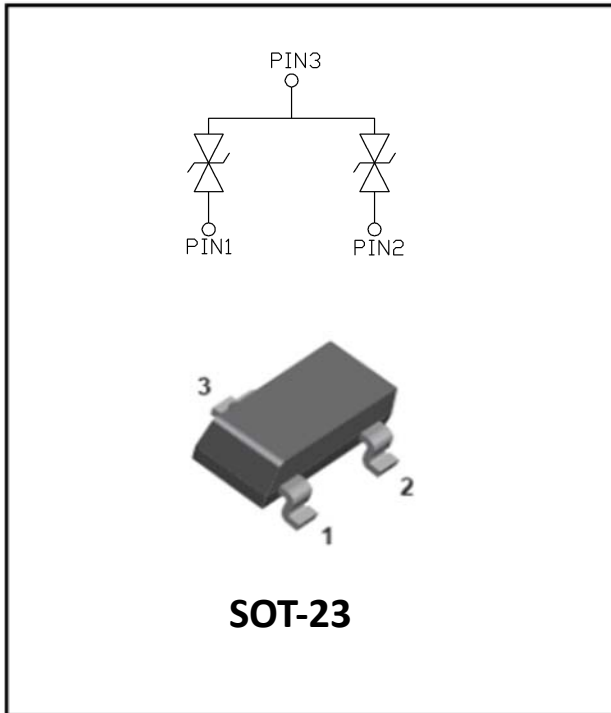


2-Line, Bi-directional, Transient Voltage Suppressor



Features

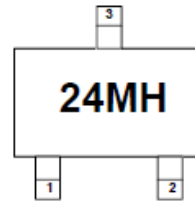
- Stand-off voltage: $\pm 24V$ Max
- Transient protection for each line according to
IEC61000-4-2(ESD): $\pm 30kV$ (contact)
IEC61000-4-5(surge): 13A (8/20 μs)
- Low leakage current:
- Ultra low clamping voltage
- RoHS Compliant

Applications

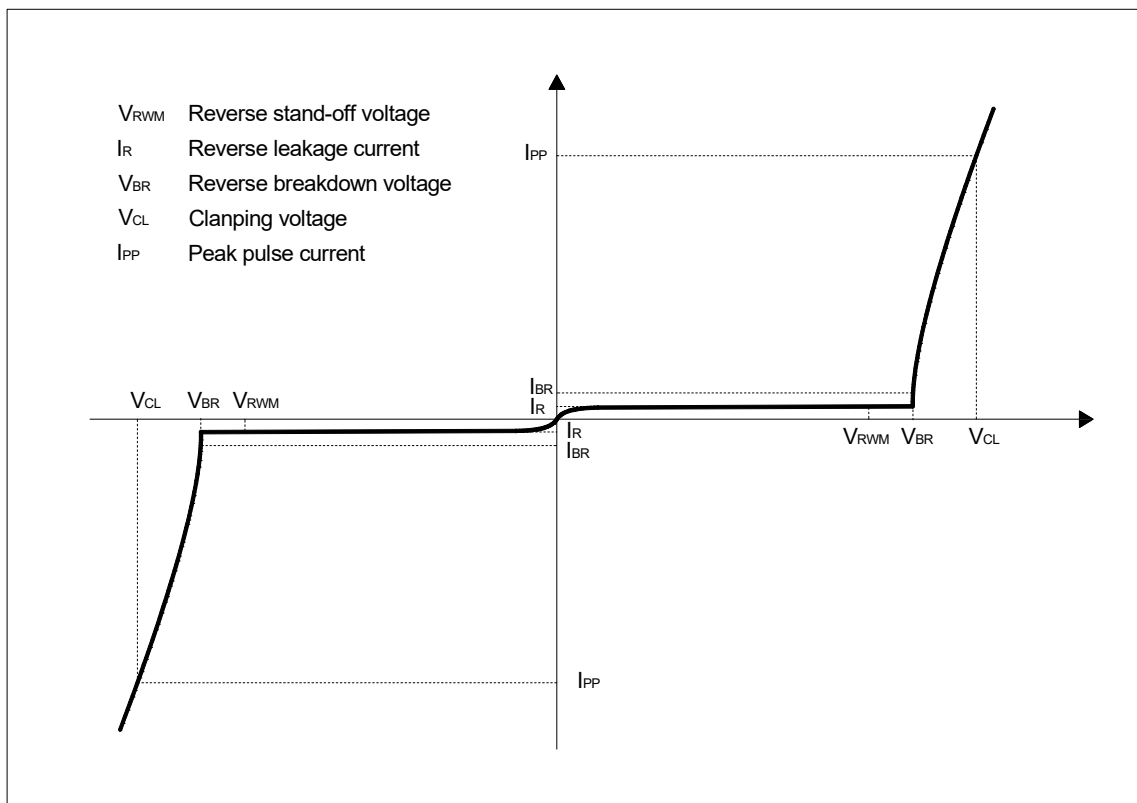
- Cellular Handsets and Accessories
- Notebooks and Handhelds
- Portable Instrumentation
- Set Top Box
- Industrial Controls
- Server and Desktop PC

