

Features

- ◆ 250W peak pulse power(8/20 μ s)
- ◆ Protects two bi-directional lines
- ◆ Ultra low leakage: nA level
- ◆ Operating voltage: 12V
- ◆ Low clamping voltage
- ◆ Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: ± 30 kV
 - Contact discharge: ± 30 kV
 - IEC61000-4-4 (EFT) 40A (5/50ns)
- ◆ RoHS Compliant

Mechanical Characteristics

- ◆ Package: SOT-23
- ◆ Lead Finish: Matte Tin
- ◆ Case Material: “Green” Molding Compound.
- ◆ UL Flammability Classification Rating 94V-0
- ◆ Moisture Sensitivity: Level 3 per J STD 020



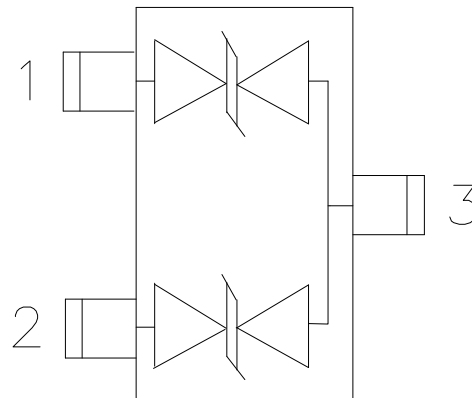
Applications

- ◆ Cellular Handsets and Accessories
- ◆ Notebooks and Handhelds
- ◆ Portable Instrumentation
- ◆ Set Top Box
- ◆ Industrial Controls

Ordering Information

Part Number	Qty per Reel	Reel Size
TPESD12BS3	3000	7"

Dimensions and Pin Configuration



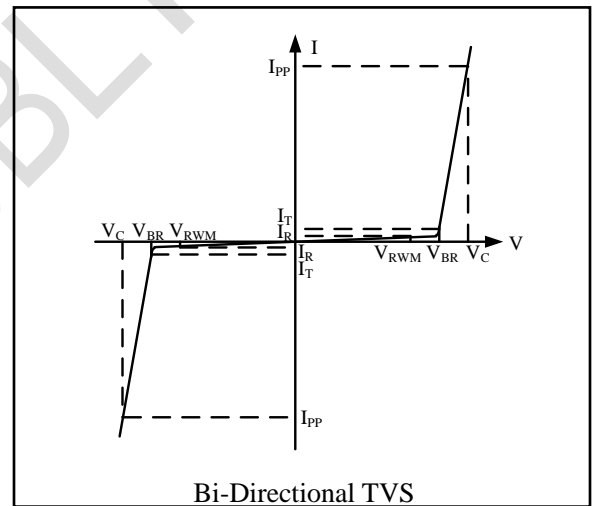
Circuit and Pin Schematic

Absolute Maximum Ratings (Tamb=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power(8/20μs)	Ppk	250	W
ESD per IEC 61000-4-2 (Air)	VESD	±30	kV
ESD per IEC 61000-4-2 (Contact)		±30	
Operating Temperature Range	TJ	-55 to +125	°C
Storage Temperature Range	Tstg	-55 to +150	°C

Electrical Characteristics (TA=25°C unless otherwise specified)

Symbol	Parameter
V_{RWM}	Nominal Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Reverse Breakdown Voltage @ I_T
I_T	Test Current for Reverse Breakdown
V_C	Clamping Voltage @ I_{PP}
I_{PP}	Maximum Peak Pulse Current
C_{ESD}	Parasitic Capacitance
V_R	Reverse Voltage
f	Small Signal Frequency



Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			12	V	
Breakdown Voltage	VBR	13.3			V	IT = 1mA
Reverse Leakage Current	IR		0.01	0.5	μA	VRWM = 12V
Clamping Voltage	VC		15		V	IPP = 1A (8 x 20μs pulse)
Clamping Voltage	VC		24		V	IPP = 10A (8 x 20μs pulse)
Peak Pulse Current	IPP			10	A	tP=8/20μs
Junction Capacitance	CJ			24	pF	VR=0, f=1MHz, Pin 1 to Pin 3 or Pin 2 to Pin 3

