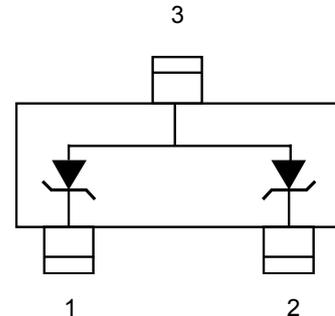


### Description

The PESDNC523T5VU is a TVS array designed to protect I/O or data lines from the damaging effects of ESD. It is a low capacitance transient voltage suppressor for high speed data interface that is designed to protect sensitive electronics from damage or latch-up due to ESD lightning, and other voltage induced transient events. The SOT-523 is a very small package which allows space saving on high density printed circuit board and also gives the designer the flexibility to provide two I/O lines protection. All pins are rated to withstand 30kV ESD pulses using the IEC61000-4-2 air discharge method.



### Feature

- SOT-523 package
- Protect up to two data lines
- Low clamping voltage
- Working voltage: 5V
- Low leakage current
- 125W peak pulse power (tp=8/20us)
- RoHS Compliant Transient Protection for High Speed Data Lines to IEC61000-4-2(ESD)±30kV(air),±30kV(Contact)

### Applications

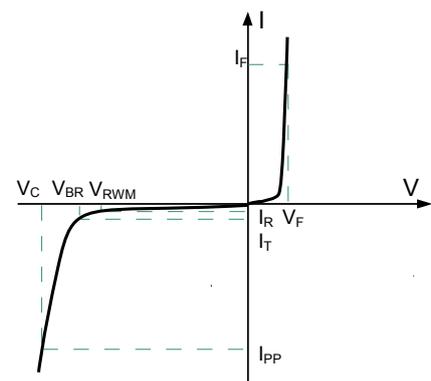
- High-definition multimedia interface(HDMI)
- Mobile display digital interface(MDDI)
- RF/Antenna circuits
- USB 2.0&firewire ports
- HBT power amp protection
- Transceiver protection

### 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 um
- Pin flatness:≤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	$V_{BR}$	$I_t = 1mA$	5.6			V
Reverse Leakage Current	$I_R$	$V_{RWM} = 5V$			1	$\mu A$
Clamping Voltage	$V_C$	$I_{PP} = 1A, t_p = 8/20\mu s$ pin1 to pin2			13.5	V
Clamping Voltage	$V_C$	$I_{PP} = 5A, t_p = 8/20\mu s$ pin1 or pin2 to pin3			20.0	V
Clamping Voltage	$V_C$	$I_{PP} = 5A, t_p = 8/20\mu s$ pin1 to pin2			23.0	V
Junction Capacitance	$C_j$	$V_R = 0V, f = 1MHz$ Pin1 to Pin2		1.4	2	pF
Junction Capacitance	$C_j$	$V_R = 0V, f = 1MHz$ pin1 or pin2 to pin3		2.8	3.5	pF

Absolute maximum rating@25°C

Rating	Symbol	Value	Units
Peak Pulse Power ( $t_p=8/20\mu s$ )	$P_{pp}$	125	W
Peak Pulse Power ( $t_p=8/20\mu s$ )	$I_{pp}$	5.5	A
Operating Temperature	$T_J$	-55 to +150	°C
Storage Temperature	$T_{STG}$	-55 to +150	°C

