

Ultra-Low Capacitance TVS/ESD Protection

SE05N7L12GA

Features

- Protects two data, control or power line
- Low capacitance: 0.25 pF Typical (I/O-I/O)
- Low leakage current: 0.1 μ A @ V_{RWM} (Typical)
- Low clamping voltage

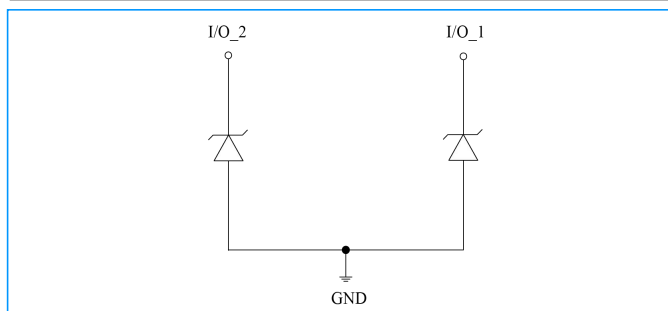
Applications

- Desktops, Servers and Notebooks
- Cellular Phones
- USB2.0 Power and Data Line Protection
- Digital Visual Interfaces (DVI)

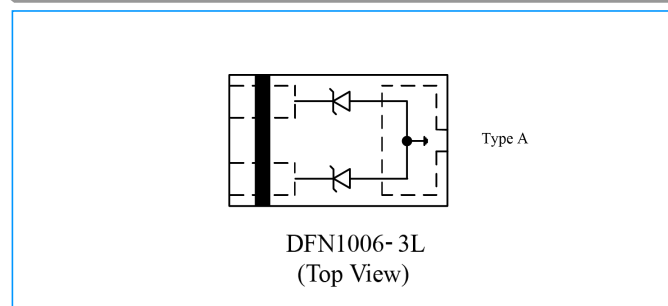
Mechanical Characteristics

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

Circuit Diagram



Pin Configuration

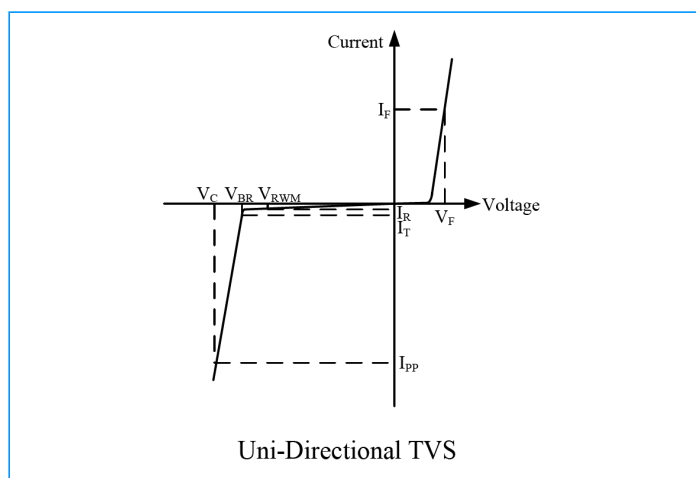


Absolute Maximum Rating

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	$^{\circ}$ C
T_{STG}	Storage Temperature	-55/+150	$^{\circ}$ C

Electrical Parameters (T=25 $^{\circ}$ 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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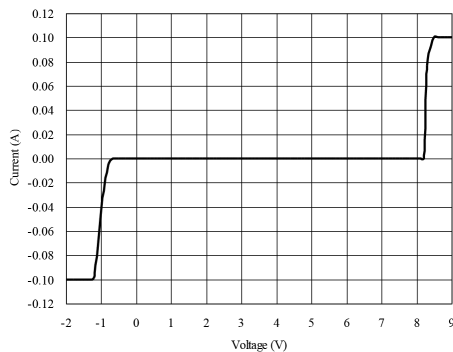
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Electrical Characteristics

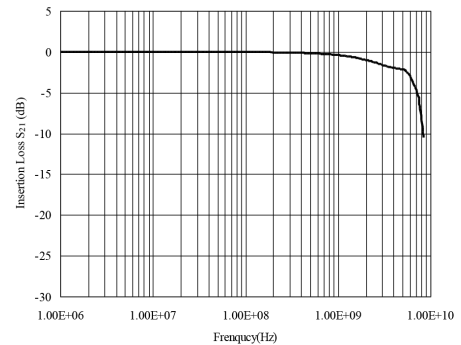
Symbol	Test Condition	Minimum	Typical	Maximum	Units
V_{RWM}	—	—	—	5.0	V
I_R	$V_{RWM} = 5V, T = 25^\circ C$ Between I/O and GND	—	0.1	1.0	μA
V_{BR}	$I_T = 1mA$ Between I/O and GND	6.0	8.0	10.0	V
V_C	$I_{PP}=2A, t_p=8/20\mu s$ Between I/O and GND	—	—	12	V
C_J	$V_R=0V, f=1MHz$ Between I/O and GND	—	0.8	1.2	pF
C_J	$V_R=0V, f=1MHz$ Between I/O and I/O	—	0.25	0.5	pF

