

1-Line , Bi-directional , Transient Voltage Supperssor

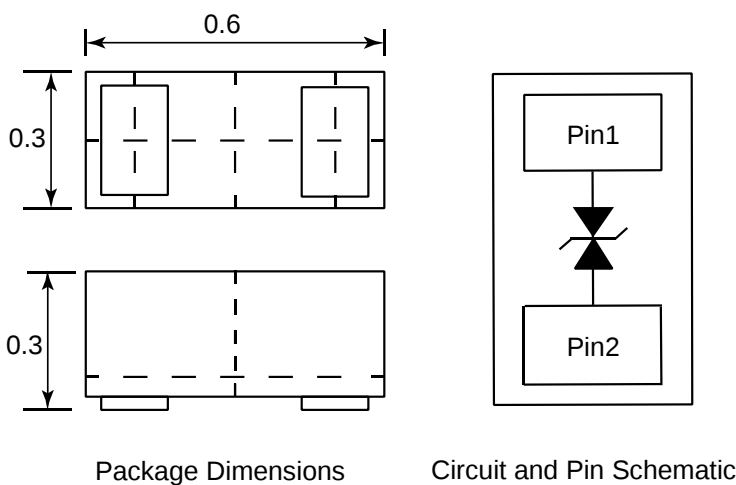
Description

PESDU3311P0L is a bi-directional TVS (Transient Voltage Suppressor). It has been specifically designed to protect sensitive electronic components which are connected to low speed data lines and control lines from over-stress caused by ESD (Electrostatic Discharge) and Lightning . PESDU3311P0L may be used to provide ESD protection up to $\pm 30\text{kV}$ (air and contact discharge) according to IEC61000-4-2, and withstand peak pulse current up to $6.5\text{A}(8/20\mu\text{s})$ according to IEC61000-4-5 . PESDU3311P0L is available in DFN0603-2 package. Standard products are Pb-free and Halogen-free.

Features

- Operating voltage: 3.3V
- Low clamping voltage
- 2-pin leadless package
- 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) $6.5\text{A}(8/20\mu\text{s})$
- RoHS Compliant

Dimensions and Pin Configuration



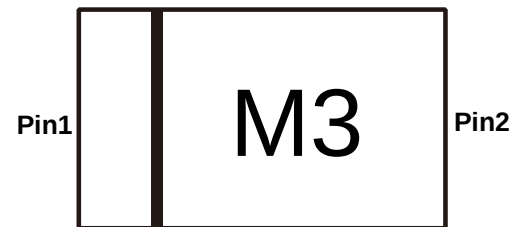
Mechanical Characteristics

- 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
- Microphone Line Protection
- GPIO Protection

Marking Information



M3 = Device Marking Code

Ordering Information

Part Number	Shipping	Reel Size
PESDU3311P0L	10000/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}	52	W
Peak Pulse Current (8/20μs)	I _{PP}	6.5	A
ESD per IEC 61000-4-2 (Air)	V _{ESD}	±30	kV
ESD per IEC 61000-4-2 (Contact)		±30	
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}			3.3	V	
Breakdown Voltage	V _{BR}	4			V	I _T = 1mA
Reverse Leakage Current	I _R			0.1	μA	V _{RWM} = 3.3V
Clamping voltage ¹⁾	V _{CL}		9		V	I _{PP} = 16A, t _p = 100ns
Dynamic resistance ¹⁾	R _{DYN}		0.25		Ω	
Clamping voltage ²⁾	V _{CL}		9		V	V _{ESD} = 8kV
Clamping Voltage ³⁾	V _C			5	V	I _{PP} = 1A(8/20μs pulse)
Clamping Voltage ³⁾	V _C			9	V	I _{PP} = 6.5A(8/20μs pulse)
Junction Capacitance	C _J		8	15	pF	V _R = 0V, f = 1MHz

