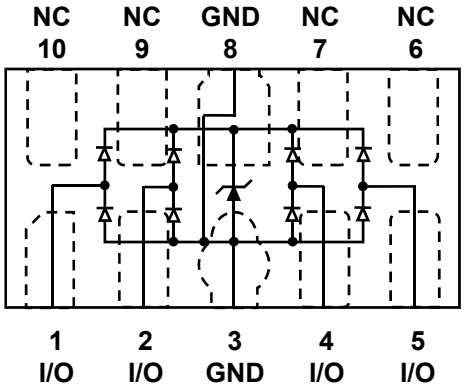
Prisemi®

PESDARC10N5VUHI

Low Capacitance TVS Array

Description

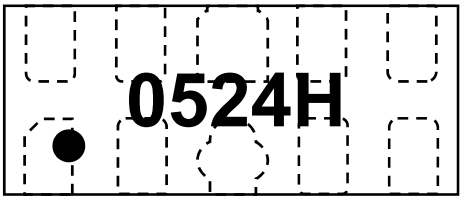
The PESDARC10N5VUHI is low capacitance transient voltage suppressor array for high speed data interface that designed to protect sensitive electronics from damage or latch-up due to ESD lightning, and other voltage induced transient events. All pins are rated to withstand 30KV ESD pulses using the IEC 61000-4-2 air discharge method, which can meet the requirement of level 4.



Circuit Diagram

Feature

- 150W peak pulse power (t_P = 8/20μs)
- DFN2510-10L Package
- Working voltage: 5.0V
- Low clamping voltage
- Low capacitance
- RoHS compliant
- Transient protection for data lines to
  IEC 61000-4-2(ESD) ±30KV(air), ±30KV(contact);
  IEC 61000-4-5 (Lightning) 12A (8/20us)



Pin1

Marking (Top View)

Applications

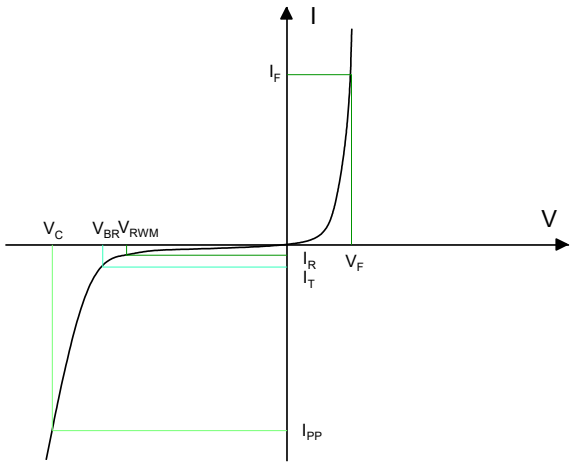
- USB 2.0,3.0 Power & Data Line Protection
- DVI & HDMI Port Protection
- Serial ATA Port Protection
- Mobile Handsets
- Digital Cameras and camcorders
- PDA & MP3 Players
- Digital TV and Set-top Boxes
- Other Portable Electronic Components

Mechanical Characteristics

- Lead finish:100% matte Sn(Tin)
- Mounting position: Any
- Qualified max reflow temperature:260℃
- 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
Peak Reverse Working Voltage	V_{RWM}	-	-	-	5.0	V
Breakdown Voltage	V_{BR}	I_t = 1mA	5.5	-	8.0	V
Reverse Leakage Current	I_R	V_{RWM} = 5V	-	-	1.0	μA
Clamping Voltage (IO-GND)	V_C	I_{PP} = 12A,t_P = 8/20μs	-	12	15	V
Forward Voltage	V_F	I_F = 1mA	-	0.8	1.2	V
Capacitance Between IO and GND	C_J	V_R = 0V,f = 1MHz	-	0.4	0.6	pF
Capacitance Between IO and I/O			-	0.2	0.3	pF

Absolute maximum rating@25℃

Rating	Symbol	Value	Units
Peak Pulse Power (t_P = 8/20μs)	P_{PP}	150	W
Peak Pulse Current (t_P = 8/20μs)	I_{PP}	12	A
Lead Soldering Temperature	T_L	260 (10 sec)	℃
Junction and Storage Temperature Range	T_J,T_{STG}	-55~+150	℃
ESD Protection-Contact Discharge	V_{ESD}	±30	kV
ESD Protection-Air Discharge	V_{ESD}	±30	kV