Mechanical Data

- Package: SOT-23
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound
- Moisture Sensitivity: Level 1 per J-STD-020
- Marking Information: See Below



■ Definitions of electrical characteristics





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■Maximum Ratings

PARAMETER	SYMBOL	LIMITS	UNIT
Peak pulse power ($t_p = 8/20\mu s$)	P_{pk}	450	W
Peak pulse current ($t_p = 8/20\mu s$)	I_{PP}	13	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	± 30	KV
ESD according to IEC61000-4-2 contact discharge		± 30	
Junction temperature	T_J	125	$^{\circ}C$
Storage temperature	T_{STG}	-55~150	$^{\circ}C$

■Electrical Characteristics ($T_a=25^{\circ}C$ Unless otherwise specified)

PARAMETER	Symbol	UNIT	Conditions	Min	Typ	Max
Reverse maximum working voltage	V_{RWM}	V				24
Reverse leakage current	I_R	μA	$V_{RWM} = 24V$			0.2
Reverse breakdown voltage	V_{BR}	V	$I_T = 1mA$	25		
Clamping voltage ¹⁾	V_{CL}	V	$I_{PP} = 1A, t_p = 8/20\mu s$			32
		V	$I_{PP} = 13A, t_p = 8/20\mu s$			34.5
Junction capacitance	C_J	pF	$V_R = 0V, f = 1MHz$ Pin 1 to Pin 3 or Pin 2 to Pin 3		15	20
Junction capacitance	C_J	pF	$V_R = 0V, f = 1MHz$ Pin 1 to Pin 2		7	15

Notes:

(1). Non-repetitive current pulse, according to IEC61000-4-5.

■Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(mg)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
HESD2402EB	F2	Approximate 8	3000	30000	120000	7" reel



■ Characteristics (Typical)

