

## 2-Line Uni-directional low Capacitance

### Description

PESDR3302P1A is an low capacitance TVS (Transient Voltage Suppressor) designed to protect high speed data interfaces. It has been specifically designed to protect sensitive electronic components which are connected to data and transmission lines from over-stress caused by ESD (Electrostatic Discharge).

PESDR3302P1A incorporates two pairs of low capacitance steering diodes plus a TVS diode.

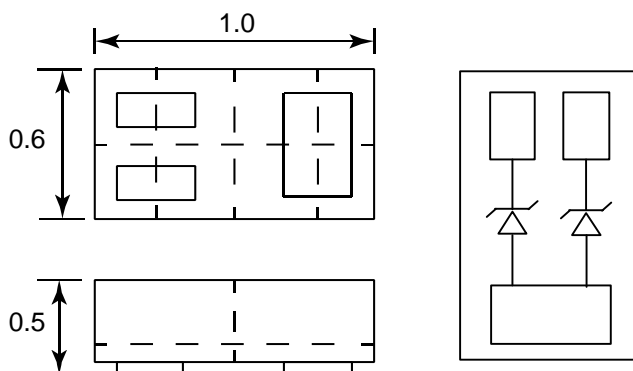
PESDR3302P1A may be used to provide ESD protection up To  $\pm 30\text{kV}$  ( contact discharge according to EC61000-4-2, and withstand peak pulse current up to 9A (8/20 $\mu\text{s}$ ) according to IEC61000-4-5.

PESDR3302P1A is available in DFN1006-3 package. Standard products are Pb-free and Halogen-free.

### Features

- Ultra small package: 1.0x0.6x0.5mm
- Low operating voltage: 3.3V
- 3-pin leadless package
- Up to 2-line protects
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge:  $\pm 30\text{kV}$
    - Contact discharge:  $\pm 30\text{kV}$
  - IEC61000-4-5 (Lightning) 9A (8/20 $\mu\text{s}$ )
- RoHS Compliant

### Dimensions and Pin Configuration



Package Dimensions

Circuit and Pin Schematic

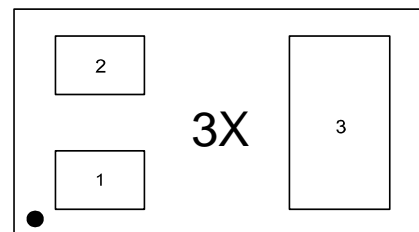
### Mechanical Characteristics

- Package: DFN1006-3 (1.0x0.6x0.5mm)
- Case Material: "Green" Molding Compound.
- Moisture Sensitivity: Level 3 per J-STD-020
- Marking Information: See Below

### Applications

- USB2.0
- HDMI 1.3 , HDMI 1.4
- SATA and eSATA interface
- DVI
- IEEE 1394
- Portable Electronics and Notebooks

### Marking Information



3X = Device Marking Code

### Ordering Information

Part Number	Shipping	Reel Size
PESDR3302P1A	10000/Tape & Reel	7 inch

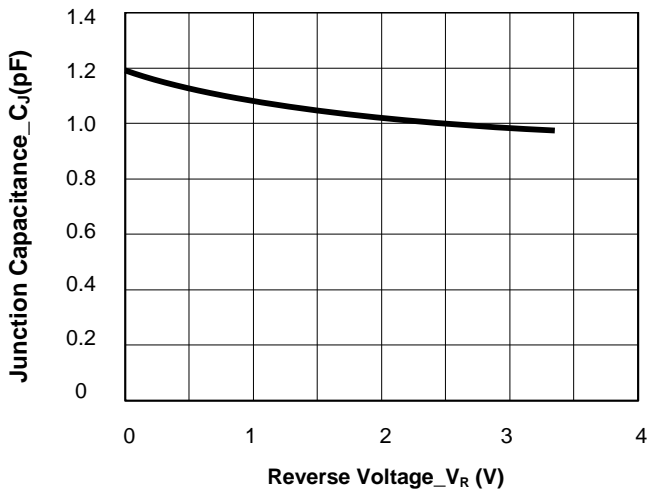
**Absolute Maximum Ratings (TA=25°C unless otherwise specified)**

