

Transient Voltage Suppressors for ESD Protection

ESD05V02D-HC

Description

The ESD05V02D-HC is a silicon base in ultra small Surface-Mounted Device (SMD) special packages. It is designed to protect sensitive electronics from damage or latch up due to Electrostatic Discharge (ESD), lightning, and other voltage induced transient events. TVS diode designed to protect one power/control line or one signal line from overvoltage hazard of Electrostatic Discharge (ESD).

Feature

- ◆ Bi-directional ESD Protection of one line;
- ◆ Response time <1ns;
- ◆ Low clamping voltage;
- ◆ Low leakage ;
- ◆ Provides ESD protection to IEC61000-4-2(ESD):
 $\pm 15\text{kV}$ (air discharge)
 $\pm 8\text{kV}$ (contact discharge);

Applications

- ◆ Cell Phone Handsets and Accessories;
- ◆ Microprocessor based equipment;
- ◆ Personal Digital Assistants (PDA's);
- ◆ Notebooks (DVI/HDMI)、Desktops and Servers;
- ◆ Portable Instrumentation;
- ◆ Audio and video equipment;
- ◆ Digital Camera;

0201/DFN0603



Functional Diagram



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
I _{pp}	Peak pulse Current (tp=8/20us)	5.5	A
T _J	Operating Junction Temperature Range	-55 to +125	°C
T _{STG}	Storage Temperature Range	-55 to +150	°C
T _L	Soldering Temperature, t max = 10s	260	°C
V _{ESD}	IEC61000-4-2 (ESD) Air Discharge	±15 (MIN)	KV
	ContactDischarge	±8 (MIN)	

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Electrical Characteristics (@ 25°C Unless Otherwise Specified)

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Reverse Working Voltage	V_{RWM}	--	--	--	5	V
Reverse Breakdown Voltage	V_{BR}	$I_t=1mA$	6	--	9	V
Reverse Leakage Current	I_R	$V_{RWM}=3.3V$; $T=25^{\circ}C$	--	--	1	μA
Positive Clamping Voltage	V_{C1}	$I_{PP}=3A$, $T_P=8/20\mu S$;	--	7.5	--	V
Capacitance Between I/O And GND	C_{J2}	$V_R=0V$, $f=1MHz$;	--	15	20	pF

Characteristic Curves

Fig1. 8/20 μs Pulse Waveform

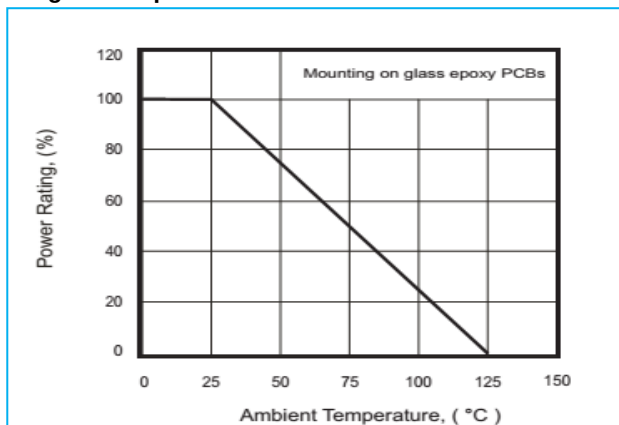


Fig2.ESD Pulse Waveform (according to IEC 61000-4-2)

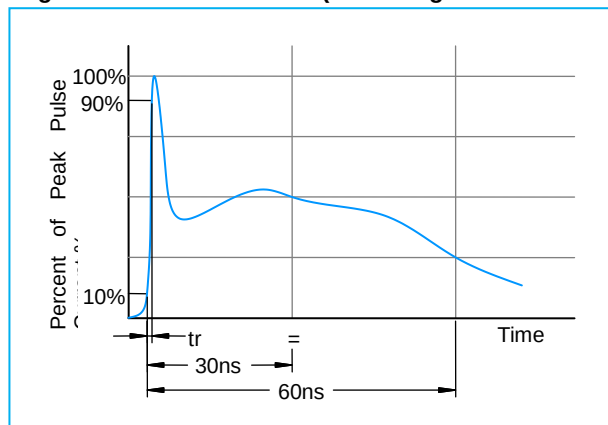
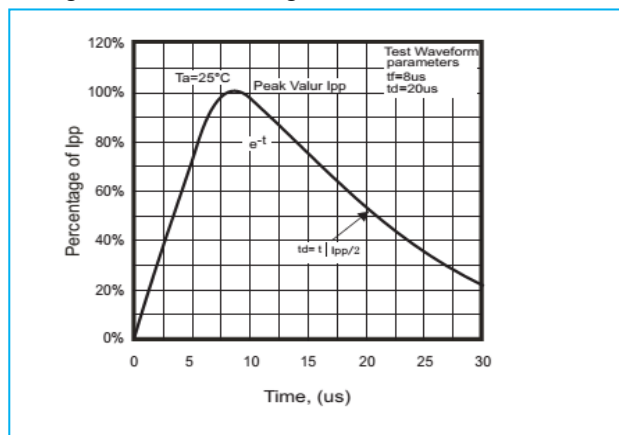


Fig3. Power Derating Curve



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Characteristic Curves

Fig4. Clamping Voltage Vs. Peak Pulse Current

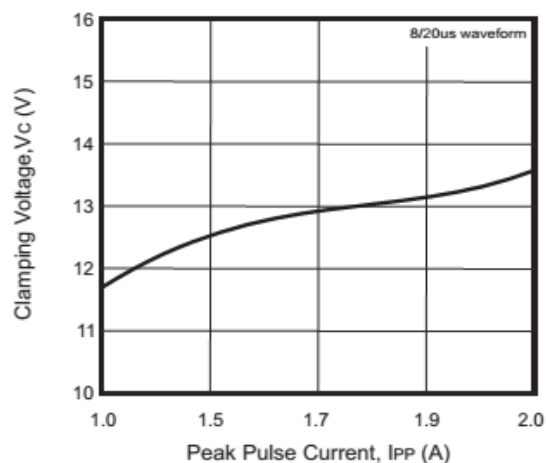
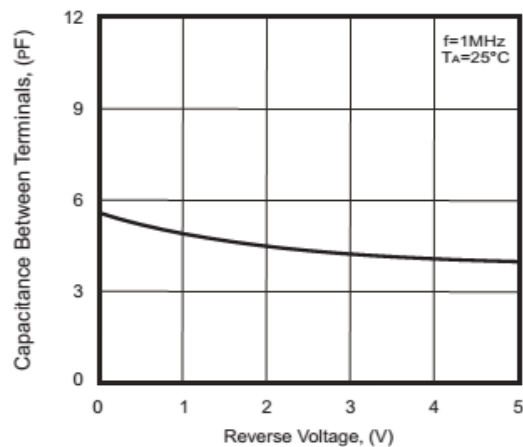
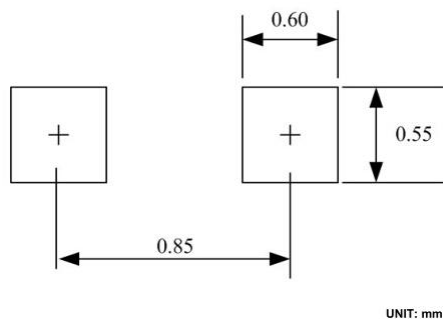


Fig5. Capacitance Between Terminals Characteristics



0201/DFN0603 Package Outline & Dimensions

LAND LAYOUT



Mechanical Details

