

Bi-directional ESD Protection Diode in DFN1006-2L Package

SE07N6S01GH

Features

- ◆ Working voltage: 7V
- ◆ Low capacitance: 15pF (Typical)
- ◆ Low leakage current: 0.1 μ A @ V_{RWM}
- ◆ Low clamping voltage
- ◆ Response Time is < 1 ns
- ◆ Meets MSL level 1

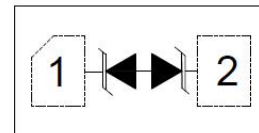
DFN1006-2L



Applications

- ◆ Cellular handsets
- ◆ USB V_{BUS} and CC line protection
- ◆ Microphone line protection
- ◆ GPIO protection

Pin Configuration



Mechanical Characteristics

- ◆ DFN1006-2L package
- ◆ Molding Compound Flammability Rating: UL 94V-0
- ◆ Quantity Per Reel: 10,000pcs
- ◆ Reel Size: 7inch
- ◆ Lead Finish: Lead Free

Protection Solution to Meet

- ◆ IEC61000-4-2 (ESD) ± 30 kV (air), ± 30 kV (contact)
- ◆ IEC61000-4-4 (EFT) 40A (5/50ns)
- ◆ IEC61000-4-5 (Lightning) 6.5A (8/20 μ s)

Absolute Maximum Rating

Symbol	Parameter	Value	Units
V_{ESD}	ESD per IEC 61000-4-2 (Air)	± 30	KV
	ESD per IEC 61000-4-2 (Contact)	± 30	
T_J	Operating Temperature	-55 to +150	$^{\circ}$ C
T_{STG}	Storage Temperature	-55 to +150	$^{\circ}$ C
T_{LST}	Lead Soldering Temperature	260 (10 sec.)	$^{\circ}$ C

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

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Reverse Working Voltage	V_{RWM}	--	--	--	7	V
Reverse Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	7.6	--	9	V
Reverse Leakage Current	I_R	$V_{RWM} = \pm 7\text{V}$, $T=25^\circ\text{C}$	--	--	0.1	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}$, $t_p = 8/20\mu\text{s}$	--	9	--	V
		$I_{PP} = 6.5\text{A}$, $t_p = 8/20\mu\text{s}$	--	11	--	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$	--	15	--	pF

Characteristic Curves

Fig 1. V- I Curve Characteristics

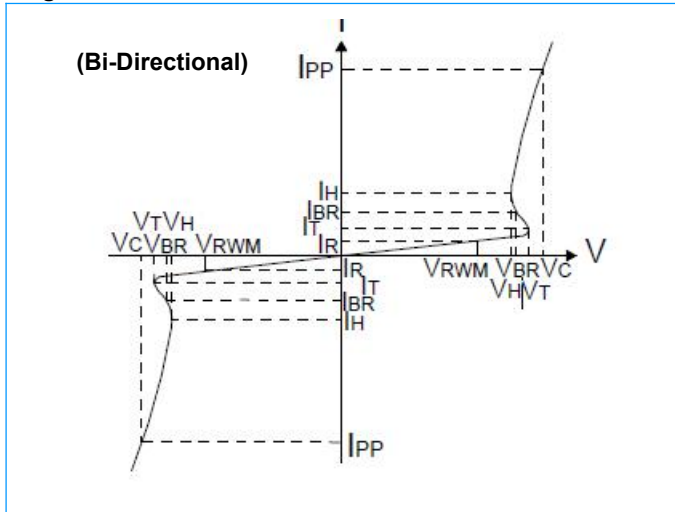


Fig 2. Pulse Waveform (8/20 μs)

