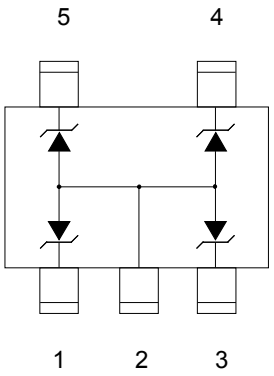
PESDNC553T5VU

Normal Capacitance ESD Protector

Description

The PESDNC553T5VU is a TVS array designed to protect I/O or data lines from the damaging effects of ESD. It is normal 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. The SOT-553 is a very small package which allows space saving on high density printed circuit board and also gives the designer the flexibility to provide four I/O lines protection. All pins are rated to withstand 30kV ESD pulses using the IEC61000-4-2 air discharge method.



Feature

- SOT-553 package
- Protects three bidirectional lines and four unidirectional lines
- Low clamping voltage
- Working voltage: 5V
- Low leakage current
- ESD protection > 15 KV
- Monolithic structure
- 100W peak pulse power(tp=8/20us)
- Complies with the following standards: IEC 61000-4-2(ESD)air±30kv,contact±30kv

Applications

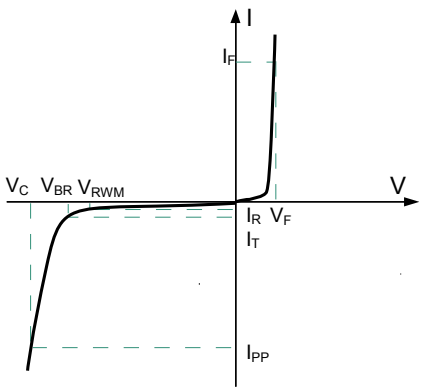
- Communication systems & cellular phones
- Printers
- Notebook and hand hold computers
- PDAs
- Video equipment

Mechanical Characteristics

- Lead finish:100% matte Sn(Tin)
- Mounting position: Any
- Qualified max reflow temperature:260℃
- 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℃(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	6.1	6.7	7.2	V
Reverse Leakage Current	I_R	V_{RWM} = 5V T=25℃		0.005	1	μA
Clamping Voltage	V_C	I_{PP} = 1A t_P = 8/20μs			8.8	V
Clamping Voltage	V_C	I_{PP}=3A t_P = 8/20μs			11.8	V
Junction Capacitance	C_j	V_R=0V f = 1MHz		31		pF

Absolute maximum rating@25℃

Rating	Symbol	Value	Units
Peak Pulse Power (t_p=8/20μs)	P_{pp}	100	W
Forward voltage@10mA	V_F	1.5	V
Operating Temperature	T_J	-55 to +125	℃
Storage Temperature	T_{STG}	-55 to +125	℃

