

Transient Voltage Suppressors for ESD Protection

ESD05V02D-LA

Description

The ESD05V02D-LA is a single-channel ultra low capacitance rail clamp ESD protection diodes array including a pair of ESD diodes that steer positive or negative ESD current to respectively positive or negative rail. TVS arrays designed to protect high speed data interfaces. This series has been specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from over-voltage caused by ESD (electrostatic discharge), CDE (Cable Discharge Events), and EFT (electrical fast transients).

Feature

- ◆ Super low capacitance between input and ground is no more than 0.9pF Surface mount package;
- ◆ Low clamping voltage;
- ◆ Single-channel ESD protection;
- ◆ Low leakage ;
- ◆ Provide ESD protection meeting IEC61000-4-2(ESD): $\pm 15\text{kV}$ air discharge、 $\pm 10\text{kV}$ contact discharge;
- ◆ Ultra small SMD package:0201;

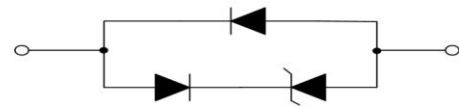
Applications

- ◆ Cell Phone Handsets and Accessories
- ◆ Microprocessor based equipment
- ◆ Personal Digital Assistants (PDA's)
- ◆ Notebooks (DVI/HDMI);, Desktops, and Servers
- ◆ Portable Instrumentation
- ◆ High-speed data line interface
- ◆ USB(1.1/2.0/3.0) interface;

0201/DFN0603



Functional Diagram



PIN1: Protection Pin
PIN2: Ground

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
P_{PP}	Peak Pulse Power (tp=8/20μs waveform)	120	W
I_{PP}	Peak Pulse Current (tp=8/20μs waveform)	5.0	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
	IEC61000-4-2 (ESD)	Air Discharge	± 15
		Contact Discharge	± 10
			KV

Transient Voltage Suppressors for ESD Protection

ESD05V02D-LA

Electrical Characteristics (@ 25°C Unless Otherwise Specified)

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Reverse Working Voltage	V_{RWM}	Any I/O pin to GND	--	--	5	V
Reverse Breakdown Voltage	V_{BR}	Any I/O pin to GND $I_t=1mA$	6	--	--	V
Reverse Leakage Current	I_R	$V_{RWM}=5V$; $T=25^\circ C$ Any I/O pin to GND	--	--	1	μA
Positive Clamping Voltage	V_{C1}	$I_{PP}=1A$, $t_p=8/20\mu S$; Positive pulse; Any I/O pin to GND	--	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. 8/20 μs Pulse Waveform

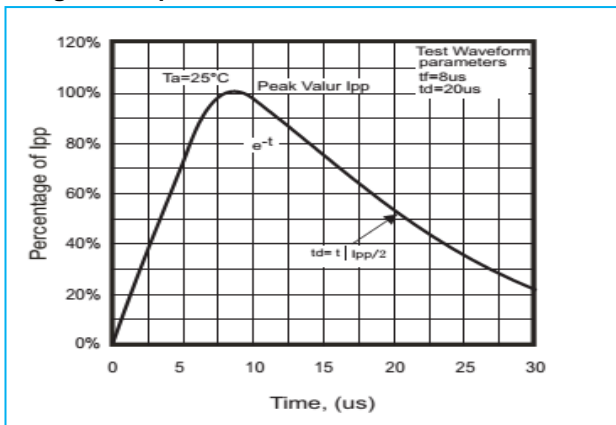


Fig2.ESD Pulse Waveform (according to IEC 61000-4-2)

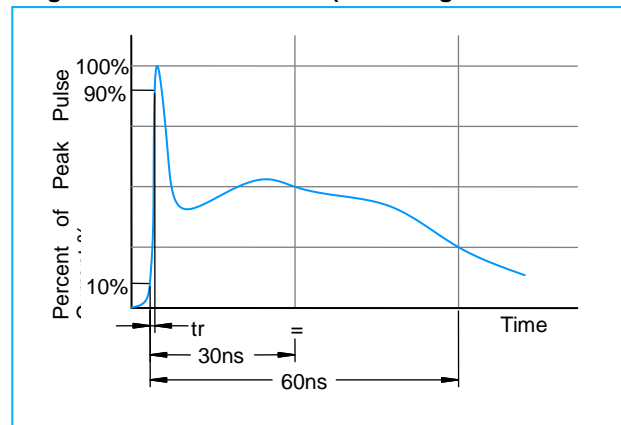
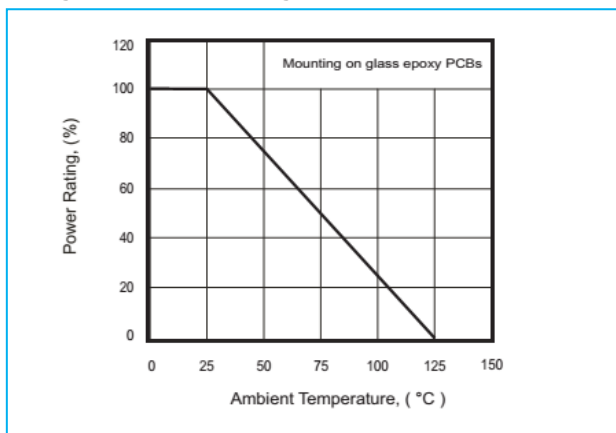


