

Transient Voltage Suppressors for ESD Protection

ESD05V02D-LC

Description

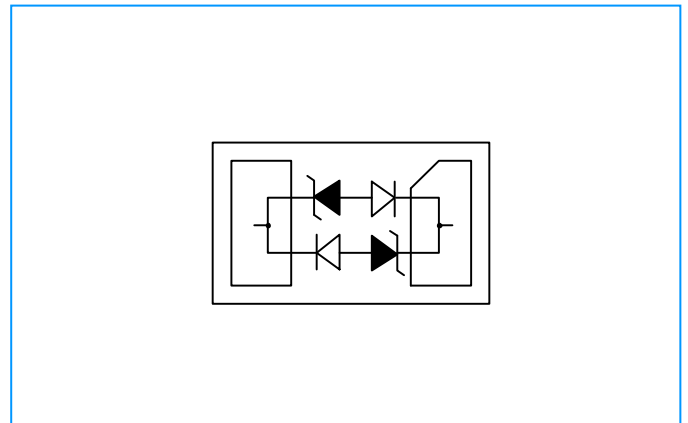
The ESD05V02D-LC is a silicon base in ultra small surface-Mounted Device (SMD) special packages. It is designed to protect sensitive electronics from damage or latch up due to Electrostatic Discharge (ESD), lightning, and other voltage induced transient events. TVS diode designed to protect one power/control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



Feature

- ◆ Bidirectional ESD Protection of one line;
- ◆ Low Capacitance 0.5 pF
- ◆ Low clamping voltage;
- ◆ Ultra small SMD special packages
- ◆ Nominal Dimensions: 0.6x0.3x0.26mm
- ◆ ESD protection to IEC61000-4-2(ESD):
 - ±15kV (air discharge)
 - ±8kV (contact discharge);

Functional Diagram



Applications

- ◆ Cell Phone Handsets and Accessories;
- ◆ Microprocessor based equipment;
- ◆ Communication systems ;
- ◆ Notebooks (DVI/HDMI);
- ◆ Portable Instrumentation;
- ◆ Audio and video equipment;
- ◆ Digital Camera;

Mechanical Data

- ◆ JEDEC0201/DFN0603 Package
- ◆ Molding Compound Flammability Rating: UL94V-O
- ◆ Weight 0.3 Milligrams (Approximate)
- ◆ Polarity: Color band denotes cathode end.
- ◆ Mounting position: Any

Mechanical Characteristics

Symbol	Parameter	Value	Units
P _{PP}	Peak Pulse Power (T _p =8/20μs waveform)	45	Watts
T _L	Lead Soldering Temperature	260 (10 sec.)	°C
T _{STG}	Storage Temperature Range	-55 to +150	°C
T _J	Operating Junction Temperature Range	-40 to +125	°C

Transient Voltage Suppressors for ESD Protection

ESD05V02D-LC

Electrical Characteristics (@ 25°C Unless Otherwise Specified)

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Reverse Working Voltage	V_{RWM}	--	--	--	5.0	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1mA$	6.0	--	--	V
Reverse Leakage Current	I_R	$V_{RWM}=5.0V, T=25^\circ C$	--	--	1.0	μA
Junction capacitance	C_J	$V_R=0V, f=1MHz;$	--	0.5	--	pF
Positive Clamping Voltage	V_C	$I_{PP}=1A, T_P=8/20\mu s;$	--	--	12.0	V
		$I_{PP}=3A, T_P=8/20\mu s;$	--	--	15.0	V

