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PESD5V0X1BL

1-Line Low Capacitance Bi-directional TVS Diode

Features

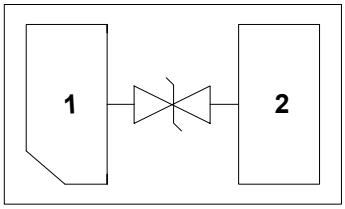
- Ultra small package: 1.0x0.6x0.5mm
- Ultra low capacitance: 0.25pF typical
- Ultra low leakage: nA level
- Operating voltage: 5V
- Low clamping voltage
- Complies with following standards:
  – IEC 61000-4-2 (ESD) immunity test
    Air discharge: ±30kV
    Contact discharge: ±30kV
  – IEC61000-4-5 (Lightning) 6A (8/20μs)
- RoHS Compliant



DFN1006-2

Mechanical Characteristics

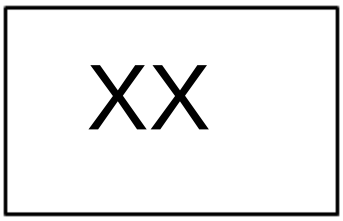
- Package: DFN1006-2 (1.0×0.6×0.5mm)
- Case Material: “Green” Molding Compound.
- Terminal Connections: See Diagram Below
- Marking Information: See Below



Circuit diagram

Applications

- Cellular Handsets and Accessories
- Display Ports
- MDDI Ports
- USB Ports
- Digital Visual Interface (DVI)
- PCI Express and Serial SATA Ports



XX= Device code

Marking (Top View)

Ordering Information

Part Number	Packaging	Reel Size
PESD5V0X1BL	10000/Tape & Reel	7 inch

Absolute maximum ratings

Parameter	Symbol	Rating	Unit
Peak pulse power (t_p = 8/20μs)	P_{pk}	60	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}	-40~125	°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}				5.0	V
Reverse leakage current	I_R	V_{RWM} = 5V		<5	200	nA
Reverse breakdown voltage	V_{BR}	I_T = 1mA	5.8		9.5	V
Clamping voltage *1)*	V_{CL}	I_{PP} = 16A, t_p = 100ns		9		V
Dynamic resistance *1)*	R_{DYN}			0.22		Ω
Clamping voltage *2)*	V_{CL}	V_{ESD} = 8kV		9		V
Clamping voltage *3)*	V_{CL}	I_{PP} = 1A, t_p = 8/20μs		6	7.5	V
		I_{PP} = 6A, t_p = 8/20μs		8	10	V
Junction capacitance	C_J	V_R = 0V, f = 1MHz		0.25	0.40	pF

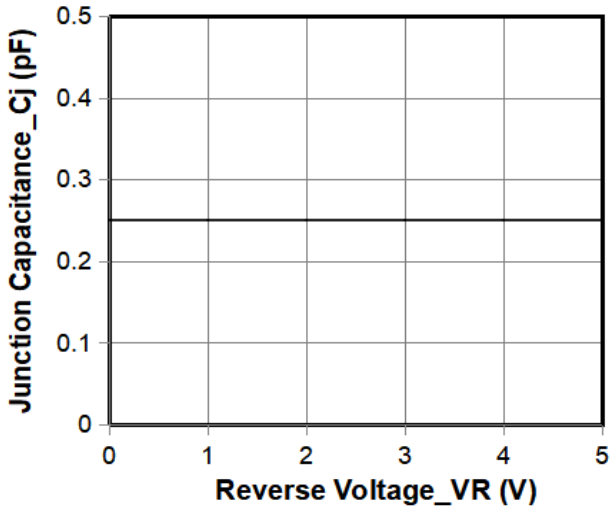
Notes:

1) TLP parameter: Z_0 = 50Ω, t_p = 100ns, t_r = 0.2ns, averaging window from 70ns to 90ns. R_{DYN} is calculated from 4A to 16A.

