

Small Signal Product

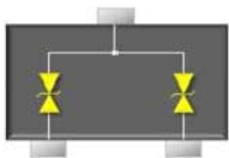
Bi-directional ESD Protection Diode

FEATURES

- Meet IEC61000-4-2 (ESD) $\pm 15\text{kV}$ (air), $\pm 8\text{kV}$ (contact)
- Meet IEC61000-4-4 (EFT) rating. 40A (5/50ns)
- Meet IEC61000-4-5 (Lightning) rating. 12A (8/20 μs)
- Protects two directional I/O lines
- Working voltage: 5V
- Pb free version and RoHS compliant
- Packing code with suffix "G" means green compound (halogen-free)



SOT-23



MECHANICAL DATA

- Case: SOT-23 small outline plastic package
- Terminal: Matte tin plated, lead free., solderable per MIL-STD-202, Method 208 guaranteed
- High temperature soldering guaranteed : 260°C/10s
- Weight: 8 $\pm$ 0.5 mg
- Marking code: L50

APPLICATIONS

- Cell Phone Handsets and Accessories
- Microprocessor Based Equipment
- Industrial Controls
- Notebooks, Desktops, and Servers
- Set-Top Box

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T _A =25°C unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Peak Pulse Power (tp=8/20 μs waveform)	P _{PP}	100	W
Peak Pulse Current (tp=8/20 μs)	I _{PP}	2.5	A
ESD per IEC 61000-4-2 (Air)	V _{ESD}	± 15	KV
ESD per IEC 61000-4-2 (Contact)		± 8	
Junction and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

PARAMETER		SYMBOL	MIN	MAX	UNIT
Reverse Stand-Off Voltage		V _{RWM}	-	5	V
Reverse Breakdown Voltage	I _R = 1 mA	V _(BR)	6	-	V
Reverse Leakage Current	V _R = 5 V	I _R	-	1	μA
Clamping Voltage	I _{PP} = 1 A	V _C	-	9.8	V
	I _{PP} = 2.5 A		-	15	
Junction Capacitance	V _R = 0 V , f = 1.0 MHz	C _J	10		pF

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RATINGS AND CHARACTERISTICS CURVES

(T_A=25°C unless otherwise noted)

