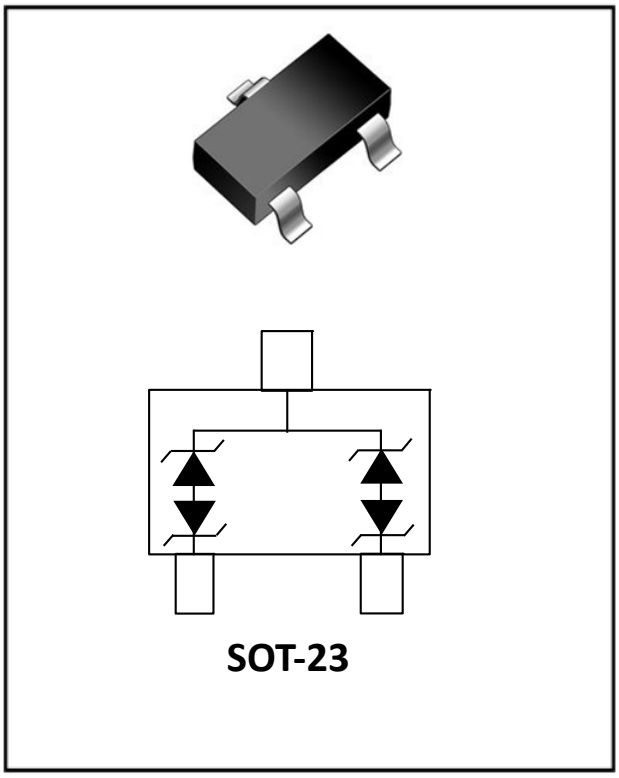
2-Line, Bi-directional, Transient Voltage Suppressor



Features

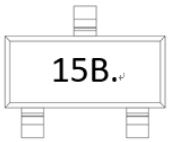
- Transient protection for each line according to
  IEC61000-4-2(ESD): ±30kV contact, ±30kV air
  IEC61000-4-5:9A(tp=8/20μs)
- Low leakage current
- Ultra low clamping voltage
- RoHS Compliant

Applications

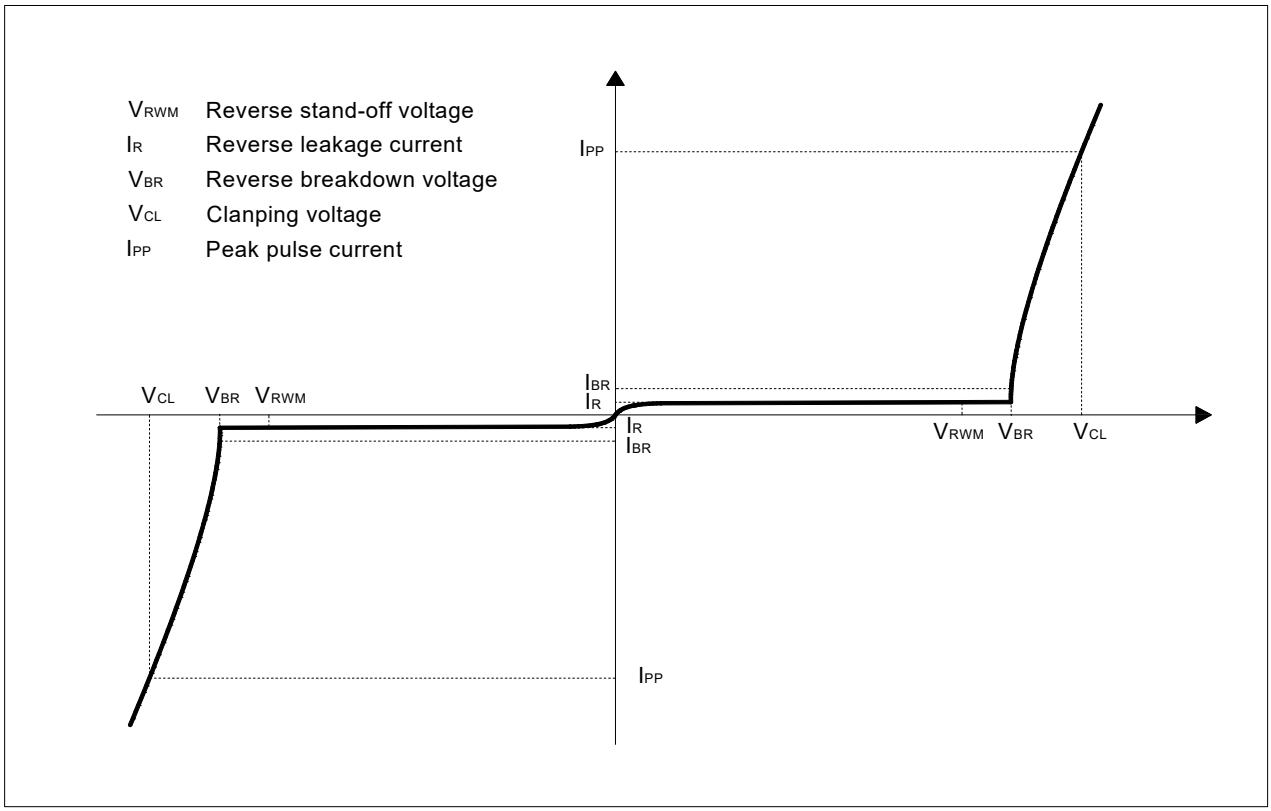
- Cellular Handsets and Accessories
- Notebooks and Handhelds
- Portable Instrumentation
- Set Top Box
- Industrial Controls
- Server and Desktop PC