PROTECTION PRODUCTS
Typical characteristics

Fig1. 8/20 μ s Pulse Waveform

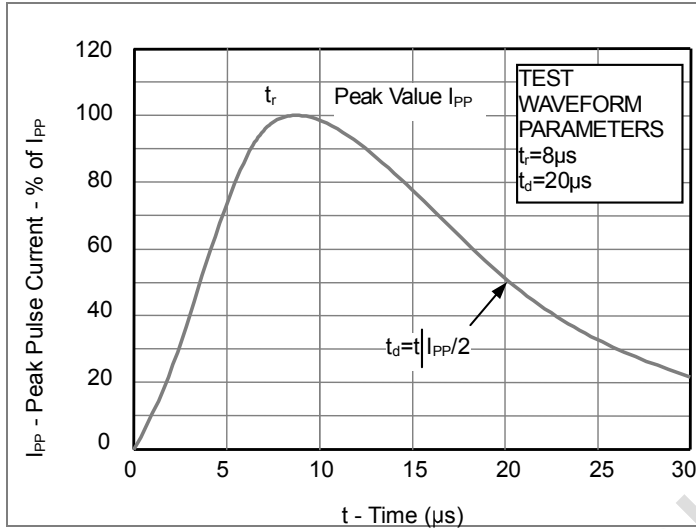


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

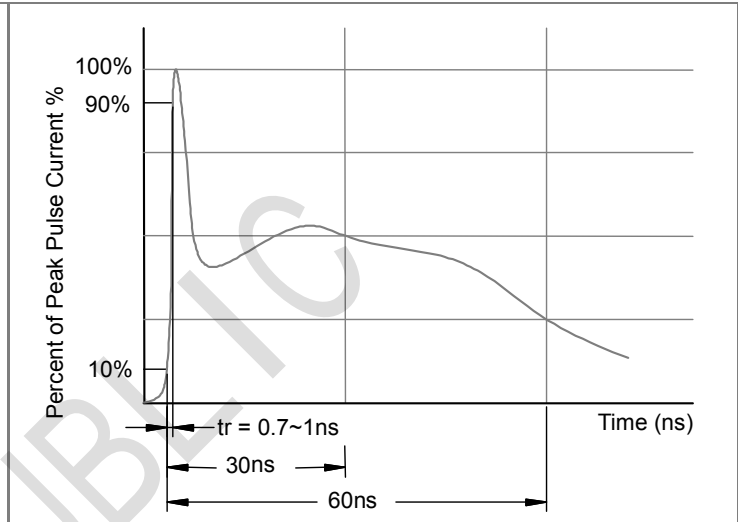
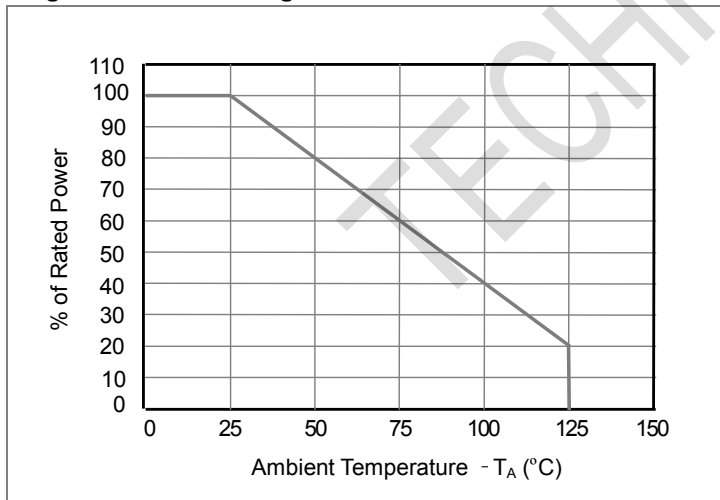
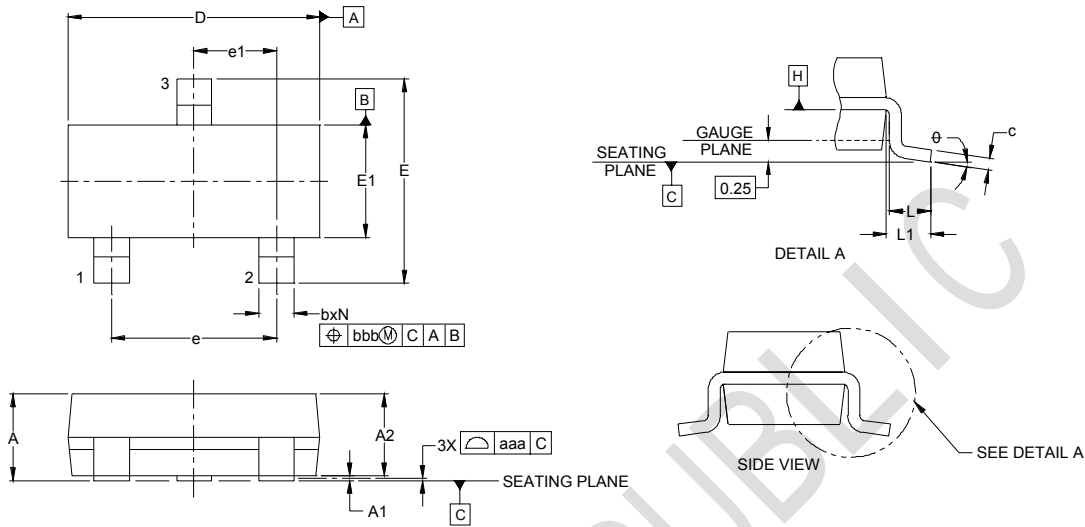