Typical Characteristics

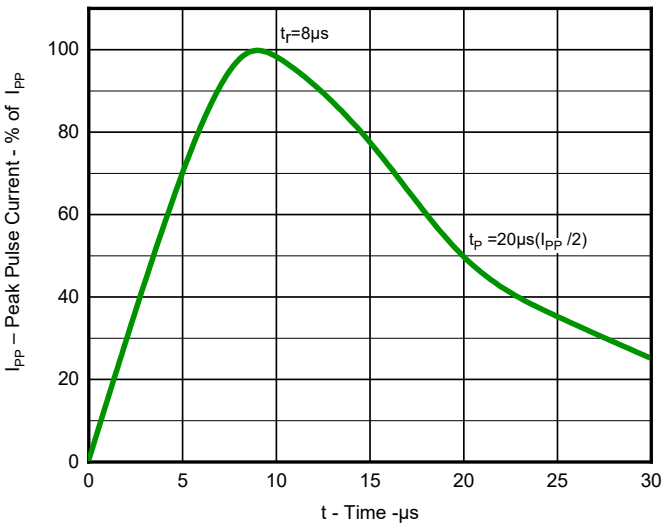


Fig 1.Pulse Waveform(8/20μs)

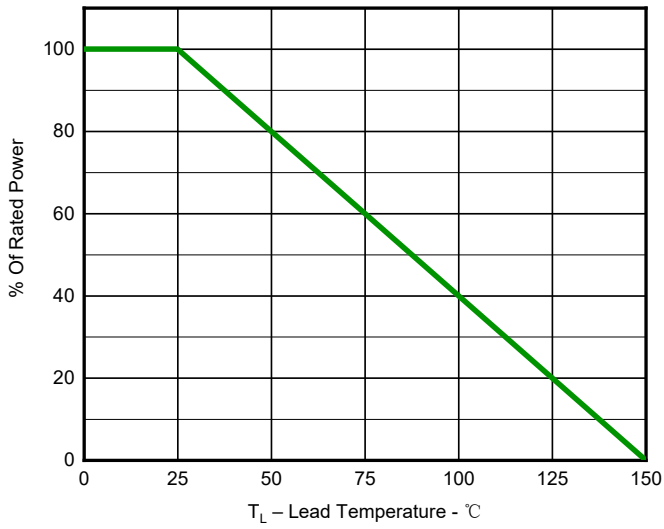


Fig 2.Power Derating Curve

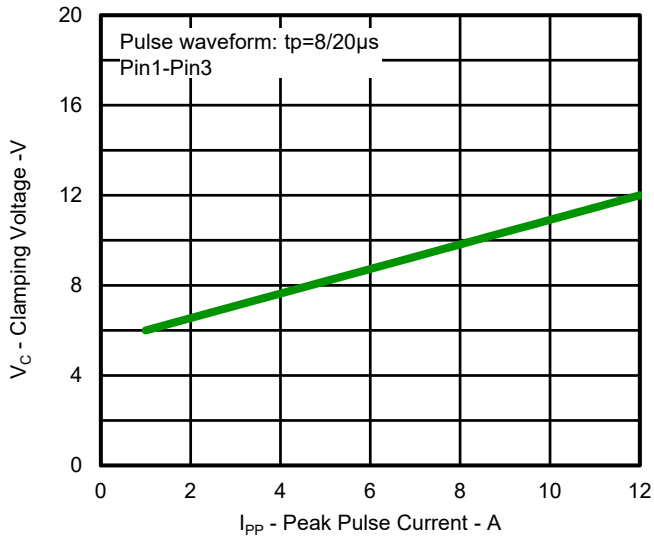


