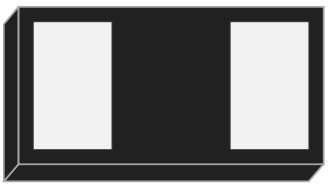
1-Line, Bi-directional, Transient Voltage Suppressor

Features

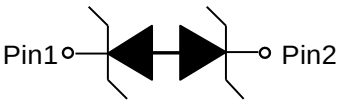
- Stand-off voltage: ±7V Max.
- Transient protection for each line according to
  IEC61000-4-2(ESD): ±30kV (contact)
  IEC61000-4-4 (EFT): 40A (5/50ns)
  IEC61000-4-5(surge): 6A (8/20μs)
- Ultra-low capacitance: C_J = 10pF typ.
- Low leakage current:
- Low clamping voltage: V_{CL} =12.0V typ. @ I_{PP} = 16A (TLP)
- Solid-state silicon technology



DFN0603-2 (Bottom View)

Applications

- Cellular handsets
- USB V_{BUS} and CC Line Protection
- Microphone Line Protection
- GPIO Protection



Pin configuration

Descriptions

PESDU0711P0Ais 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), EFT (Electrical Fast Transients) and Lightning.

PESDU0711P0Amay be used to provide ESD protection up to ±30KV (contact discharge) according to IEC61000-4-2, and withstand peak pulse current up to 6A (8/20μs) according to IEC61000-4-5.

PESDU0711P0Ais available in DFN0603-2 package. Standard products are Pb-free and Halogen-free.

A7= Device code

Marking (Top View)

Order information

Device	Package	Shipping
PESDU0711P0A	DFN0603-2	10000/Tape & Reel

Absolute maximum ratings

Parameter	Symbol	Rating	Unit
Peak pulse power (t_p = 8/20μs)	P_{pk}	84	W
Peak pulse current (t_p = 8/20μs)	I_{PP}	6	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	±30	kV
ESD according to IEC61000-4-2 contact discharge		±30	
Junction temperature	T_J	125	°C
Operating temperature	T_{OP}	-40~85	°C
Lead temperature	T_L	260	°C
Storage temperature	T_{STG}	-55~150	°C

Electrical characteristics (T_A = 25 °C, unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse maximum working voltage	V_{RWM}				±7	V
Reverse leakage current	I_R	V_{RWM} =7V			100	nA
Reverse breakdown voltage	V_{BR}	I_{BR} = 1mA	7.2		10.5	V
Reverse holding voltage	V_{HOLD}	I_{HOLD} = 50mA	7.2		10.5	V
Clamping voltage *1)*	V_{CL}	I_{PP} = 16A, t_p = 100ns		12.0		V
Dynamic resistance *1)*	R_{DYN}			0.28		Ω
Clamping voltage *2)*	V_{CL}	V_{ESD} = 8kV		12.0		V
Clamping voltage *3)*	V_{CL}	I_{PP} = 1A, t_p = 8/20μs		9	11	V
		I_{PP} = 6A, t_p = 8/20μs		12	14	V
Junction capacitance	C_J	V_R = 0V, f = 1MHz		10	13	pF
	C_J	V_R = 2.5V, f = 1MHz		8	11	pF

