



Description

TEP0801PB 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 8pF only, TEP0801PB 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. TEP0801PB uses ultra-small DFN1006 package. Each TEP0801PB device can protect one data line. It offers system designers flexibility to protect single data line where space is a premium concern.

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
- ◆ Low leakage current
- ◆ Low clamping voltage
- ◆ Each I/O pin can withstand over 1000 ESD strikes for $\pm 8\text{kV}$ contact discharge
- ◆ P/N suffix V means AEC-Q101 qualified, e.g:TEP0801PBV
- ◆ P/N suffix V means Halogen-free

Mechanical 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

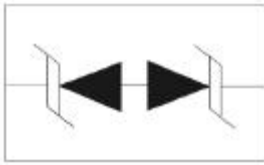
Applications

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

Ordering Information

- ◆ Device: TEP0801PB
- ◆ Package: DFN1006
- ◆ Marking: PB
- ◆ Material: RoHS compliant, Halogen free
- ◆ Packing: Tape & Reel
- ◆ Quantity per reel: 10,000pcs

Circuit Diagram



Pin Configuration



Absolute Maximum Ratings

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

Electrical Characteristics (T_{amb}=25 $^{\circ}$ 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.	$V_{RWM}=5V$			1	μ A
I_{PP}	Peak Pulse Current	$t_P=8/20\mu s$			5	A
V_C	Clamping Voltage	$I_{PP}=1A, t_P=8/20\mu s$ $I_{PP}=5A, t_P=8/20\mu s$		13	9.5 15	V
C_J	Junction Capacitance	$V_R=0V, f=1MHz$		8	15	pF

Rating And Characteristics Curves (TEP0801PBV)

