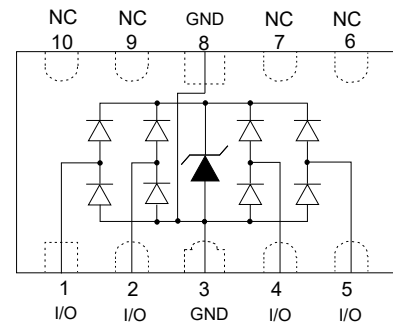


Description

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.

Note: that the PCB traces are used to connect the pin pairs for each line (pin 1 to pin 10, pin2 to pin9, pin4 to pin7, pin5 to pin6)



Feature

- DFN2510-10L 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) 6A (8/20us)

Applications

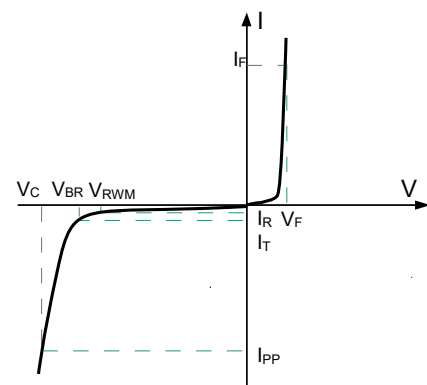
- USB 2.0,3.0 Power & Data Line Protection
- DVI & HDMI Port Protection
- Serial ATA Port Protection
- Mobile Handsets
- Digital Cameras and camcorders
- PDA & MP3 Players
- Digital TV and Set-top Boxes
- Other Portable Electronic Components

Mechanical Characteristics

- Lead finish:100% matte Sn(Tin)
- Mounting position: Any
- Qualified max reflow temperature:260°C
- 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}	$I_t = 1\text{mA}$	5.6		7.0	V
Reverse Leakage Current	I_R	$V_{RWM} = 3.3\text{V}$, $T = 25^\circ\text{C}$			1.0	μA
Clamping Voltage ¹⁾	V_C	TLP=16A, $t_p=100\text{ns}$		15		V
Dynamic resistance	R_{DYN}	-		0.48		Ω
Clamping Voltage ²⁾	V_C	$I_{PP} = 1\text{A}$, $t_p = 8/20\mu\text{s}$		8.0	9.0	V
Clamping Voltage ²⁾	V_C	$I_{PP} = 6\text{A}$, $t_p = 8/20\mu\text{s}$		12.5	14	V
Junction Capacitance(IO-IO)	C_J	$V_R=0\text{V}$, $f = 1\text{MHz}$		0.3	0.4	pF
Junction Capacitance(IO-GND)	C_J	$V_R=0\text{V}$, $f = 1\text{MHz}$		0.6	0.8	pF

Notes:

1. TLP parameter: $Z_0=50\Omega$, $t_p=100\text{ns}$, $t_r=2\text{ns}$, averaging window from 70ns to 90ns. R_{DYN} is calculated from 4A to 16A.

2. Non-repetitive current pulse, according to IEC61000-4-5.

Absolute maximum rating@25°C

Rating	Symbol	Value	Units
Peak Pulse Power ($t_p=8/20\mu\text{s}$)	P_{pp}	90	W
Operating Temperature	T_J	-55 to +150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 to +150	$^\circ\text{C}$

Typical Characteristics

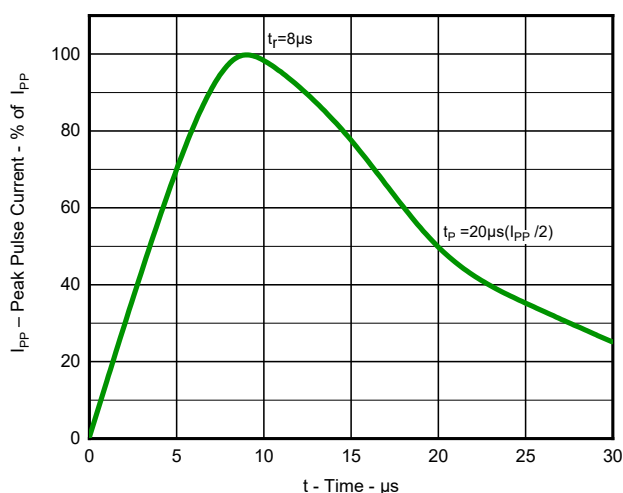


Fig 1. Pulse Waveform(8/20μs)