Fig3. Power Derating Curve



Transient Voltage Suppressors for ESD Protection

ESD05V02D-LA

Characteristic Curves

Fig4. Clamping Voltage Vs. Peak Pulse Current

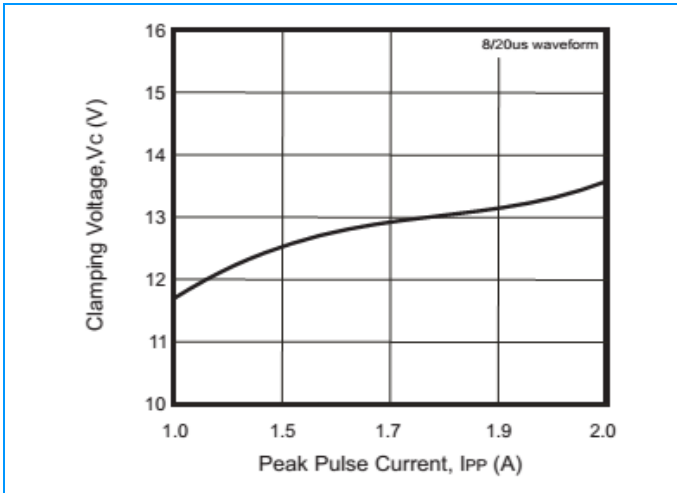
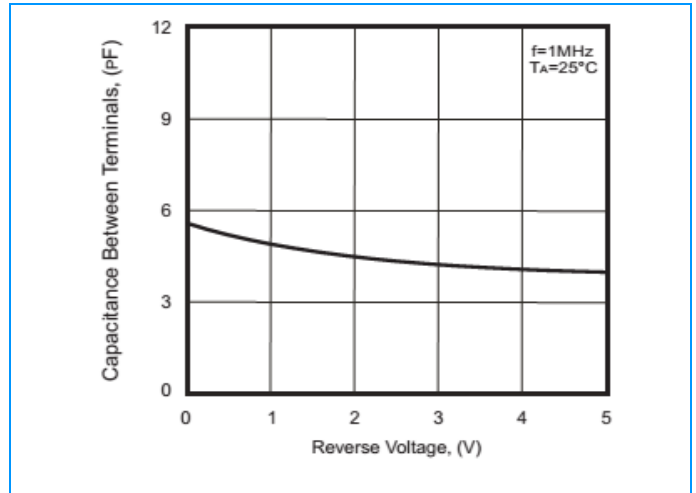
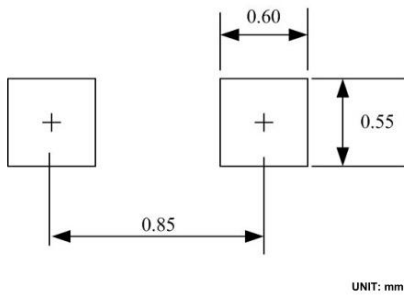


Fig5. Capacitance Between Terminals Characteristics

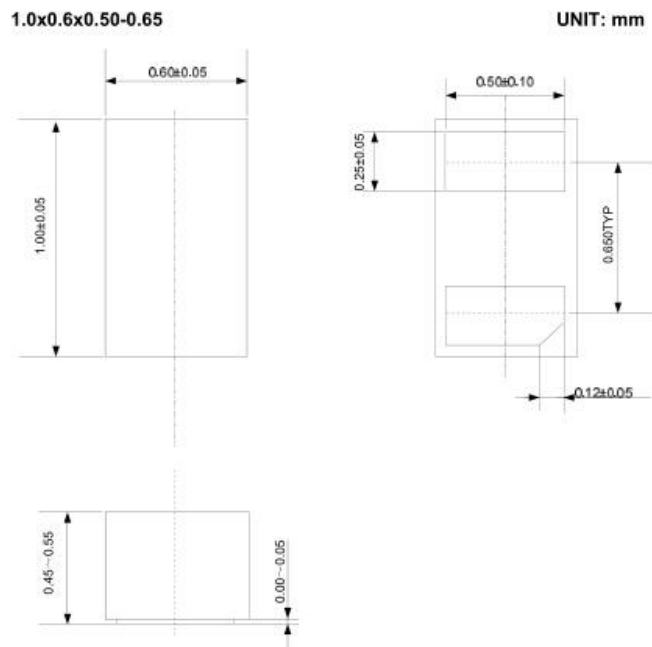


0201/DFN0603 Package Outline & Dimensions

LAND LAYOUT



Mechanical Details



Note: Layout pad size: 80*80(μm^2).