Figure 1: Peak Pulse Power Vs Pulse Time

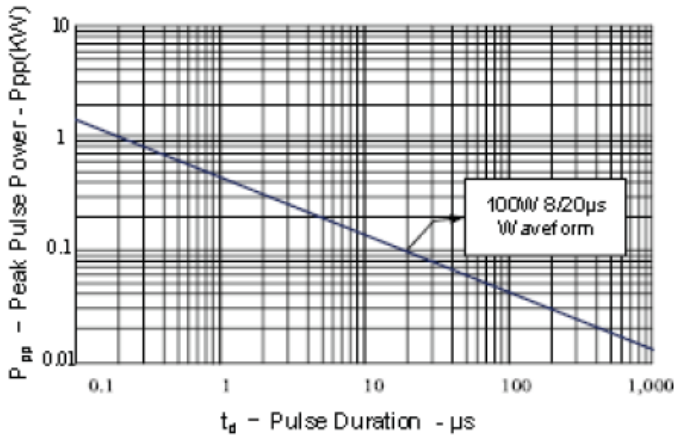


Figure 2: Power Derating Curve

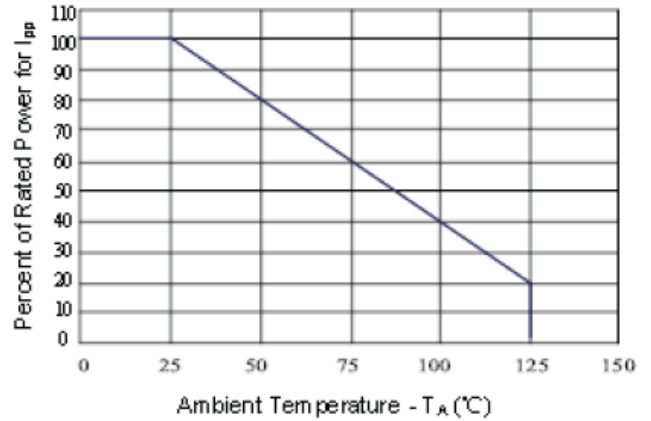


Figure 3: Clamping Voltage vs. Peak Pulse Current

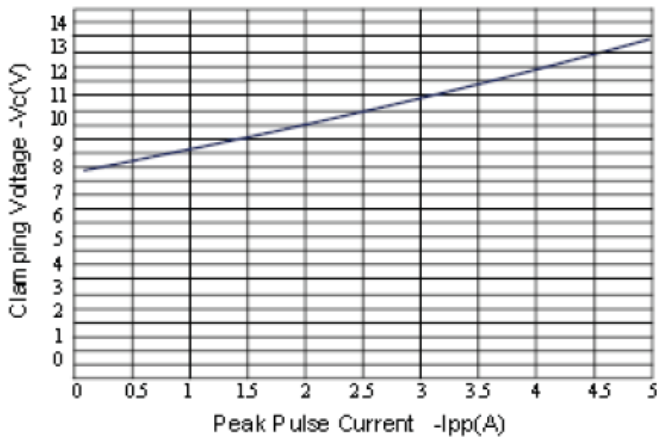


Figure 4: Normalized Junction Capacitance vs. Reverse Voltage

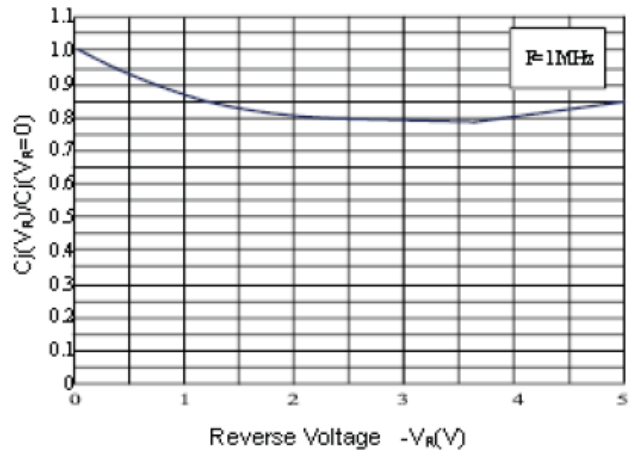


Figure 5: Pulse Waveform

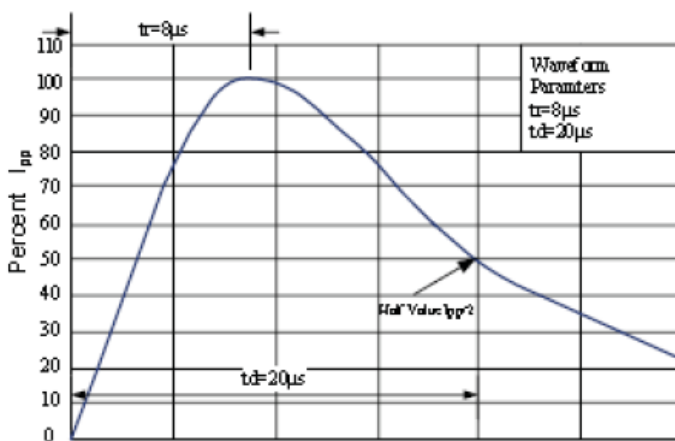
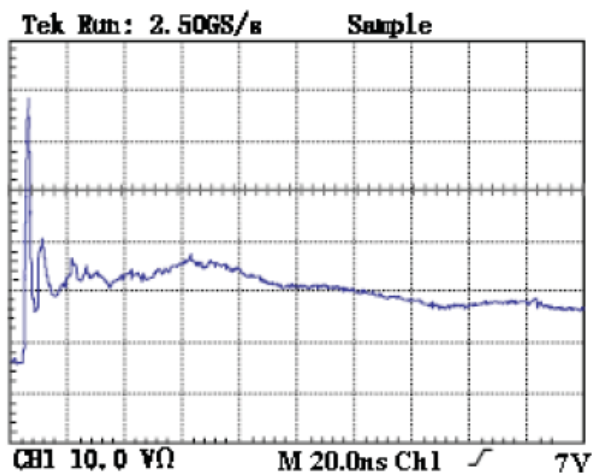
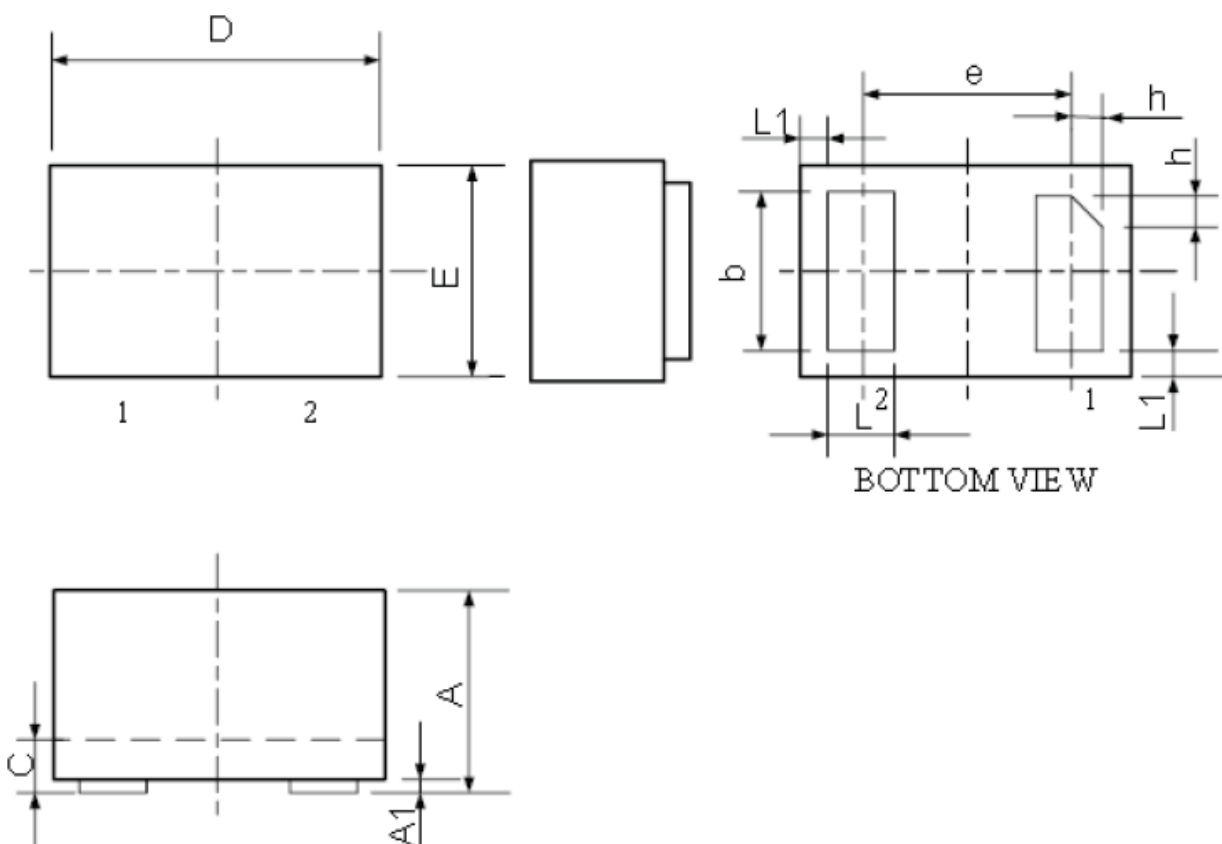