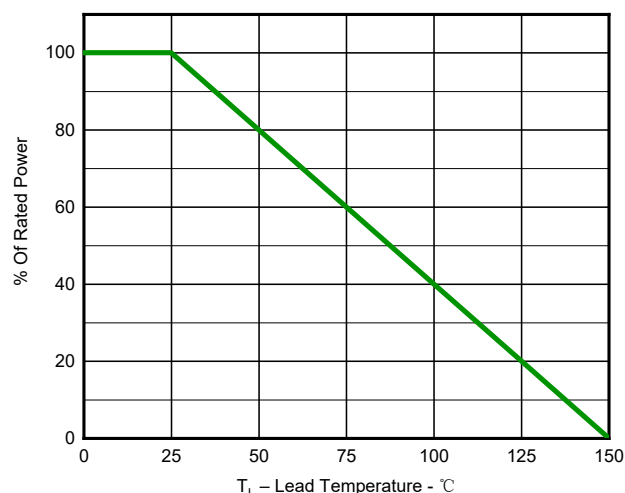


Fig 2. Power Derating Curve

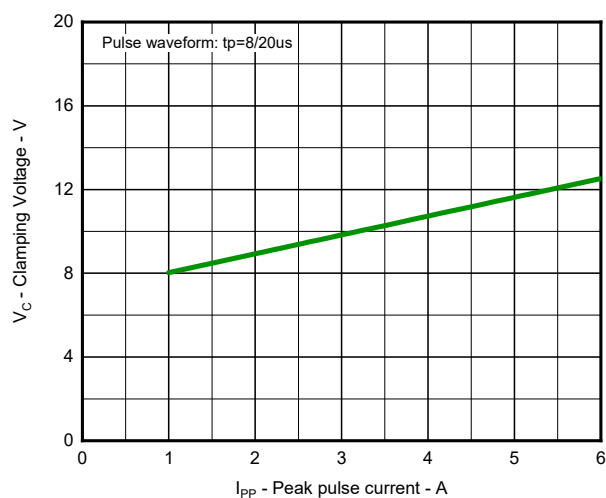


Fig 3. Clamping voltage vs. Peak pulse current

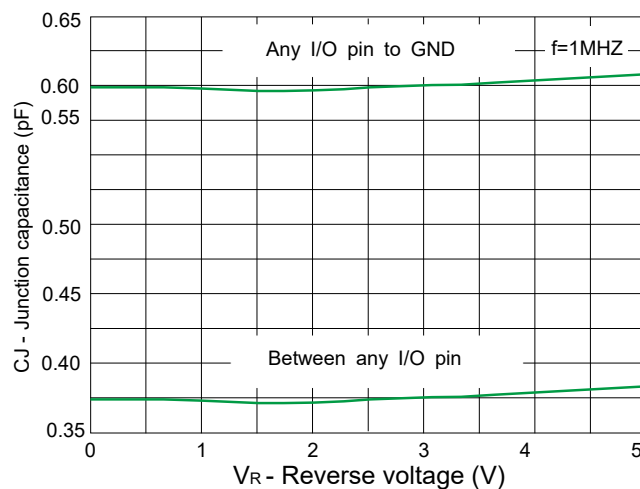


