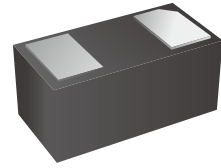


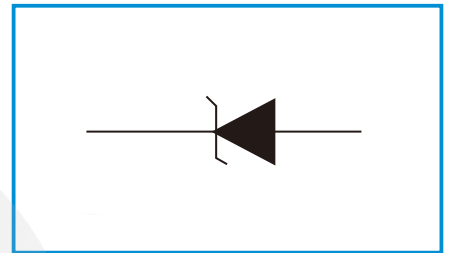
Ultra Low Capacitance ESD Protection Diode

Features

- Transient protection for high-speed data lines
IEC 61000-4-2 (ESD) $\pm 20\text{kV}$ (Air)
 $\pm 20\text{kV}$ (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 × 0.6mm × 0.5mm)
- Protects one data, control line
- Low capacitance: 0.4pF (Typical)
- Low leakage current
- Low clamping voltage



Functional Diagram



Mechanical Data

- DFN1006 package
- Flammability Rating: UL 94V-0
- Packaging: Tape and Reel
- High temperature soldering guaranteed: $260^{\circ}\text{C}/10\text{s}$
- Marking: 3L

Applications

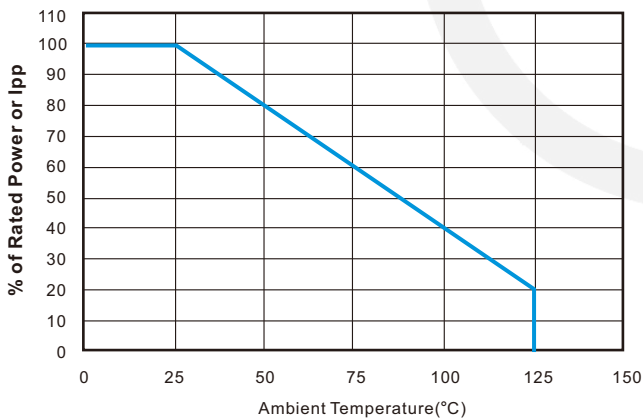
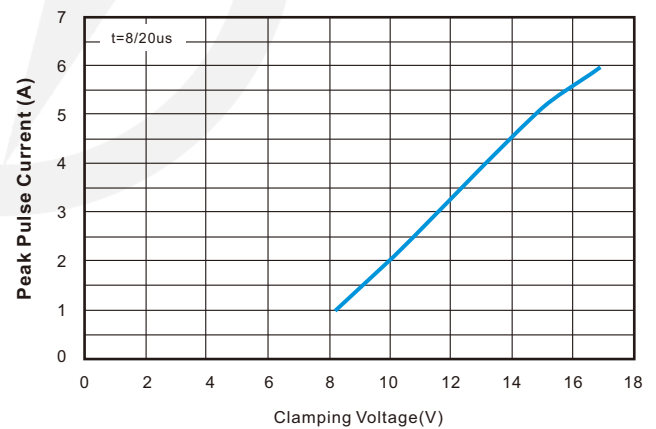
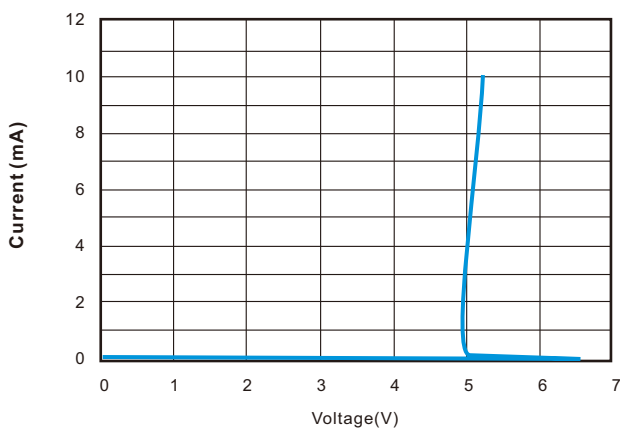
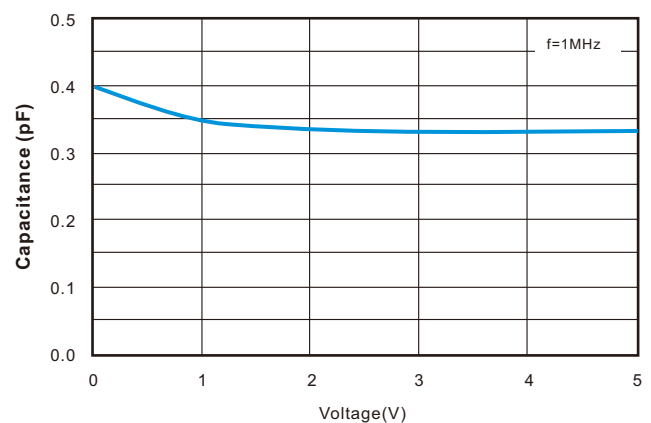
- Serial ATA
- Desktops, Servers and Notebooks
- Cellular Phones
- MDDI Ports
- USB Data Line Protection
- Display Ports
- Digital Visual Interfaces (DVI)