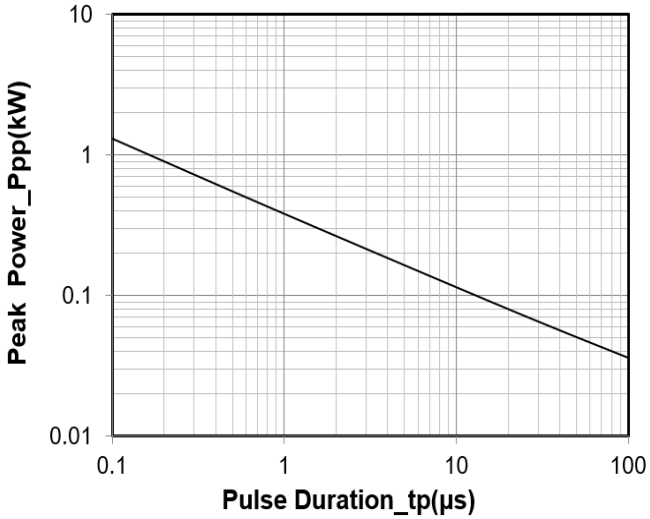
2) Contact discharge mode, according to IEC61000-4-2.

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

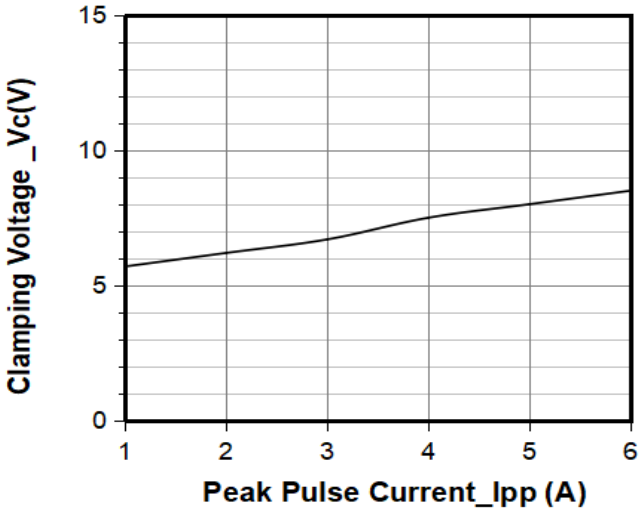
Typical Performance Characteristics (TA=25°C unless otherwise Specified)



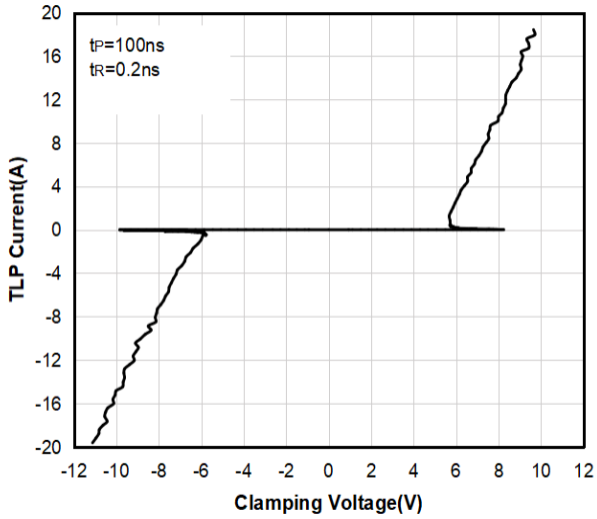
Junction Capacitance vs. Reverse Voltage



