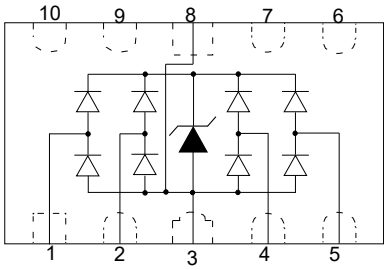
PESDALC10N3V3U

Low Capacitance TVS Array

Description

The PESDALC10N3V3U is low capacitance transient voltage suppressor array 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 16kV ESD pulses using the IEC 61000-4-2 air discharge method, which can meet the requirement of level 4.



Feature

- 110W peak pulse power (t_P = 8/20μs)
- DFN-10 Package
- Working voltage: 3.3V
- Low clamping voltage
- Low capacitance
- RoHS compliant
- Transient protection for data lines to IEC 61000-4-2(ESD)
  ±16KV(air), ±16KV(contact);
  IEC 61000-4-4 (EFT) 40A (5/50ns)
  IEC 61000-4-5 (Lightning) 5A (8/20us)

Applications

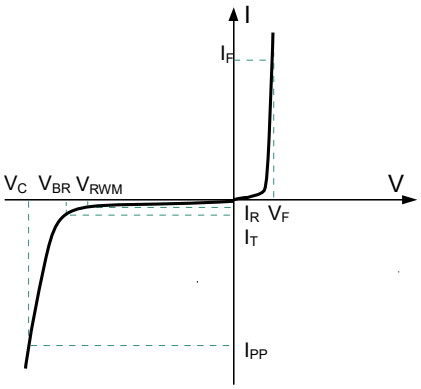
- USB 2.0,3.0 Power & Data Line Protection
- DVI & HDMI Port Protection
- Serial ATA Port Protection
- Mobile Handsets
- Digital Cameras and camcorders
- PDA & MP3 Players
- Digital TV and Set-top Boxes
- Other Portable Electronic Components

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	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
Peak Reverse Working Voltage	V_{RWM}				3.3	V
Breakdown Voltage	V_{BR}	I_t = 1mA	5.6		7.0	V
Reverse Leakage Current	I_R	V_{RWM} =3.3V, T=25℃			1.0	μA
Clamping Voltage	V_C	I_{PP} = 1A, t_P = 8/20μs		8.0	9.0	V
Clamping Voltage	V_C	I_{PP}=5A, t_P = 8/20μs		11	12.5	V
Clamping Voltage	V_C	I_{PP}=7.5A, t_P = 8/20μs		14	16	V
Junction Capacitance(IO-IO)	C_J	V_R=0V, f = 1MHz		0.3	0.4	pF
Junction Capacitance(IO-GND)	C_J	V_R=0V, f = 1MHz		0.6	0.8	pF

Absolute maximum rating@25℃

Rating	Symbol	Value	Units
Peak Pulse Power (t_p=8/20μs)	P_{pp}	110	W
Operating Temperature	T_J	-55 to +150	℃
Storage Temperature	T_{STG}	-55 to +150	℃