Typical Characteristics

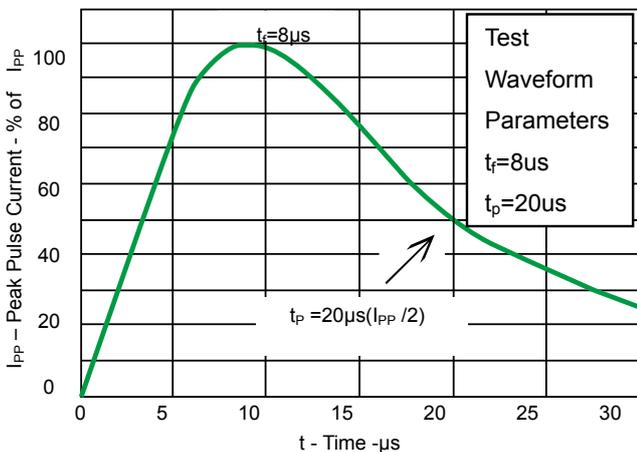


Fig 1.Pulse Waveform

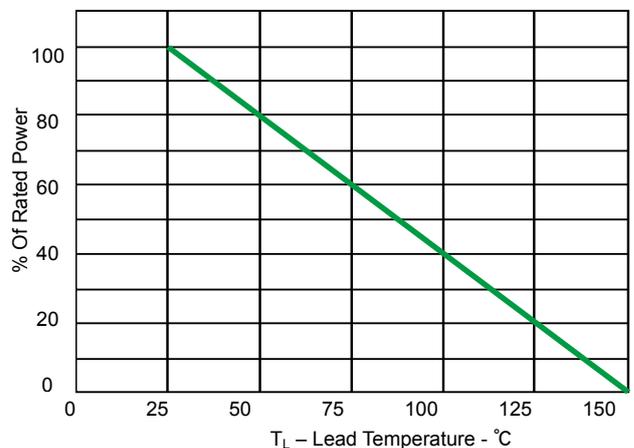


Fig 2.Power Derating Curve

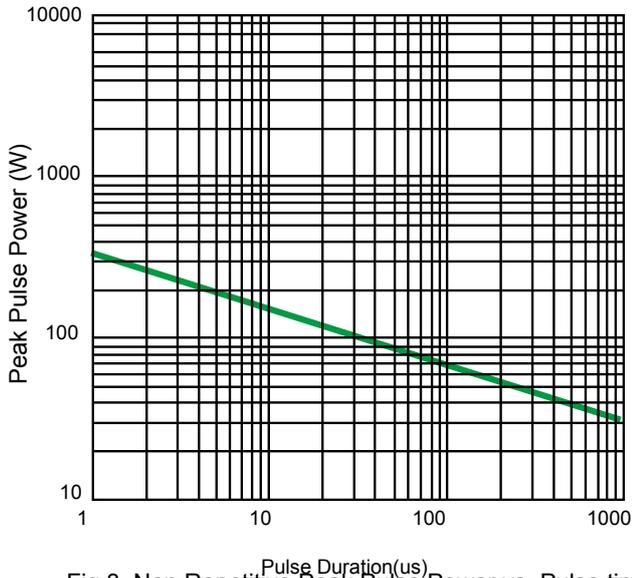


Fig 3. Non Repetitive Peak Pulse Power vs. Pulse time

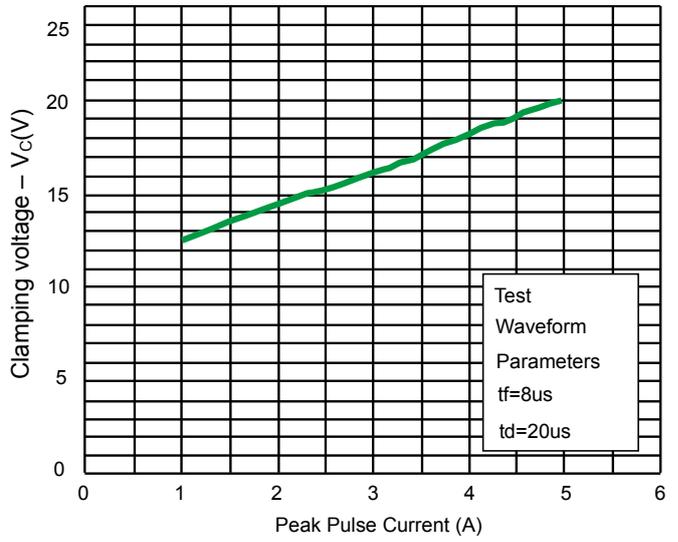


Fig 4. Clamping Voltage vs. Peak Pulse Current (Pin 1 to Pin 2)

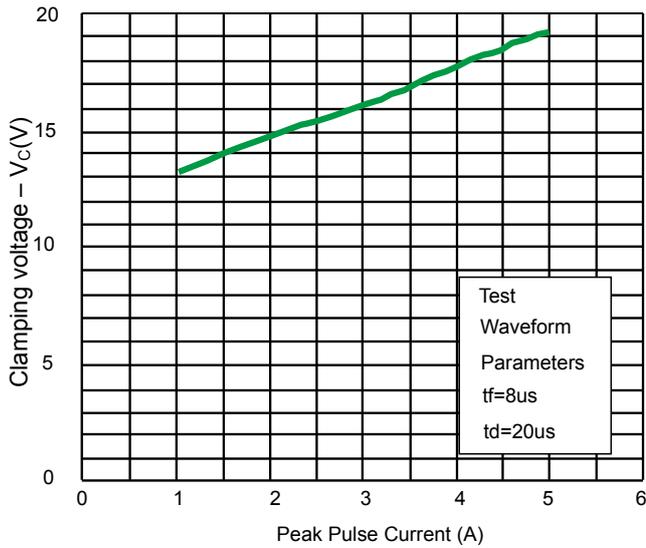
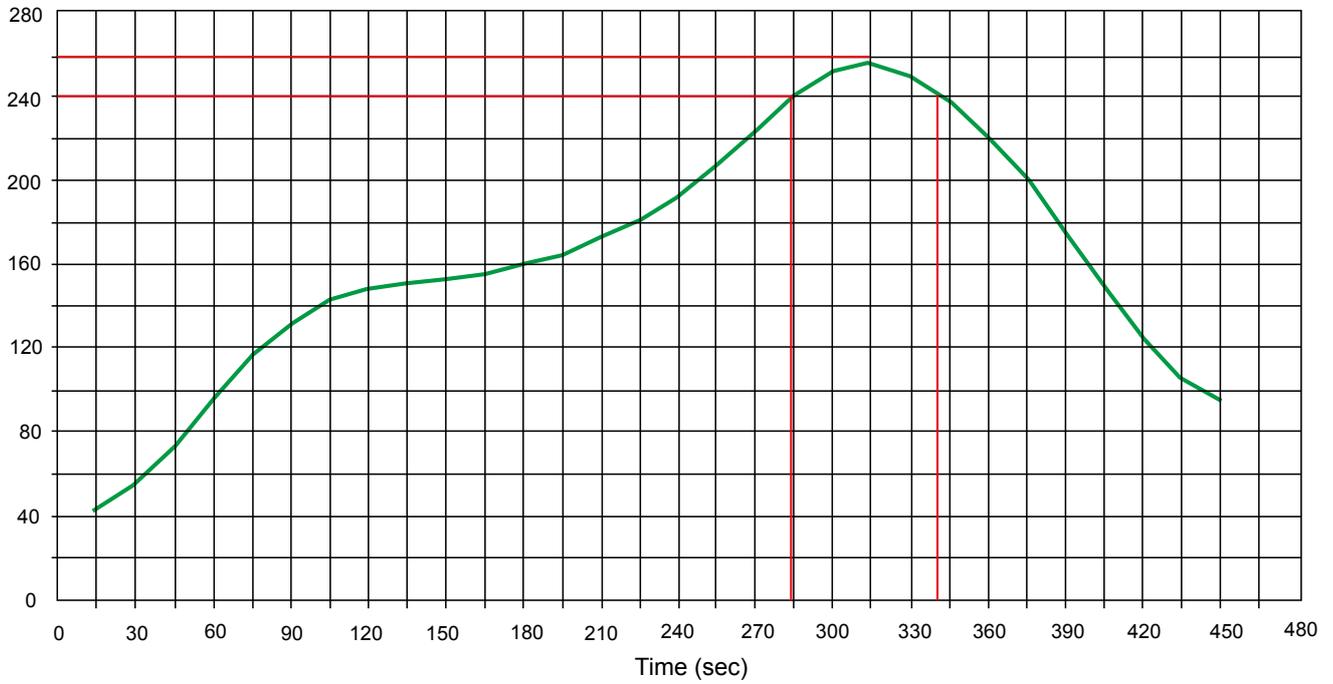