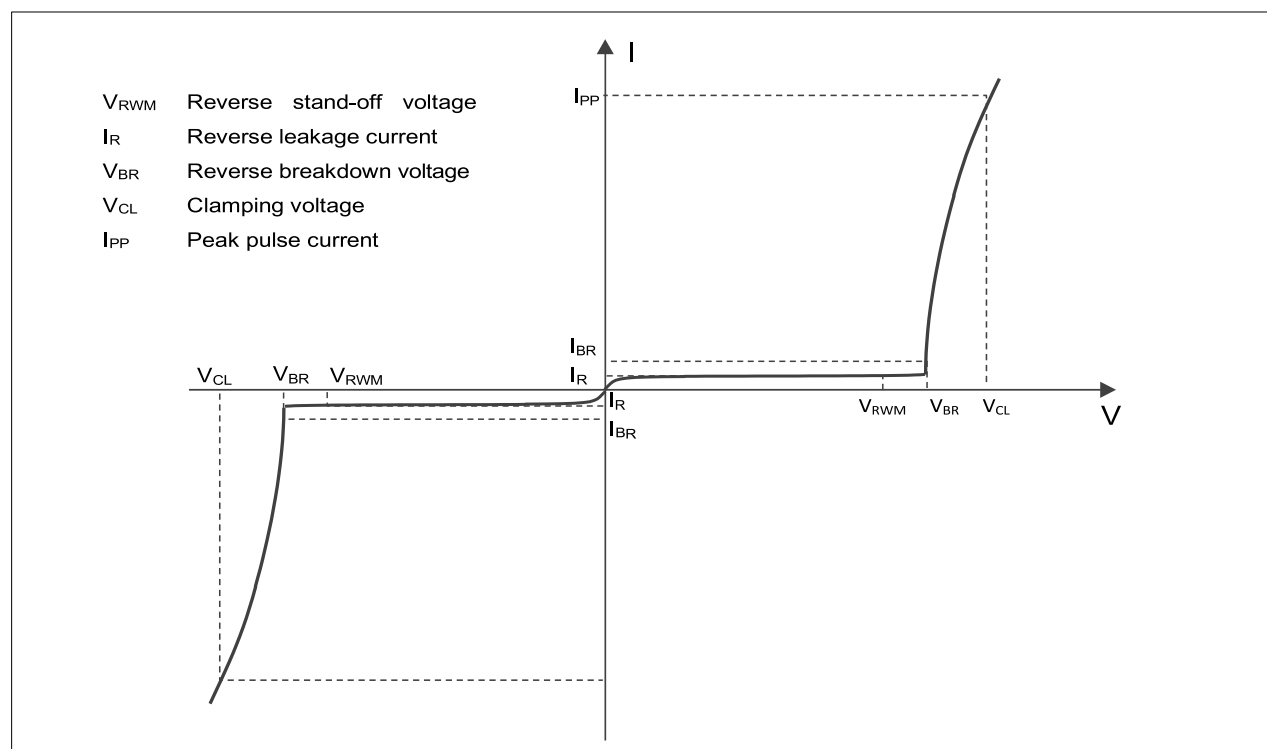
Notes:

1) TLP parameter: Z₀ = 50Ω, t_p = 100ns, t_r = 2ns, averaging window from 60ns to 80ns. R_{DYN} is calculated from 4A to 16A.

2) Contact discharge mode, according to IEC61000-4-2.

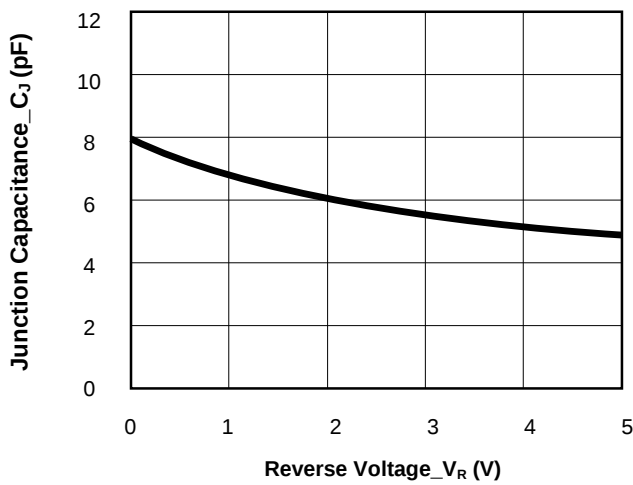
3) Non-repetitive current pulse, according to IEC61000-4-5.