Typical Characteristics

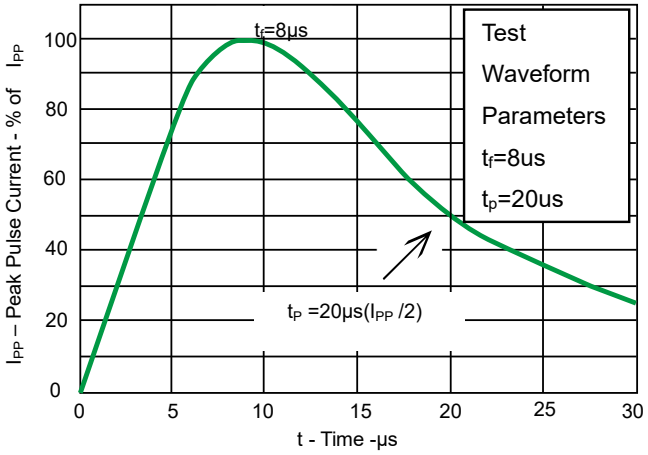


Fig 1.Pulse Waveform

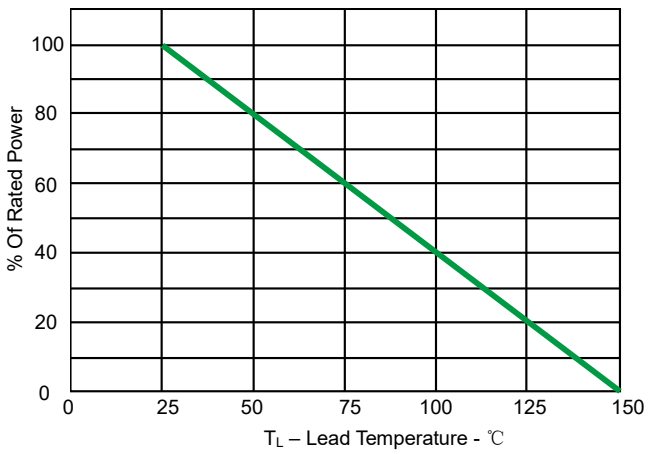


Fig 2.Power Derating Curve

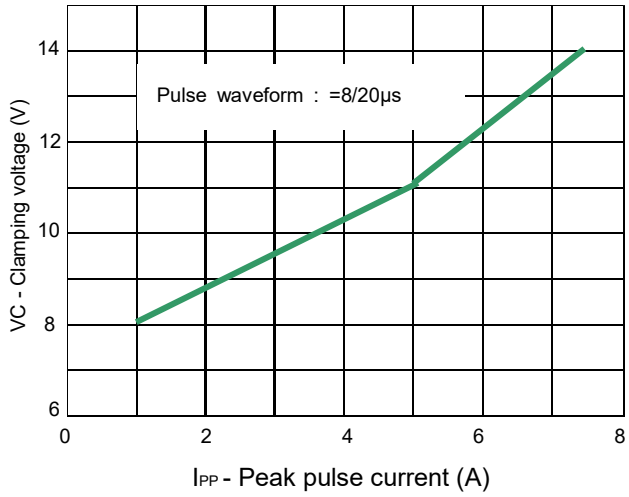


Fig 3. Clamping voltage vs. Peak pulse current

