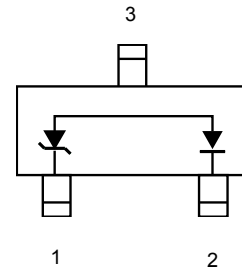


### Description

The PTVSLC23T5VU is 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

- 500W peak pulse power ( $t_p = 8/20\mu s$ )
- SOT-23 package
- Working voltage: 5V
- Low clamping voltage
- Low capacitance
- RoHS Compliant Transient Protection for High Speed Data Lines to IEC61000-4-2(ESD) $\pm 30kV$ (air), $\pm 30kV$ (Contact)

### Applications

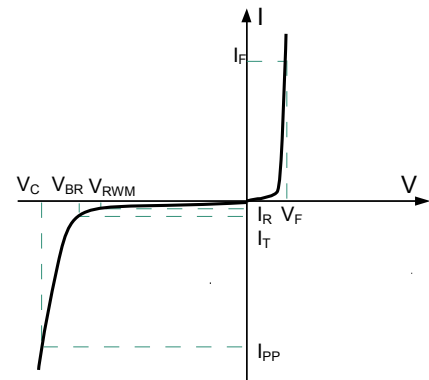
- Cellular handsets and accessories
- Portable electronics
- LAN/WAN equipment
- High speed data lines
- Fire wire

### Mechanical Characteristics

- Lead finish:100% matte Sn(Tin)
- Mounting position: Any
- Qualified max reflow temperature:260°C
- Device meets MSL 1 requirements
- 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@( 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		7.2	V
Reverse Leakage Current	$I_R$	$V_{RWM} = 5V \quad T=25^{\circ}C$			0.5	$\mu A$
Clamping Voltage	$V_C$	$I_{PP} = 1A \quad t_p = 8/20\mu s$			9.0	V
Clamping Voltage	$V_C$	$I_{PP} = 5A \quad t_p = 8/20\mu s$			11.5	V
Junction Capacitance	$C_J$	$V_R=0V, f = 1MHz$		3.0	4.5	pF

Absolute maximum rating@25°C

Rating	Symbol	Value	Units
Peak Pulse Power ( $t_p=8/20\mu s$ )	$P_{pp}$	500	W
Operating Temperature	$T_J$	-55 to +125	$^{\circ}C$
Storage Temperature	$T_{STG}$	-55 to +125	$^{\circ}C$

