ESD0301BL

Ultra Low Capacitance ESD Protection Diodes

DFN1006 Plastic-Encapsulate ESD Protection Diodes

DESCRIPTION

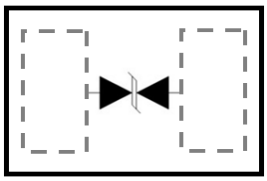
ESD0301BL is a low-capacitance Transient Voltage Suppressor (TVS) designed to provid electrostatic discharge (ESD) protection For high-speed data interfaces. With typical capacitance of 0.5pF, ESD0301BL is designed to protect parasitic-sensitive systems against over-voltage and over-current transsient 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. ESD0301BL uses ultra-small DFN1006 package. Each ESD0301BL 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 ESD0301BL ideal for high-speed data port and high-frequency line applications, such as cellular phoones and HD visual devices.

Features

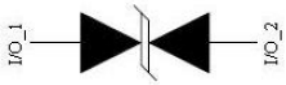
- Peak Power Dissipation :200W (8/20μs)
- Transient protection for high speed data lines
- IEC61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- Cable Discharge Event (CDE)
- Package optimized for hingh-speed lines
- Low clamping voltage
- Low Capacitance :0.5pF(Typical)
- 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
- High temperature soldering guaranted: 260℃/10s
- Marking: 3BL

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}	± 20 ± 20	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.

DN:T20312A0

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

Symbol	Param	Test Condition	Min	Typ	Max	Units
V_{RWM}	Reverse Working Voltage				3.3	V
V_{BR}	Reverse Breakdown Voltage	I_T = 1mA	4.2			V
I_R	Reverse Leakage Current	V_{RWM} = 5V			100	nA
V_C	Clamping Voltage	I_{PP} = 1A, t_p = 8/20μs			12	V
		I_{PP} = 4A, t_p = 8/20μs			25	V
C_J	Junction Capacitance	V_R = 0V, f = 1MHz		0.5		pF

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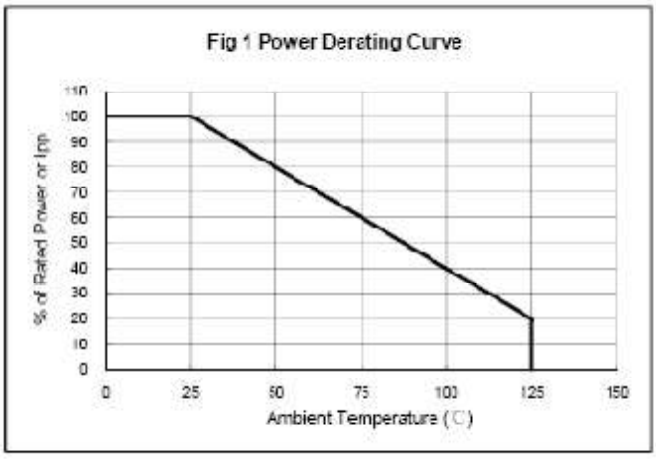
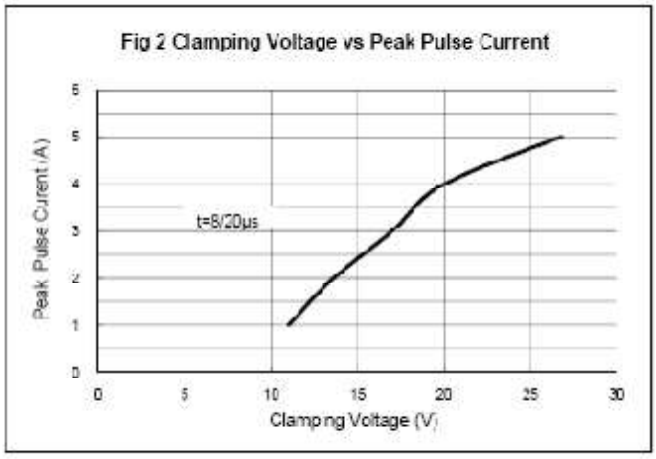
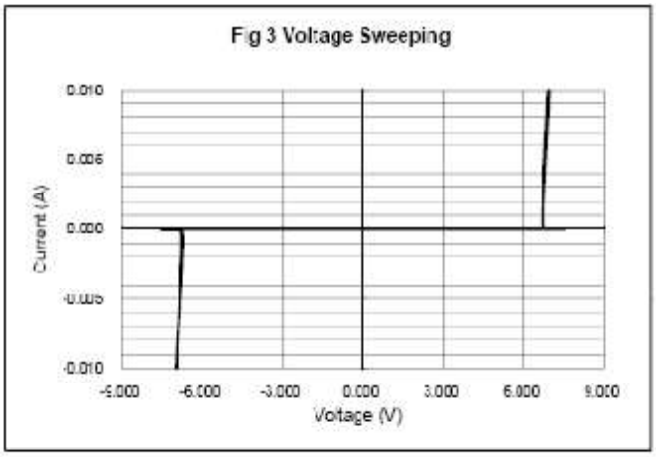
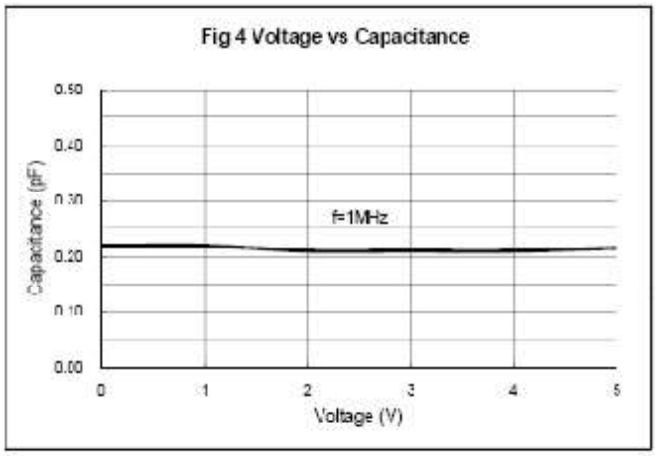
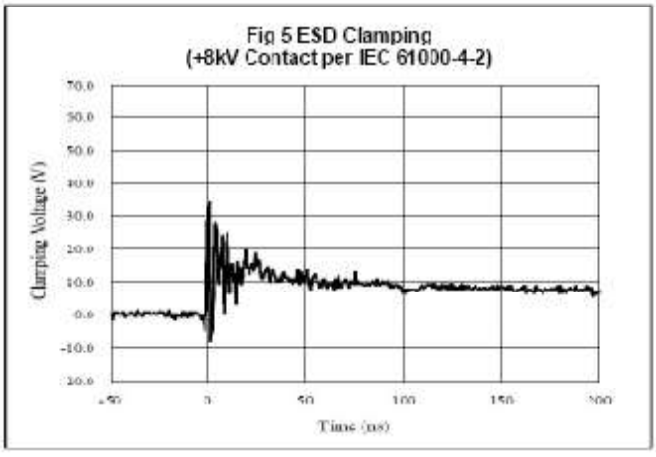
ELECTRICAL CHARACTERISTICS CURVE