Fig.1 8/20 μ s waveform per IEC61000-4-5

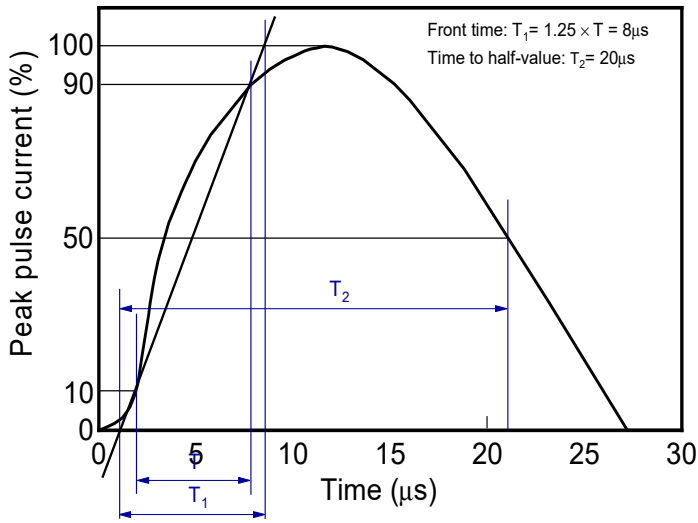


Fig.2 Contact discharge current waveform per IEC61000-4-2

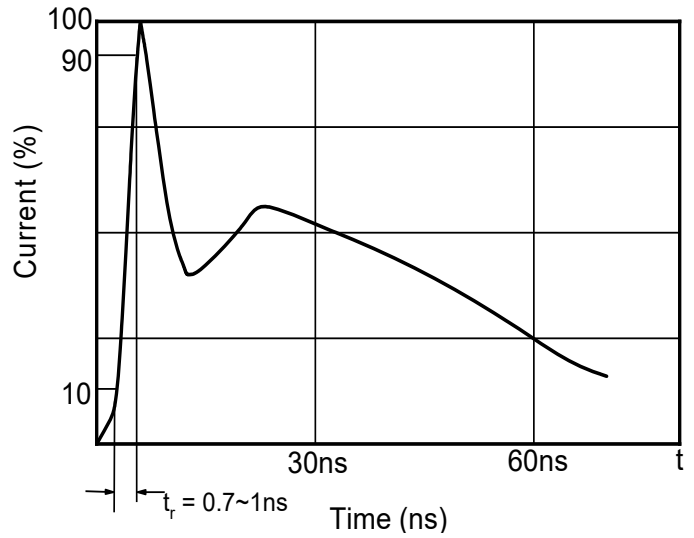


Fig.3 Clamping voltage vs. Peak pulse current

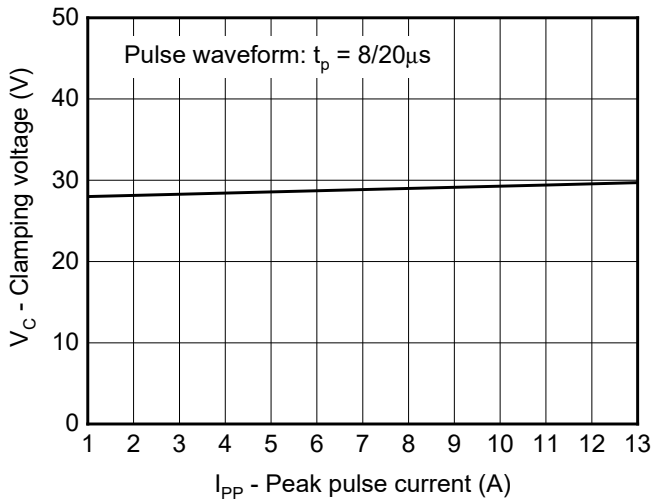


