Transient Voltage Suppressors for ESD Protection

ESD05V02D-LC

Description

The ESD05V02D-LC is dual directional voltage rail clamp ultra-low capacitance transient voltage suppressor, electrical characteristics is positive/negative direction are symmetry, and the maximum capacitance is 0.9pF. It can be used for power supply line protection, control line protection and high-speed data line protection during static discharging, transient pulse and lightning discharge.

0201/DFN0603

Feature

- Bi-directional ESD Protection of one line;
- Ultra capacitance structure: 0.5pF;
- Low clamping voltage;
- Low operating voltage 5V;
- Low leakage ;
- Provides ESD protection to IEC61000-4-2(ESD):
  ±15kV (air discharge)
  ±8kV (contact discharge);

Functional Diagram

Applications

- High-speed data line interface.
- 10/100/1000M Ethernet;
- Personal Digital Assistants (PDA's);
- Notebooks (DVI/HDMI)、Desktops and Servers;
- USB interface;
- Cell phone accessories;
- Digital Camera;

Mechanical Data

- Case:0201/DFN0603 Package molded plastic.
- Terminals: Gold plated, solderable per MIL-STD-750, Method 2026.
- Polarity: Color band denotes cathode end.
- Mounting position: Any
- Reel Size : 7 inch

Mechanical Characteristics

Symbol	Parameter		Value	Units
Ipp	**Peak pulse Current (tp=8/20us)**		2.5	A
T_J	**Operating Junction Temperature Range**		-55 to +125	ºC
T_{STG}	**Storage Temperature Range**		-55 to +150	ºC
T_L	**Soldering Temperature, t max = 10s**		260	ºC
V_{ESD}	**IEC61000-4-2 (ESD)**	**Air Discharge**	±15（MIN）	KV
		ContactDischarge	±8（MIN）	

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Electrical Characteristics (@ 25℃ Unless Otherwise Specified)

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Reverse Working Voltage	V_{RWM}	--	--	--	5	V
Reverse Breakdown Voltage	V_{BR}	It=1mA	6	--	9	V
Reverse Leakage Current	I_R	V_{RWM} =5V ; T=25°C	--	--	1	μA
Positive Clamping Voltage	V_{C1}	I_{PP} =1A , T_P =8/20μS ;	--	8.5	12	V
Capacitance Between I/O And GND	C_{J2}	V_R =0V , f=1MHz ;	--	0.5	0.9	pF

Characteristic Curves

Fig1. 8/20μs Pulse Waveform

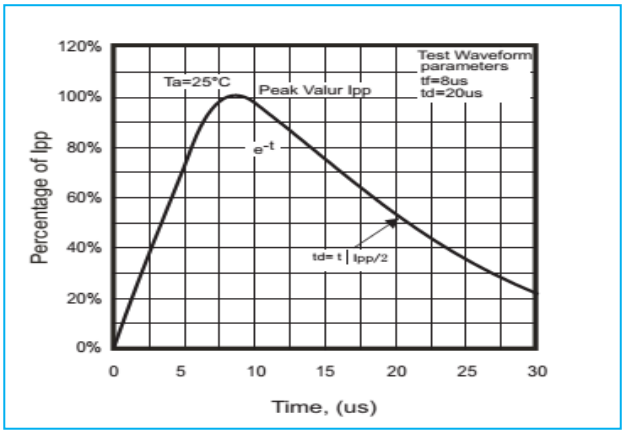


Fig2.ESD Pulse Waveform (according to IEC 61000-4-2)