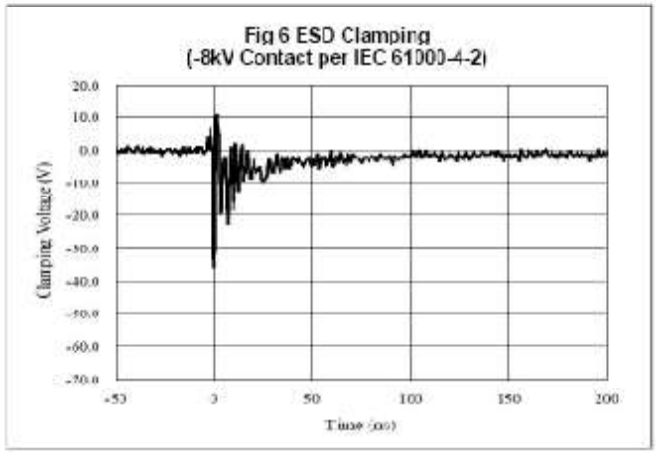












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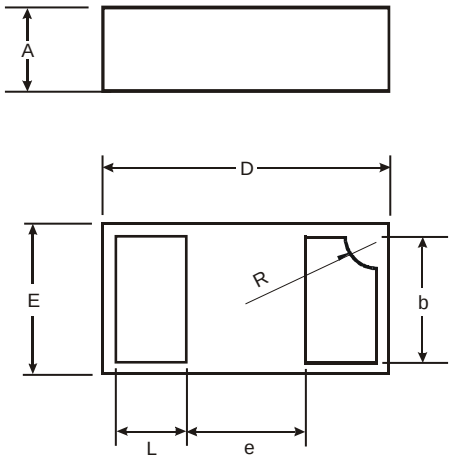
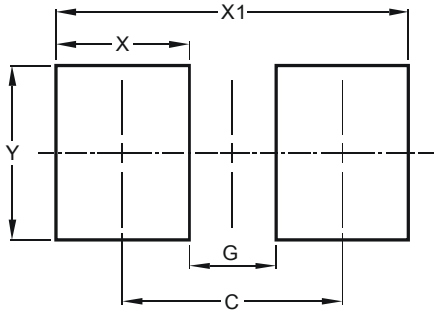
Outlitne Drawing

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	1.10
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

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