Fig.4 Capacitance vs. Reverse voltage

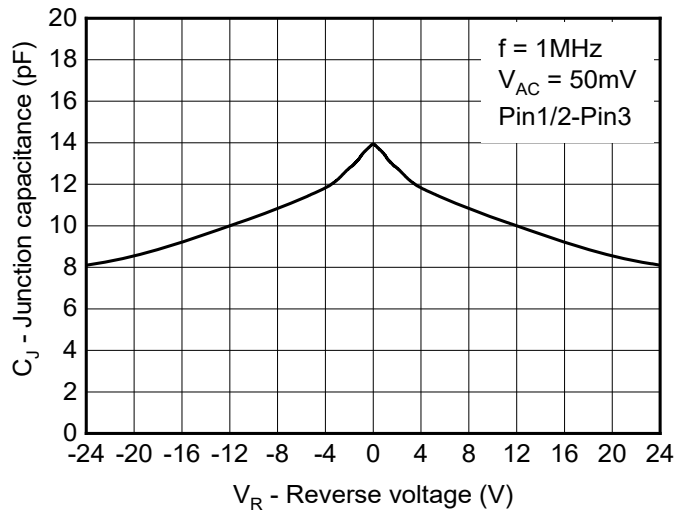


Fig.5 Non-repetitive peak pulse power vs. Pulse time

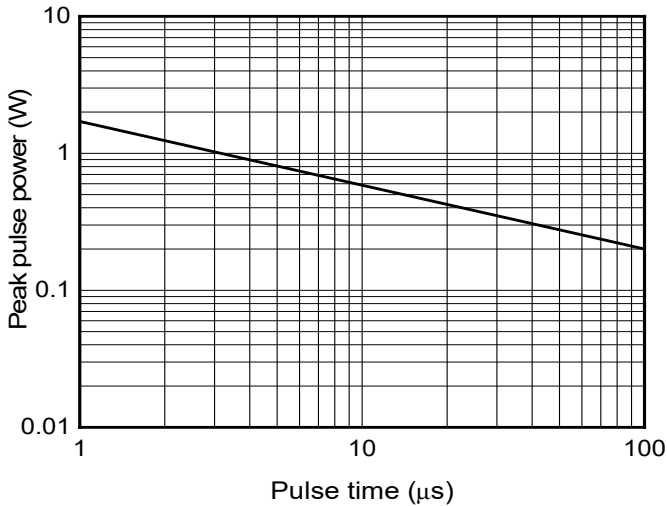
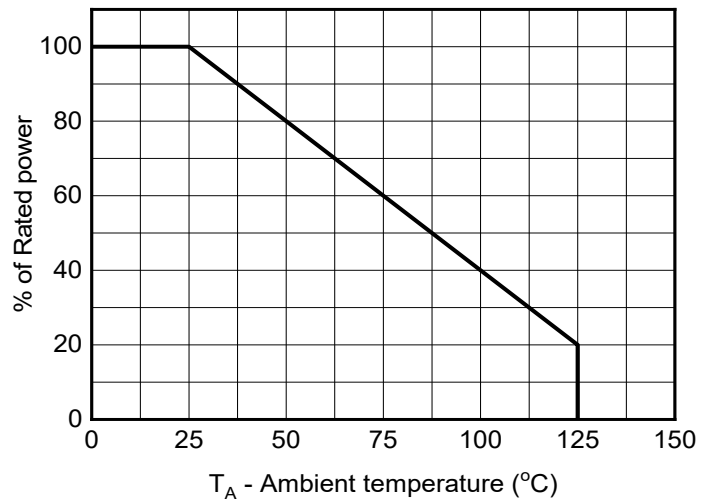


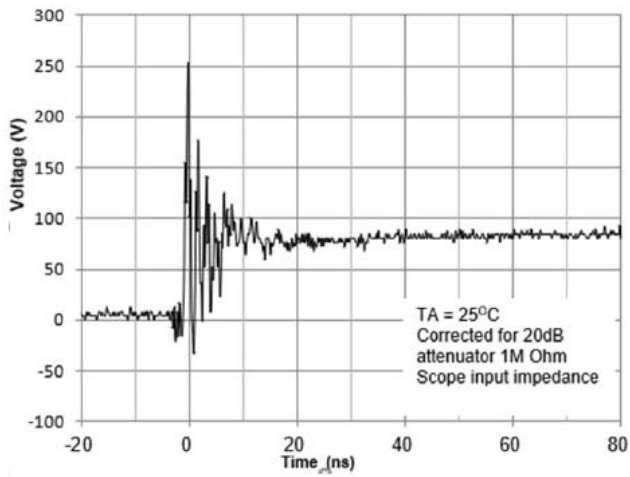
Fig.6 Power derating vs. Ambient temperature