Fig.3 Clamping Voltage vs. Peak Pulse Current

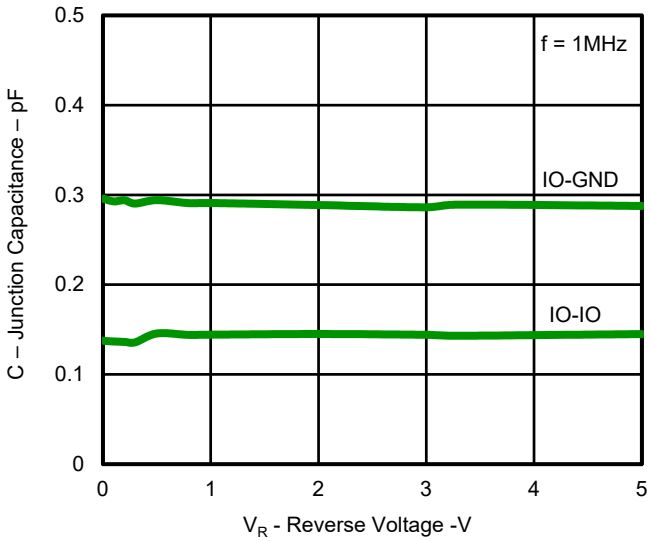


Fig.4 Capacitance vs. Reveres Voltage

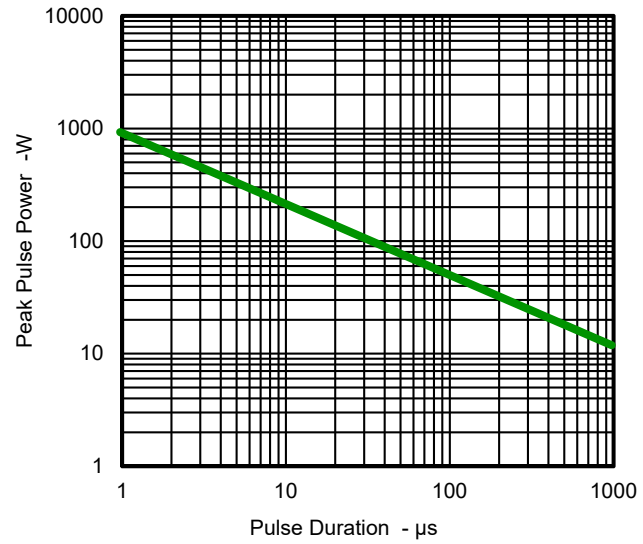


Fig.5 Non-Repetitive Peak Pulse Power vs. Pulse Time

