DFN1006 Plastic-Encapsulate ESD Protection Diodes

DESCRIPTION

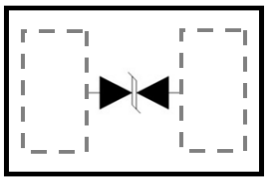
ESD0501BLC is a low-capacitance Transient Voltage Suppressor (TVS) designed to provid electrostatic discharge (ESD) protection For high-speed data interfaces. With typical capacitance of 0.25pF, ESD0501BLC is designed to protect parasitic-sensitive systems against over-voltage and over-current transsient events. It complies with IEC 61000-4-2 (ESD), Level 4 (± 15kV air, ±8kV contact discharge), IEC 61000-4-4 (electrical fast transientt - EFT) (40A, 5/50 ns), very fast charged devicee model (CDM) ESD and cable discharge event (CDE), etc. ESD0501BLC uses ultra-small DFN1006 package. Each ESD0501BLC device can protect one high-speed data line. It offers system designers flexibility to protect single data line where space is a premium concern.

Features

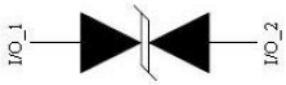
- Peak Power Dissipation :100W (8/20μs)
- Transient protection for high speed data lines
- IEC61000-4-2 (ESD) ±27kV (air), ±25kV (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- Cable Discharge Event (CDE)
- Package optimized for hingh-speed lines
- Low clamping voltage
- Low Capacitance :0.25pF(Typical)
- Low leakage current

Pin Configuration

RoHS COMPLIANT



Circuit Diagram



Applications

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

Mechanical Characteristics

- Package: DFN1006
- Flammability Rating: UL 94V-0
- Packaging: Tape and Reel
- Terminals: Gold plated, solderable per MIL-STD-750, method 2026
- Marking: 5BU

Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	V_{ESD}	± 27 ± 25	kV
Peak Pulse Power(tp=8/20us waveform)	P_{PP}	100	W
Operating Temperature	T_{OPT}	−55 to +125	°C
Storage Temperature Range	T_{STG}	−55 to +150	°C
Lead Solder Temperature – Maximum (10 Second Duration)	T_L	260(10 sec.)	°C

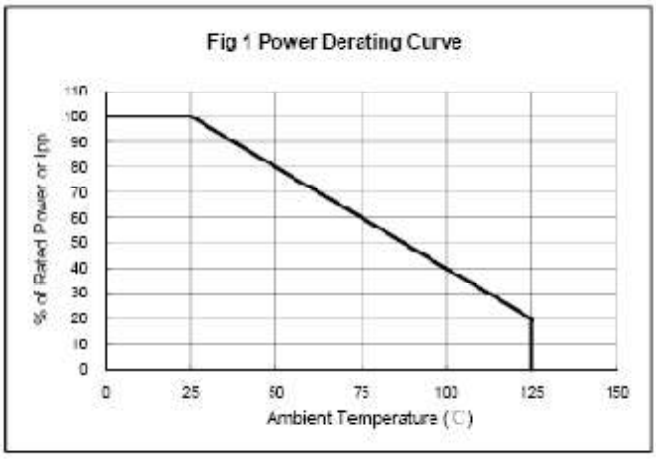
The above data are for reference only.

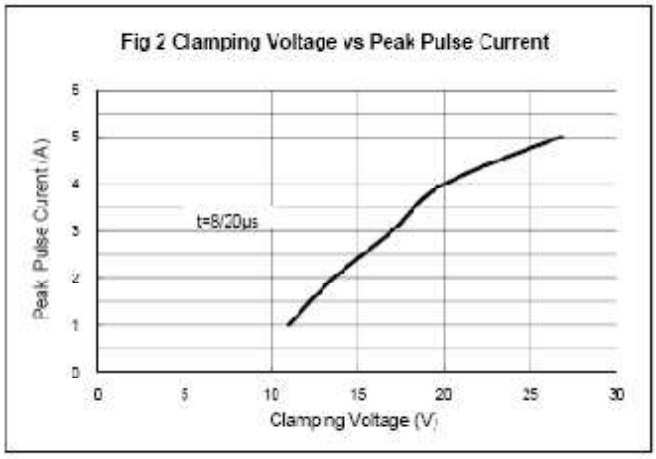
Electrical Characteristics (T_A=25°C unless otherwise specified)

