

Transient Voltage Suppressors for ESD Protection

ESD2.5V02D-C

Description

The ESD2.5V02D-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.

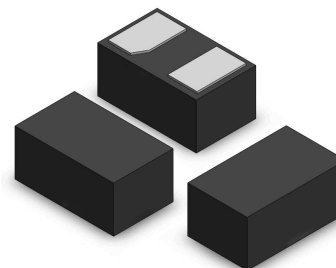
- ◆ Protects One Bidirectional I/O Line
- ◆ Low Clamping Voltage
- ◆ Surface mount package.
- ◆ Ultra small SMD package.
- ◆ Stand-off Voltage: 1.8 V
- ◆ Low leakage current
- ◆ 162 Watts Peak Pulse Power per Line (tp=8/20μs)
- ◆ IEC61000-4-5 (LIGHTING) 18A (8/20μs)
- ◆ Provides ESD protection to IEC61000-4-2(ESD):
 - ± 30kV (air discharge)
 - ± 30kV (contact discharge);

Applications

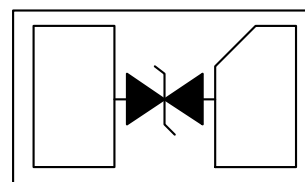
- ◆ Cell Phone Handsets and Accessories
- ◆ I²C Bus Protection
- ◆ Personal Digital Assistants (PDA)
- ◆ Notebooks, Desktops, and Servers
- ◆ Micro controller Input Protection
- ◆ Peripherals
- ◆ Parallel & Serial Port Protection

Mechanical characteristics

Symbol	Parameter	Value	Units
P _{PP}	Peak Pulse Power (Tp=8/20μs waveform)	161	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



Functional Diagram



Mechanical Data

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

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Electrical Characteristics(@25°C Unless Otherwise Specified)

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Reverse Working Voltage	V_{RWM}	--	--	--	2.5	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1mA$	3.2	--	--	V
Reverse Leakage Current	I_R	$V_{RWM}=1.8V$; $T=25^\circ C$	--	--	0.1	μA
Junction capacitance	C_J	$V_R=0V$, $f=1MHz$;	--	23	--	pF
Positive Clamping Voltage	V_C	$I_{PP}=18A$, $T_P=8/20\mu s$;	--	--	9.5	V
TLP Clamping Voltage	V_{CL}	$I_{PP}=1A$	--	4.5	--	V
		$I_{PP}=8A$	--	6.0	--	V
		$I_{PP}=16A$	--	7.0	--	V