Fig 4. Capacitance vs. Reverse voltage

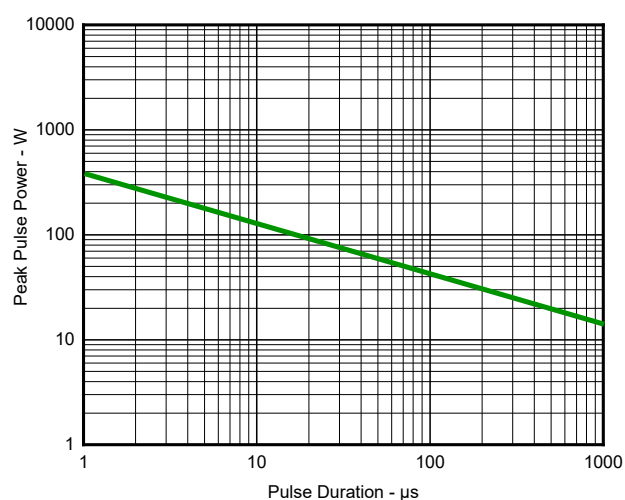


Fig 5. Non Repetitive Peak Pulse Power vs. Pulse time

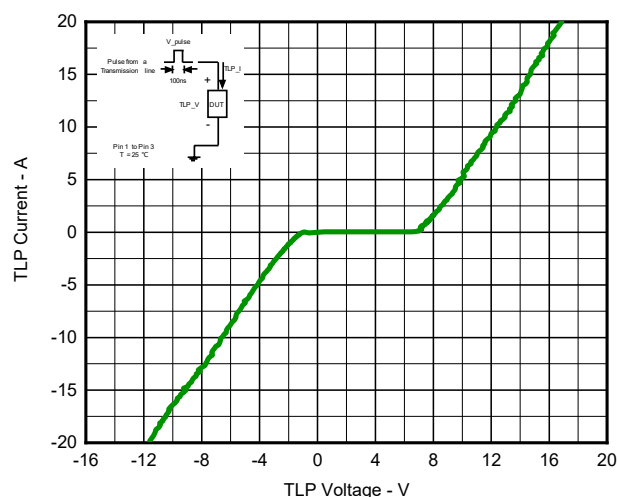
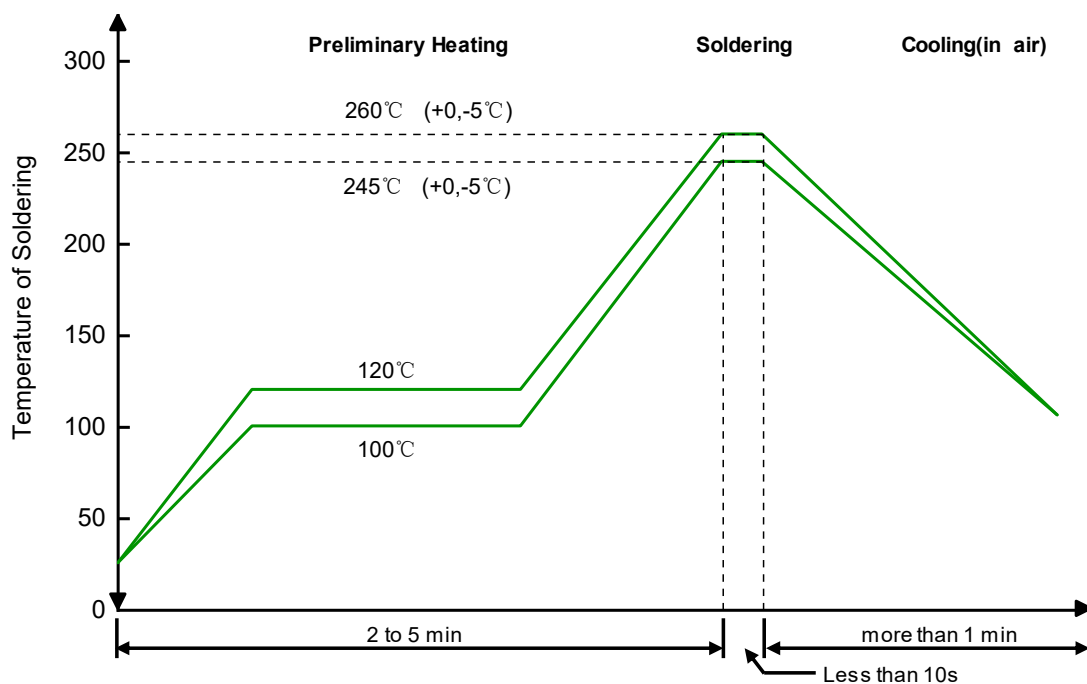