Characteristic Curves

Fig1. 8/20 μs Pulse Waveform

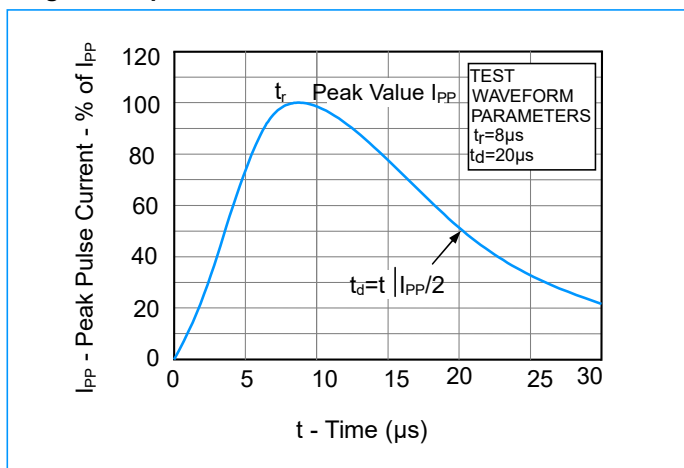


Fig2. Power Rating Derating Curve

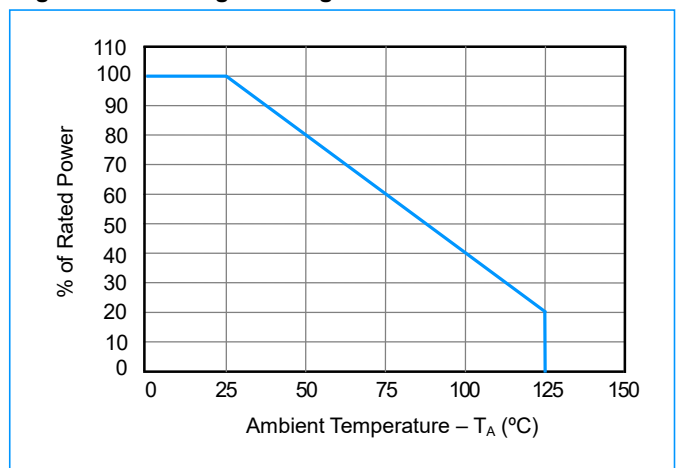
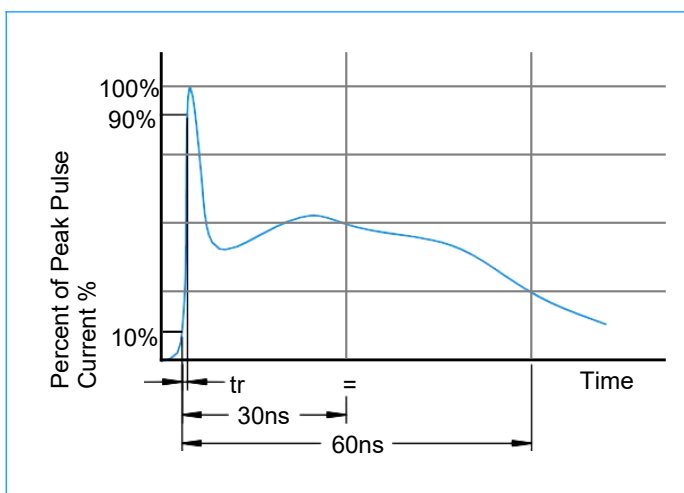


Fig3. .ESD Pulse Waveform (according to IEC 61000-4-2)

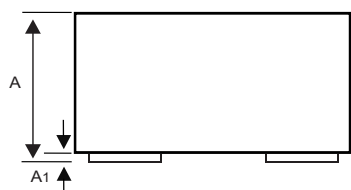


Transient Voltage Suppressors for ESD Protection

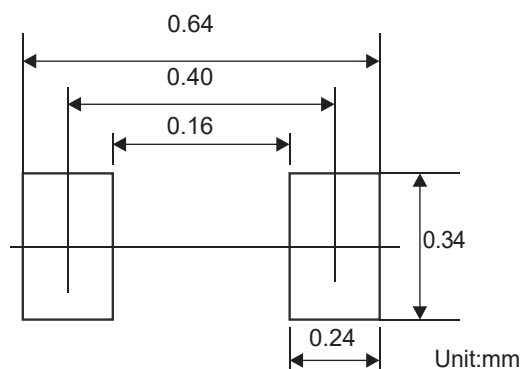
ESD05V02D-LC

0201/DFN0603 Package Outline & Dimensions

0201/DFN0603



Suggested PAD Layout



Symbol	Millimeters		
	Min	Nom	Max
A	0.270	0.300	0.340
A1	0	0.020	0.050
D	0.550	0.600	0.650
E	0.250	0.300	0.350
e	0.340REF		
L	0.140	0.180	0.240
b	0.200	0.250	0.300
L1	0.150REF		

Ordering Information

Device	Marking	Package	Quantity	Reel Size
ESD05V02D-LC	5L	0201/DFN0603	12,000pcs/Reel	7 inch