

Transient Voltage Suppressors for ESD Protection

ESD05V02D-C

Description

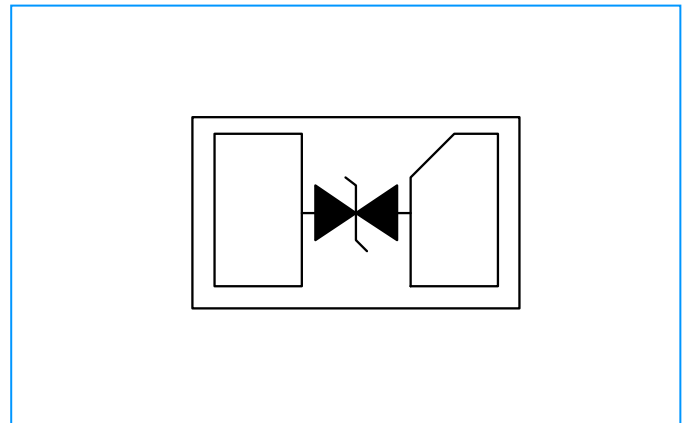
The ESD05V02D-C is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium. Because of its small size, it is suited for use in cellular phones, MP3 players, digital cameras and many other portable applications where board space is at a premium.



Feature

- ◆ Protects One Bidirectional I/O Line
- ◆ Low Clamping Voltage
- ◆ Surface mount package.
- ◆ Ultra small SMD package.
- ◆ Stand-off Voltage: 5.0 V
- ◆ Low leakage current
- ◆ 150 Watts Peak Pulse Power per Line (tp=8/20μs)
- ◆ IEC61000-4-5 (LIGHTING) 12A (8/20μs)
- ◆ Provides ESD protection to IEC61000-4-2(ESD):
 - ±30kV (air discharge)
 - ±30kV (contact discharge);

Functional Diagram



Applications

- ◆ Cell Phone Handsets and Accessories
- ◆ I²C Bus Protection
- ◆ Personal Digital Assistants (PDA)
- ◆ Notebooks, Desktops, and Servers
- ◆ Micro controller Input Protection
- ◆ Peripherals
- ◆ Parallel & Serial Port Protection

Mechanical Data

- ◆ Case: 0201/DFN0603 package, molded plastic.
- ◆ Molding Compound Flammability Rating : UL 94V-O
- ◆ Weight 0.3 Milligrams (Approximate)
- ◆ Mounting position: Any

Mechanical Characteristics

Symbol	Parameter	Value	Units
P _{PP}	Peak Pulse Power (Tp=8/20μs waveform)	150	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

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Electrical Characteristics (@ 25°C Unless Otherwise Specified)

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Reverse Working Voltage	V_{RWM}	--	--	--	5.0	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1mA$	5.5	--	--	V
Reverse Leakage Current	I_R	$V_{RWM}=5.0V; T=25^\circ C$	--	--	0.1	μA
Junction capacitance	C_J	$V_R=0V, f=1MHz;$	--	20	--	pF
Positive Clamping Voltage	V_C	$I_{PP}=12A, T_P=8/20\mu s;$	--	--	12.5	V
TLP Clamping Voltage	V_{CL}	$I_{PP}=1A$	--	7.0	--	V
		$I_{PP}=8A$	--	9.0	--	V
		$I_{PP}=16A$	--	10.8	--	V