Fig 6. TLP Measurement

Solder Reflow Recommendation



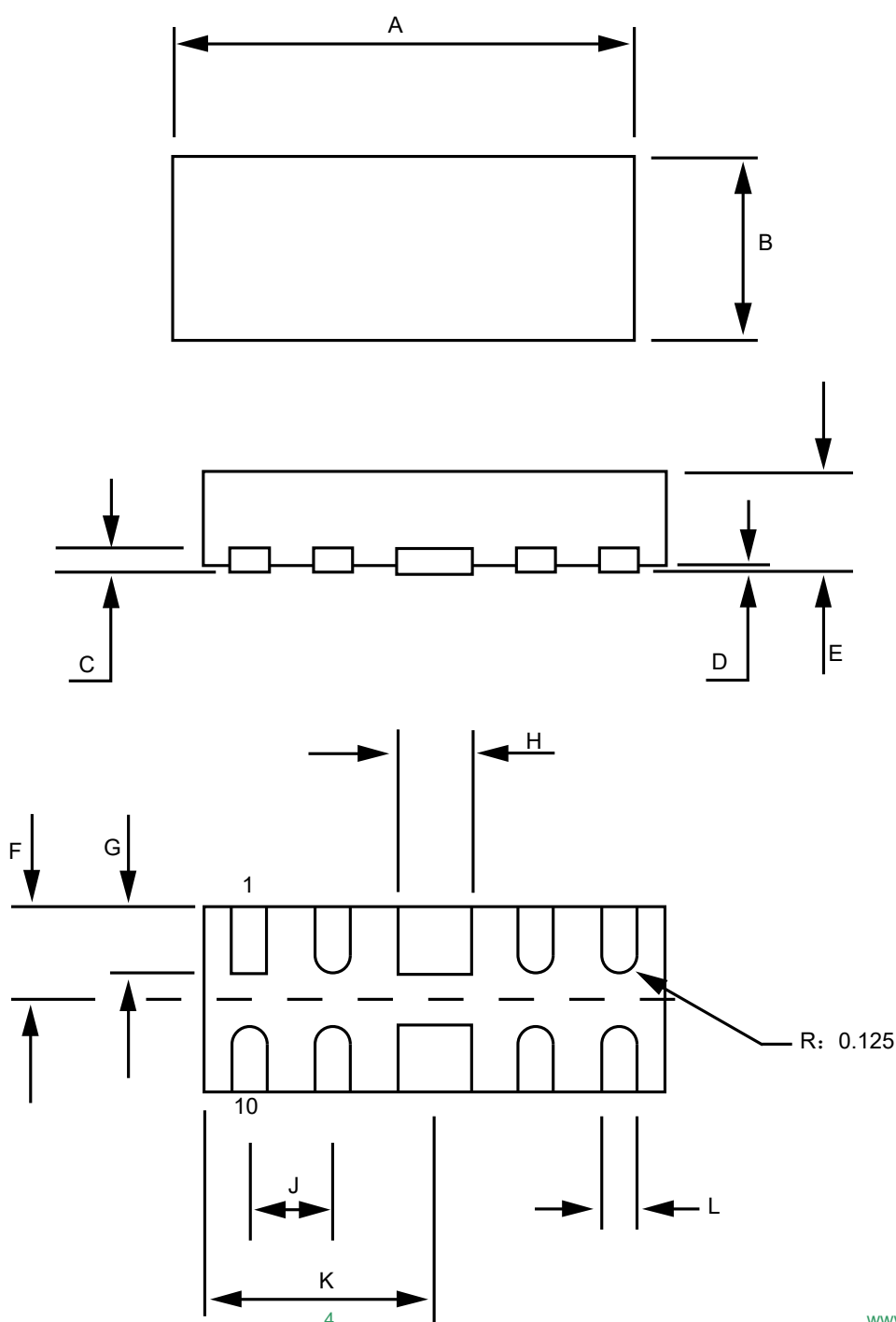
Remark: Pb free for 260°C; Pb for 245°C.