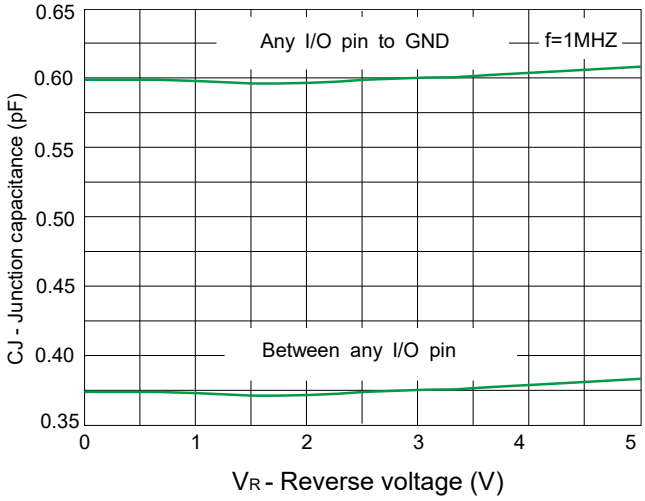


Fig 4 . Capacitance vs. Reveres voltage

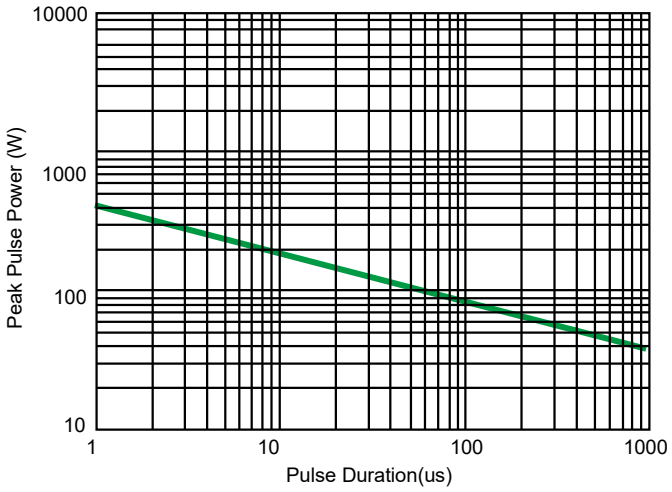


Fig 5.Non Repetitive Peak Pulse Power vs. Pulse time

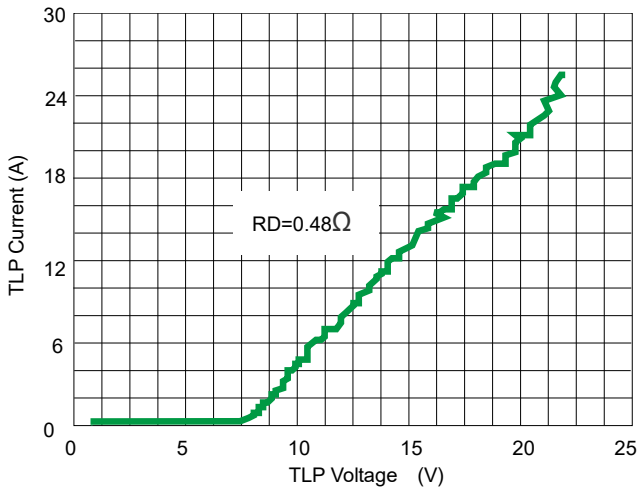
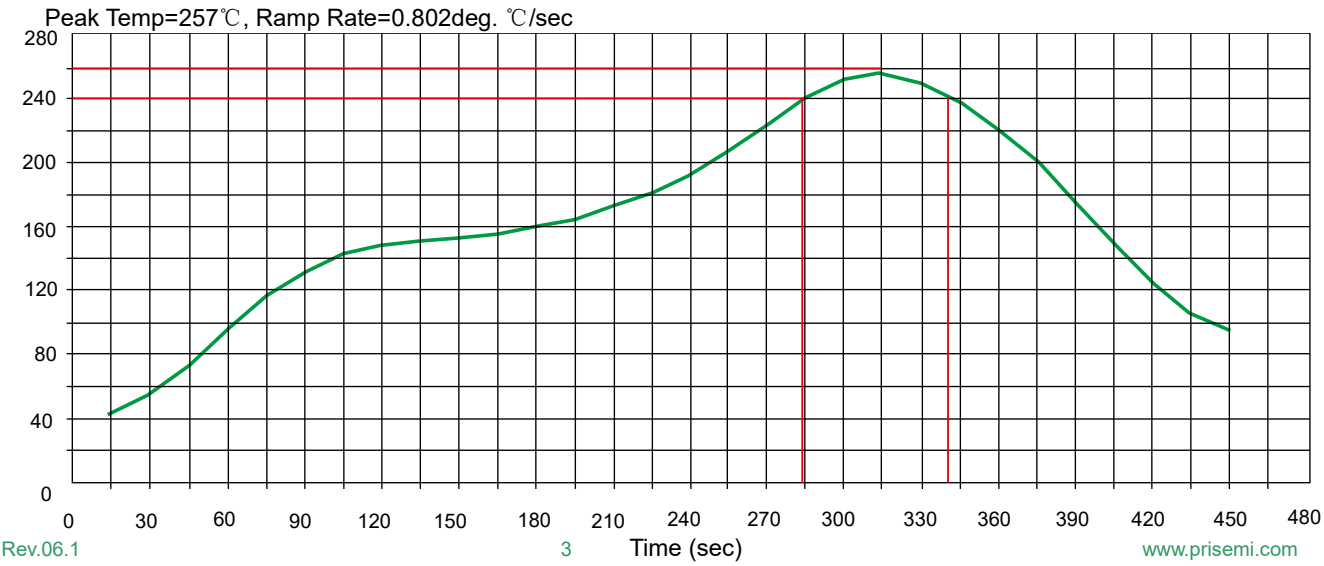