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

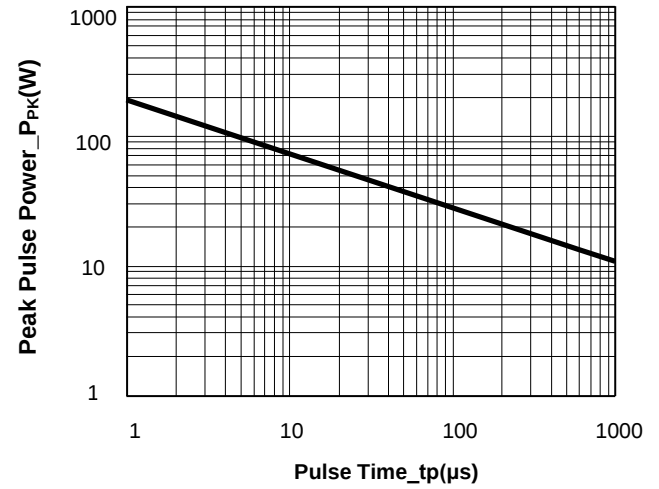


Definitions of electrical characteristics

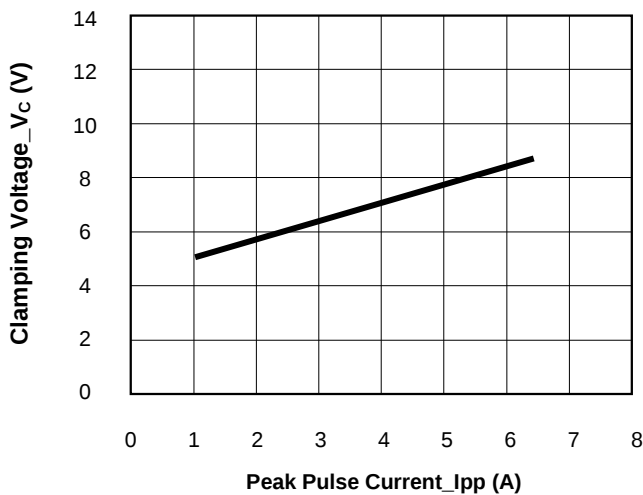
Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)



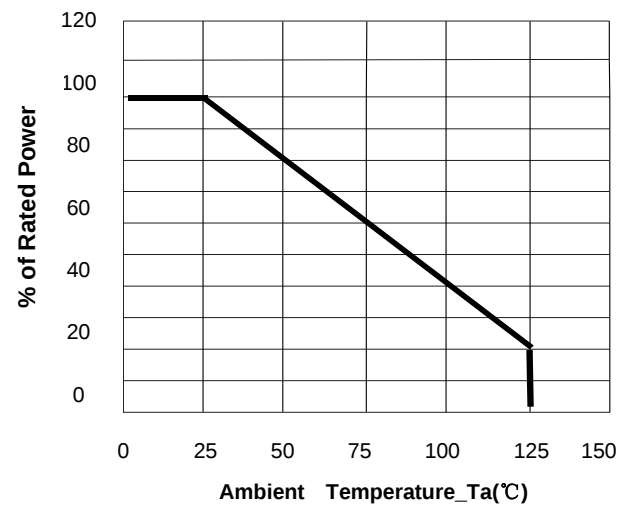
Junction Capacitance vs. Reverse Voltage



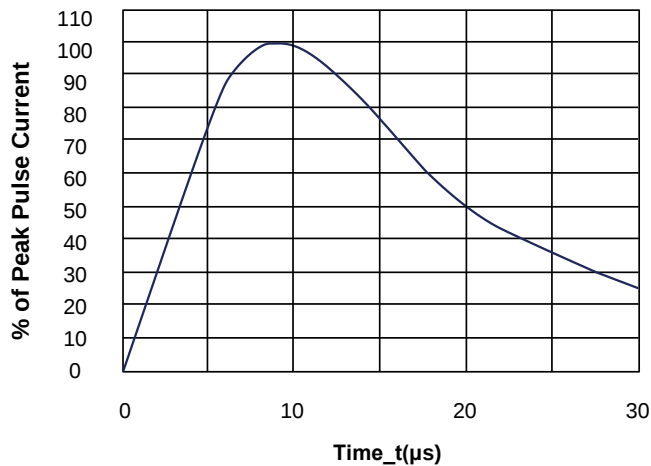
Peak Pulse Power vs. Pulse Time



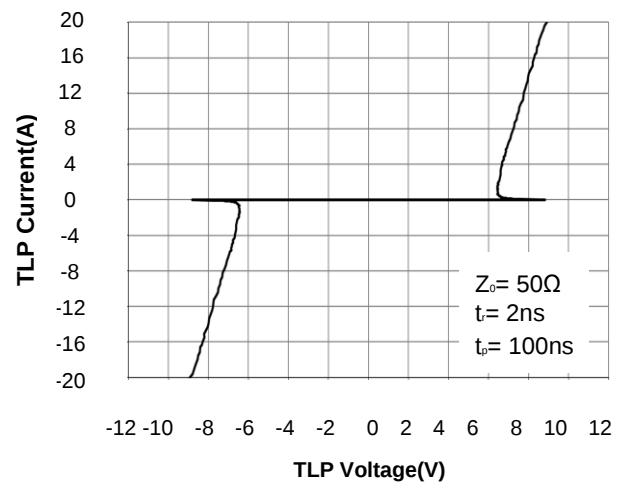
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve

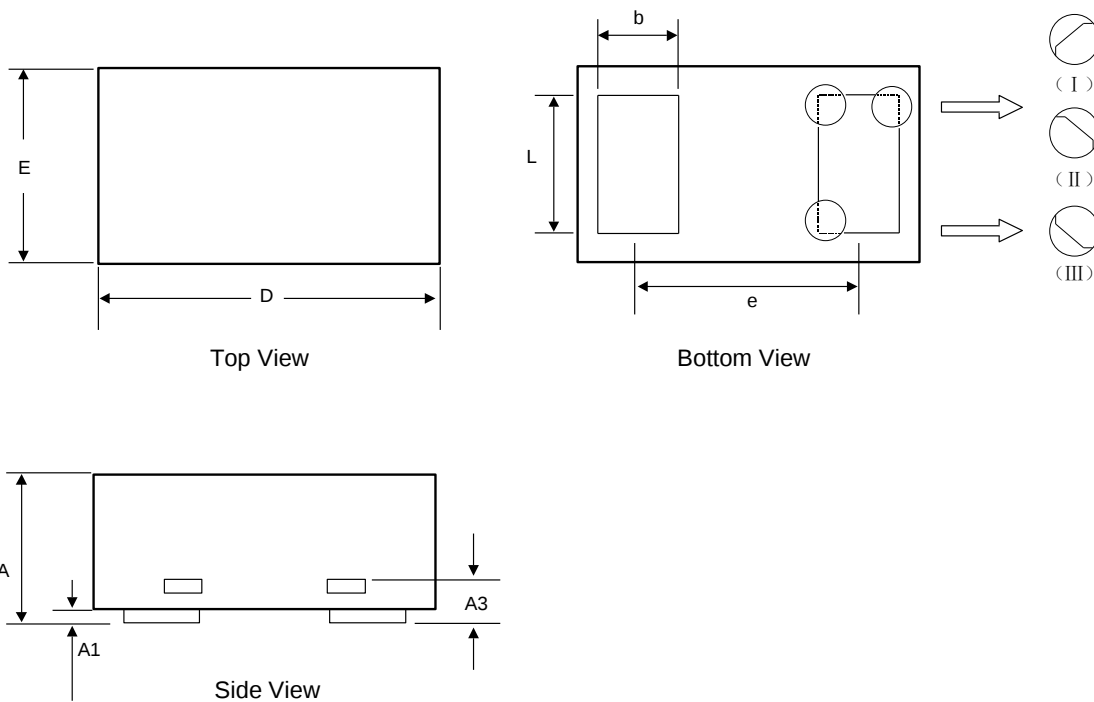


8/20 μs Pulse Waveform



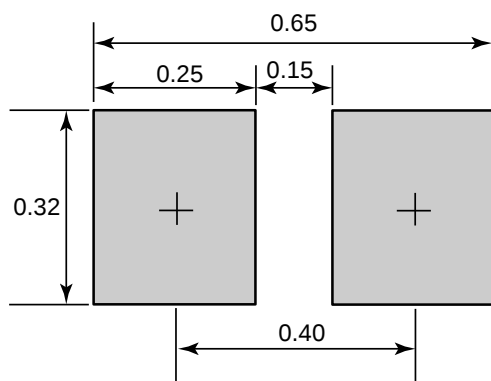
TLP Measurement

DFN0603-2 Package Outline Drawing



Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.230	0.300	0.350
A1	0.000	-	0.050
A3	0.102REF.		
D	0.550	0.600	0.670
E	0.250	0.300	0.370
b	0.160	0.190	0.230
L	0.185	0.210	0.250
e	0.360 BSC		

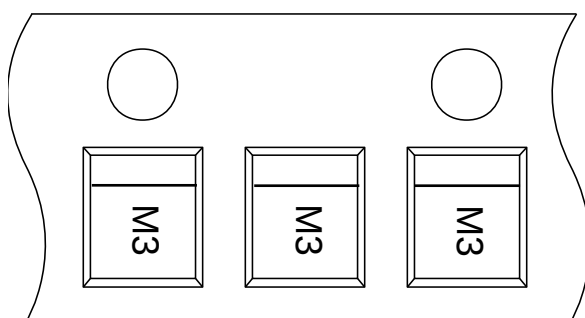
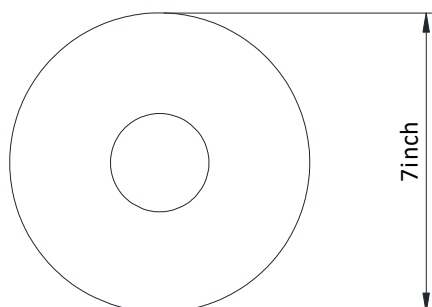
Recommended PCB Layout (Unit: mm)



Notes:

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

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User Direction of Feed

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