Fig.5 Clamping Voltage vs. Peak Pulse Current (Pin 1 or Pin 2 to Pin 3)

### Solder Reflow Recommendation

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

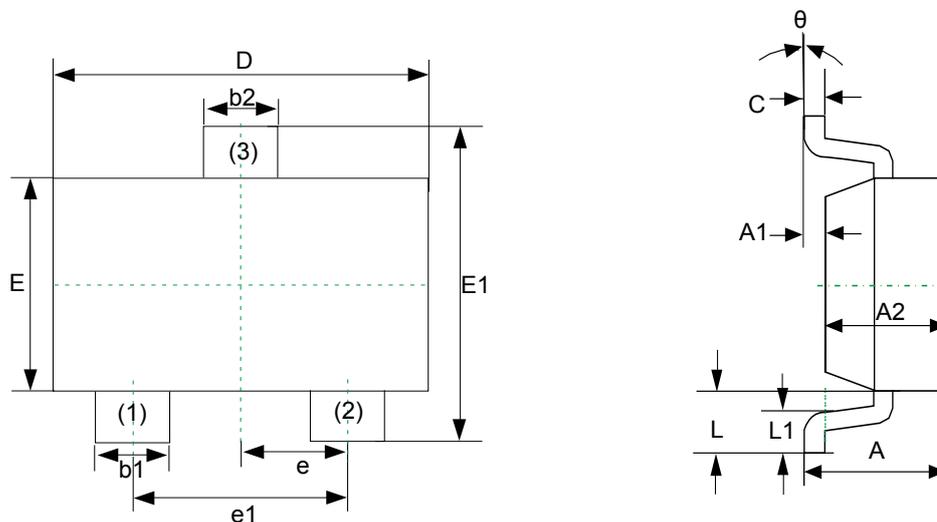


### PCB Design

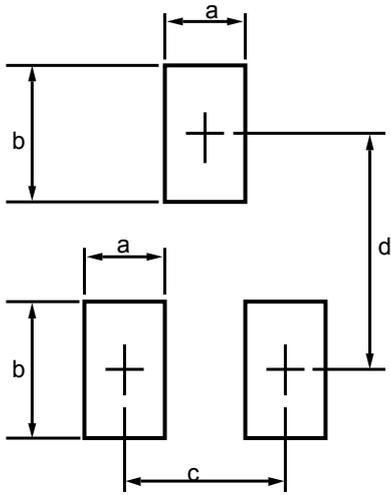
For TVS diodes a low-ohmic and low-inductive path to chassis earth is absolutely mandatory in order to achieve good ESD protection. Novices in the area of ESD protection should take following suggestions to heart:

- 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-523 )



Dim	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500TYP		0.020TYP	
e1	0.900	1.100	0.035	0.043
L	0.400REF		0.016REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°



Dim	Millimeters	
	MIN	MAX
a	--	0.4
b	--	0.6
c	--	1.0
d	--	1.24

Ordering information

Device	Package	Shipping
PESDNC523T5VU	SOT523 (Pb-Free)	3000 / Tape & Reel

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