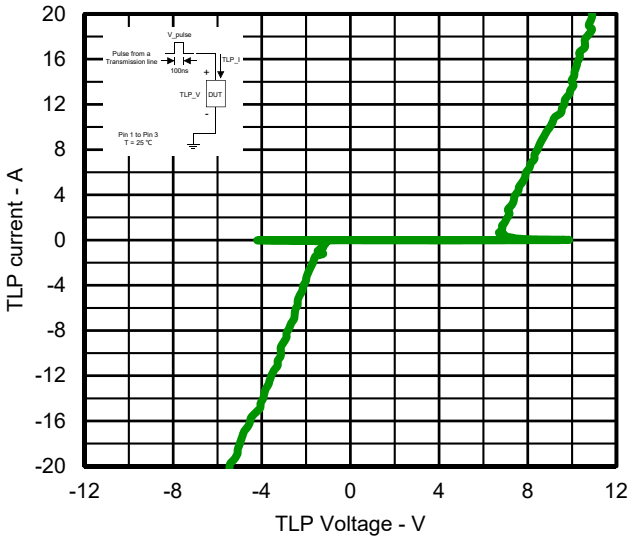
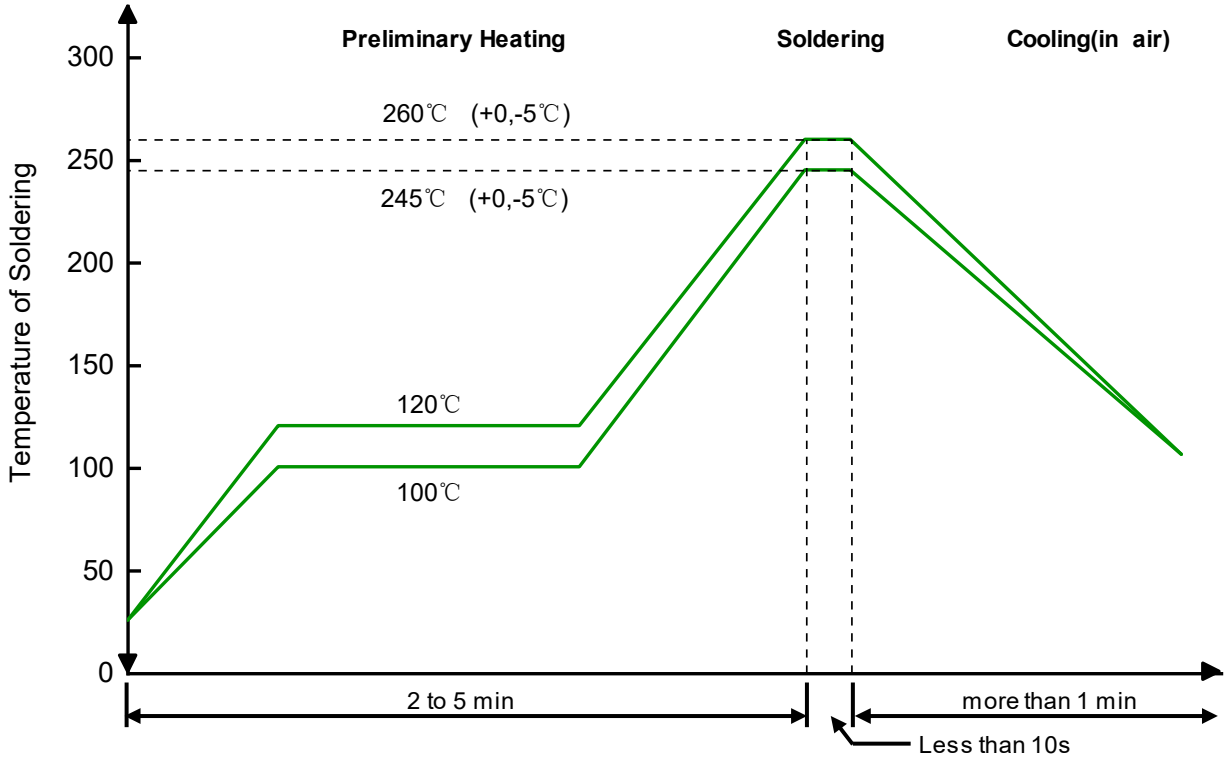


Fig.6 TLP Measurement

Solder Reflow Recommendation



Remark: Pb free for 260℃; Pb for 245℃.