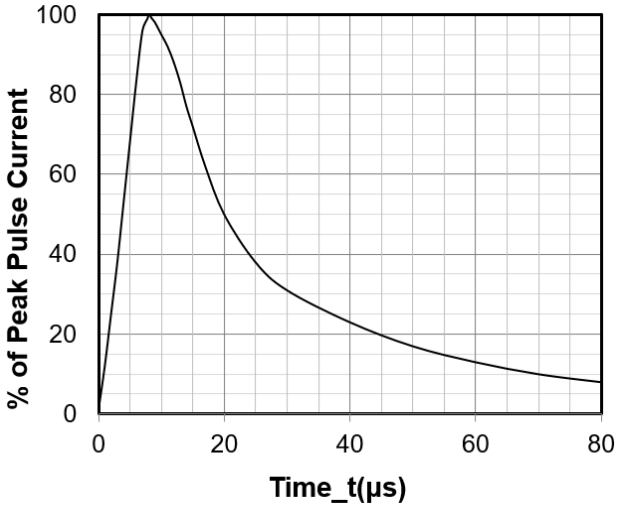
Peak Pulse Power vs. Pulse Time



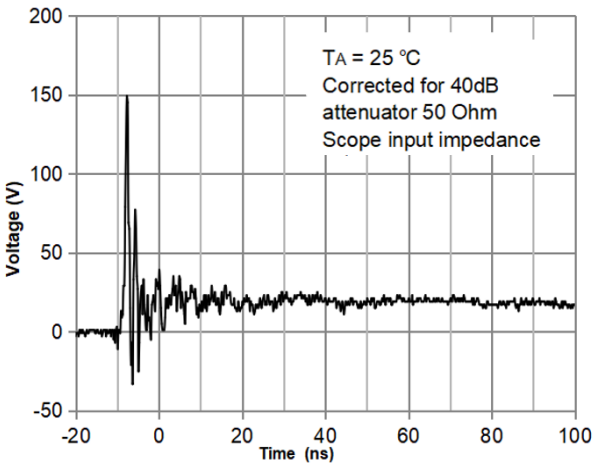
Clamping Voltage vs. Peak Pulse Current (tp = 8/20μs)



TLP Measurement



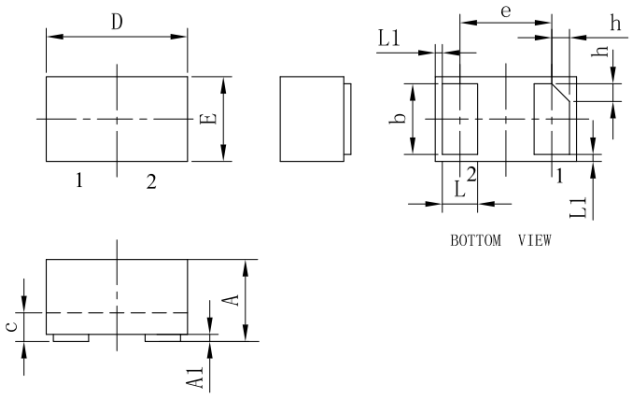
8 X 20μs Pulse Waveform



ESD Clamping Voltage

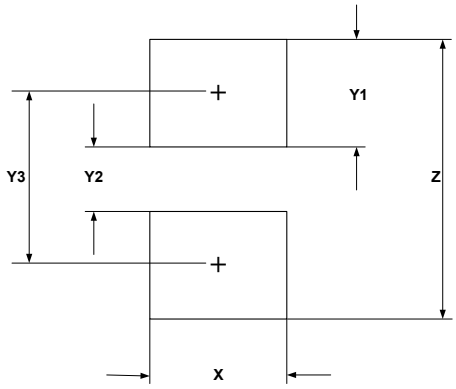
8 kV Contact per IEC61000−4−2

DFN1006-2 Package Outline Drawing



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.45	0.50	0.55	0.018	0.020	0.022
A1	0.00	0.02	0.05	0.000	0.001	0.002
b	0.45	0.50	0.55	0.018	0.020	0.022
c	0.12	0.15	0.18	0.005	0.006	0.007
D	0.95	1.00	1.05	0.037	0.039	0.041
e	0.65 BSC			0.026 BSC		
E	0.55	0.60	0.65	0.022	0.024	0.026
L	0.20	0.25	0.30	0.008	0.010	0.012
L1	0.05REF			0.002REF		
h	0.07	0.12	0.17	0.003	0.005	0.007

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
X	0.60	0.024
Y1	0.50	0.020
Y2	0.30	0.012
Y3	0.80	0.032
Z	1.30	0.052