Figure 6: ESD Clamping (8kV Contact per IEC 61000-4-2)

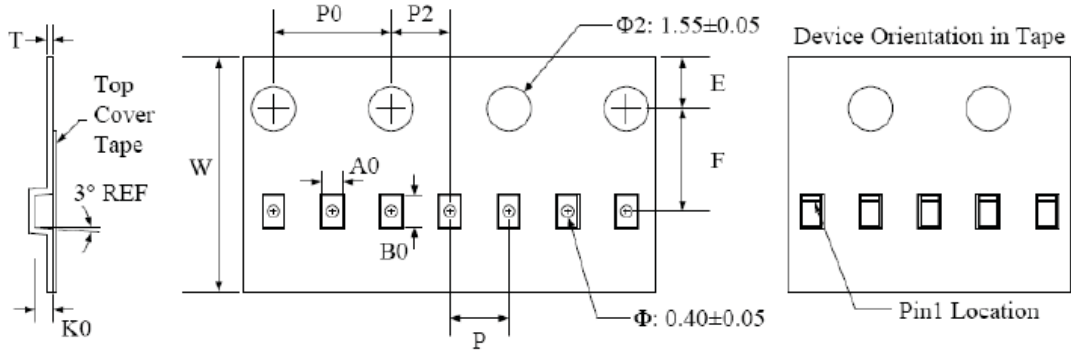


DFN1006 Package Outline Dimension



Symbol	Dimensions In Millimeters	
	Minimum	Maximum
A	0.450	0.550
A1	0.000	0.050
b	0.45	0.55
C	0.12	0.18
D	0.950	1.050
e	0.65BSC	
E	0.550	0.650
L	0.200	0.300
L1	0.05REF	
h	0.07	0.17

Carrier Tape



Symbol	W	A0	B0	K0	E	F	P	P0	P2	T
Dimensions (mm)	8.00±0.1	0.7±0.05	1.15±0.05	0.55±0.05	1.75±0.1	3.5±0.05	2.0±0.1	4.0±0.1	2.0±0.05	0.2±0.05

Packing Quantity

Reel		Inner Box		Carton	
Size	Quantity Per Reel	Size	Quantity Per Reel	Size	Quantity Per Reel
7(inch)	10,000pcs	210*208*203(mm)	150,000pcs	440*440*230(mm)	600,000pcs
7(inch)	10,000pcs	183*188*80(mm)	60,000pcs	386*265*215(mm)	360,000pcs