Absolute Maximum Ratings (T_{amb}=25°C unless otherwise specified)

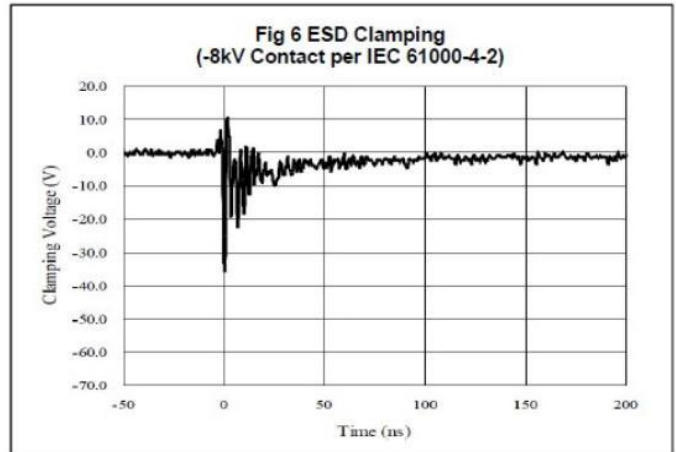
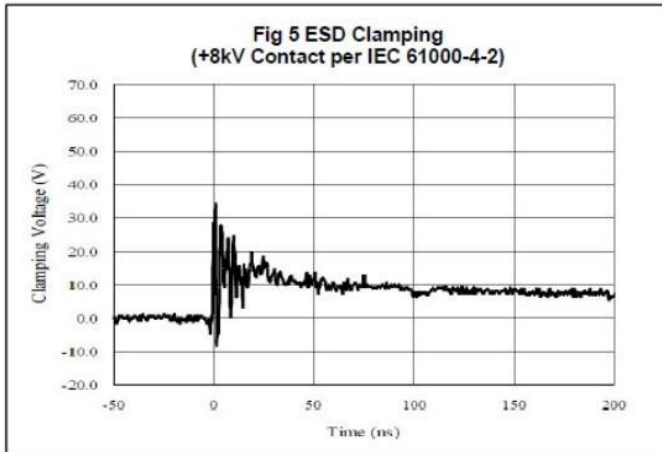
Symbol	Parameter	Value	Units
V _{ESD}	ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	± 20 ± 20	kV
P _{PP}	Peak Pulse Power (8/20 μs)	56	W
T _{OPT}	Operating Temperature	-55~125	°C
T _{STG}	Storage Temperature	-55~150	°C

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

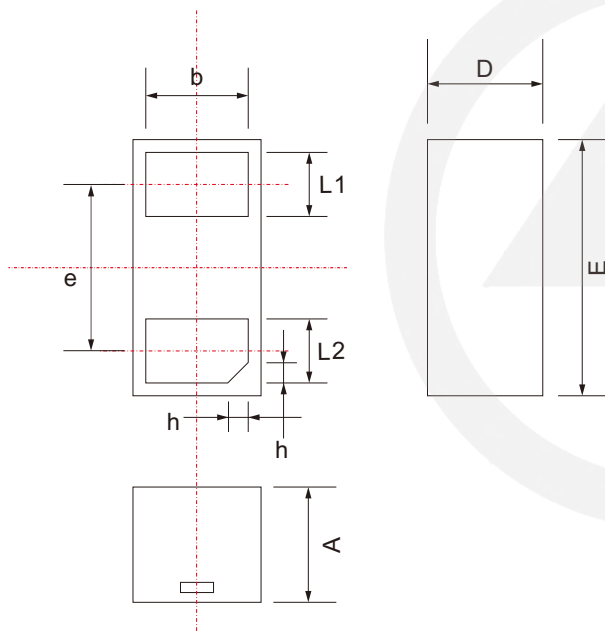
Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V _{RWM}	Reverse Working Voltage				3.3	V
V _{BR}	Reverse Breakdown Voltage	I _T = 1mA	4.2			V
I _R	Reverse Leakage Current	V _{RWM} = 3.3V			100	nA
V _C	Clamping Voltage	I _{PP} = 1A, t _p = 8/20μs			10	V
		I _{PP} = 4A, t _p = 8/20μs			14	V
C _J	Junction Capacitance	V _R = 0V, f = 1MHz		0.4	0.5	pF