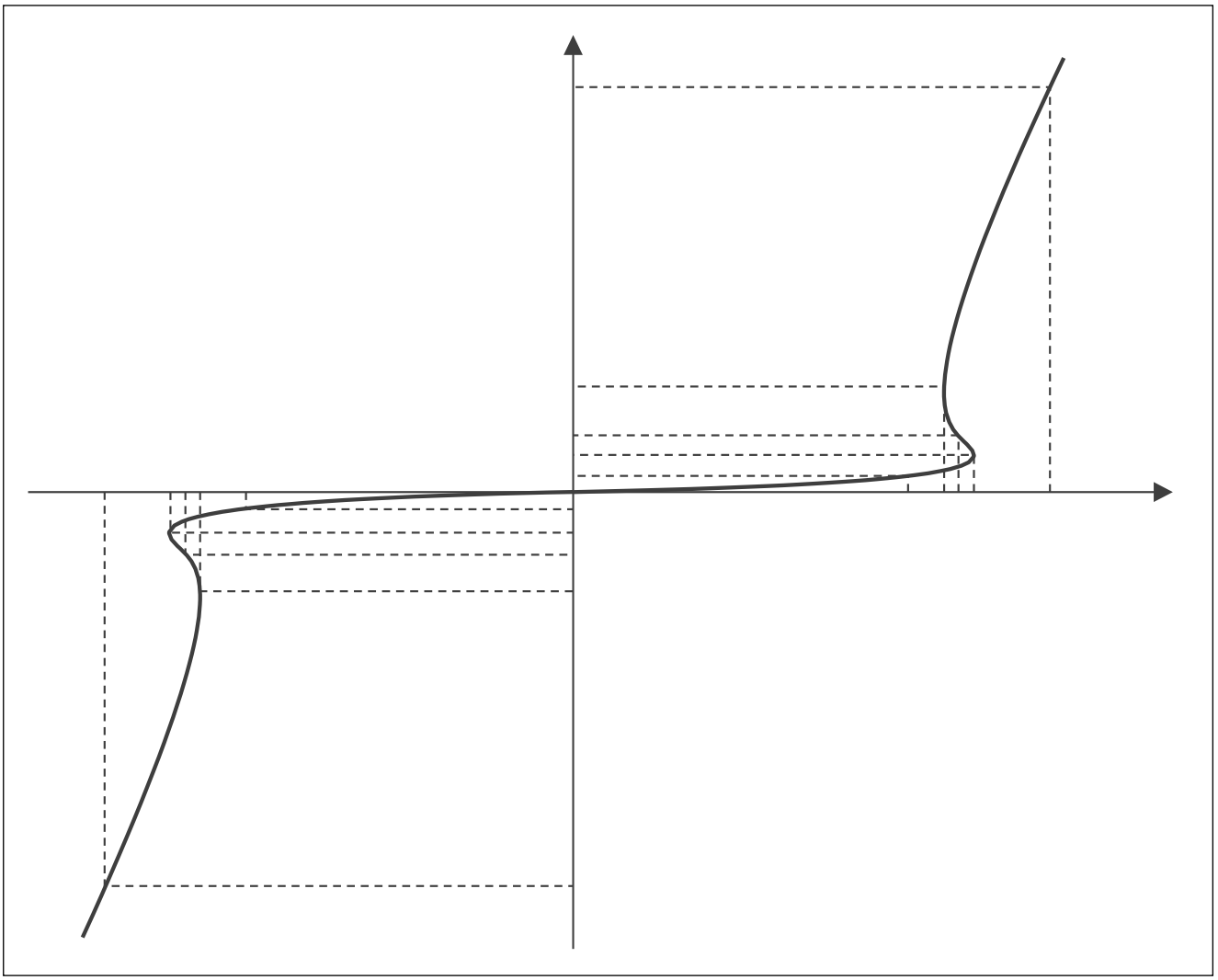
Notes:

1) TLP parameter: Z_0 = 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.

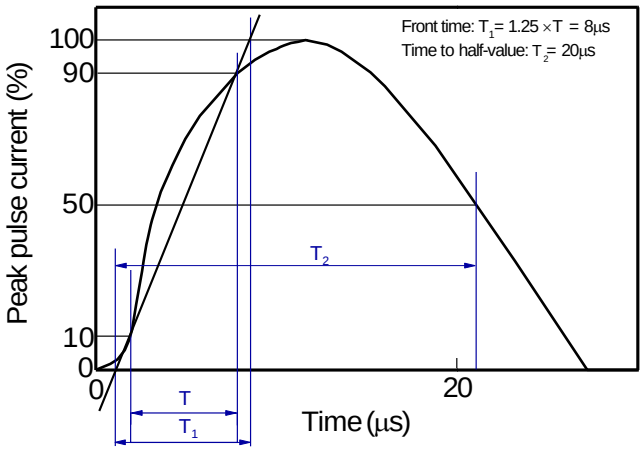
3) Non-repetitive current pulse, according to IEC61000-4-5.