Fig3. Power Derating Curve

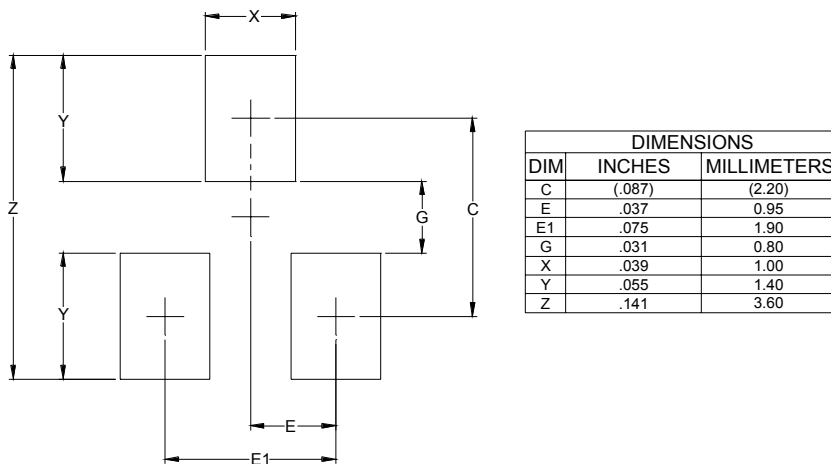


Outline Drawing - SOT23



DIM	INCHES		MILLIMETERS	
	MIN	NOM/MAX	MIN	NOM/MAX
A	.035	-.044	0.89	- 1.12
A1	.000	-.004	0.01	- 0.10
A2	.035	.037-.040	0.88	0.95 1.02
b	.012	-.020	0.30	- 0.51
c	.003	-.007	0.08	- 0.18
D	.110	.114-.120	2.80	2.90 3.04
E	.082	.093-.104	2.10	2.37 2.64
E1	.047	.051-.055	1.20	1.30 1.40
e	.075		1.90	BSC
e1	.037		0.95	BSC
L	.015	.020-.024	0.40	0.50 0.60
L1	.022		(0.55)	
N	3		3	
θ	0°	- 8°	0°	- 8°
aaa	.004		0.10	
bbb	.008		0.20	

Land Pattern - SOT23



DIM	DIMENSIONS	
	INCHES	MILLIMETERS
C	(.087)	(2.20)
E	.037	0.95
E1	.075	1.90
G	.031	0.80
X	.039	1.00
Y	.055	1.40
Z	.141	3.60