Typical Characteristics

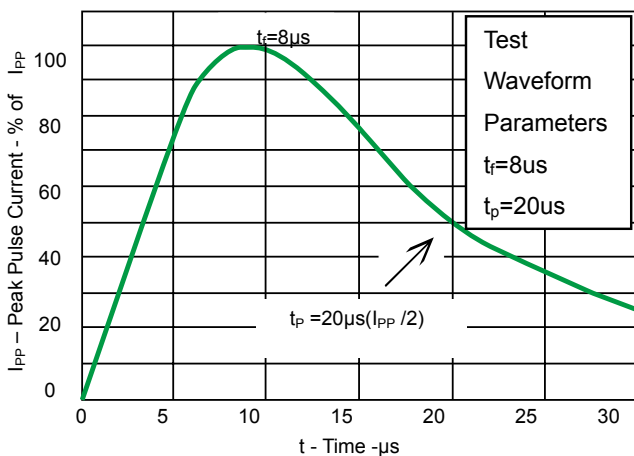


Fig 1.Pulse Waveform

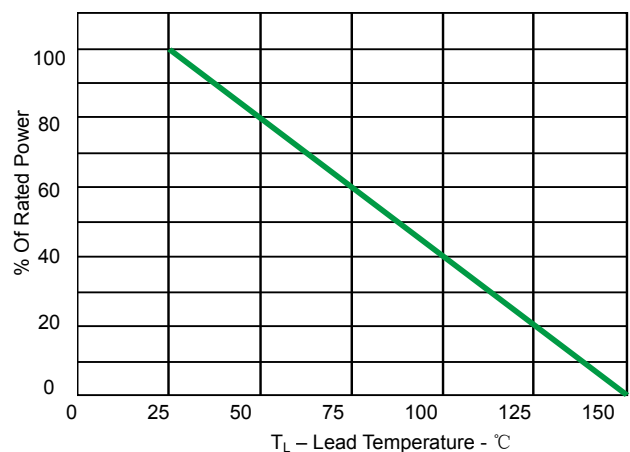


Fig 2.Power Derating Curve

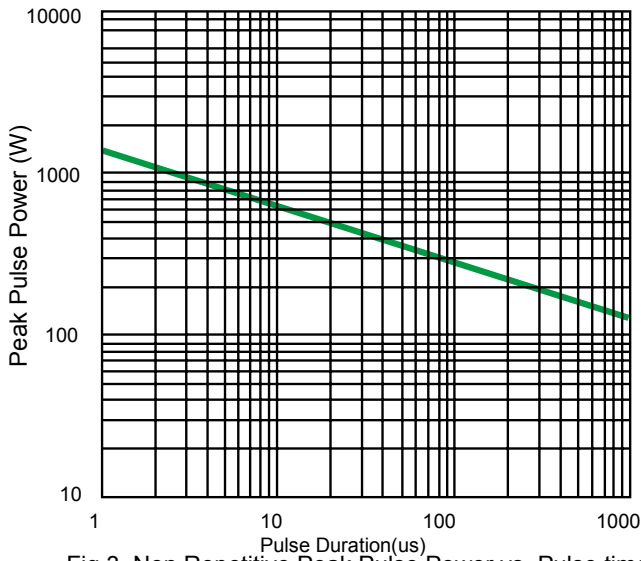
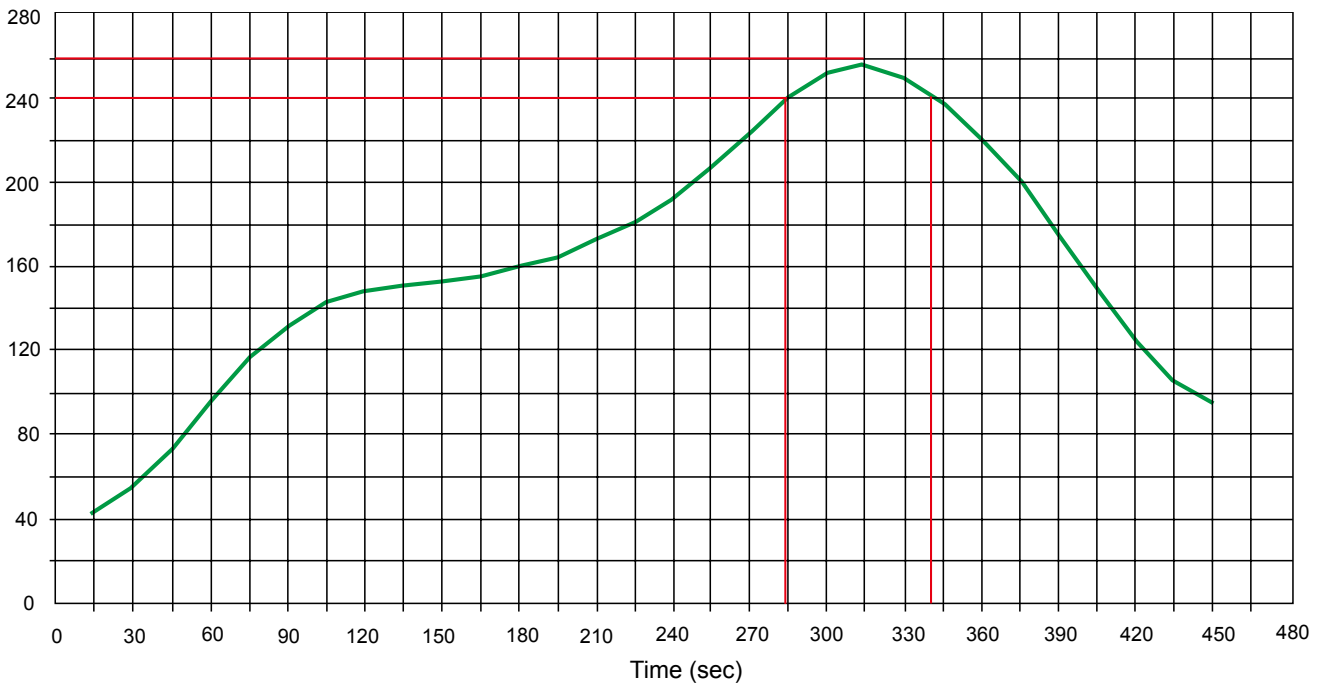