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20µs)	P <sub>PK</sub>	45	W
Peak Pulse Current (8/20µs)	I <sub>PP</sub>	9	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V <sub>ESD</sub>	±30 ±30	kV
Operating Temperature Range	T <sub>OP</sub>	-40 to + 85	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to +150	°C

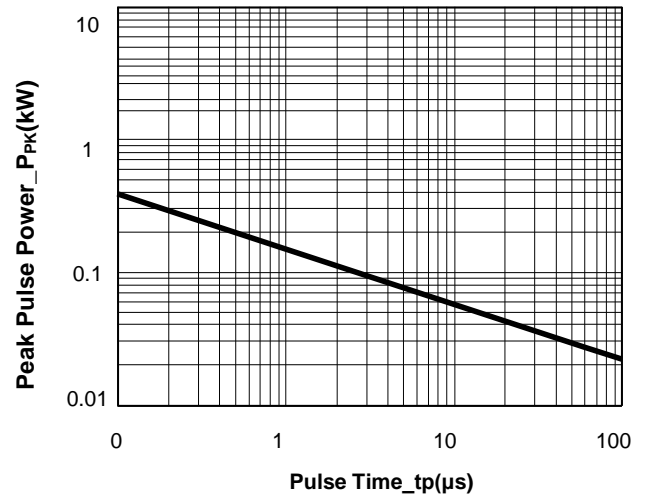
**Electrical Characteristics (TA=25°C unless otherwise specified)**

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V <sub>RWM</sub>			3.3	V	
Breakdown Voltage	V <sub>BR</sub>	8.5			V	I <sub>T</sub> = 1mA
Reverse Leakage Current	I <sub>R</sub>			50	nA	V <sub>RWM</sub> = 3.3V
Clamping Voltage	V <sub>C</sub>		2.1	3.0	V	I <sub>PP</sub> = 1A (8/20µs pulse)
Clamping Voltage	V <sub>C</sub>		3.2	5.0	V	I <sub>PP</sub> = 9A (8/20µs pulse)
Junction Capacitance	C <sub>J</sub>		1.2	1.5	pF	V <sub>R</sub> = 0V, f = 1MHz

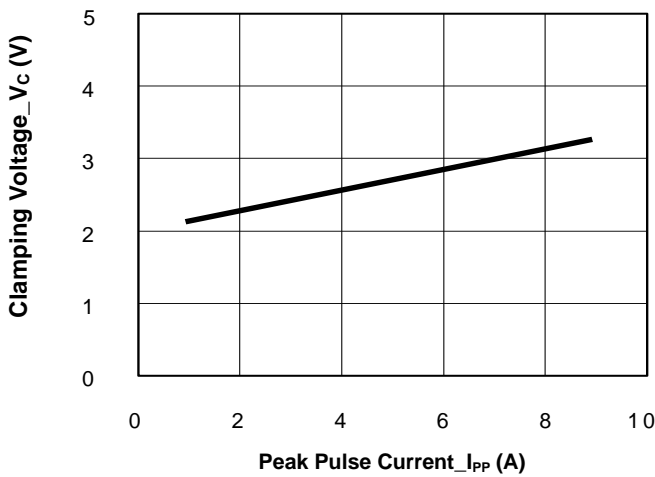
**Typical Performance Characteristics (TA=25°C unless otherwise Specified)**



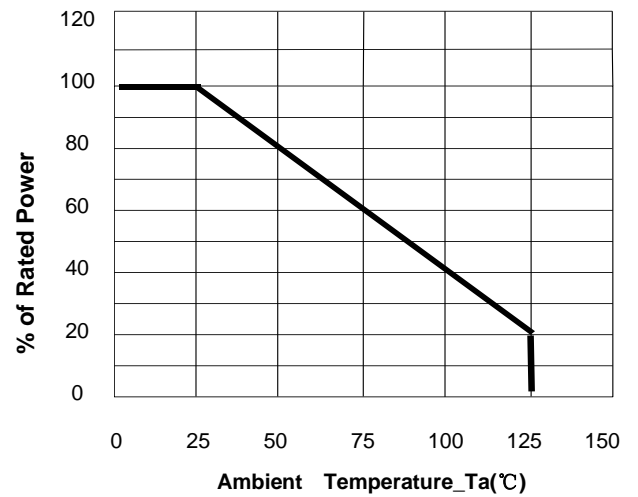
**Junction Capacitance vs. Reverse Voltage**



