0701	0.0807
G	0.085	0.177	0.0034	0.0070
H	0.45	0.60	0.0180	0.0236
J	0.37	0.50	0.0150	0.0200
K	0.89	1.11	0.0350	0.0440
L	0.013	0.100	0.0005	0.0040
θ	0°	10°	0°	10°




Dim	Millimeters	
	MIN	MAX
a	--	0.7
b	--	1.2
c	--	2.04
d	--	2.2

**Ordering information**

Device	Package	Shipping
PESDA6V1L	SOT-23 (Pb-Free)	3000 / Tape & Reel


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