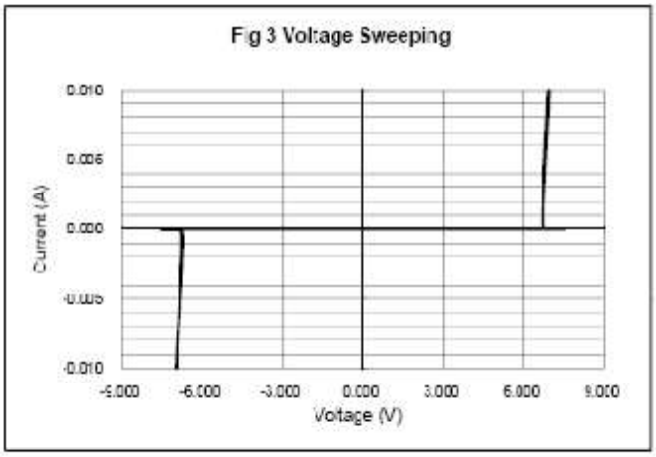
Symbol	Param	Test Condition	Min	Typ	Max	Units
V_{RWM}	Reverse Working Voltage				5.0	V
V_{BR}	Reverse Breakdown Voltage	I_T = 1mA	6			V
I_R	Reverse Leakage Current	V_{RWM} = 5V			100	nA
V_C	Clamping Voltage	I_{PP} = 1A, t_p = 8/20μs		11	13	V
		I_{PP} = 4A, t_p = 8/20μs		18	25	V
C_J	Junction Capacitance	V_R = 0V, f = 1MHz		0.25	0.40	pF

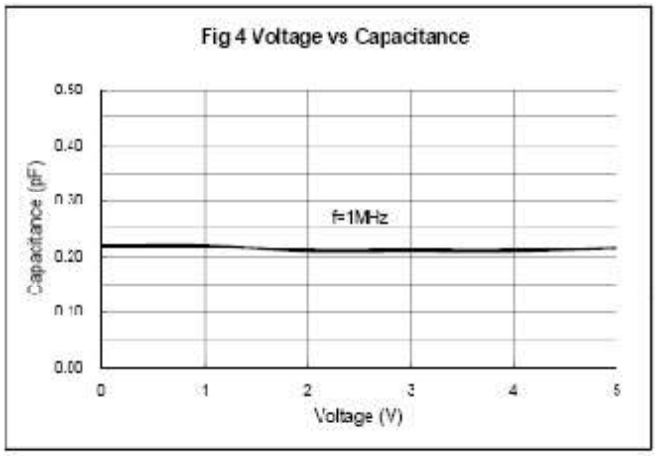
The above data are for reference only.

