

Ultra-Low Capacitance TVS/ESD Protection

SE05N7R02GA

Features

- ◆ Protects two data, control or power line
- ◆ Low capacitance: 6 pF Typical (I/O-GND)
- ◆ Low leakage current: 0.1μA @ V_{RWM} (Typical)
- ◆ Low clamping voltage

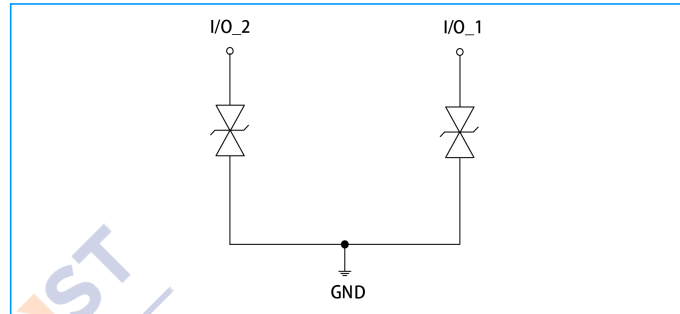
Applications

- ◆ Serial ATA
- ◆ PCI Express
- ◆ Desktops, Servers and Notebooks
- ◆ Cellular Phones

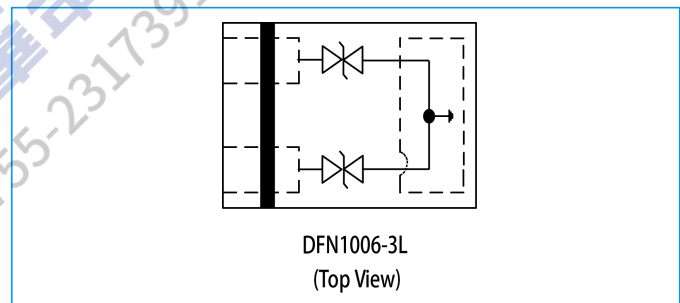
Mechanical Characteristics

- ◆ DFN1006-3L package
- ◆ Flammability Rating: UL 94V-0
- ◆ Marking: Part number
- ◆ Quantity Per Reel: 10,000pcs
- ◆ Reel size: 7 inch

Circuit Diagram



Pin Configuration

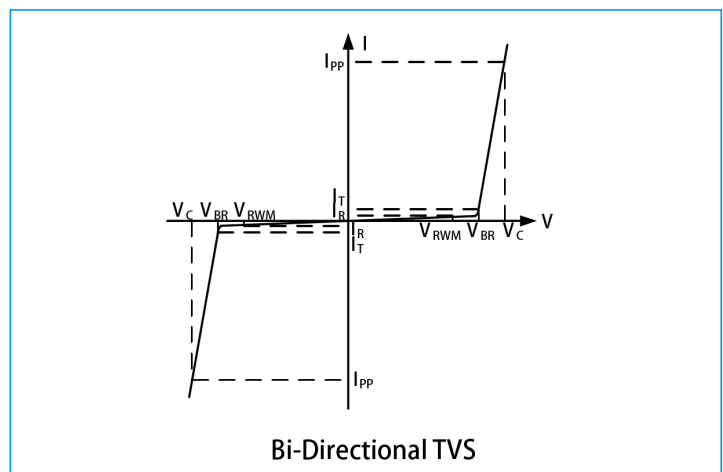


Absolute Maximum Rating

Symbol	Parameter	Value	Units
V_{ESD}	ESD per IEC 61000-4-2(Air)	±25	kV
	ESD per IEC 61000-4-2 (Contact)	±17	
T_{OPT}	Operating Temperature	-55/+125	°C
T_{STG}	Storage Temperature	-55/+150	°C

Electrical Parameters (T=25°C)

Symbol	Parameter
V_{RWM}	Nominal Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Reverse Breakdown Voltage @ I_T
I_T	Test Current for Reverse Breakdown
V_C	Clamping Voltage @ I_{PP}
I_{PP}	Maximum Peak Pulse Current
C_J	Parasitic Capacitance
V_R	Reverse Voltage
f	Small Signal Frequency



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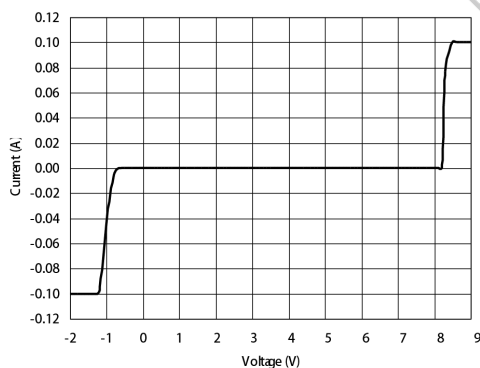
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Electrical Characteristics