Fig. 1 Non-Repetitive Peak Pulse Power VS. Pulse Time

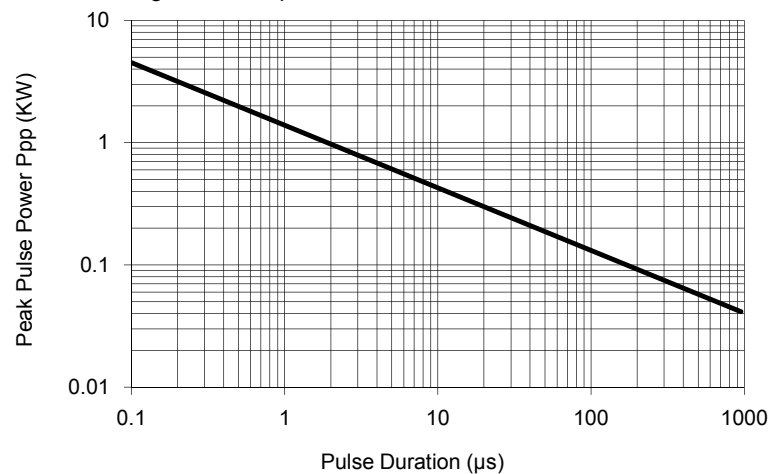


Fig. 2 Pulse Waveform

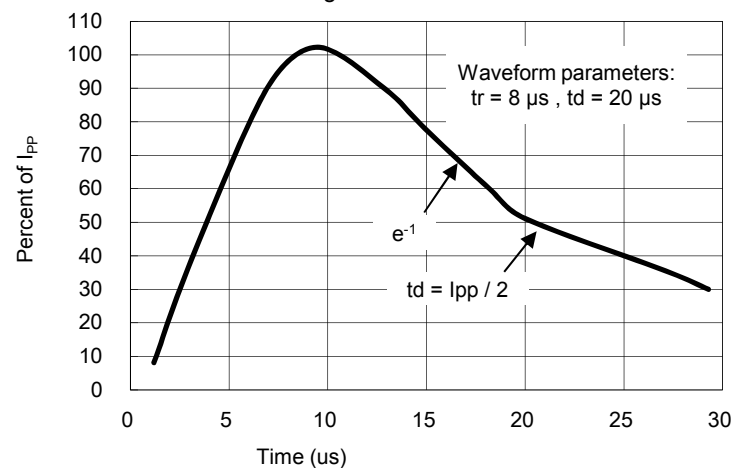


Fig. 3 Admissible Power Dissipation Curve

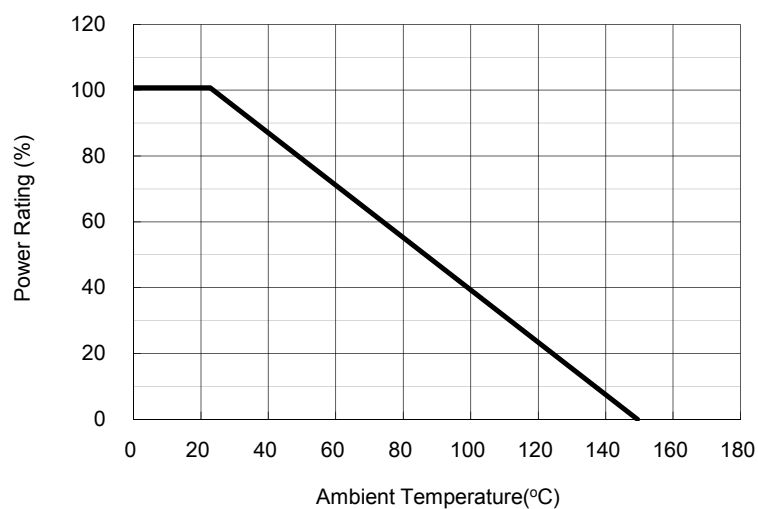


Fig. 4 Typical Junction Capacitance

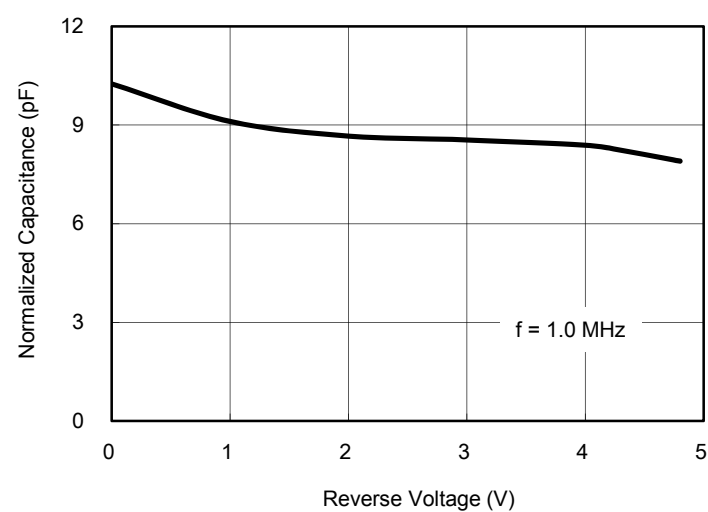
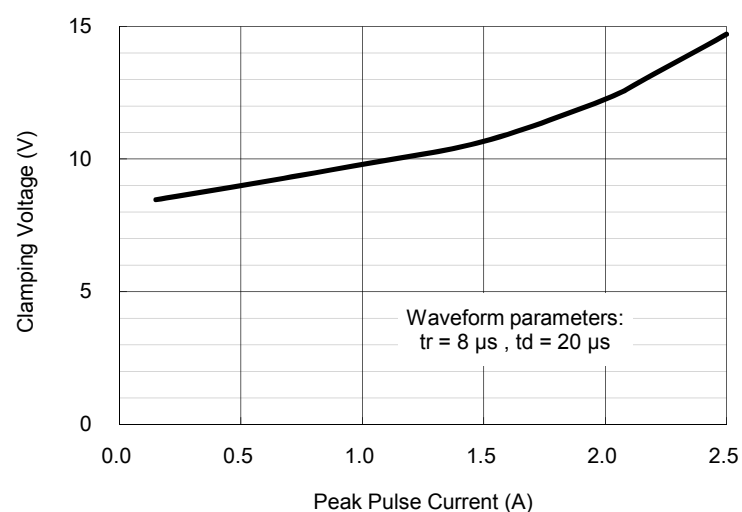
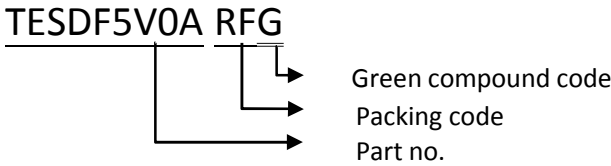


