

DESCRIPTION

ESD0801PB is a low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for data, control or power lines. With typical capacitance of 10pF only, ESD0801PB is designed to protect parasitic-sensitive systems against over-voltage and over-current transient events. It complies with IEC 61000-4-2 (ESD), Level 4 ($\pm 15\text{kV}$ air, $\pm 8\text{kV}$ contact discharge), IEC 61000-4-4 (electrical fast transient - EFT) (40A, 5/50 ns), very fast charged device model (CDM) ESD and cable discharge event (CDE), etc.

ESD0801PB uses ultra-small DFN1006 package. Each ESD0801PB device can protect one data line. It offers system designers flexibility to protect single data line where space is a premium concern.

ORDERING INFORMATION

- ✧ Device: ESD0801PB
- ✧ Package: DFN1006
- ✧ Marking: Marking code
- ✧ Material: Rohs compliant
- ✧ Packing: Tape & Reel
- ✧ Quantity per reel: 10,000pcs

CIRCUIT DIAGRAM



FEATURES

- ✧ Transient protection for high-speed data lines
 - IEC 61000-4-2 (ESD) $\pm 15\text{kV}$ (Air)
 - $\pm 8\text{kV}$ (Contact)
 - IEC 61000-4-4 (EFT) 40A (5/50 ns)
 - Cable Discharge Event (CDE)
- ✧ Package optimized for high-speed lines
- ✧ Ultra-small package (1.0mm×0.6mm×0.4mm)
- ✧ Protects one data, control or power line
- ✧ Low capacitance: 10pF (Typical)
- ✧ Low leakage current: 100nA @ V_{RWM} (Typical)
- ✧ Low clamping voltage
- ✧ Each I/O pin can withstand over 1000 ESD strikes for $\pm 8\text{kV}$ contact discharge

MACHANICAL DATA

- ✧ DFN1006 package
- ✧ Flammability Rating: UL 94V-0
- ✧ Packaging: Tape and Reel
- ✧ High temperature soldering guaranteed: $260^{\circ}\text{C}/10\text{s}$
- ✧ Reel size: 7 inch

APPLICATIONS

- ✧ Portable Electronics
- ✧ Desktops, Servers and Notebooks
- ✧ Cellular Phones
- ✧ MP3 Ports
- ✧ Digital Ports
- ✧ Subscriber Identity Module (SIM) card

PIN CONFIGURATION



ABSOLUTE MAXIMUM RATING

Symbol	Parameter	Value	Units
P_{PP}	Peak Pulse Power (8/20 μ s)	100	W
T_j	Operating Temperature	-55/+125	°C
T_{STG}	Storage Temperature	-55/+150	°C

ELECTRICAL CHARACTERISTICS (Tamb=25°C)

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V_{RWM}	Reverse Stand-Off Voltage				5.0	V
V_{BR}	Reverse Breakdown voltage	$I_T=1mA$	6.0			V
I_R	Reverse leakage current.	$V_{RWM}=5V$			1000	nA
I_{PP}	Peak Pulse Current	$t_p=8/20\mu s$			4	A
V_C	Clamping Voltage	$I_{PP}=1A, t_p=8/20\mu s$ $I_{PP}=4A, t_p=8/20\mu s$		14.5	9.5 17.0	V
C_J	Junction Capacitance	$V_R=0V, f=1MHz$		10		pF