Electrical characteristics (T_A=25 °C, unless otherwise noted)

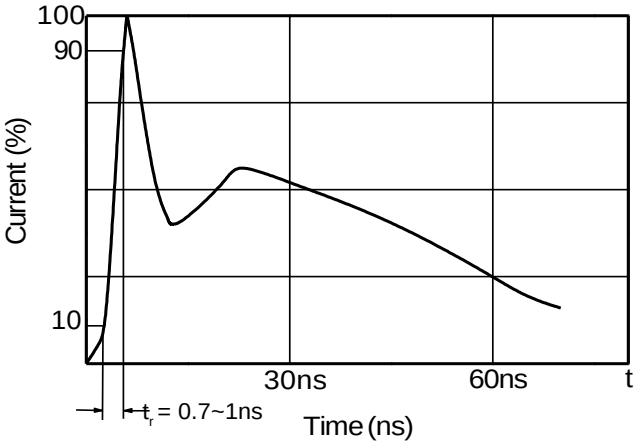


Definitions of electrical characteristics

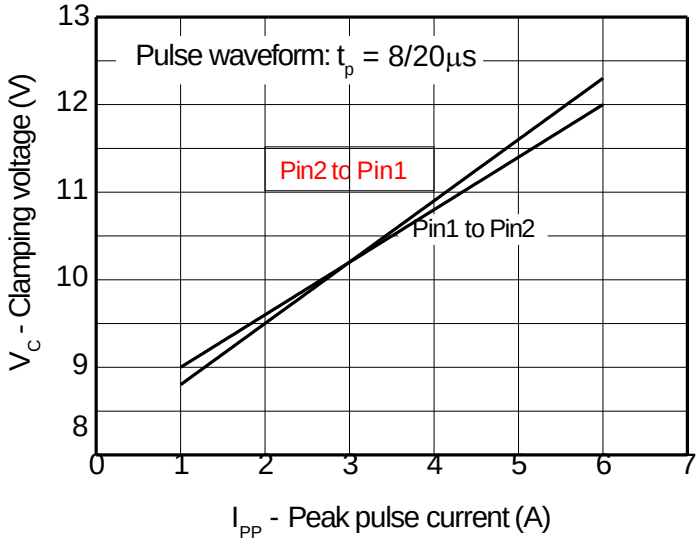
Typical characteristics (TA = 25 ℃, unless otherwise noted)



