

Bi-directional TVS Diode for ESD Protection

ESD05V88D-LC

Description

The ESD05V88D-LC is an ultra low capacitance transient voltage suppressor array, designed to protect computing applications from the damaging effects of Electrostatic Discharge and Electrical Fast Transients.

DFN-2L-F



Features

- u Protects one bi-directional I/O line
- u Low clamping voltage
- u Low operating voltage: 5.0V
- u Low leakage current
- u Ultra Low Capacitance: 0.3 pF
- u RoHS compliant
- u IEC61000-4-2 (ESD) $\pm 15\text{kV}$ (air), $\pm 8\text{kV}$ (contact)
- u IEC61000-4-4 (EFT) 40A (5/50ns)
- u IEC61000-4-5 (Lightning) 1A (8/20 μs)

Pin Configuration



Applications

- u USB Ports
- u Display Port
- u Wireless Communications
- u Digital Visual Interface (DVI)
- u Cellular Handsets & Accessories

Mechanical Data

- u DFN-2L package
- u Molding Compound Flammability Rating : UL 94V-0
- u Quantity Per Reel : 10,000pcs
- u Lead Finish : Lead Free
- u Marking Code: 5F

Absolute Maximum Ratings ($T_A=25^\circ\text{C}$, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Units
Storage Temperature Range	T_{STG}	-55 to +150	$^\circ\text{C}$
Operating Junction Temperature Range	T_J	-55 to +125	$^\circ\text{C}$
Lead Soldering Temperature	T_L	260 (10 sec.)	$^\circ\text{C}$
Peak Pulse Power Dissipation on 8/20 μs Waveform	P_{PP}	30	W
ESD per IEC61000-4-2 (Air)	V_{ESD}	± 15	KV
ESD per IEC61000-4-2 (Contact)		± 8	

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Electrical Characteristics ($T_A=25^\circ\text{C}$)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse Working Voltage	V_R		---	---	5.0	V
Reverse Breakdown Voltage	V_{BR}	$I_T = 1\text{ mA}$	6.0	---	11	V
Reverse Leakage Current	I_R	$V_R = 5\text{ V}$	---	---	1.0	μA
Peak Pulse Current	I_{PP}	$t_p = 8/20\mu\text{s}$	---	---	1.0	A
Clamping Voltage	V_C	$I_{PP} = 1\text{ A}$, $t_p = 8/20\mu\text{s}$	---	8.5	12.5	V
Junction Capacitance	C_J	$V_R = 0\text{ V}$, $f = 1\text{ MHz}$	---	0.3	0.5	pF

Ratings and V-I Characteristics Curves ($T_A=25^\circ\text{C}$, unless otherwise noted)

