

Ultra Low Capacitance ESD Protection Diode

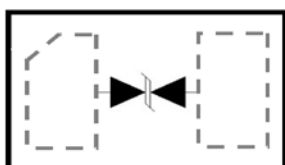
DESCRIPTION

SLPESDMC2FD5VB is a low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. With typical capacitance of 0.25pF, SLPESDMC2FD5VB 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. SLPESDMC2FD5VB uses ultra-small DFN1006 package. Each SLPESDMC2FD5VB device can protect one high-speed data line. It offers system designers flexibility to protect single data line where space is a premium concern. The combined features of low capacitance, ultra-small size and high ESD robustness make SLPESDMC2FD5VB ideal for high-speed data port and high-frequency line applications, such as cellular phones and HD visual devices.

ORDERING INFORMATION

- ✧ Device: SLPESDMC2FD5VB
- ✧ Package: DFN1006
- ✧ Marking:
- ✧ Material: Halogen free
- ✧ Packing: Tape & Reel
- ✧ Quantity per reel: 10,000pcs

PIN CONFIGURATION



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 $\times$ 0.6mm $\times$ 0.5mm)
- ✧ Protects one data, control line
- ✧ Low capacitance: 0.25pF (Typical)
- ✧ Low leakage current
- ✧ Low clamping voltage

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

- ✧ Serial ATA
- ✧ Desktops, Servers and Notebooks
- ✧ Cellular Phones
- ✧ MDDI Ports
- ✧ USB Data Line Protection
- ✧ Display Ports
- ✧ Digital Visual Interfaces (DVI)

CIRCUIT DIAGRAM



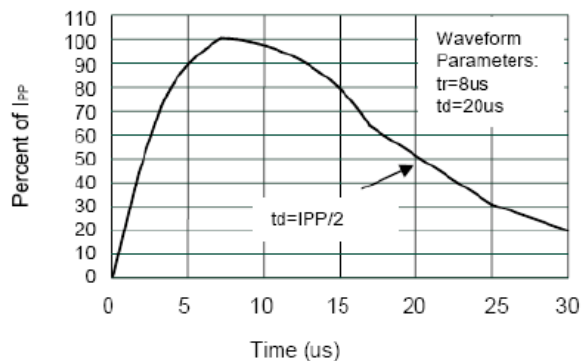
ABSOLUTE MAXIMUM RATING

Symbol	Parameter	Value	Units
V_{ESD}	ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	± 20 ± 20	kV
P_{PP}	Peak Pulse Power (8/20 μ s)	88	W
T_{OPT}	Operating Temperature	-55~125	°C
T_{STG}	Storage Temperature	-55~150	°C

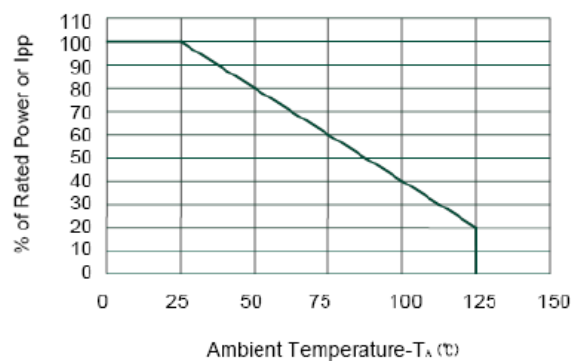
ELECTRICAL CHARACTERISTICS (T_{amb}=25°C)

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V_{RWM}	Reverse Working Voltage				5.0	V
V_{BR}	Reverse Breakdown Voltage	$I_T = 1\text{mA}$	6.0			V
I_R	Reverse Leakage Current	$V_{RWM} = 5\text{V}$			100	nA
V_C	Clamping Voltage	$I_{PP} = 1\text{A}, t_p = 8/20\mu\text{s}$			13	V
		$I_{PP} = 4\text{A}, t_p = 8/20\mu\text{s}$			22	V
C_J	Junction Capacitance	$V_R = 0\text{V}, f = 1\text{MHz}$		0.25	0.40	pF

ELECTRICAL CHARACTERISTICS CURVE

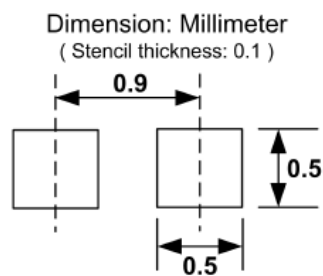
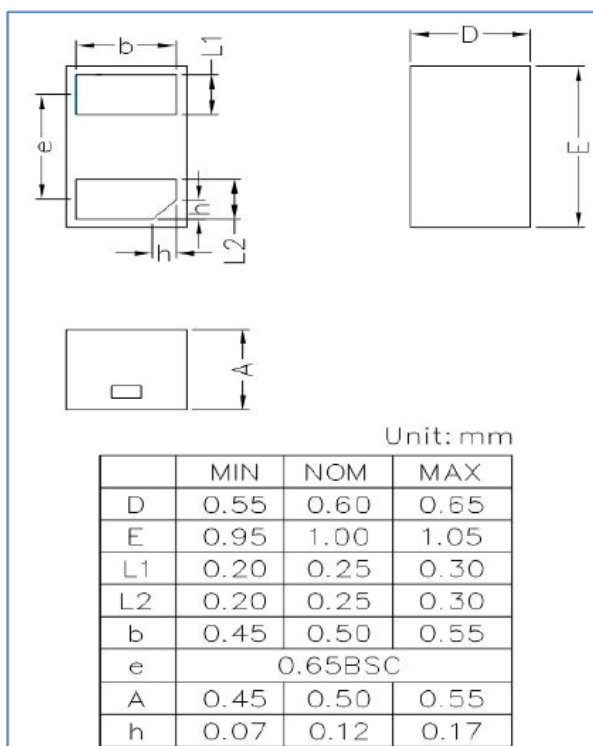


Pulse Waveform



Power Derating Curve

DFN1006 PACKAGE OUTLINE DIMENSIONS



Soldering Footprint