

1-Line Bidirectional ESD Protection Diode

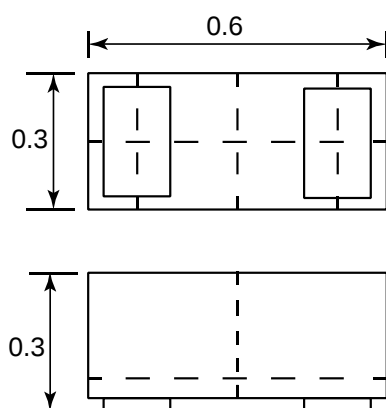
Description

The PESDR0511P0 is a bi-directional Electro-Static Discharge (ESD) protection diode in a leadless ultra small DFN0603 Surface-Mounted Device (SMD) plastic package. It is designed to protect one signal line from the damage caused by ESD and other transients. The combination of extremely low capacitance, high ESD maximum rating and ultra small package makes the device ideal for high-speed data line protection and antenna protection applications.

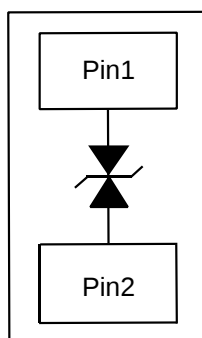
Features

- Ultra small package: 0.6x0.3x0.3mm
- Very low capacitance
- Protects one data or power line
- Ultra low leakage: nA level
- Operating voltage: 5V
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 20\text{kV}$
 - Contact discharge: $\pm 15\text{kV}$
 - IEC61000-4-5 (Lightning) 4A (8/20 μs)
- RoHS Compliant

Dimensions and Pin Configuration



Package Dimensions



Circuit and Pin Schematic

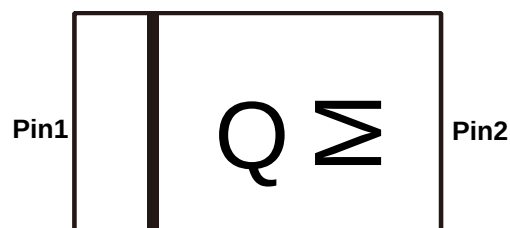
Mechanical Characteristics

- Package: DFN0603-2 (0.6×0.3×0.3mm)
- Case Material: “Green” Molding Compound.
- Moisture Sensitivity: Level 1 per J-STD-020
- Marking Information: See Below

Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Digital Cameras
- Peripherals
- Audio Players
- Keypads, Side Keys, USB 2.0, LCD Displays