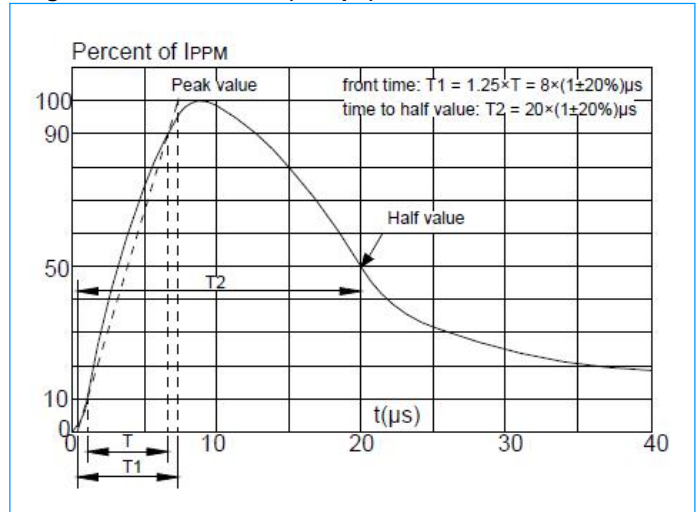


Fig 3. Pulse Derating Curve

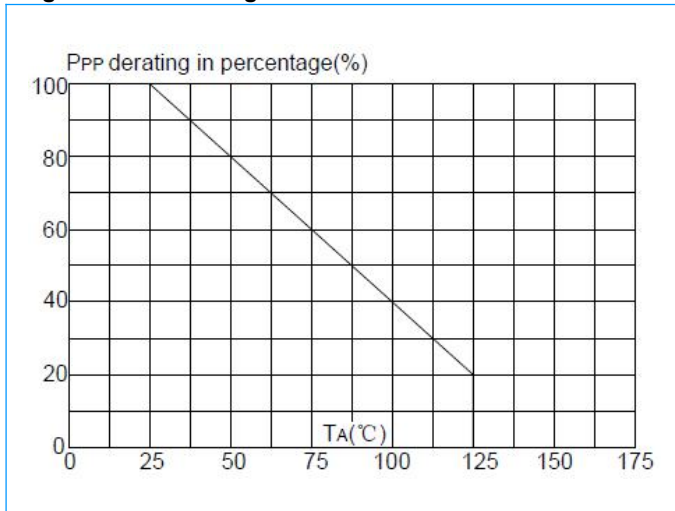
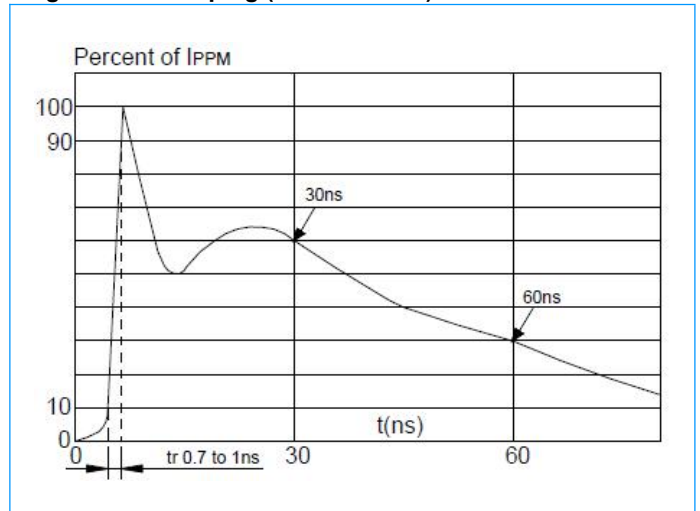


Fig 4. ESD Clamping (30kV Contact)



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Characteristic Curves (Continue)