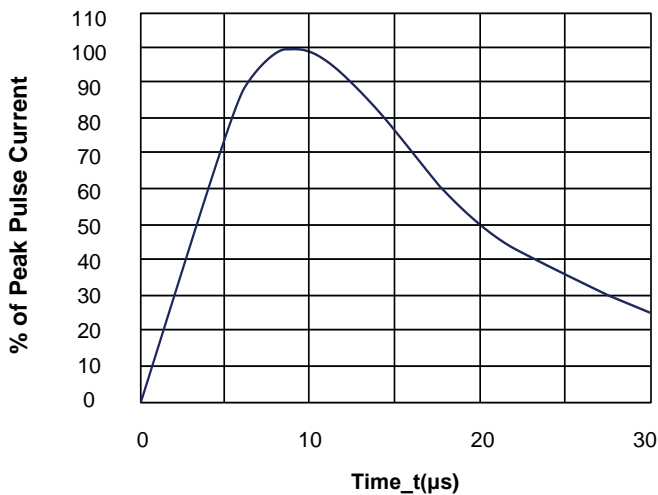
**Peak Pulse Power vs. Pulse Time**



**Clamping Voltage vs. Peak Pulse Current**

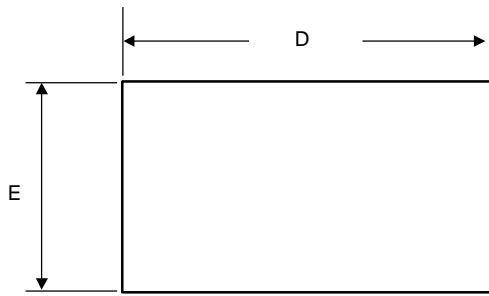


**Power Derating Curve**

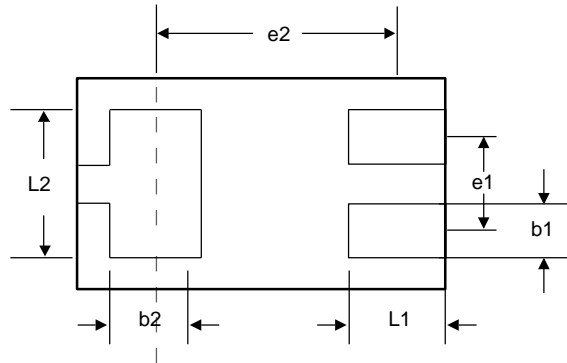


**8/20μs Pulse Waveform**

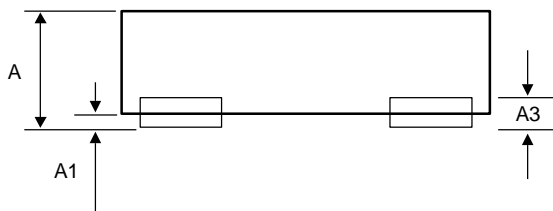
**DFN1006-31 Package Outline Drawing**



Top View



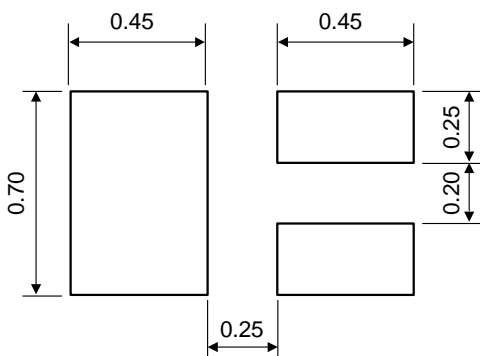
Bottom View



Side View

Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.360	-	0.500
A1	0.000	-	0.050
A3	0.125 Ref.		
D	0.950	1.000	1.050
E	0.550	0.600	0.650
b1	0.100	0.150	0.200
b2	0.200	0.250	0.300
L1	0.200	0.300	0.400
L2	0.400	0.500	0.600
e1	0.350 BSC		
e2	0.675 BSC		

**Recommended PCB Layout (Unit: mm)**



**Notes:**

This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.