Marking Information



Q Σ = Device Marking Code

Ordering Information

Part Number	Shipping	Reel Size
PESDR0511P0	15000/Tape & Reel	7 inch

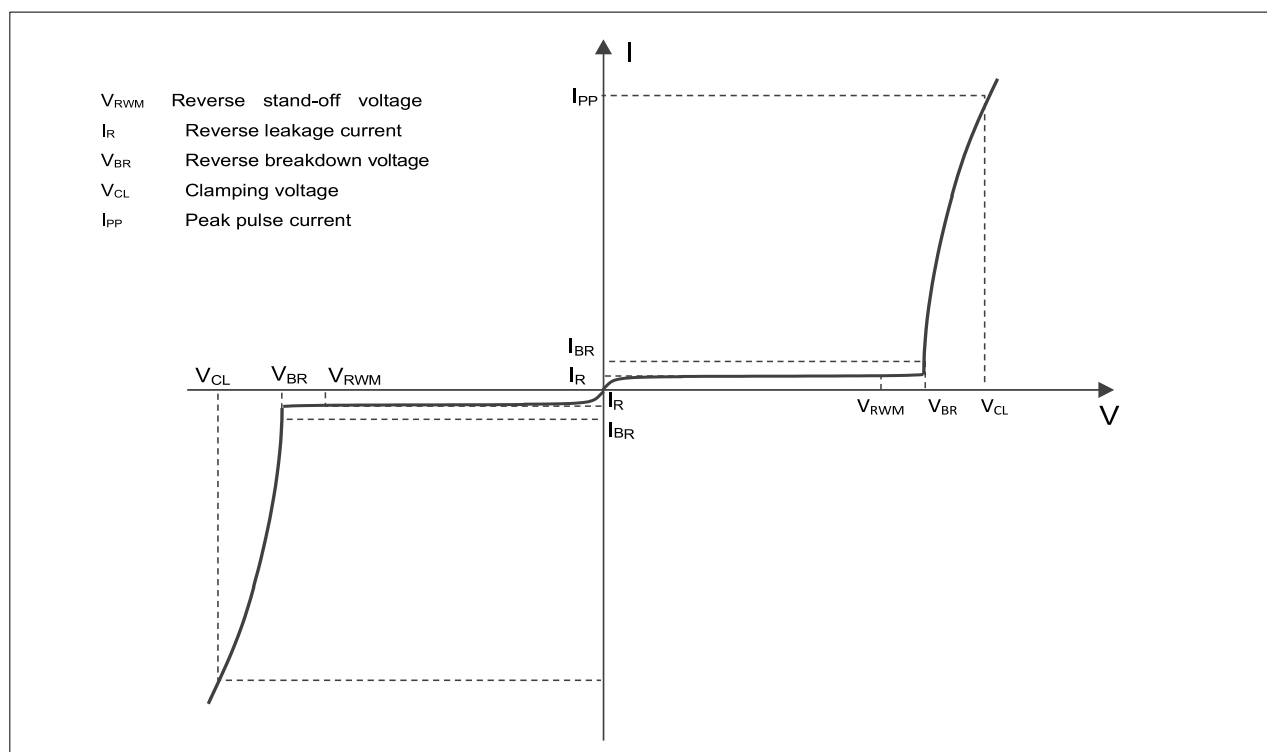
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	P _{PK}	80	W
Peak Pulse Current (8/20μs)	I _{PP}	4	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V _{ESD}	±20 ±15	kV
Lead temperature	T _L	260	°C
Junction Temperature	T _J	125	°C
Operating Temperature Range	T _{OP}	-40 ~ +125	°C
Storage Temperature Range	T _{STG}	-55 ~ +150	°C

Electrical Characteristics (T_A=25°C unless otherwise specified)

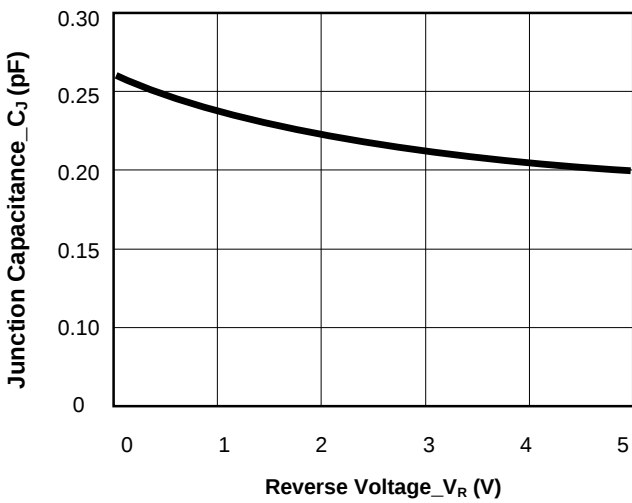
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			5.0	V	
Breakdown Voltage	V _{BR}	6.0	7.5		V	I _T = 1mA
Reverse Leakage Current	I _R			0.1	μA	V _{RWM} = 5V
Clamping voltage ¹⁾	V _{CL}		20.0		V	I _{PP} = 16A, t _p = 100ns
Dynamic resistance ¹⁾	R _{DYN}		0.8		Ω	
Clamping voltage ²⁾	V _{CL}		20.0		V	V _{ESD} = 8kV
Clamping Voltage ³⁾	V _C		11	12	V	I _{PP} = 1A(8/20μs pulse)
Clamping Voltage ³⁾	V _C		19	20	V	I _{PP} = 4A(8/20μs pulse)
Junction Capacitance	C _J		0.26	0.4	pF	V _R = 0V, f = 1MHz

Electrical characteristics ($T_A = 25^\circ\text{C}$, unless otherwise noted)