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



■Maximum Ratings

PARAMETER	SYMBOL	LIMITS	UNIT
Peak pulse power (t_p = 8/20μs)	P_{pk}	270	W
Peak pulse current (t_p = 8/20μs)	I_{PP}	9	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	-55~150	℃
Storage temperature	T_{STG}	-55~150	℃

Notes:

CAUTION: Stresses above those listed in “Absolute Maximum Ratings” may cause permanent damage to the component. This is a stress only rating and operation of the component at these or any other conditions above those indicated in the operational sections of this specification is not implied.

■Electrical Characteristics（T_J=25℃）

PARAMETER	Symbol	UNIT	Conditions	Min	Typ	Max
Reverse maximum working voltage	V_{RWM}	V				15
Reverse leakage current	I_R	μA	V_{RWM} = 15V			0.5
Reverse breakdown voltage	V_{BR}	V	I_T = 1mA	15.5		18
Clamping voltage [1)]	V_{CL}	V	I_{PP} = 16A, t_p = 0.2/100ns(TLP)		24	
Dynamic resistance [2)]	R_{DYN}	Ω	TLP, tp=100ns, I/O to Ground		0.39	
Clamping voltage [1)]	V_C	V	I_{PP} = 1A, t_p = 8/20μs			21
		V	I_{PP} = 5A, t_p = 8/20μs			25
		V	I_{PP} = 9A, t_p = 8/20μs			30
Junction capacitance	C_J	pF	V_R = 0V, f = 1MHz		27	46

Notes:

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

(2). TLP parameter: Z_0 = 50Ω, t_p = 100ns, t_r = 2ns, averaging window from 60ns to 80ns. R_{DYN} is calculated from 4A to 16A.

■Ordering Information (Example)

PREFERED P/N	PACKING CODE	UNIT WEIGHT(mg)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
ESD1502EB	F2	Approximate 10	3000	30000	120000	7 reel

■ Characteristics (Typical)