Typical Characteristics

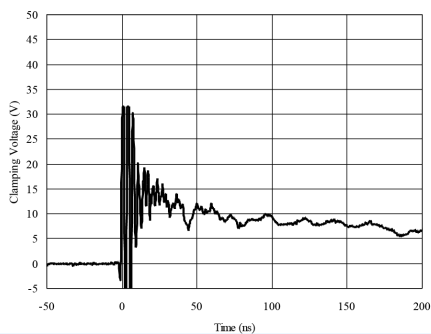
Voltage Sweeping of I/O to I/O



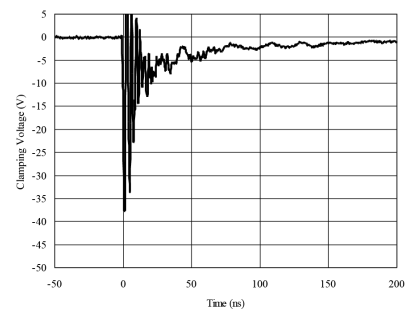
Insertion Loss S21 of I/O to I/O



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)

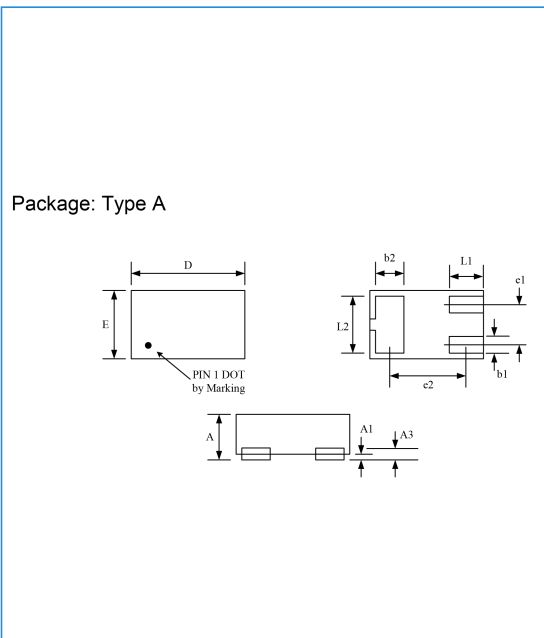


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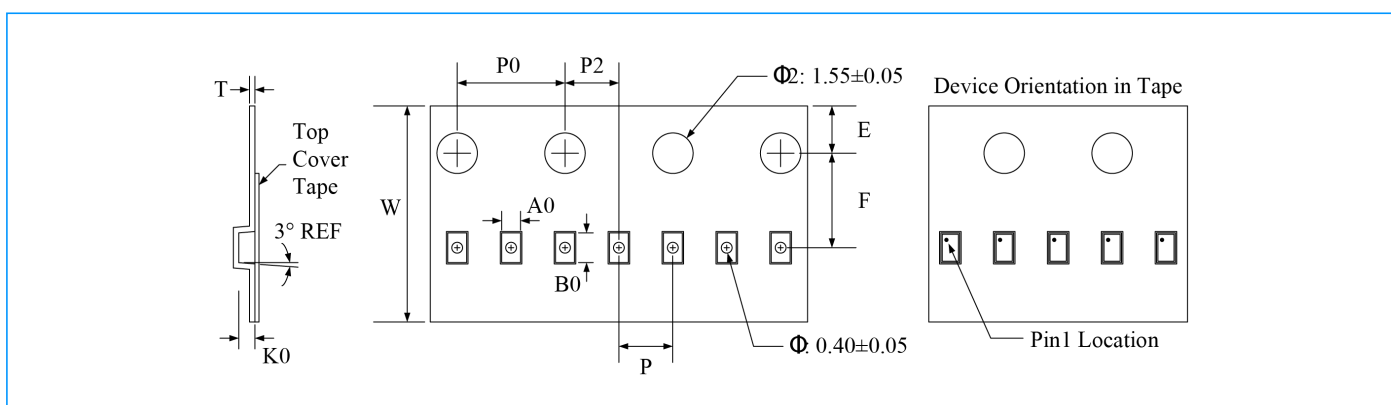
Package Outline

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



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.400	0.550	0.016	0.022
A1	0.000	0.050	0.000	0.002
A3	0.125 REF		0.005 REF	
D	0.950	1.050	0.037	0.041
E	0.550	0.650	0.022	0.026
b1	0.100	0.200	0.004	0.008
b2	0.200	0.300	0.008	0.012
e1	0.350 BSC		0.014 BSC	
e2	0.675 BSC		0.027 BSC	
L1	0.200	0.400	0.008	0.016
L2	0.400	0.600	0.016	0.024

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