PCB Design

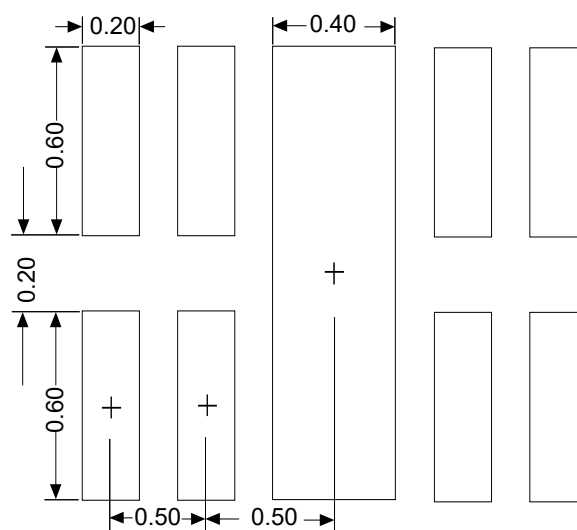
For TVS diodes a low-ohmic and low-inductive path to chassis earth is absolutely mandatory in order to achieve good ESD protection. Novices in the area of ESD protection should take following suggestions to heart:

- 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 (DFN2510-10L)



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

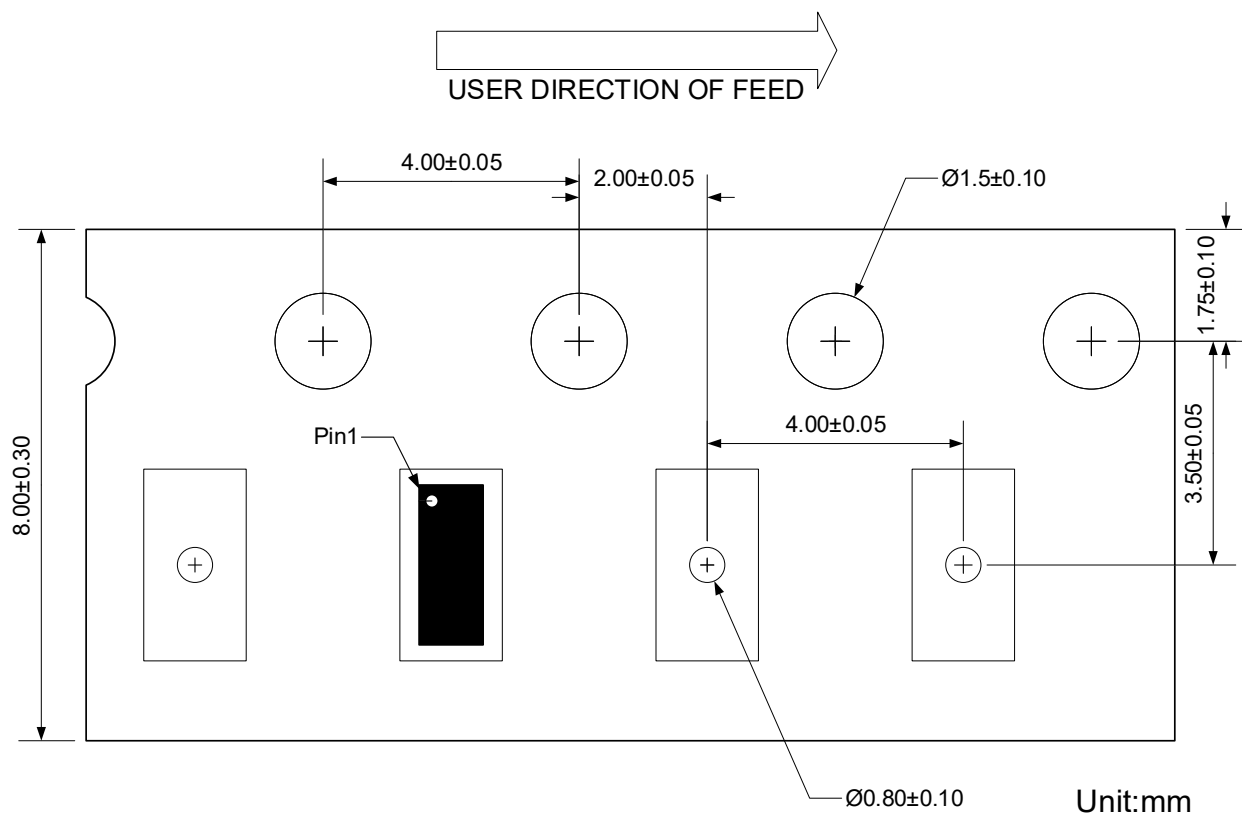


Unit:mm

Ordering information

Device	Package	Shipping
PESDALC10N3V3U	DFN2510-10L (Pb-Free)	3000 / Tape & Reel

Load with information



Unit:mm

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