Fig 3. Non Repetitive Peak Pulse Power vs. Pulse time

### Solder Reflow Recommendation

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

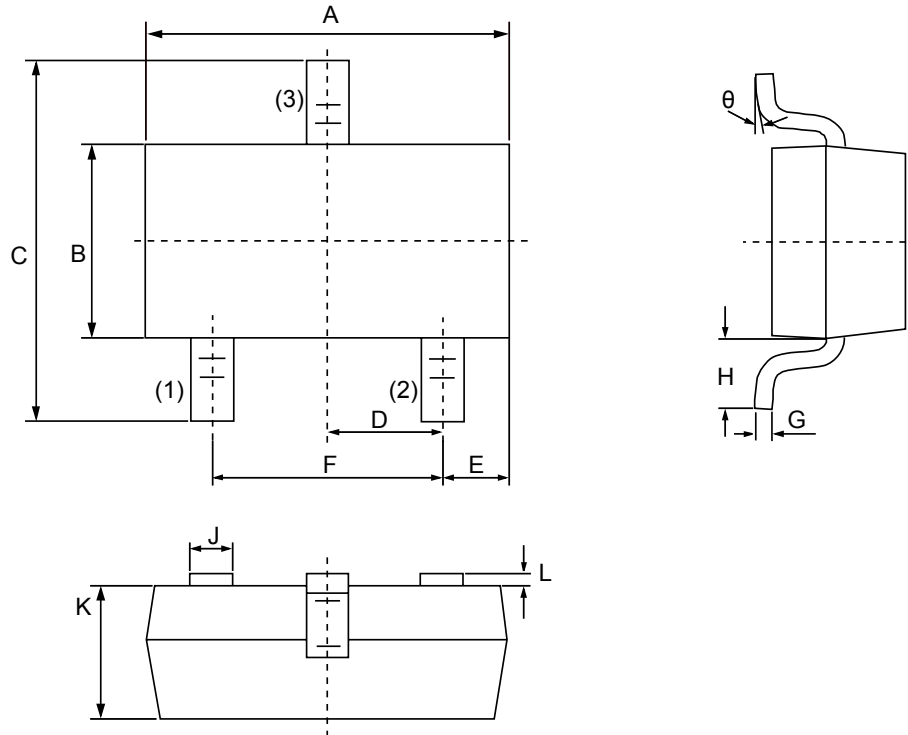


### PCB Design

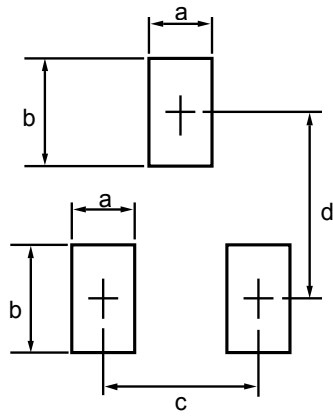
For TVS diodes a low-ohmic and low-inductive path to chassis earth is absolutely mandatory in order to achieve good ESD protection. Novices in the area of ESD protection should take following suggestions to heart:

- 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
PTVSLC23T5VU	SOT-23 (Pb-Free)	3000 / Tape & Reel


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