Fig1. V- I Curve Characteristics

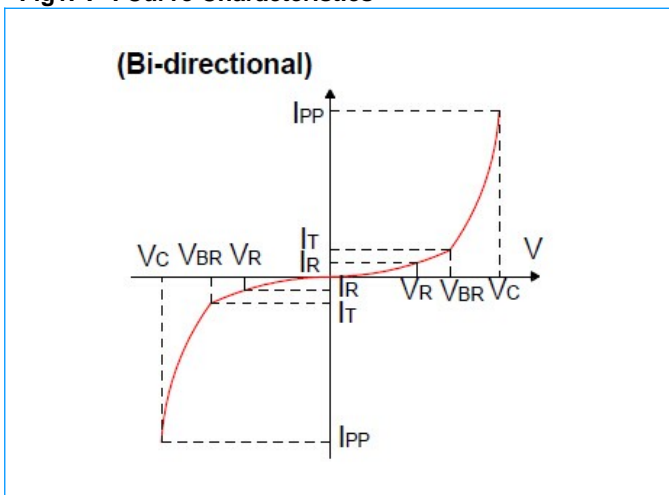


Fig2. Pulse Waveform

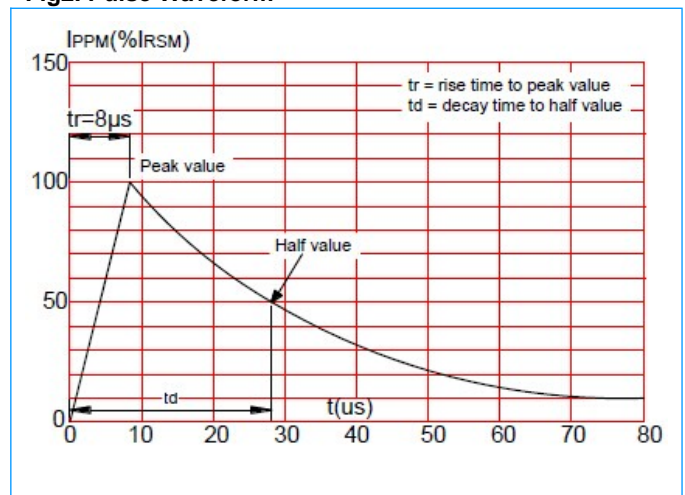


Fig3. Pulse Derating Curve

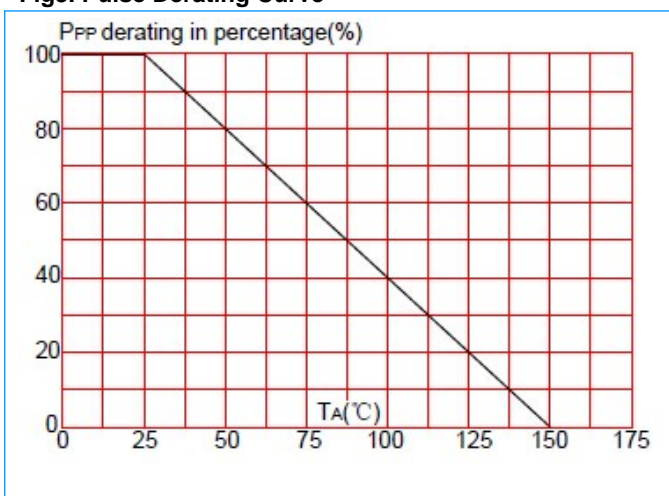
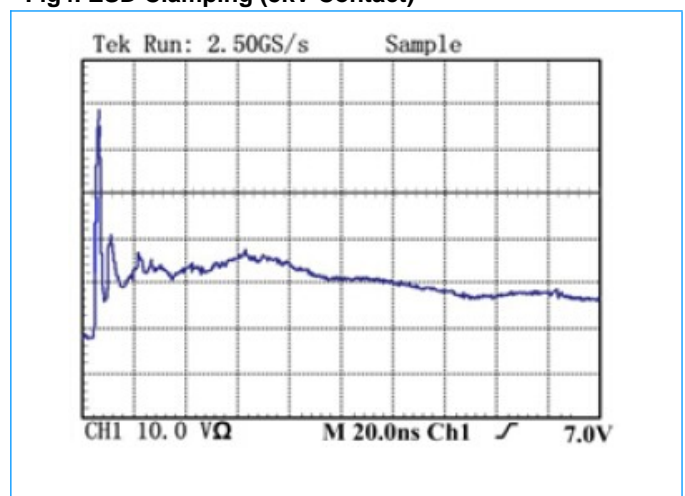


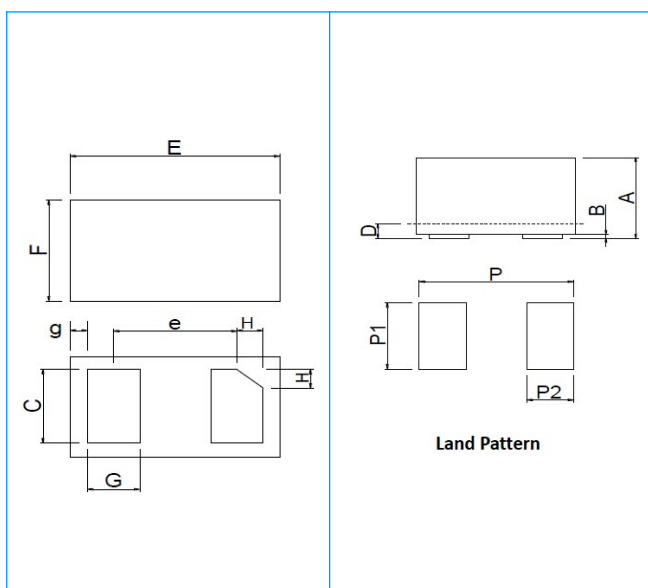
Fig4. ESD Clamping (8kV Contact)



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Package Mechanical Data



Symbol	Millimeter		Inches	
	Min	Max	Min	Max
A	0.45	0.55	0.018	0.022
B	0.00	0.05	0.000	0.002
C	0.45	0.55	0.018	0.022
D	0.12	0.18	0.005	0.007
e	0.65BSC		0.030BSC	
E	0.95	1.05	0.040	0.041
F	0.55	0.65	0.023	0.025
g	0.05REF		0.003REF	
G	0.20	0.30	0.008	0.012
H	0.07	0.17	0.003	0.007
P1	0.60		0.024	
P2	0.35		0.015	
P	1.00		0.040	