Characteristic Curves
Fig 1 Power Derating Curve

Fig 2 Clamping Voltage vs Peak Pulse Current

Fig 3 Voltage Sweeping

Fig 4 Voltage vs Capacitance


Characteristic Curves



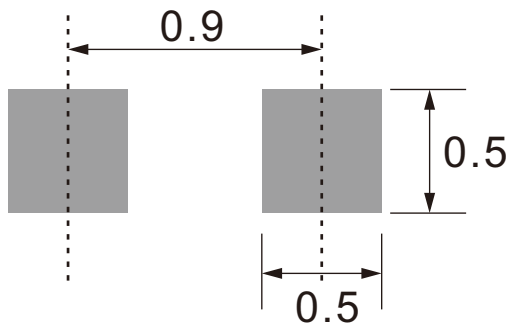
DFN1006 PACKAGE OUTLINE Plastic surface mounted package



Unit: mm

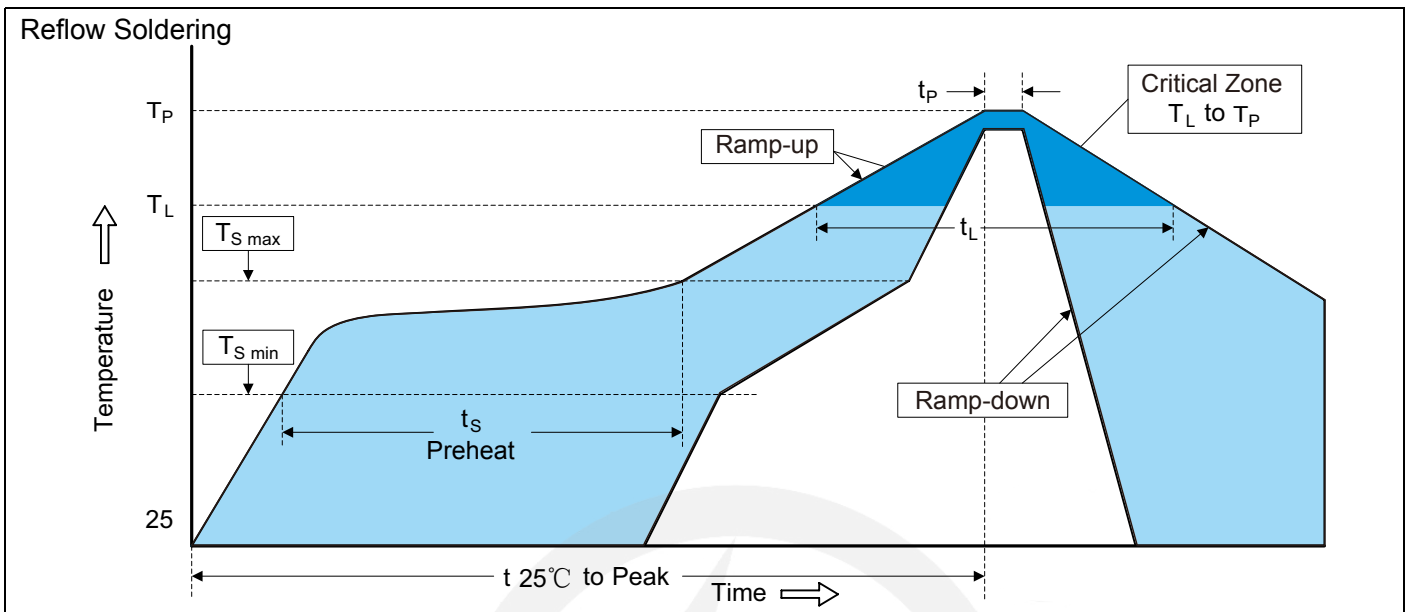
SYMBOL	DIMENSIONS		
	MIN.	NOM.	MAX.
D	0.550	0.600	0.650
E	0.950	1.000	1.050
L1	0.200	0.250	0.300
L2	0.200	0.250	0.300
b	0.450	0.500	0.550
e	0.650 BSC		
A	0.450	0.500	0.550
h	0.070	0.120	0.170

Recommended Solder Pad Footprint



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$
3. The pad layout is for reference purposes only.

Recommended Soldering Conditions

Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3°C/second max.
Preheat -Temperature Min ($T_{S\ min}$) -Temperature Max ($T_{S\ max}$) -Time (min to max) (t_s)	150°C 200°C 60-180 seconds
$T_{S\ max}$ to T_L -Ramp-up Rate	3°C/second max.
Time maintained above: -Temperature (T_L) -Time (t_L)	217°C 60-150 seconds
Peak Temperature (T_P)	260°C
Time within 5°C of actual Peak Temperature (t_p)	20-40 seconds
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.

7" Reel


D2	$\Phi 178.0 \pm 2.0$
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D3	$\Phi 50.0 \text{ Min.}$
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D4	$\Phi 13.0 \pm 0.5$
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W1	16.0 ± 2.0
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Quantity: 3000PCS	
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