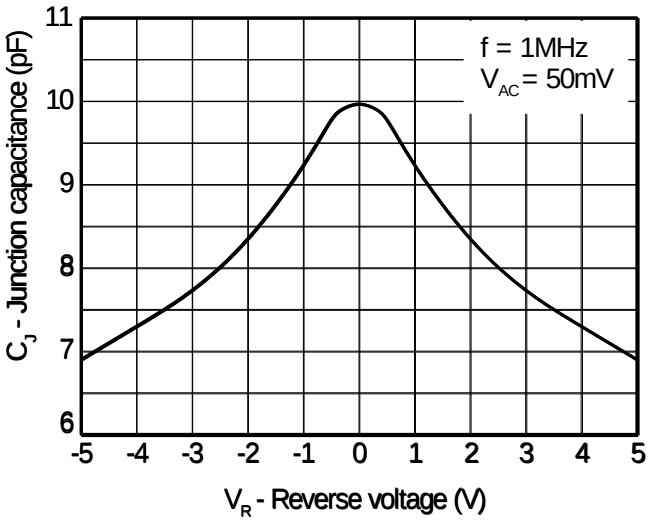
8/20μs waveform per IEC61000-4-5



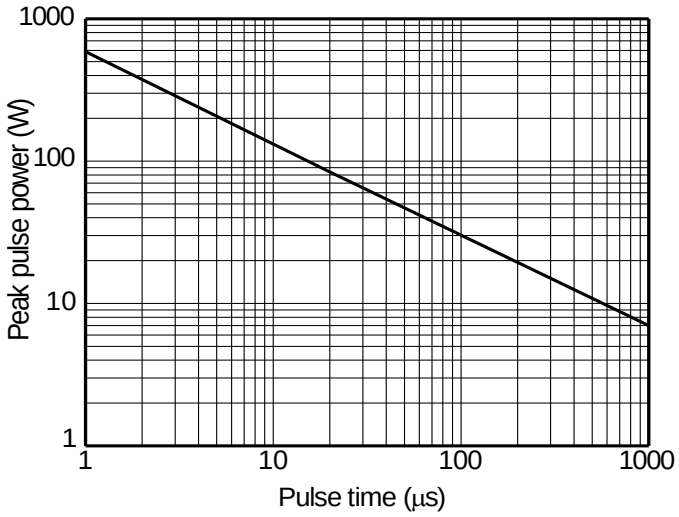
Contact discharge current waveform per IEC61000-4-2



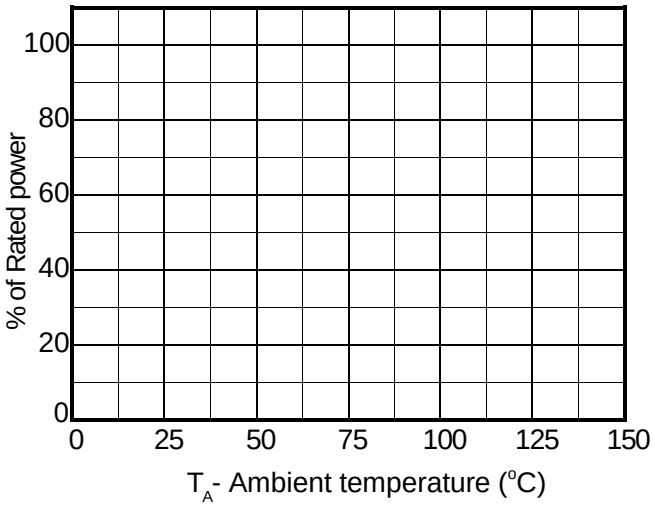
Clamping voltage vs. Peak pulse current



Capacitance vs. Reverse voltage

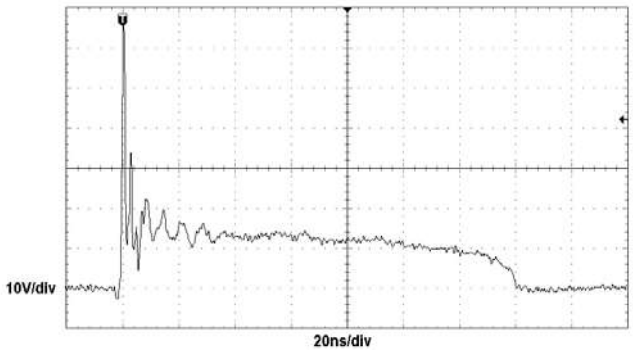


Non-repetitive peak pulse power vs. Pulse time

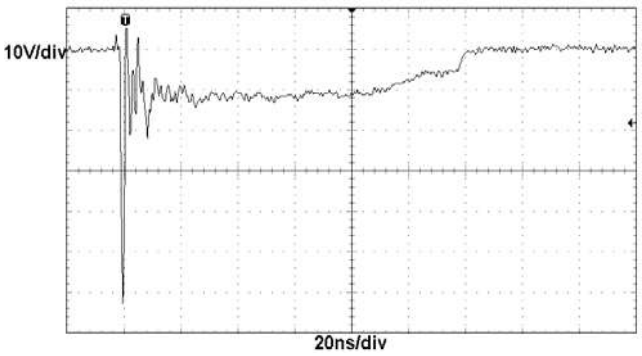


Power derating vs. Ambient temperature

Typical characteristics (TA = 25 ℃, unless otherwise noted)



ESD clamping
(+8kV contact discharge per IEC61000-4-2)