Fig. 5 Clamping Voltage VS. Peak Pulse Current

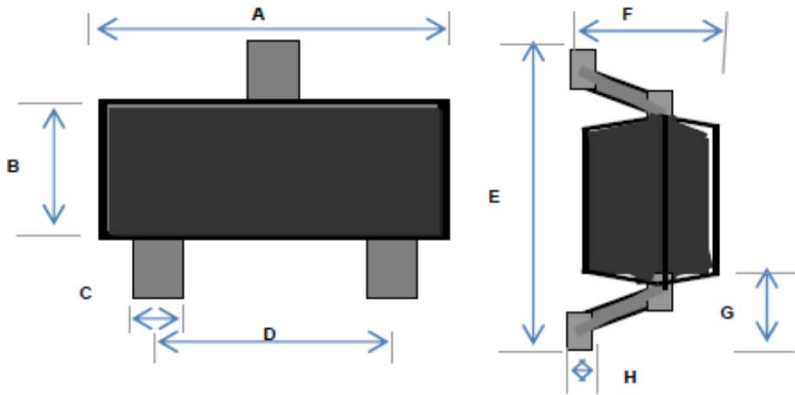


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ORDER INFORMATION (EXAMPLE)

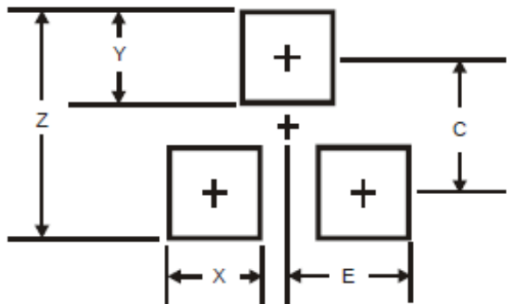


PACKAGE OUTLINE DIMENSIONS
SOT-23



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	2.70	3.10	0.106	0.122
B	1.10	1.50	0.043	0.059
C	0.30	0.51	0.012	0.020
D	1.78	2.04	0.070	0.080
E	2.10	2.64	0.083	0.104
F	0.89	1.30	0.035	0.051
G	0.55 REF		0.022 REF	
H	0.10 REF		0.004 REF	

SUGGEST PAD LAYOUT



DIM.	Unit (mm)	Unit (inch)
	Typ.	Typ.
Z	2.8	0.110
X	0.7	0.028
Y	0.9	0.035
C	1.9	0.075
E	1.0	0.039

Note: 1. The suggested land pattern dimensions have been provided for reference only, as actual pad layouts may vary depending on application.

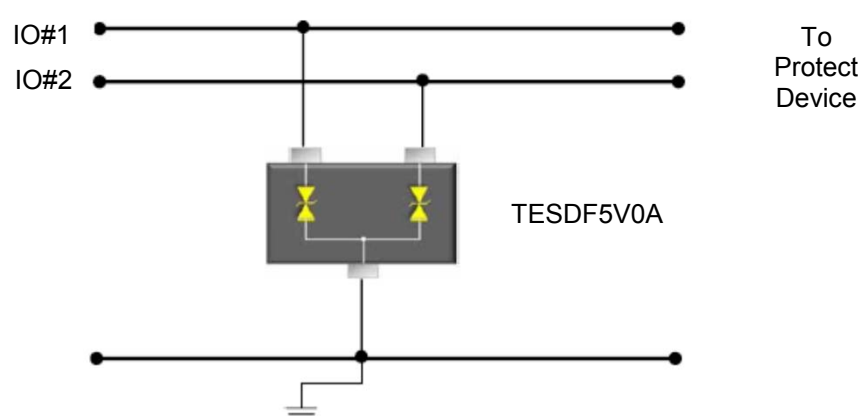
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APPLICATIONS INFORMATION

- ◇ Designed for the bi-directional protection of 2 lines from the damage caused by Electro Static Discharge (ESD) and surge pulses
- ◇ Be used on lines where the signal polarities are above and below ground
- ◇ Provides a surge capability of 100 Watts peak Ppp per line for an 8/20 ms waveform

CIRCUIT BOARD LAYOUT RECOMMENDATIONS

- ◇ Place the ESD Protection array as close to the input terminal or connector as possible
- ◇ Keep parallel signal paths to a minimum
- ◇ Minimize all printed-circuit board conductive loops including power and group loops
- ◇ Avoid using shared transient return paths to a common ground point
- ◇ Ground planes should be used. For multilayer printed-circuit boards, use ground vias
- ◇ Below picture is the typical application for bi-directional protection of two lines



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