

### DFN1006 Plastic-Encapsulate ESD Protection Diodes

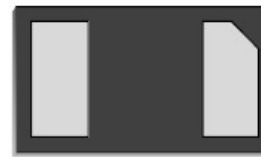
## DESCRIPTION

ESD05010C 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 10pF only, ESD05010C 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. ESD05010C uses ultra-small DFN1006 package. Each ESD05010C device can protect one data line. It offers system designers flexibility to protect single data line where space is a premium concern.

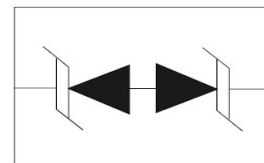
## Features

- ◆ Transient protection for high speed data lines
- ◆ IEC61000-4-2 (ESD)  $\pm 30\text{kV}$  (air),  $\pm 30\text{kV}$  (contact)
- ◆ IEC61000-4-4 (EFT) 40A (5/50ns)
- ◆ Cable Discharge Event (CDE)
- ◆ Package optimized for high-speed lines 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

## Pin Configuration



## Circuit Diagram



## Applications

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

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

Parameter	Symbol	Value	Unit
ESD per IEC 61000-4-2 (Air)	VESD	$\pm 30$	kV
ESD per IEC 61000-4-2 (Contact)		$\pm 30$	
Peak Pulse Power( $t_p=8/20\mu\text{s}$ waveform)	PPP	150	W
Operating Temperature	$T_{OPT}$	-40 to +125	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-40 to +150	$^\circ\text{C}$
Lead Solder Temperature – Maximum (10 Second Duration)	$T_L$	260(10 sec.)	$^\circ\text{C}$

The above data are for reference only.

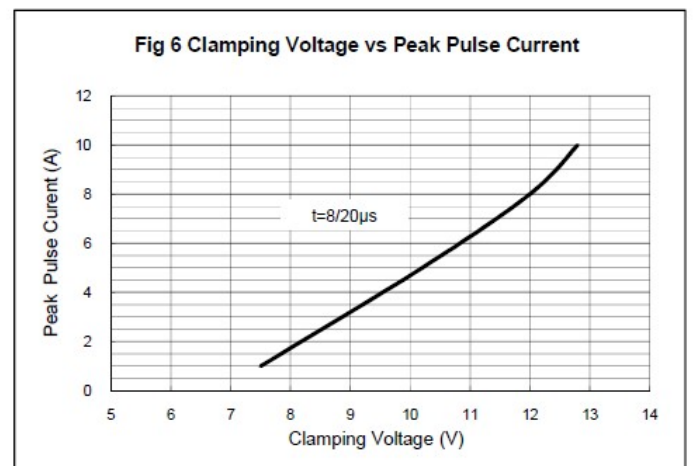
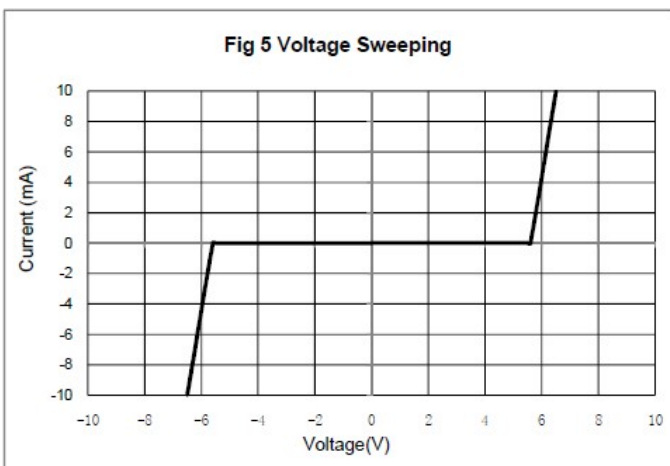
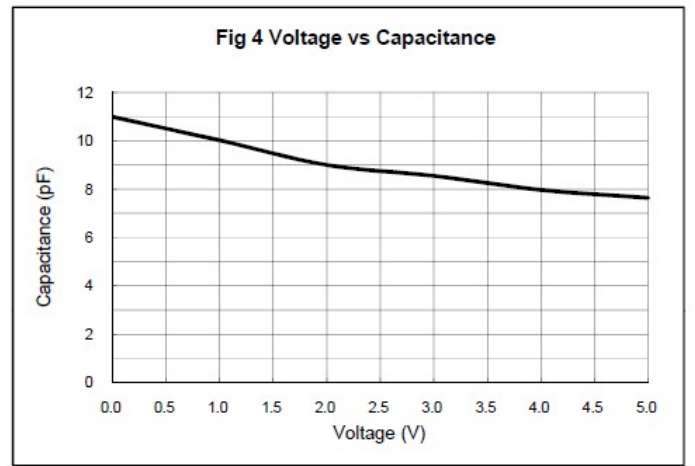
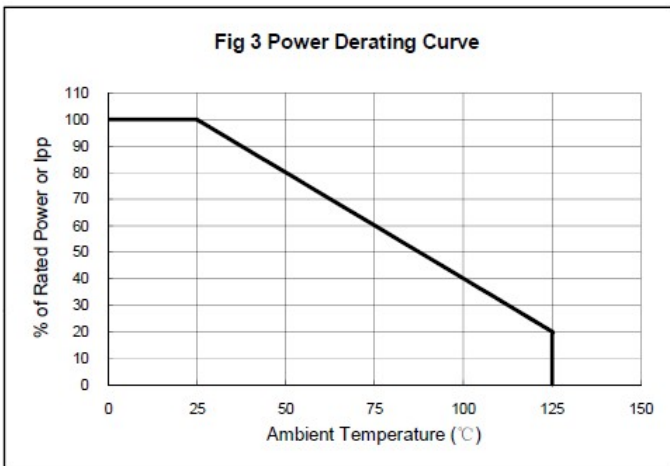
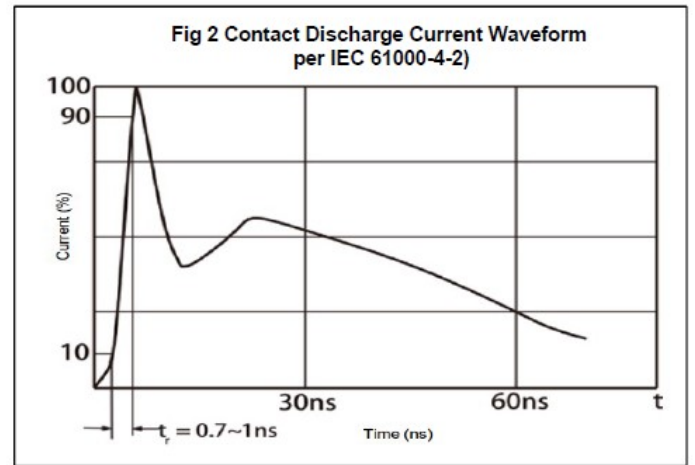
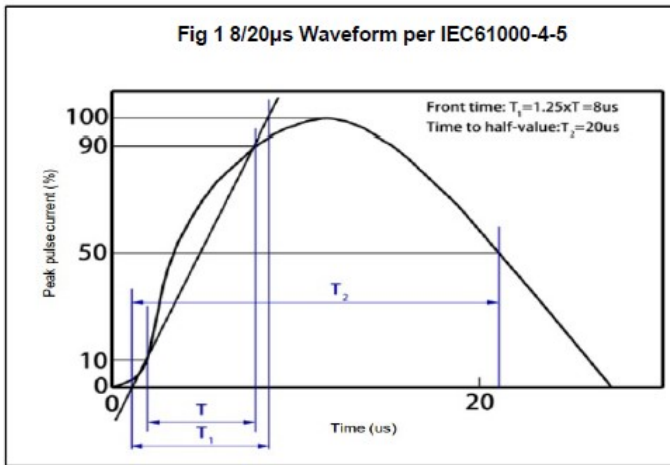


### Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise specified)

Symbol	Param	Test Condition	Min	Typ	Max	Units
V <sub>RWM</sub>	Reverse Working Voltage				5.0	V
V <sub>BR</sub>	Reverse Breakdown Voltage	I <sub>T</sub> = 1mA	5.6		7.8	V
I <sub>R</sub>	Reverse Leakage Current	V <sub>RWM</sub> = 5V			1.0	uA
V <sub>C</sub>	Clamping Voltage	I <sub>PP</sub> = 5A, t <sub>p</sub> = 8/20μs			11.6	V
		I <sub>PP</sub> = 9.4A, t <sub>p</sub> = 8/20μs			16	V
C <sub>J</sub>	Junction Capacitance	V <sub>R</sub> = 0V, f = 1MHz		10	15	pF

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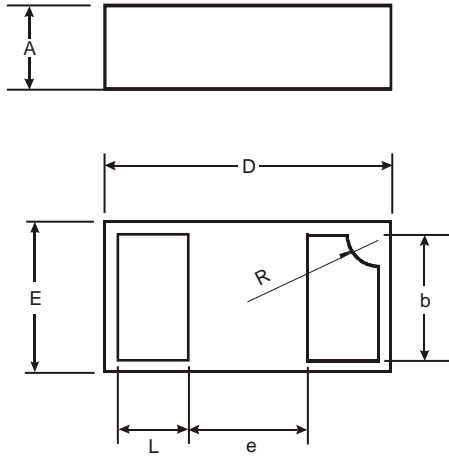
### ELECTRICAL CHARACTERISTICS CURVE



The curve above is for reference only. .

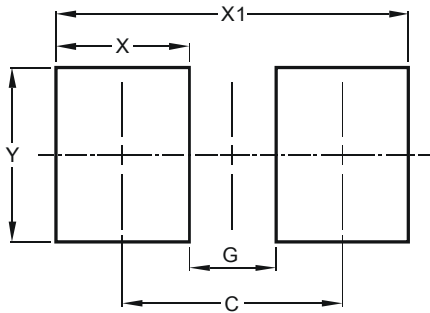
### Outlitne Drawing

#### 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