Note: Pin 1, 3, 4, 5 to Pin 2

Typical Characteristics

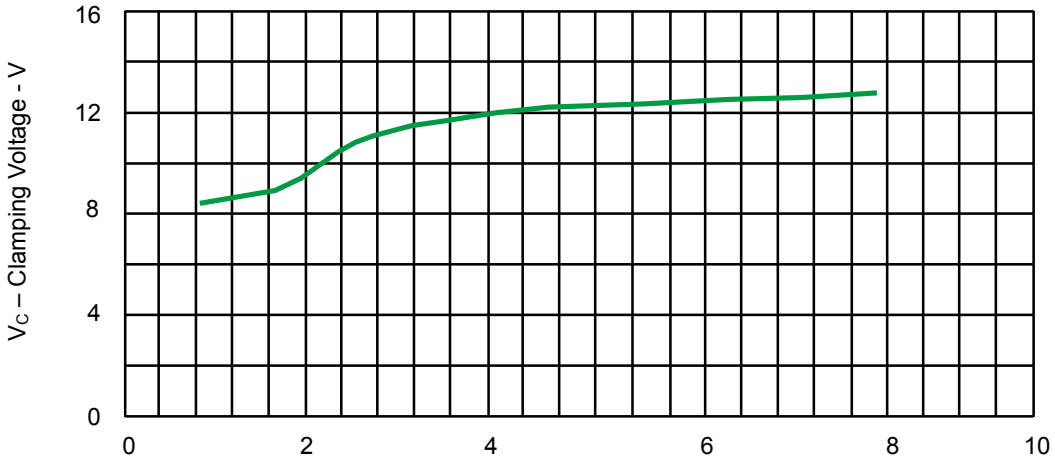


Fig.1 Typical Clamping Voltage VS Peak Pulse Current for PESDNC553T5VU

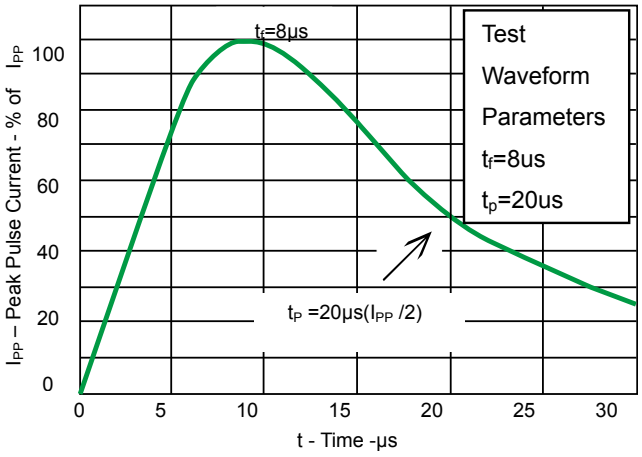


Fig 2.Pulse Waveform

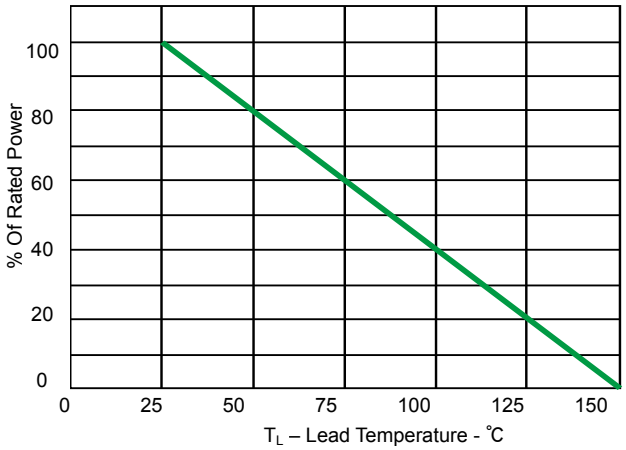
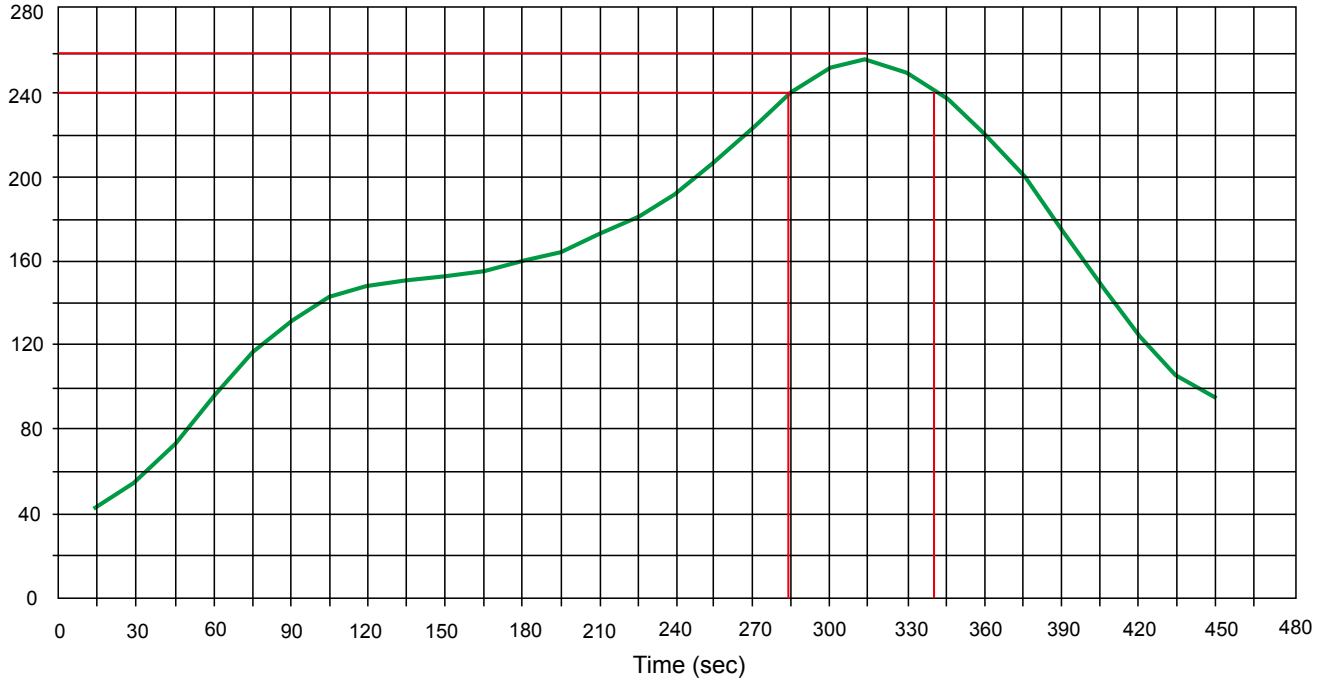