Characteristic Curves

Fig1. 8/20 μ s Pulse Waveform

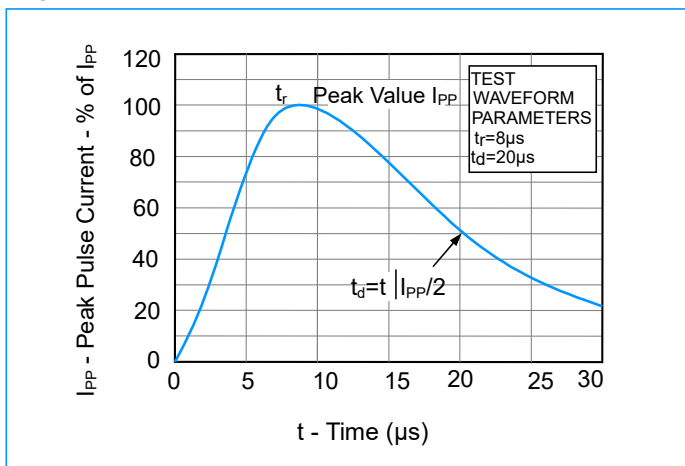


Fig2. Power Rating Derating Curve

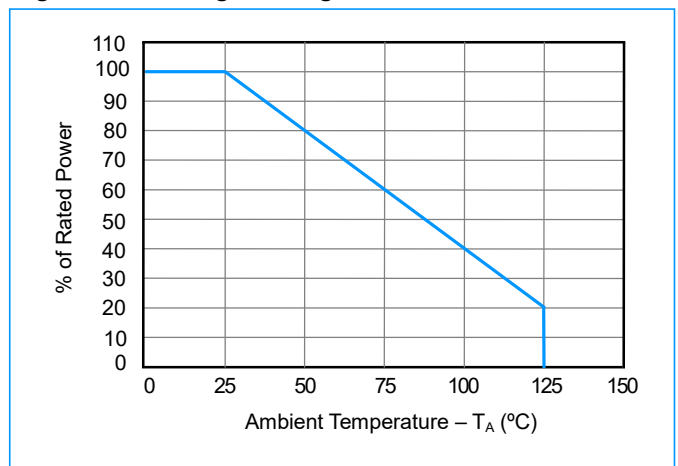


Fig3. Clamping Voltage vs. Peak Pulse Current

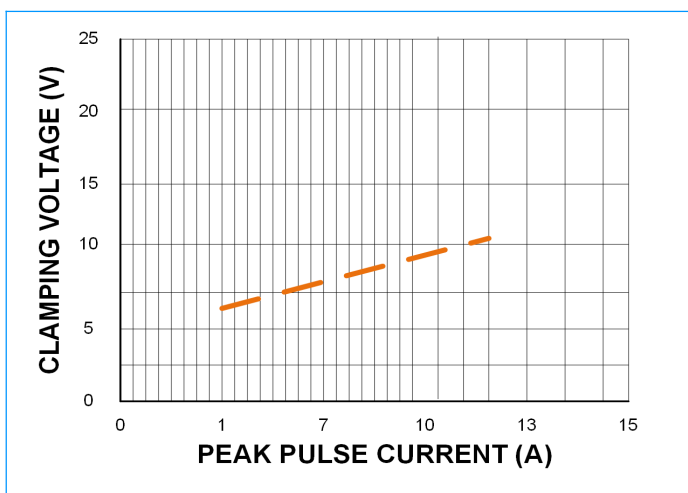
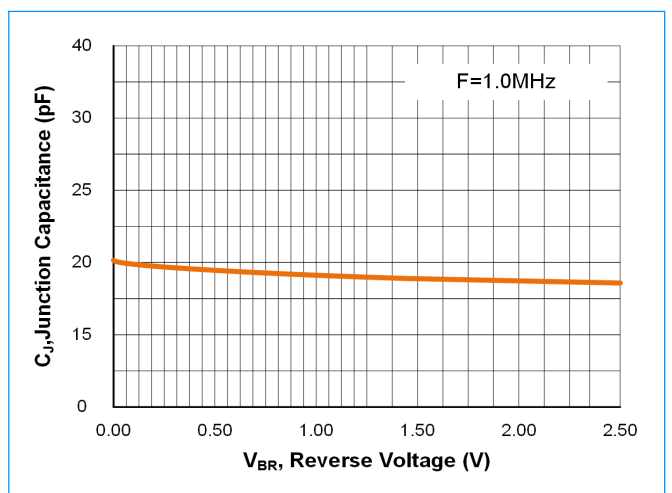


Fig4. Typical Capacitance vs. Reverse Voltage

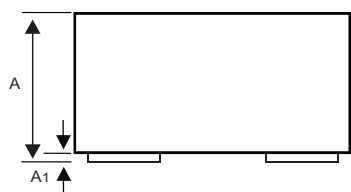


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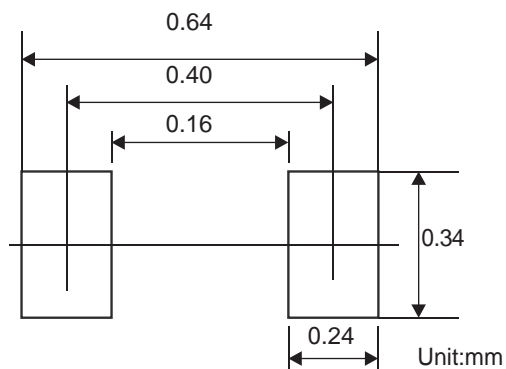
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0201/DFN0603 Package Outline & Dimensions

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-C	50	0201/DFN0603	12,000pcs/Reel	7 inch