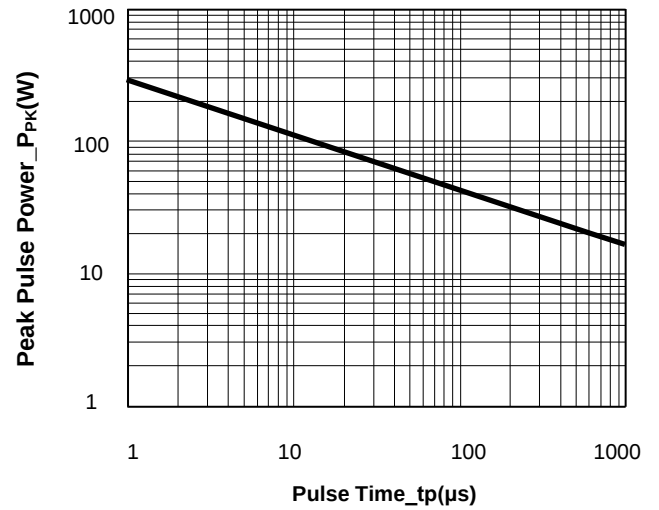


Definitions of electrical characteristics

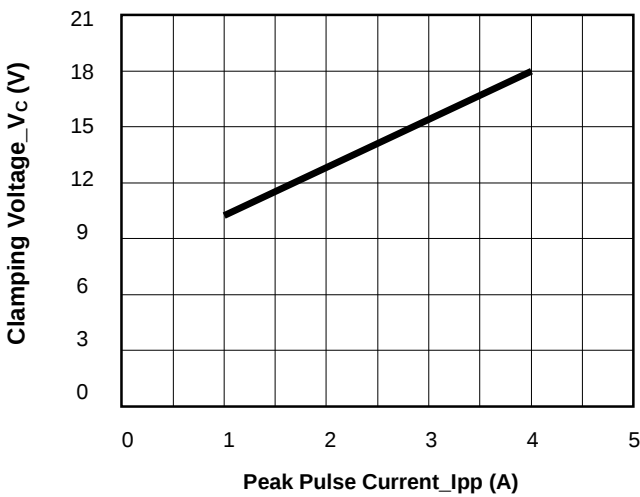
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)



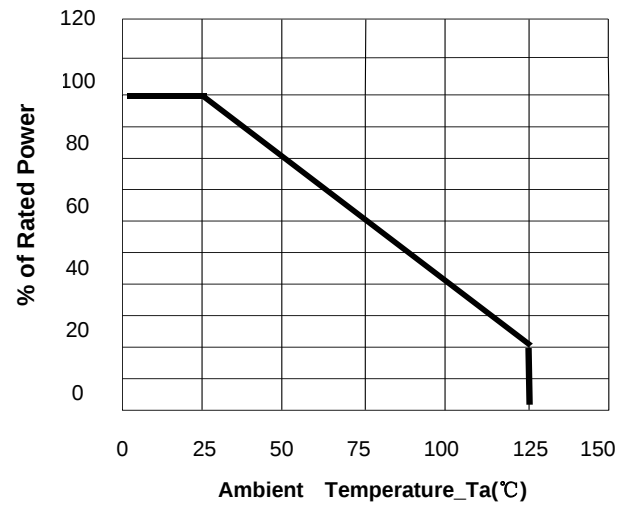
Junction Capacitance vs. Reverse Voltage