Fig 5. Clamping Voltage vs. Peak Pulse Current

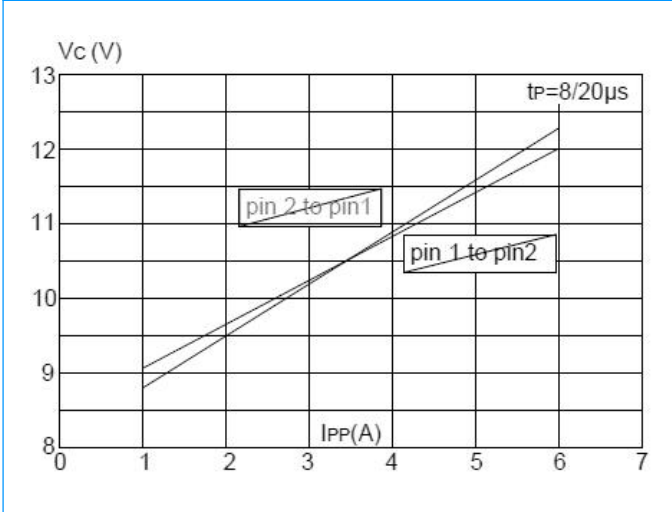
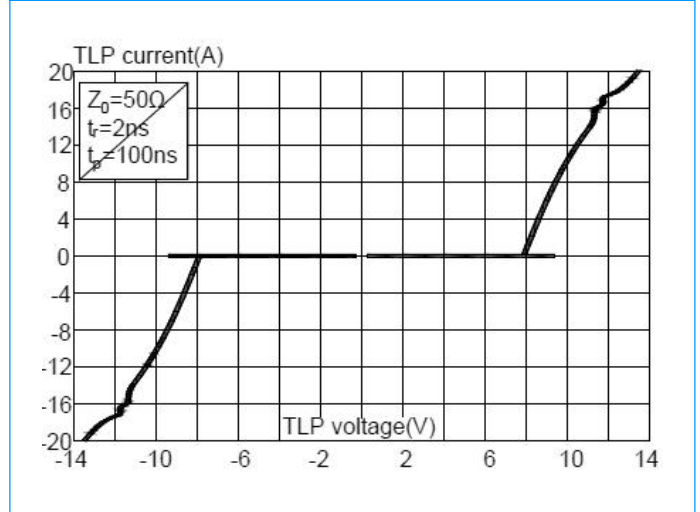
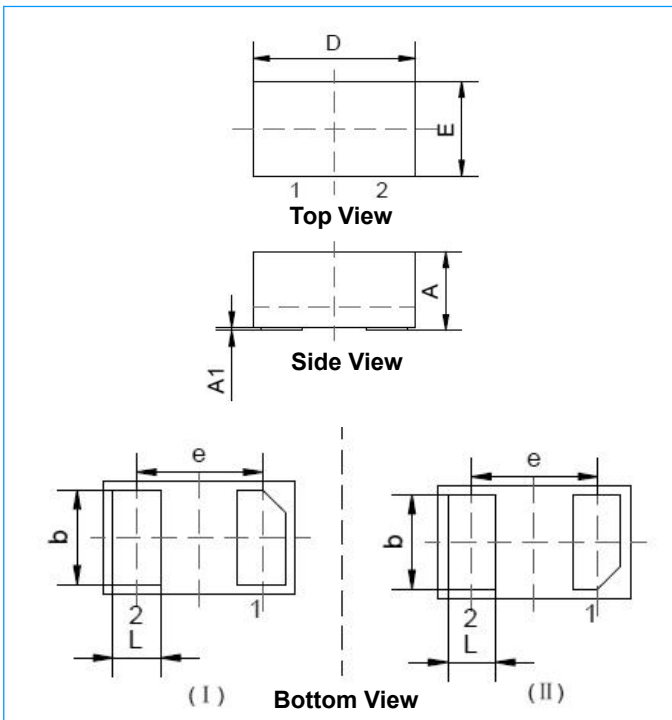


Fig 6. TLP Measurement



DFN1006-2L Package Outline & Dimensions



Symbol	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	0.40	0.50	0.55	0.016	0.020	0.022
A1	0.00	0.02	0.05	0.000	0.001	0.002
b	0.45	0.50	0.55	0.018	0.020	0.022
D	0.95	1.00	1.05	0.037	0.039	0.041
e	0.65 BSC			0.026 BSC		
E	0.55	0.60	0.65	0.022	0.024	0.026
L	0.20	0.25	0.30	0.008	0.010	0.012

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