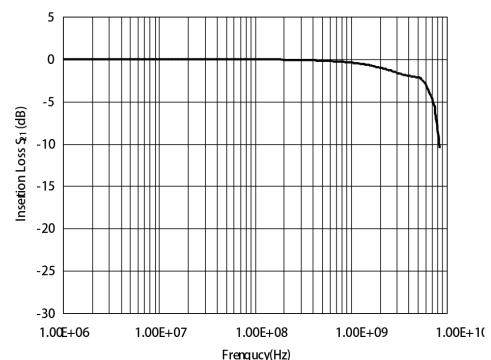
Symbol	Test Condition	Minimum	Typical	Maximum	Units
V_{RWM}	—	—	—	5.0	V
I_R	$V_{RWM} = 5V, T = 25^{\circ}C$ Between I/O and GND	—	0.1	1.0	μA
V_{BR}	$I_T = 1mA$ Between I/O and GND	6.0	8.0	10.0	V
V_C	$I_{PP}=4A, t_p=8/20\mu s$ Between I/O and GND	—	10	12	V
C_J	$V_R=0V, f=1MHz$ Between I/O and GND	—	6	13	pF

Typical Characteristics

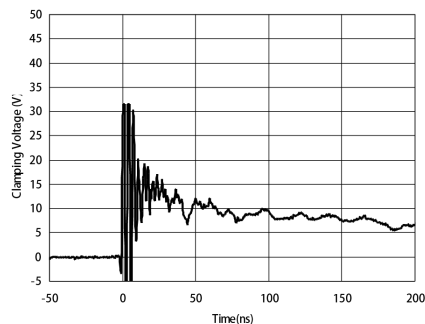
Voltage Sweeping of I/O to I/O



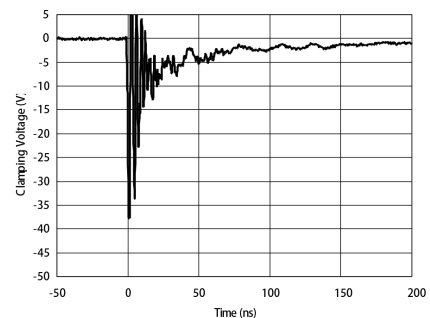
Insertion Loss S21 of I/O to I/O



**ESD Clamping of I/O to GND
(+8kV Contact per IEC 61000-4-2)**



**ESD Clamping of I/O to GND
(-8kV Contact per IEC 61000-4-2)**

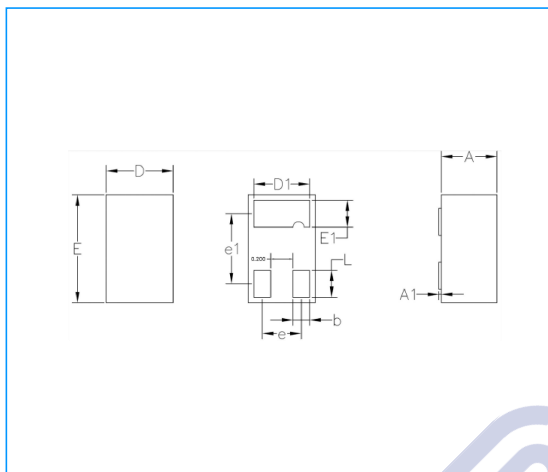


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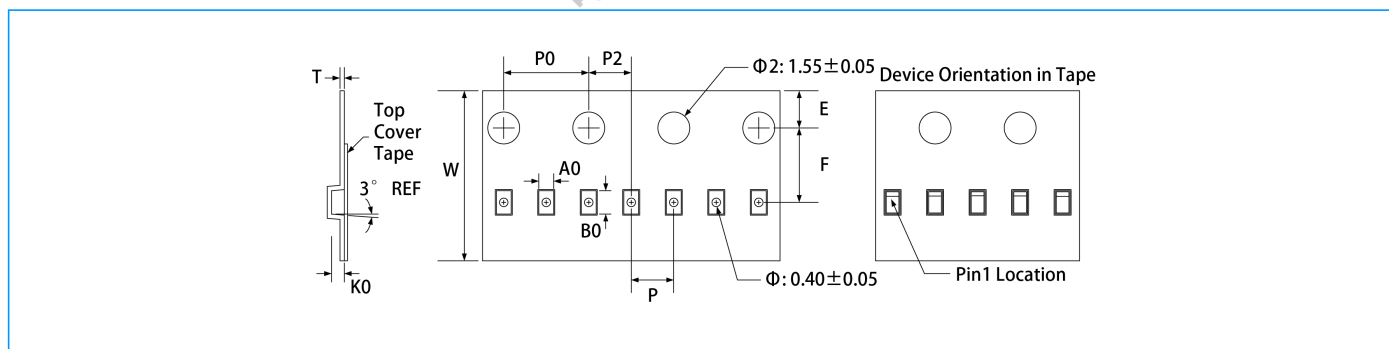
Package Outline

- ◆ DFN1006-3L package
- ◆ 3 leads, very small package



Symbol	Min	Nom	Max
A	0.45	0.50	0.55
A1	0.00	—	0.05
D	0.55	0.60	0.65
E	0.95	1.00	1.05
D1	0.45	0.50	0.55
E1	0.20	0.25	0.30
L	0.20	0.25	0.30
b	0.10	0.15	0.20
e	0.35BSC		
e1	0.65BSC		

Tape and Reel Specification



Symbol	W	A0	B0	K0	E	F	P	P0	P2	T
Dimensions (mm)	8.00±0.1	0.7±0.05	1.15±0.05	0.55±0.05	1.75±0.1	3.5±0.05	2.0±0.1	4.0±0.1	2.0±0.05	0.2±0.05