ELECTRICAL CHARACTERISTICS CURVE

Figure 1: Peak Pulse Power Vs Pulse Time

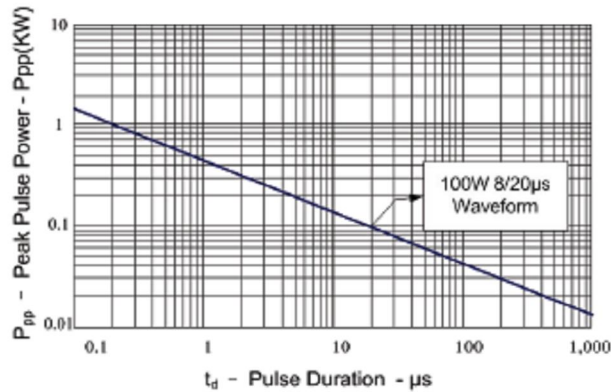


Figure 2: Power Derating Curve

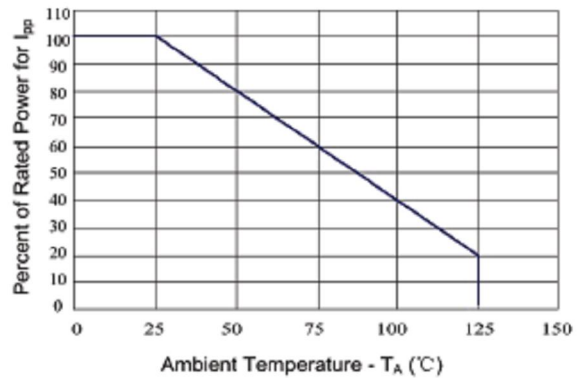


Figure 3: Clamping Voltage vs. Peak Pulse Current

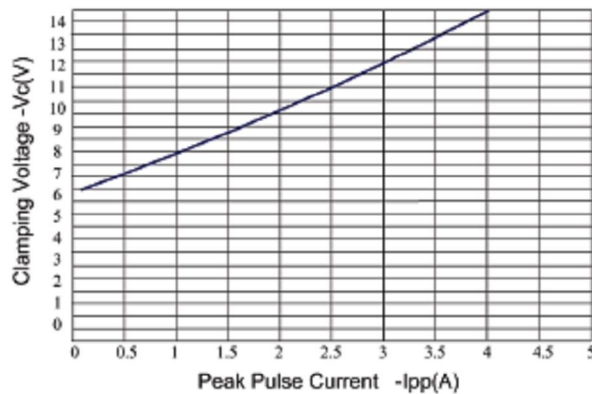


Figure 4: Normalized Junction Capacitance vs. Reverse Voltage

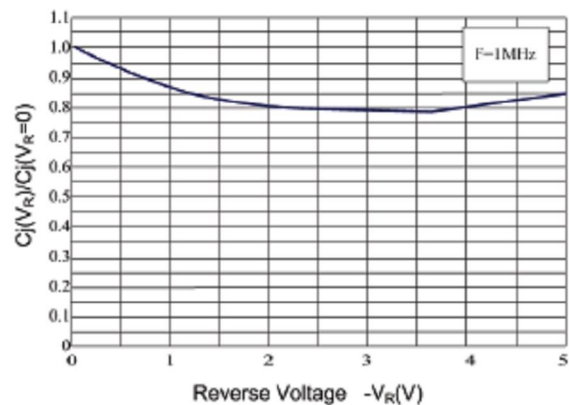


Figure 5: Pulse Waveform

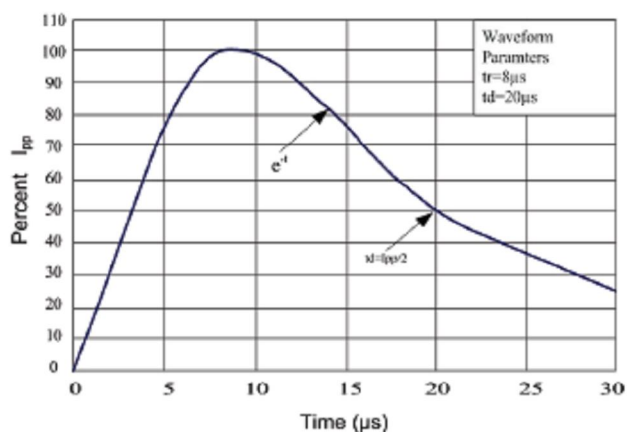
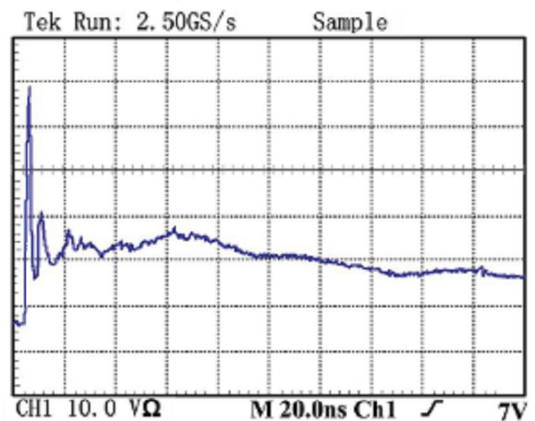
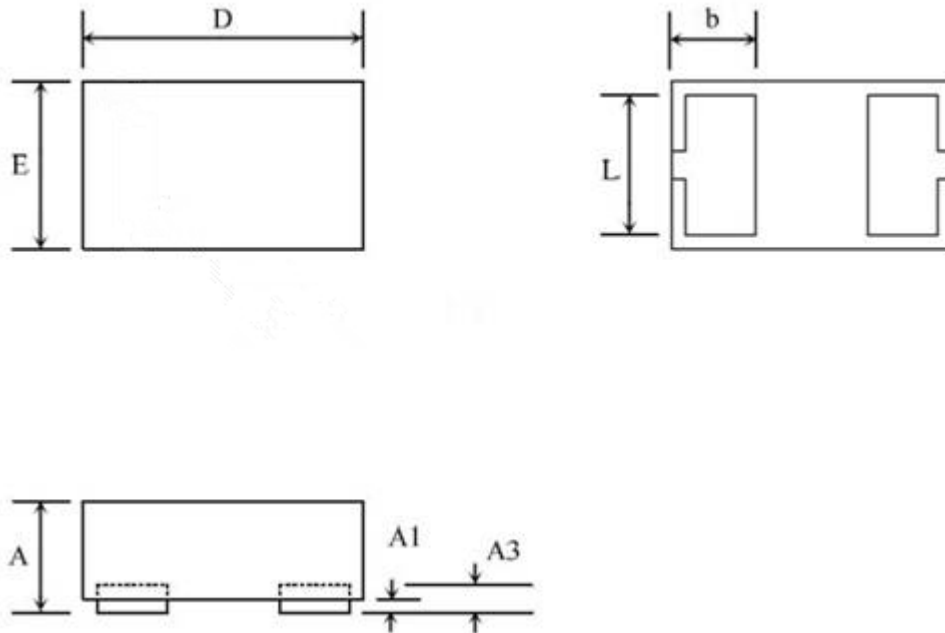


Figure 6: ESD Clamping(8kV Contact per IEC 61000-4-2)



DFN1006 PACKAGE OUTLINE DIMENSIONS

Package Dimensions (Controlling dimensions are in millimeters)

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Minimum	Maximum	Minimum	Maximum
A	0.450	0.550	0.018	0.022
A1	0.000	0.050	0.000	0.002
A3	0.150 REF		0.006 REF	
D	0.950	1.050	0.037	0.041
E	0.550	0.650	0.022	0.026
L	0.250	0.350	0.010	0.014
b	0.300	0.400	0.012	0.016

Marking Codes

Part Number	ESD0801PB	Marking Code	PB
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