Fig.1 8/20us Waveform Per iec6100-4-5

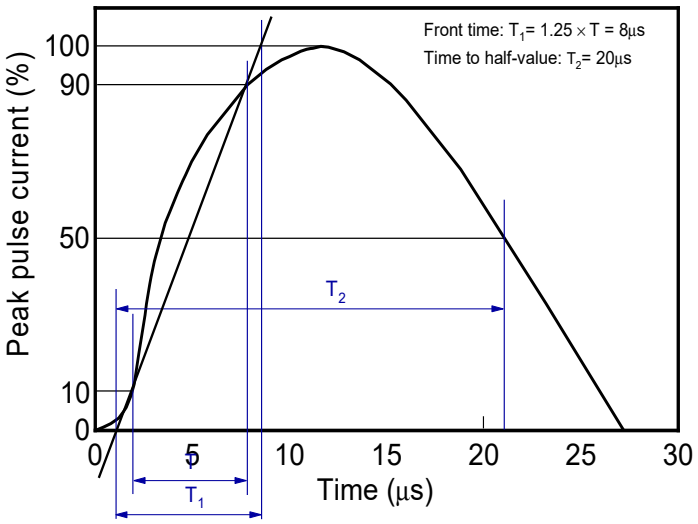


Fig.2 Contact Discharge Current Waveform per IEC61000-4-2

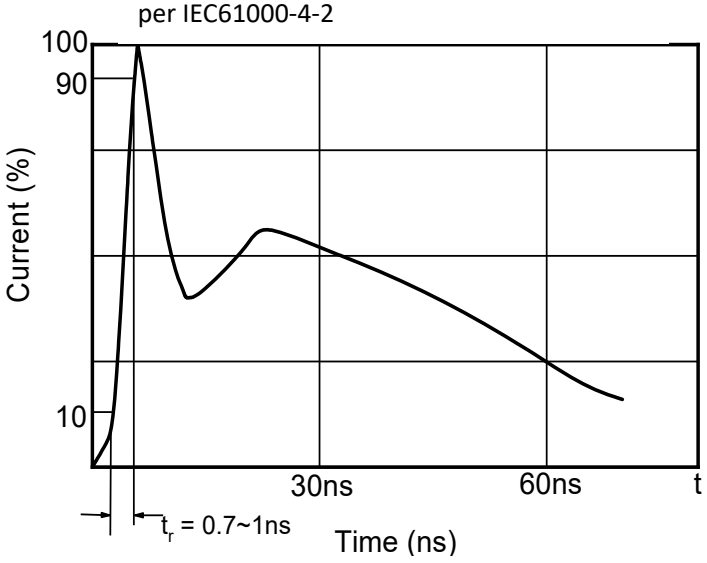


Fig.3 ClampingVoltage VS Peak Pulse Current

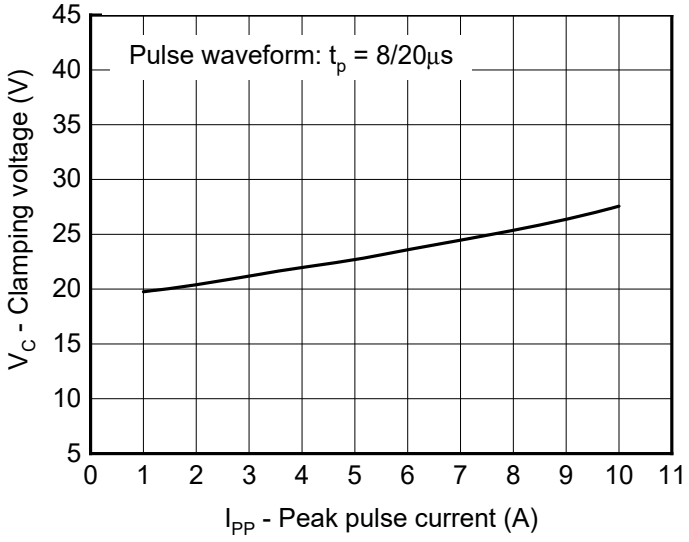


Fig.4 Capacitance VS Bias

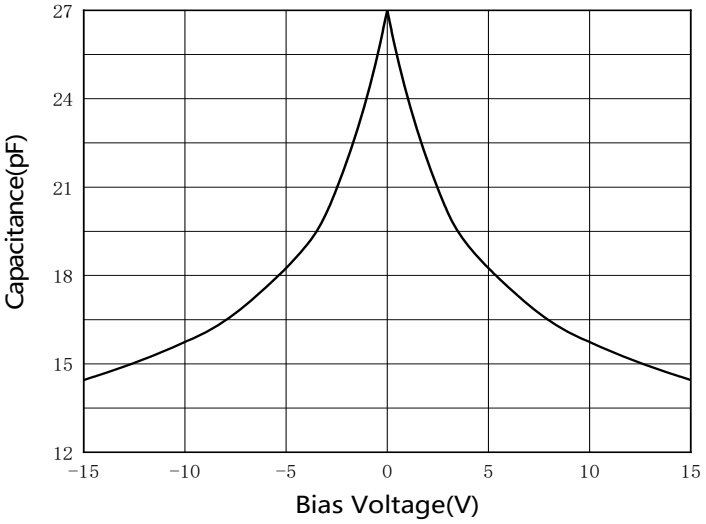


Fig.4 Non-Repetitive Peak Pulse Power vs Pulse Time

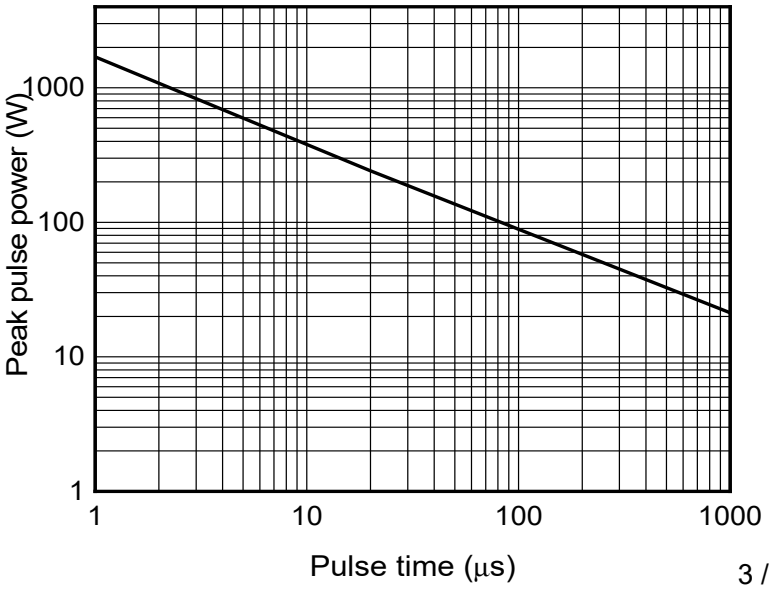


Fig.5 Power Derating Curve

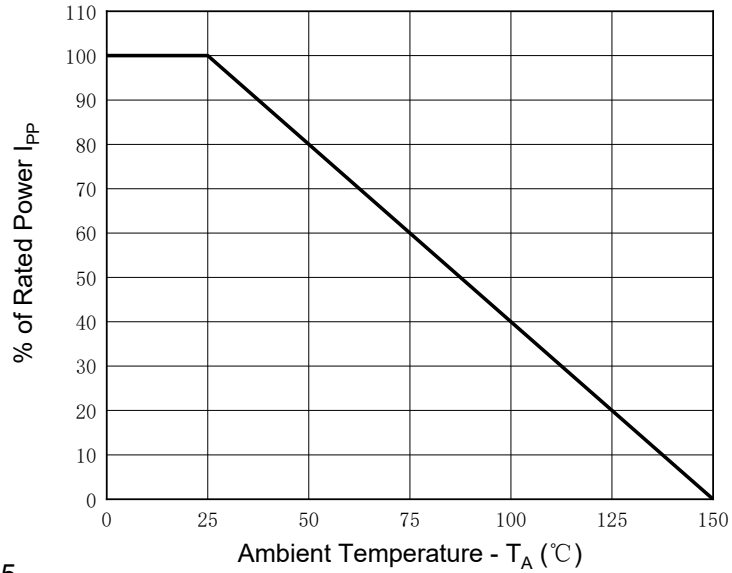
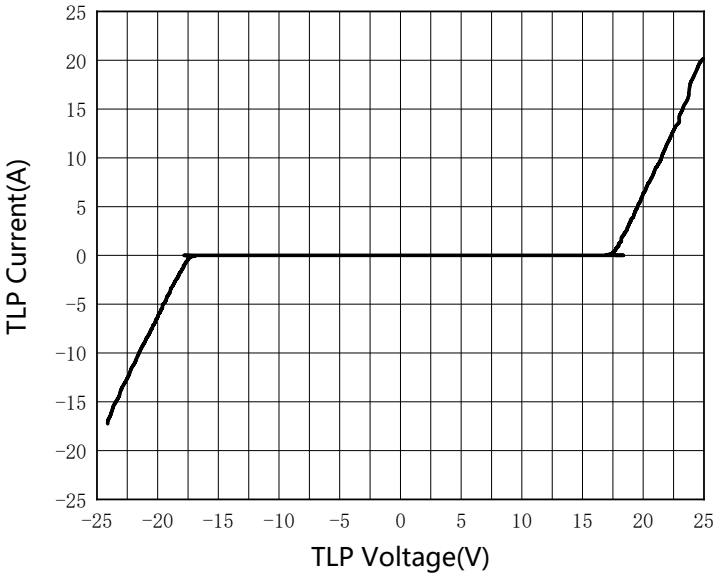
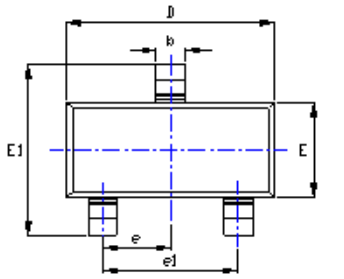


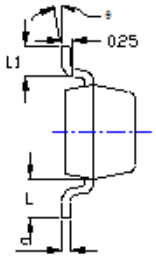
Fig.6 Trans mission Line Pulsing(TLP)Plot



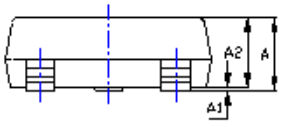
■ Outline Dimensions



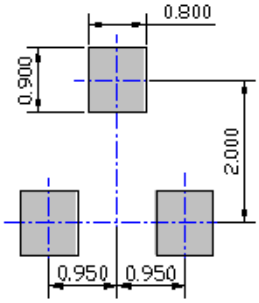
TOP VIEW



SIDE VIEW



SIDE VIEW



UNIT: mm

SUGGESTED SOLDER PAD LAYOUT

DIMENSIONS				
SYMBOL	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.045	0.900	1.150
A1	0.000	0.004	0.000	0.100
A2	0.035	0.041	0.900	1.050
b	0.012	0.020	0.300	0.500
c	0.004	0.008	0.100	0.200
D	0.110	0.118	2.800	3.000
E	0.047	0.055	1.200	1.400
E1	0.089	0.100	2.250	2.550
e	0.037TYP		0.950TYP	
e1	0.071	0.079	1.800	2.000
L	0.022REF		0.550REF	
L1	0.012	0.020	0.300	0.500
θ	0°	8°	0°	8°

NOTE:
1.PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
2.TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
3.THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.

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