

Transient Voltage Suppressors for ESD Protection

ESD05V02D-A

Description

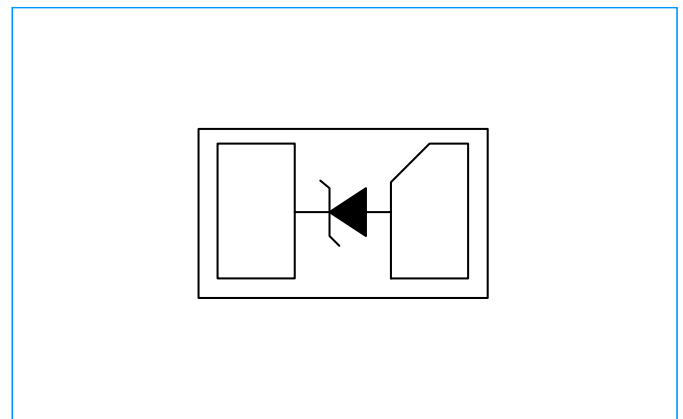
The ESD05V02D-A is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium. Because of its small size, it is suited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



Feature

- ◆ Unidirectional ESD protection
- ◆ Low Clamping Voltage
- ◆ Surface mount package.
- ◆ Ultra small SMD package.
- ◆ Stand-off Voltage: 5.0 V
- ◆ Low leakage current
- ◆ High component density.
- ◆ Provides ESD protection to IEC61000-4-2(ESD):
 - ±30kV (air discharge)
 - ±30kV (contact discharge);

Functional Diagram



Applications

- ◆ Cell Phone Handsets and Accessories
- ◆ Microprocessor based equipment
- ◆ Personal Digital Assistants (PDA's)
- ◆ Notebooks, Desktops, and Servers
- ◆ Portable Instrumentation
- ◆ Peripherals
- ◆ Pagers

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

Mechanical Characteristics

Symbol	Parameter	Value	Units
P_{PP}	Peak Pulse Power ($T_p=8/20\mu s$ waveform)	100	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}	$I_T=1mA$	6.0	--	--	V
Reverse Leakage Current	I_R	$V_{RWM}=5.0V; T=25^{\circ}C$	--	--	1.0	μA
Junction capacitance	C_J	$V_R=0V, f=1MHz;$	--	40	--	pF
Positive Clamping Voltage	V_C	$I_{PP}=1A, T_P=8/20\mu s;$	--	--	9.5	V
		$I_{PP}=5A, T_P=8/20\mu s;$	--	--	10.5	V
		$I_{PP}=7A, T_P=8/20\mu s;$	--	--	15.5	V
TLP Clamping Voltage	V_{CL}	$I_{PP}=1A$	--	8.5	--	V
		$I_{PP}=8A$	--	10.3	--	V
		$I_{PP}=16A$	--	12.5	--	V