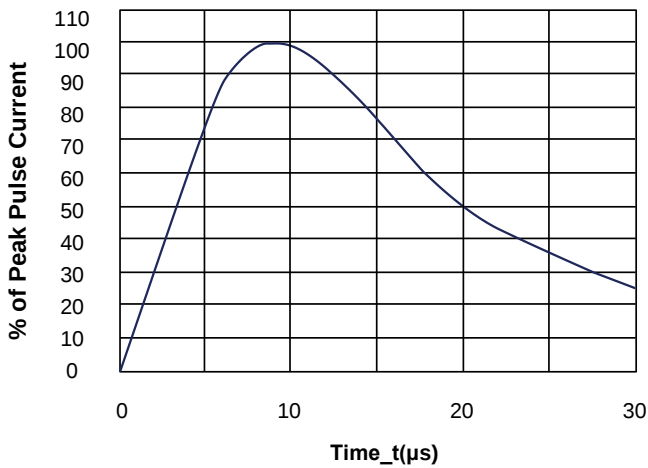
Peak Pulse Power vs. Pulse Time



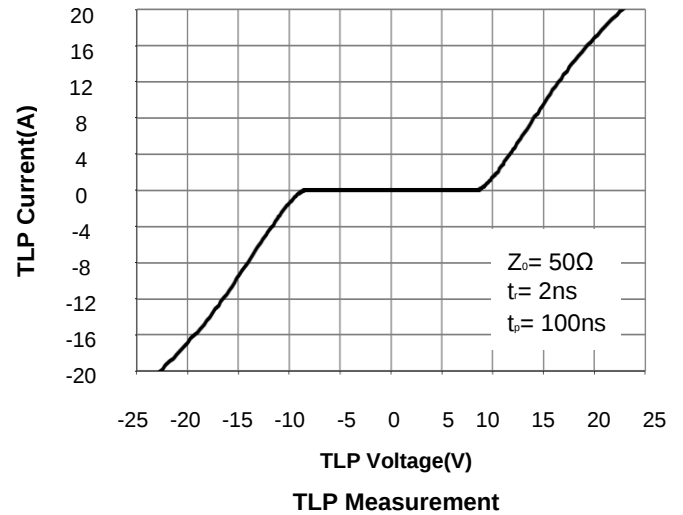
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve

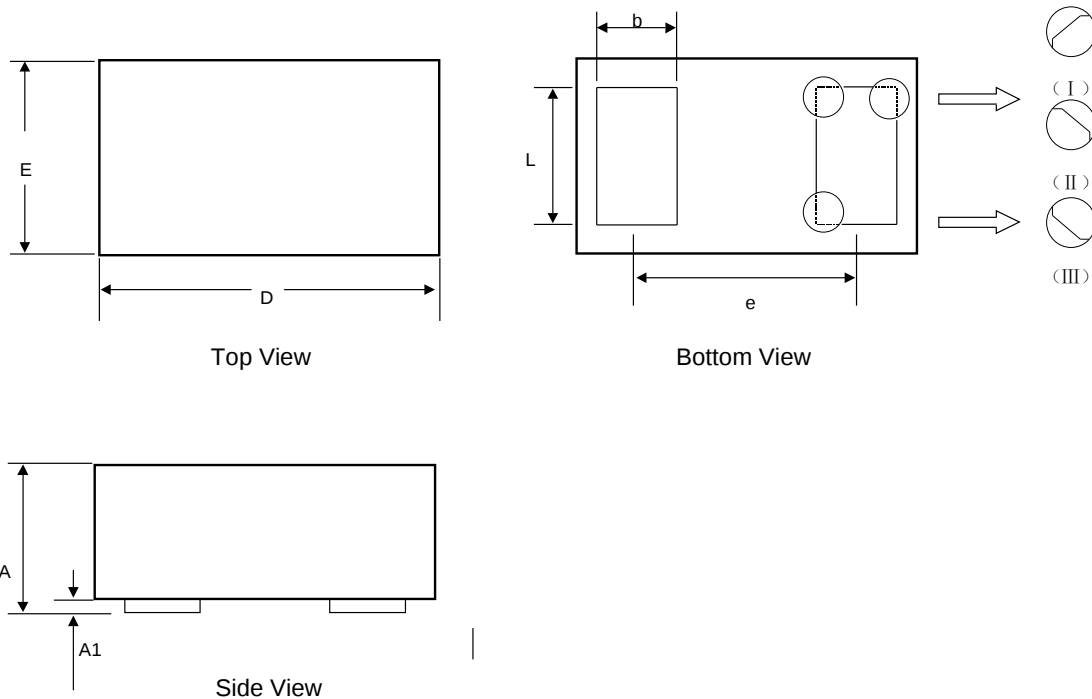


8/20μs Pulse Waveform



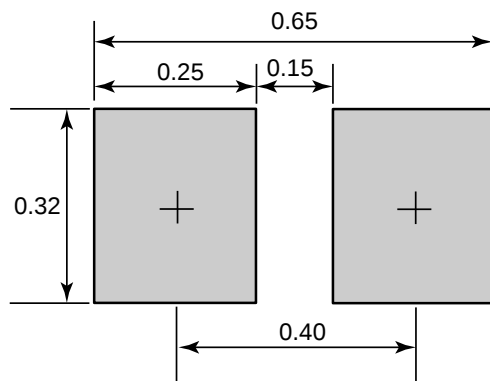
TLP Measurement

DFN0603-2 Package Outline Drawing



Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.230	0.300	0.350
A1	0.000	-	0.050
D	0.550	0.600	0.670
E	0.250	0.300	0.370
b	0.160	0.190	0.230
L	0.215	0.245	0.275
e	0.360 BSC		

Recommended PCB Layout (Unit: mm)

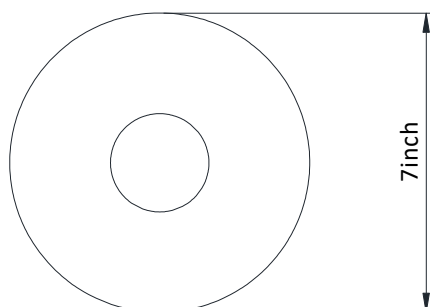


Notes:

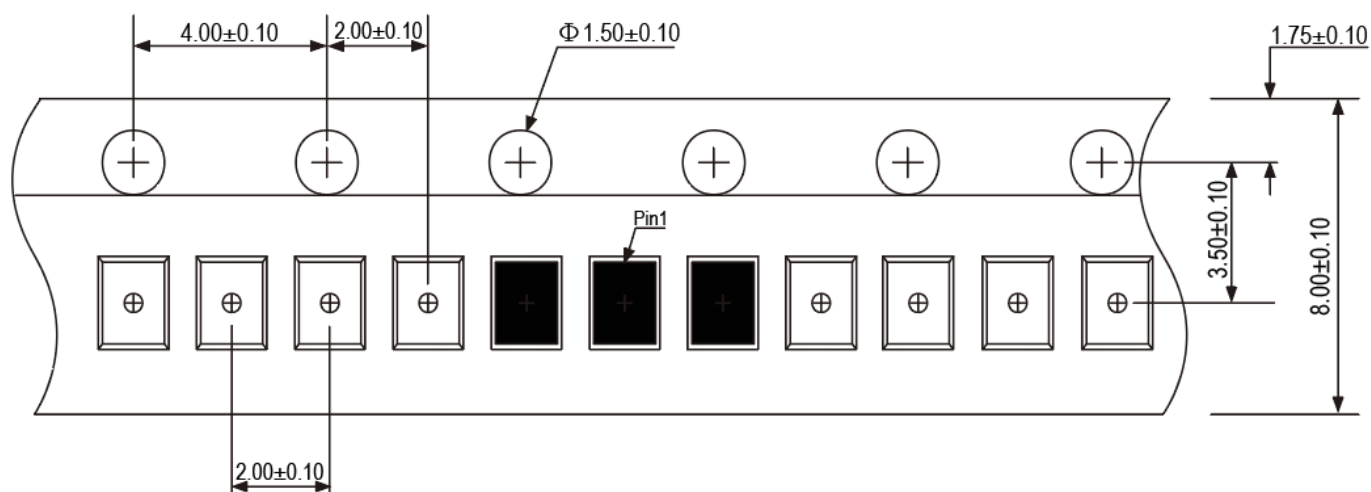
This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.

TAPE AND REEL INFORMATION

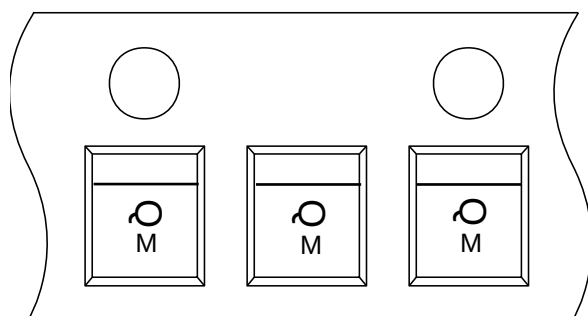
Reel Dimensions



Tape Dimensions



Unit:mm



User Direction of Feed

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