PCB Design

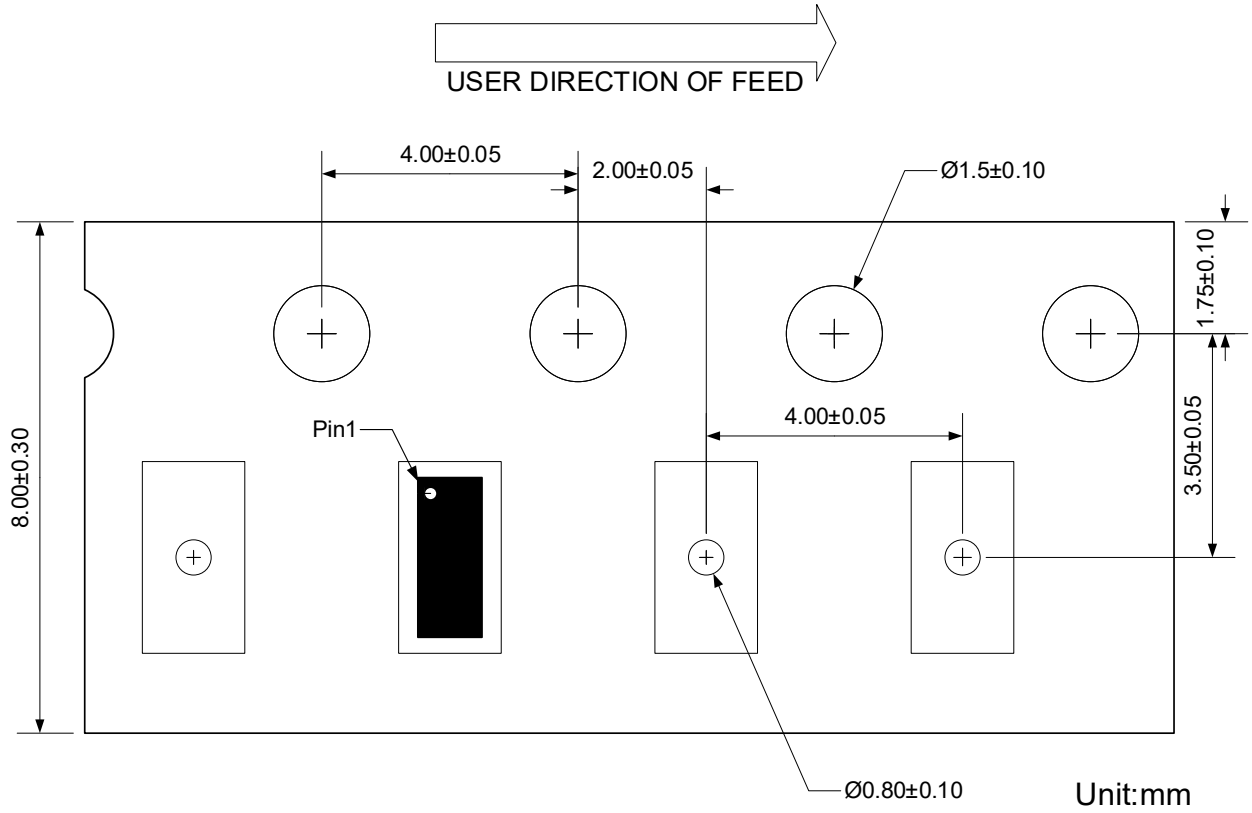
For TVS diodes a low-ohmic and low-inductive path to chassis earth is absolutely mandatory in order to achieve good ESD protection. Novices in the area of ESD protection should take following suggestions to heart:

- 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.

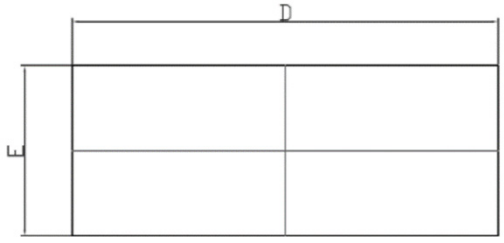
Ordering information

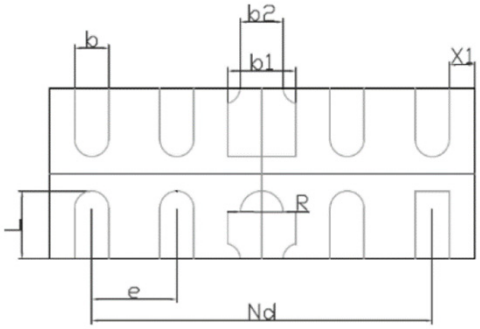
Package	Reel	Shipping
DFN2510-10L	7"	3000 / Tape & Reel

Load with information



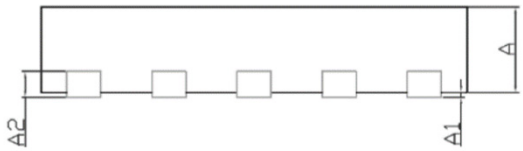
Product dimension (DFN2510-10L)





TOP VIEW

BOTTOM VIEW



Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	0.50	0.60	0.020	0.024
A1	0.00	0.05	0.000	0.002
A2	0.15 Ref.		0.006 Ref.	
b	0.15	0.25	0.006	0.010
b1	0.35	0.45	0.014	0.018
b2	0.20 Ref.		0.008 Ref.	
D	2.45	2.55	0.096	0.100
E	0.95	1.05	0.037	0.041
L	0.33	0.43	0.013	0.017
e	0.50 BSC.		0.020 BSC.	
Nd	2.00 BSC.		0.079 BSC.	
X1	0.08	0.22	0.003	0.009

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