

DFN1006 Plastic-Encapsulate ESD Protection Diodes

DESCRIPTION

The ESD8Dxxx Series is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium. Because of its small size, it is suited for use in cellular phones, portable devices, digital cameras, power supplies and many other portable applications.

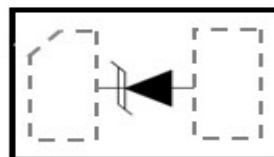
Features

- ◆ Peak Power Dissipation : 150mW (8/20μs)
- ◆ Transient protection for high speed data lines
- ◆ IEC61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
- ◆ Protects one directional I/O line
- ◆ Low clamping voltage
- ◆ Working voltages : 3.3V, 5V, 8V, 12V, 15V
- ◆ Low leakage current

Pin Configuration



Circuit Diagram



Applications

- ◆ Cell Phone Handsets and Accessories
- ◆ Microprocessor based equipment
- ◆ Personal Digital Assistants (PDA's)
- ◆ Notebooks, Desktops, and Servers
- ◆ Portable Instrumentation
- ◆ Peripherals
- ◆ Pagers

Mechanical Characteristics

- ◆ Package: DFN1006
- ◆ Flammability Rating: UL 94V-0
- ◆ Packaging: Tape and Reel
- ◆ Terminals: Gold plated, solderable per MIL-STD-750, method 2026
- ◆ Marking: see Page.2

Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Units
ESD per IEC 61000-4-2 (Air)	VESD	± 30	KV
ESD per IEC 61000-4-2 (Contact)		± 22	
Total Power Dissipation on FR-5 Board (Note 1) @ $T_A=25^{\circ}\text{C}$	P_D	150	mW
Operating Temperature	T_{OPT}	-55 to +125	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 to +150	$^{\circ}\text{C}$

These ratings are limiting values above which the serviceability of the diode may be impaired

Note 1. FR-5=1.0x0.75x0.62 in.

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Part Number	Device Marking	V_{RWM} (V)	I_{R} (μA)	V_{B} (V)	I_{T} (Ma)	V_{C} (V)		V_{C} (V)		P_{PK} (W)	C_{J} (Pf)
		Max.	Max.	Min.		Max.	@A	Max.	@A)	Max.	Max.
ESD8D3V3	YA	3.3	2.5	5.0	1	10.0	5.0	11.5	7.5	105	105
ESD8D5V0	YB	5.0	1	6.2	1	11.6	5.0	15.0	7.0	105	80
ESD8D8V0	YC	8.0	1	8.5	1	15.0	5.0	18.0	6.0	108	65
ESD8D12V	YD	12.0	1	13.3	1	20.0	1.0	26.0	4.0	104	45
ESD8D15V	YE	15.0	1	16.0	1	23.0	1.0	30.0	4.0	120	28

The above data are for reference only.

ELECTRICAL CHARACTERISTICS CURVE

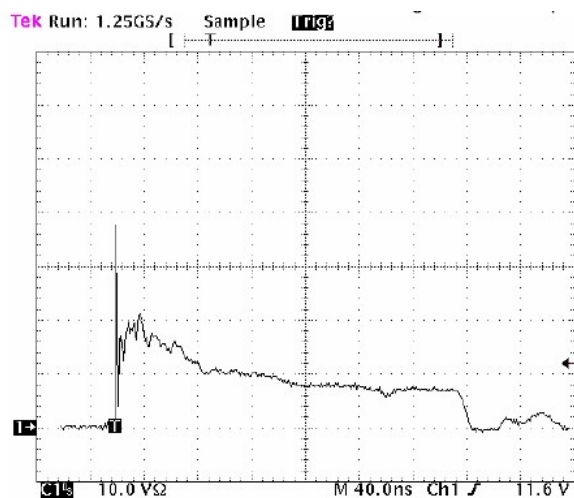


Figure 1. ESD Clamping Voltage Screenshot
Positive 8 kV contact per IEC 61000-4-2

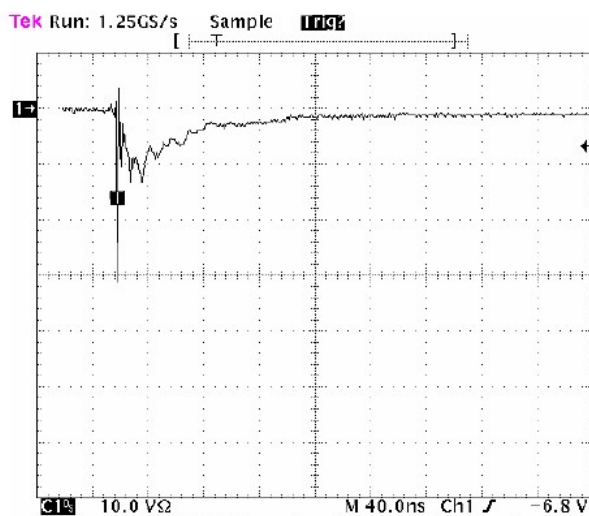
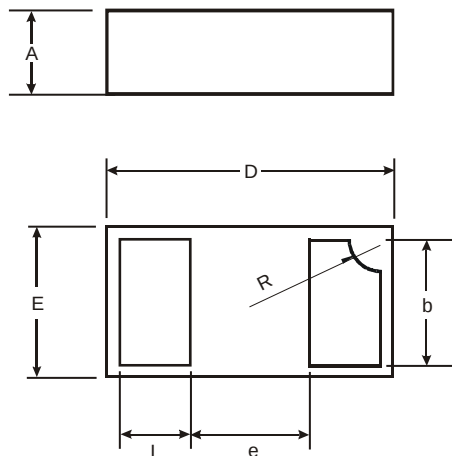


Figure 2. ESD Clamping Voltage Screenshot
Negative 8 kV contact per IEC 61000-4-2

The curve above is for reference only.

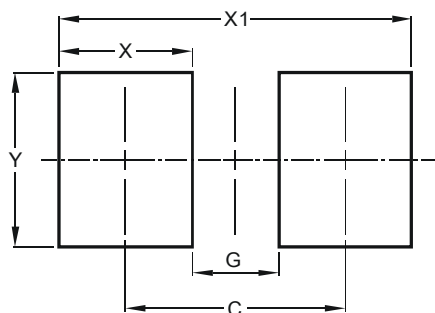
Outlitne Drawing

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	1.10
Y	0.50

Note:

1. Controlling dimension: in/millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
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