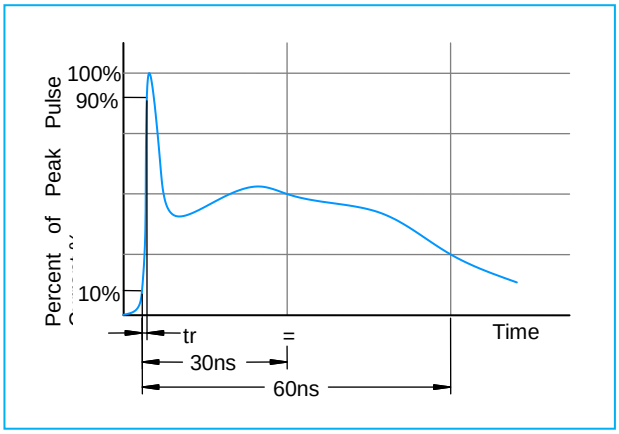


Fig3. Power Derating Curve

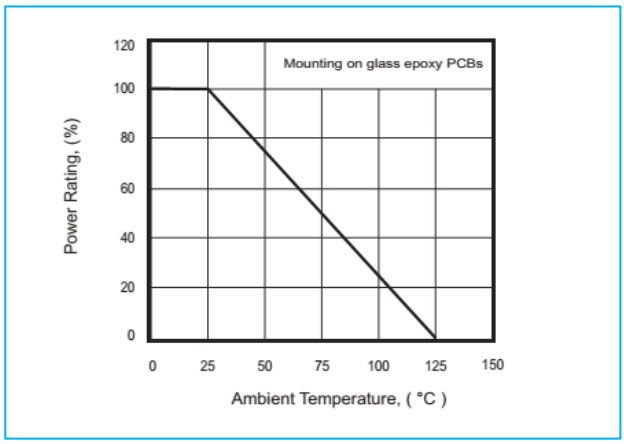
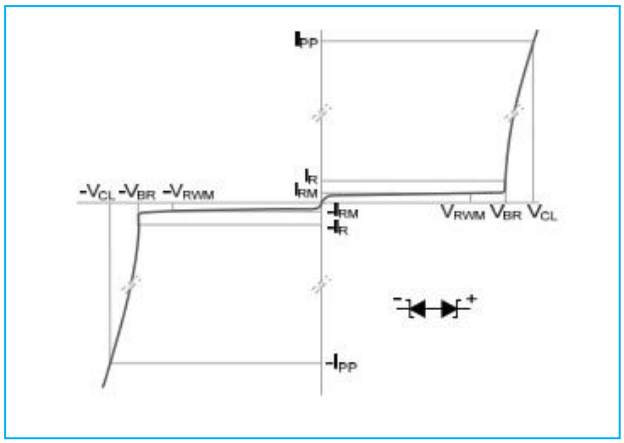


Fig4. V-I characteristics for a bidirectional ESD protection diode



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Characteristic Curves

Fig5. Clamping Voltage Vs. Peak Pulse Current

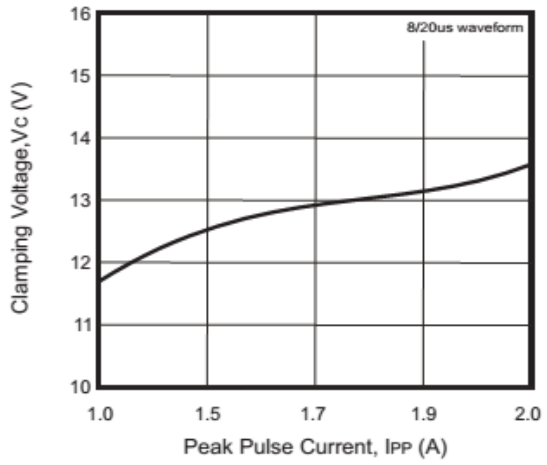
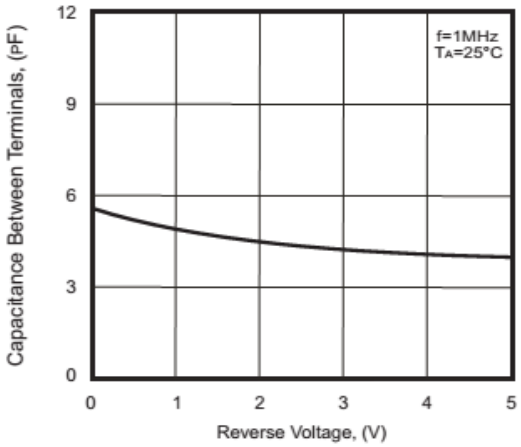
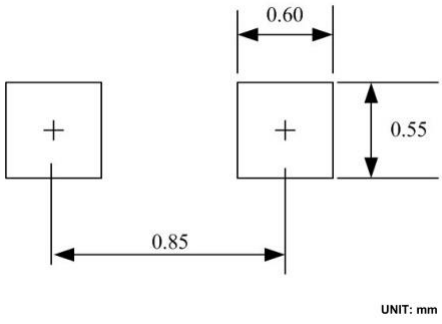


Fig6. Capacitance Between Terminals Characteristics



0201/DFN0603 Package Outline & Dimensions

LAND LAYOUT



Mechanical Details

1.0x0.6x0.50-0.62 **UNIT: mm**