Fig 3.Power Derating Curve

Solder Reflow Recommendation

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

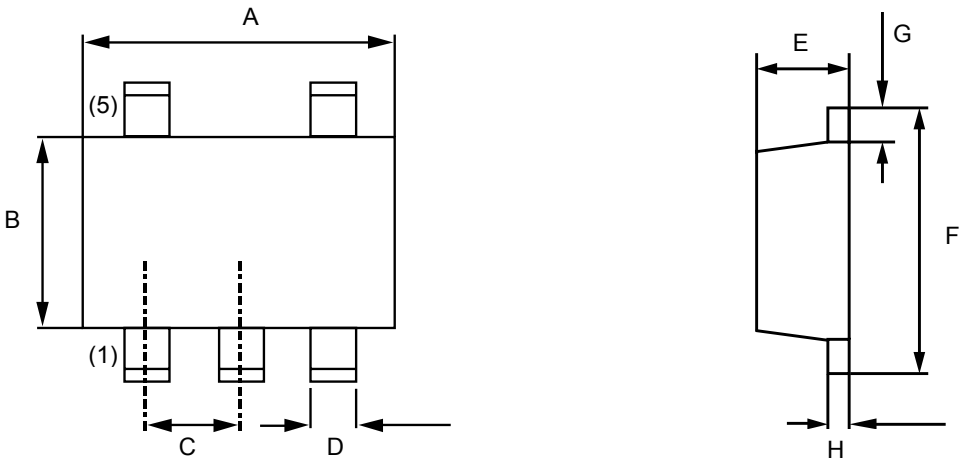


PCB Design

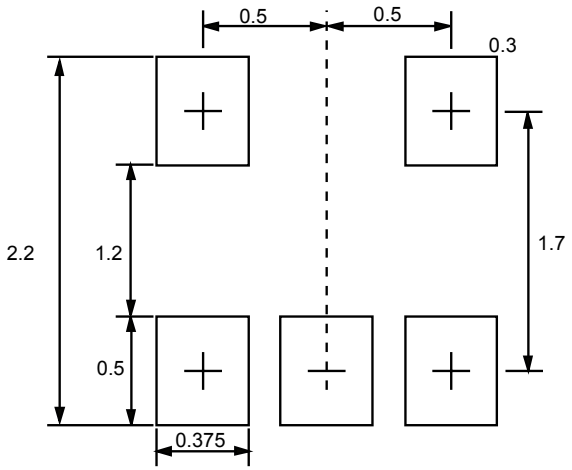
For TVS diodes a low-ohmic and low-inductive path to chassis earth is absolutely mandatory in order to achieve good ESD protection. Novices in the area of ESD protection should take following suggestions to heart:

- 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-553)



Dim	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	1.50	1.70	0.059	0.067
B	1.10	1.30	0.043	0.051
C	0.50BSC		0.020BSC	
D	0.17	0.27	0.007	0.011
E	0.50	0.60	0.020	0.024
F	1.50	1.70	0.059	0.067
G	0.10	0.30	0.004	0.012
H	0.08	0.16	0.003	0.006



Unit:mm

Ordering information

Device	Package	Shipping
PESDNC553T5VU	SOT-553 (Pb-Free)	3000 / Tape & Reel

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