Characteristic Curves

Fig1. 8/20 μs Pulse Waveform

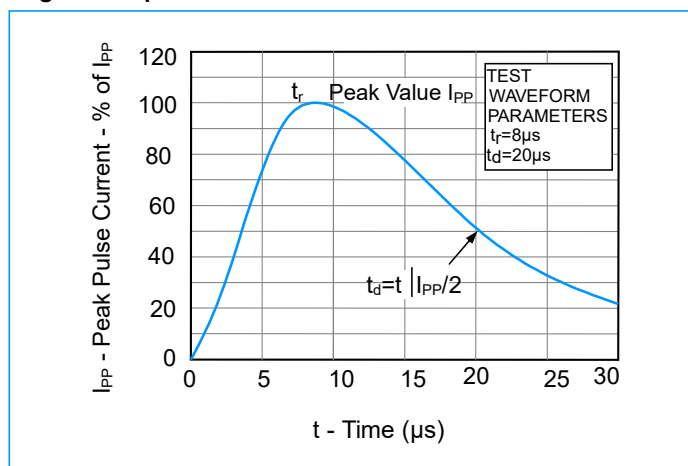


Fig2. Power Rating Derating Curve

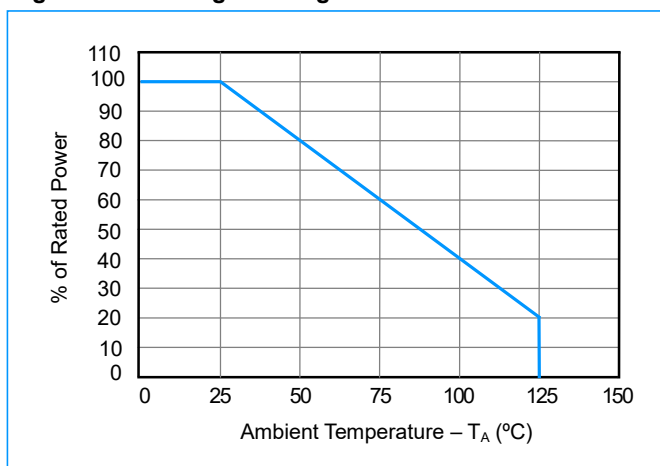


Fig3. Clamping Voltage vs. Peak Pulse Current

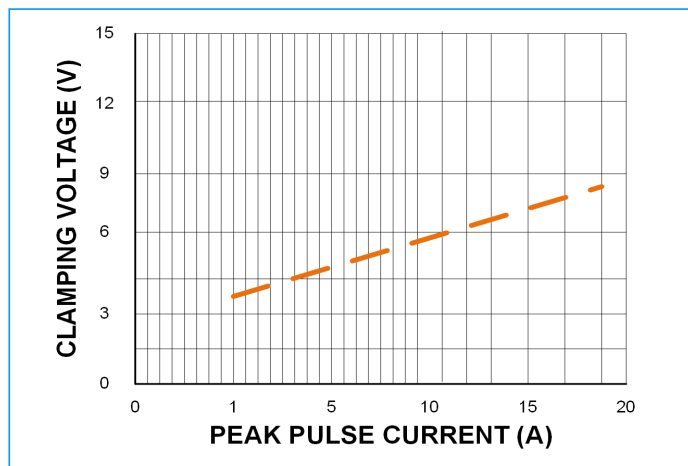
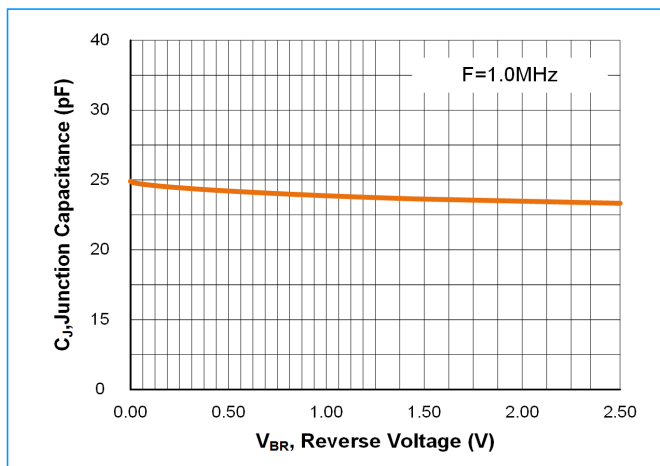


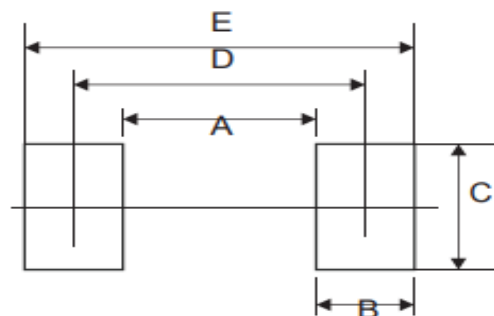
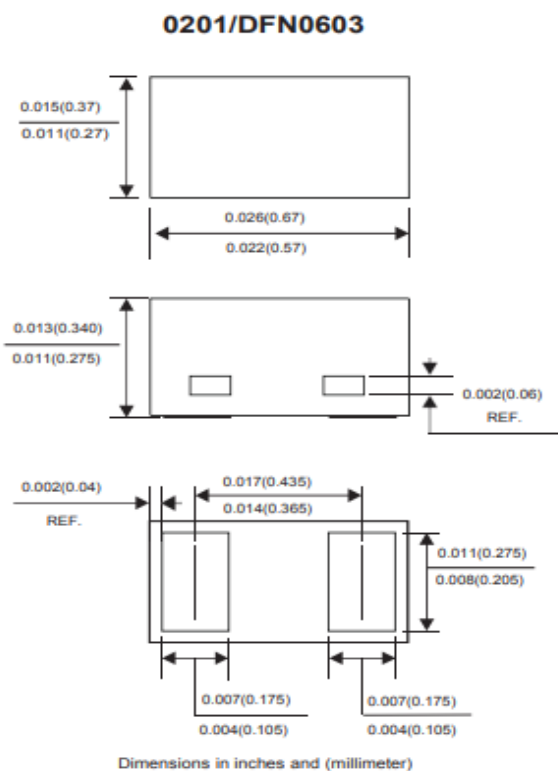
Fig4. Typical Capacitance vs. Reverse Voltage



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0201/DFN0603 Package Outline&Dimensions



Suggested PAD Layout

SIZE	0201(DFN0603)	
	(mm)	(inch)
A	0.16	0.006
B	0.24	0.009
C	0.34	0.013
D	0.40	0.016
E	0.64	0.025

Ordering Information

Device	Marking	Package	Quantity	Reel Size
ESD2.5V02D-C	25	0201/DFN0603	12,000pcs/Reel	7 inch