Characteristic Curves

Fig1. 8/20 μs Pulse Waveform

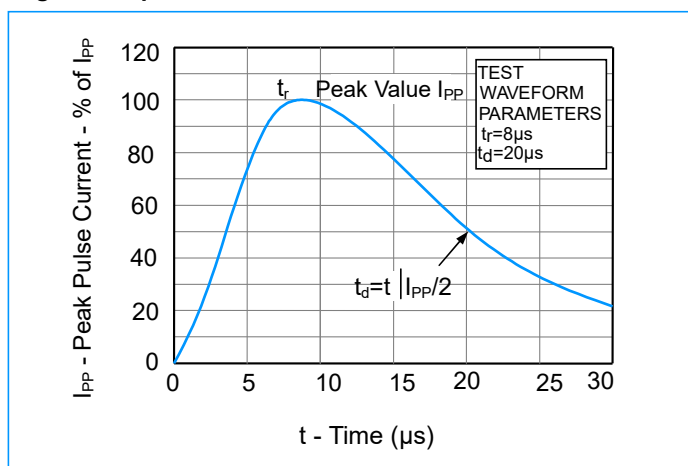


Fig2. Power Rating Derating Curve

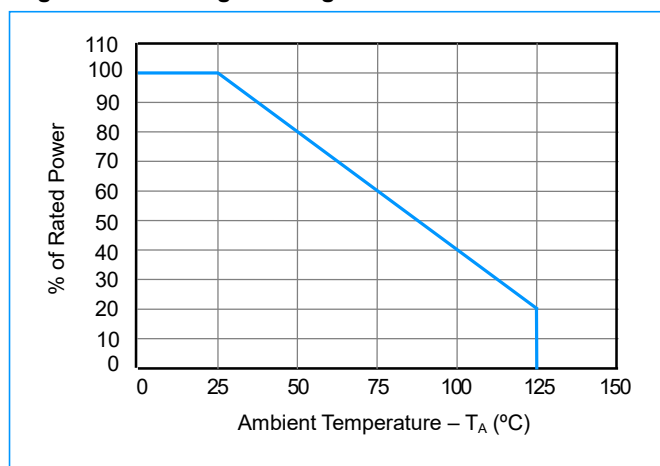


Fig3. Clamping Voltage vs. Peak Pulse Current

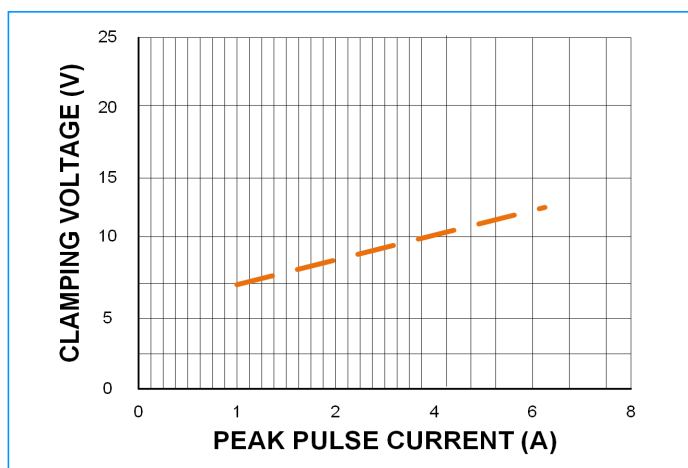
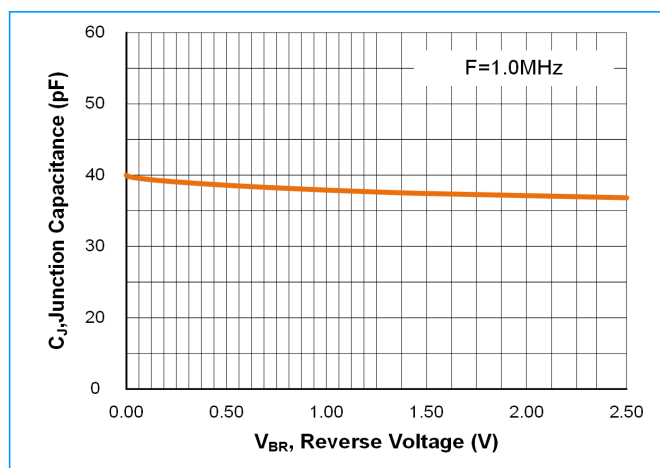


Fig4. Typic Capacitance vs. Reverse Voltage

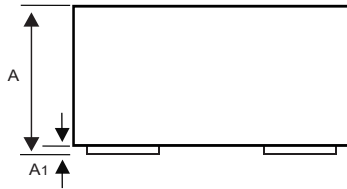
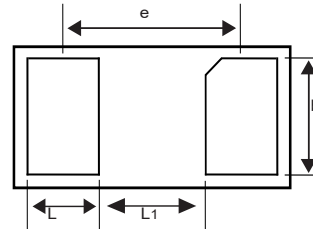
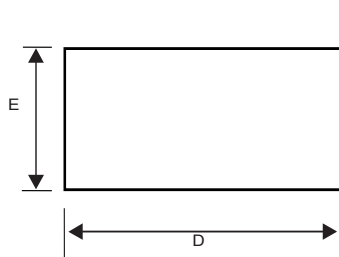


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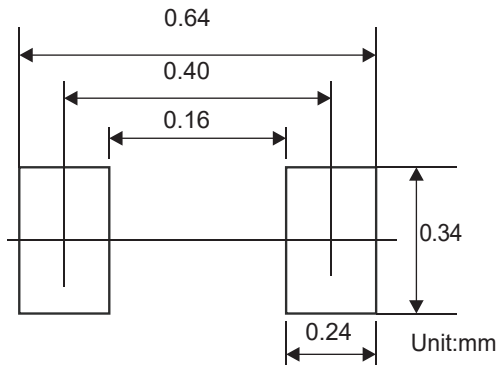
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0201/DFN0603 Package Outline & Dimensions

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-A	D	0201/DFN0603	10,000pcs/Reel	7 inch