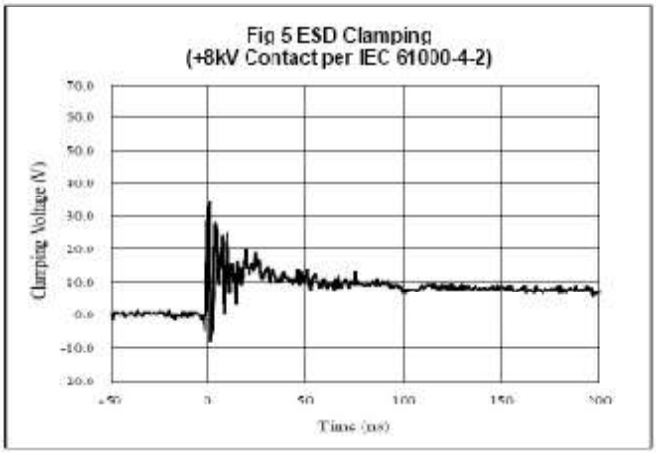
ELECTRICAL CHARACTERISTICS CURVE

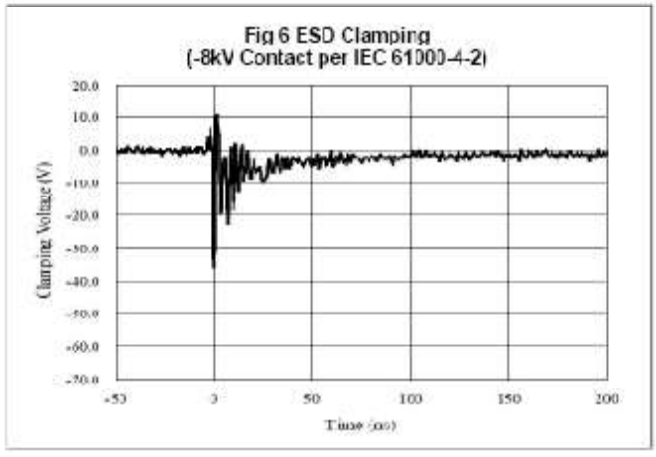








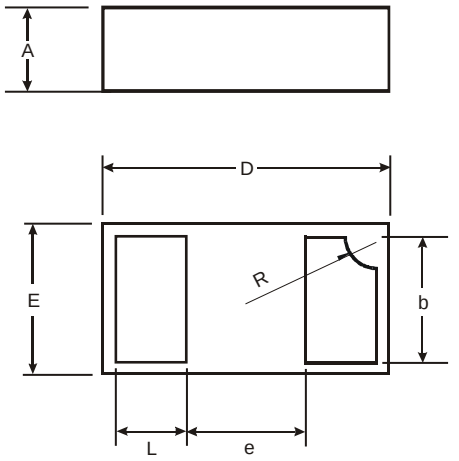




The above data are for reference only.

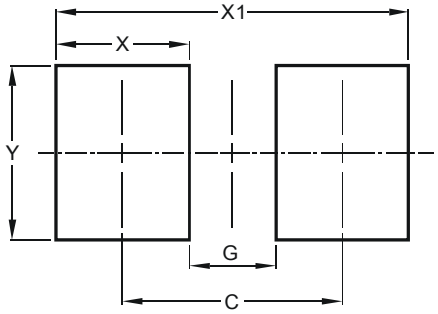
Outlitne Drawing

DFN1006 Package Outline Dimensions



DFN1006			
Dim	Min	Max	Typ
A	0.45	0.55	0.50
b	0.45	0.55	0.50
D	0.95	1.05	1.00
E	0.55	0.65	0.60
e	-	-	0.40
L	0.20	0.30	0.25
R	0.07	0.17	0.12
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
C	0.90
G	0.40
X	0.50
X1	1.40
Y	0.50

Note:
1.Controlling dimension:in/millimeters.
2.General tolerance: ±0.05mm.
3.The pad layout is for reference purposes only.

PACKAGE SPECIFICATIONS

Package	Reel Size	Reel DIA. (mm)	Q'TY/Reel (pcs)	Box Size (mm)	QTY/Box (pcs)	Carton Size (mm)	Q'TY/Carton (pcs)
DFN1006	7'	178	10,000	210×210×205	100,000	445×445×230	400,000

Important Notice and Disclaimer

Microdiode Semiconductor (Shenzhen) reserves the right to make changes to this document and its products and specifications at any time without notice. Customers should obtain and confirm the latest product information and specifications before final design,purchase or use.

Microdiode Semiconductor (Shenzhen) makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, not does Microdiode Semiconductor (Shenzhen) assume any liability for application assistance or customer product design. Microdiode Semiconductor (Shenzhen) does not warrant or accept any liability with products which are purchased or used for any unintended or unauthorized application.

No license is granted by implication or otherwise under any intellectual property rights of Microdiode Semiconductor (Shenzhen). Microdiode Semiconductor (Shenzhen) products are not authorized for use as critical components in life support devices or systems without express written approval of Microdiode Semiconductor (Shenzhen).