Fig 6. TLP Measurement

Solder Reflow Recommendation

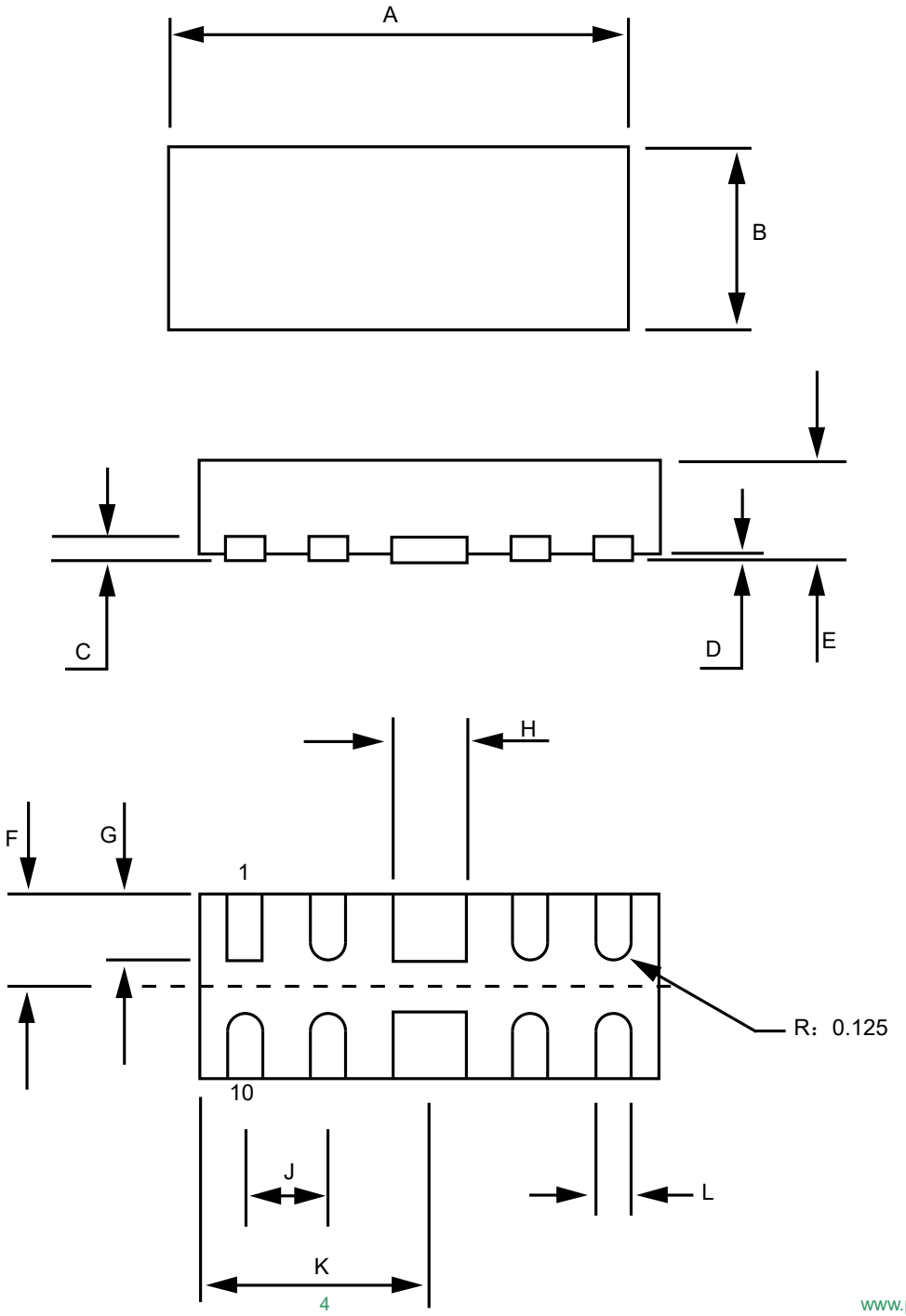


PCB Design

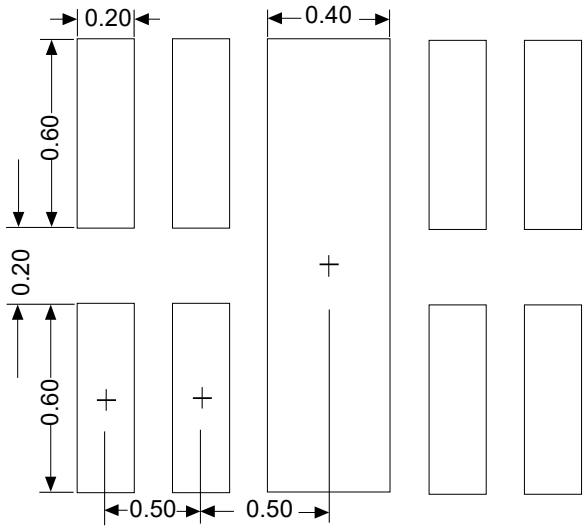
For TVS diodes a low-ohmic and low-inductive path to chassis earth is absolutely mandatory in order to achieve good ESD protection. Novices in the area of ESD protection should take following suggestions to heart:

- 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 (DFN-10)

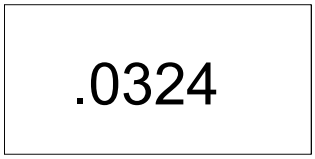


Dim	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	2.40	2.60	0.094	0.102
B	0.90	1.10	0.035	0.043
C	0.13		0.005	
D	0.00	0.05	0.00	0.002
E	0.50	0.65	0.020	0.026
F	0.45	0.55	0.017	0.022
G	0.30	0.425	0.012	0.017
H	0.35	0.45	0.014	0.018
J	0.5 BSC		0.020 BSC	
K	1.20	1.30	0.047	0.056
L	0.15	0.25	0.006	0.010



Unit:mm

Marking information



Ordering information

Device	Package	Reel	Shipping
PESDALC10N3V3U	DFN-10 (Pb-Free)	7"	3000 / Tape & Reel

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