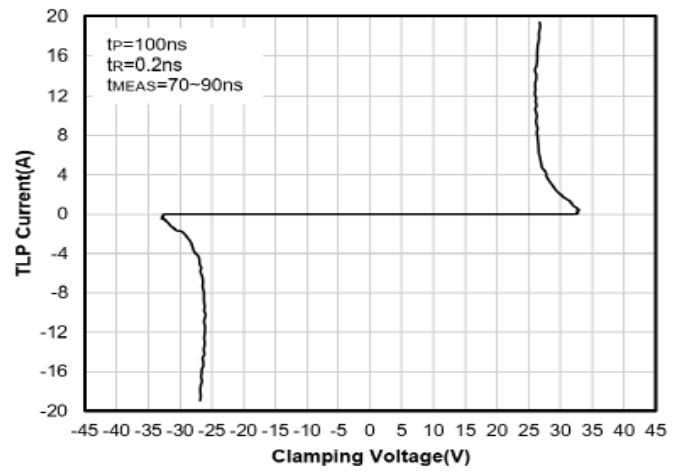
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Fig.7 ESD clamping



(+8kV contact discharge per IEC61000-4-2)

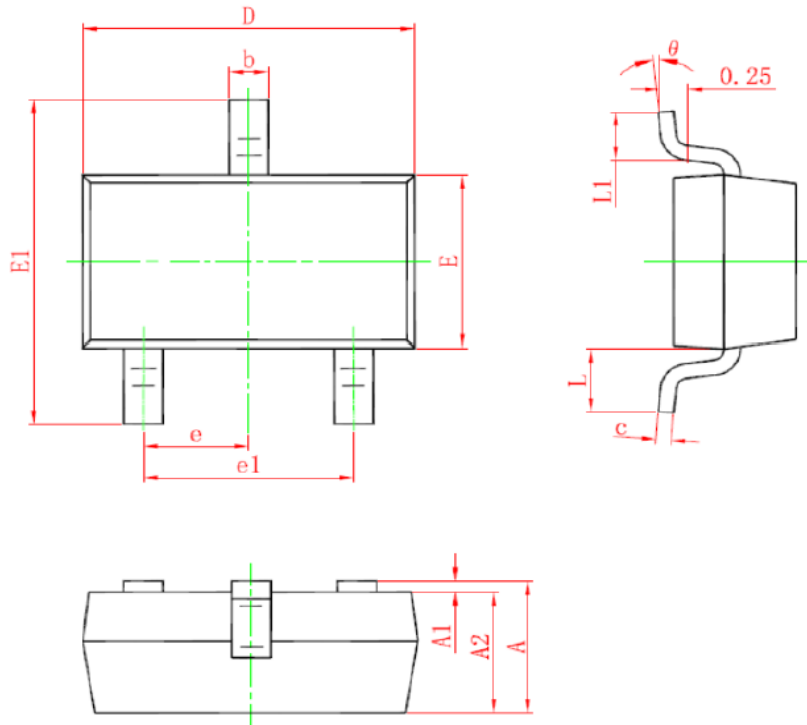
Fig.9 TLP Measurement





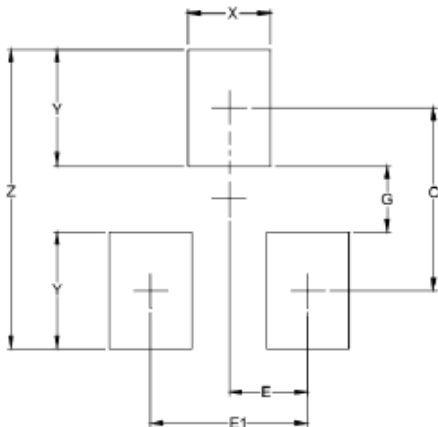
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■ Outline Dimensions



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.90	--	1.15	0.035	--	0.045
A1	0.00	--	0.10	0.000	--	0.004
A2	0.90	--	1.05	0.035	--	0.041
b	0.30	--	0.50	0.012	--	0.020
c	0.08	--	0.15	0.003	--	0.006
D	2.80	--	3.00	0.110	--	0.118
E	1.20	--	1.40	0.047	--	0.055
E1	2.25	--	2.55	0.089	--	0.100
e	0.95TYP			0.037TYP		
e1	1.80	--	2.00	0.071	--	0.079
L	0.55REF			0.022REF		
L1	0.30	--	0.50	0.012	--	0.020
θ	0°	--	8°	0°	--	8°

■ Soldering Footprint



SYM	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



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