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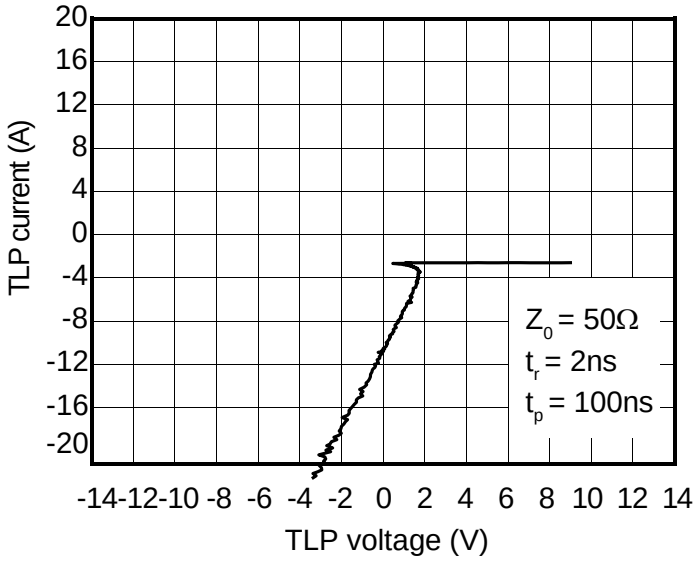
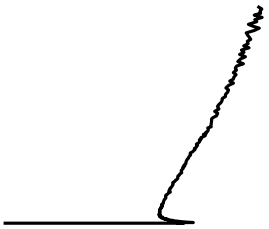
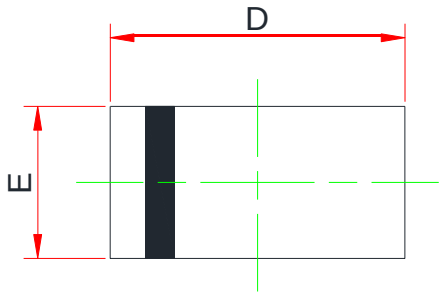


TLP Measurement

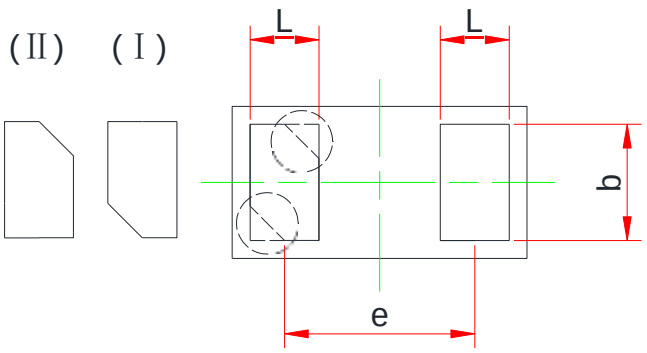


PACKAGE OUTLINE DIMENSIONS

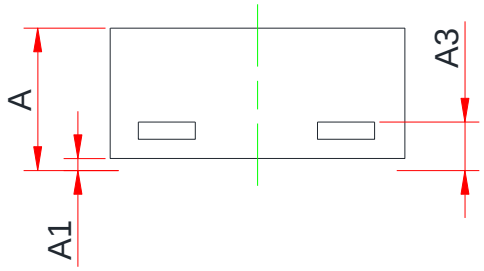
DFN0603-2



Top View



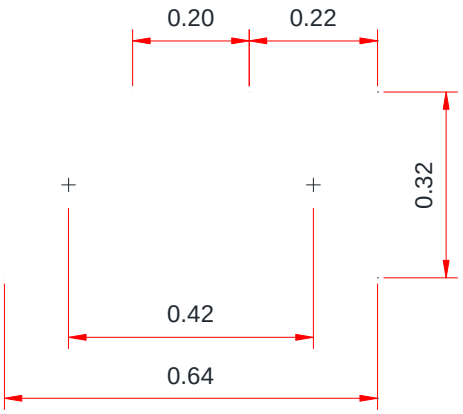
Bottom View



Side View

Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.230	-	0.340
A1	0.000	-	0.050
A3	0.102 REF.		
D	0.550	0.600	0.670
E	0.250	0.300	0.370
b	0.215	-	0.295
e	0.400 BSC		
L	0.115	-	0.195

Recommend land pattern (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.