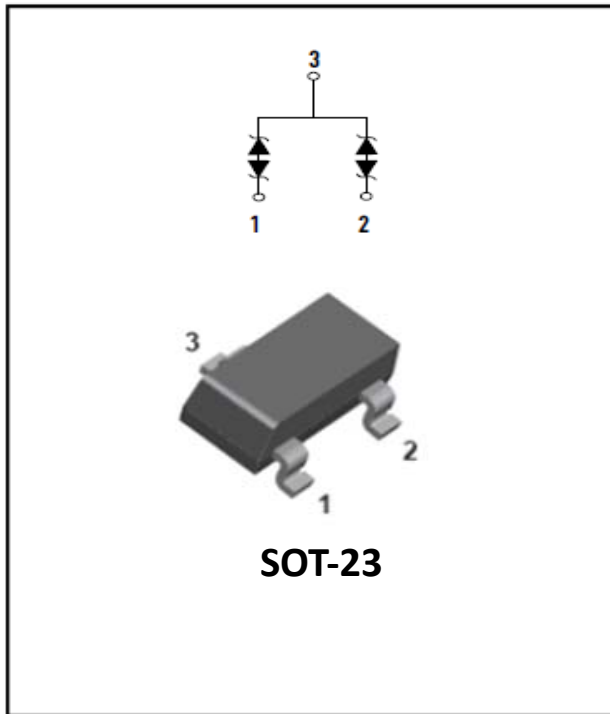


1- Line, Bi-directional, Transient Voltage Suppressor



Features

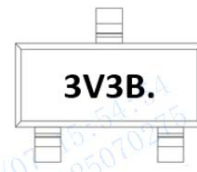
- Stand-off voltage: $\pm 3.3\text{V}$ Max
- Transient protection for each line according to
IEC61000-4-2(ESD): $\pm 30\text{kV}$ (contact)
IEC61000-4-5(surge): 29A ($8/20\mu\text{s}$)
- Low leakage current:
- Ultra low clamping voltage
- RoHS Compliant

Applications

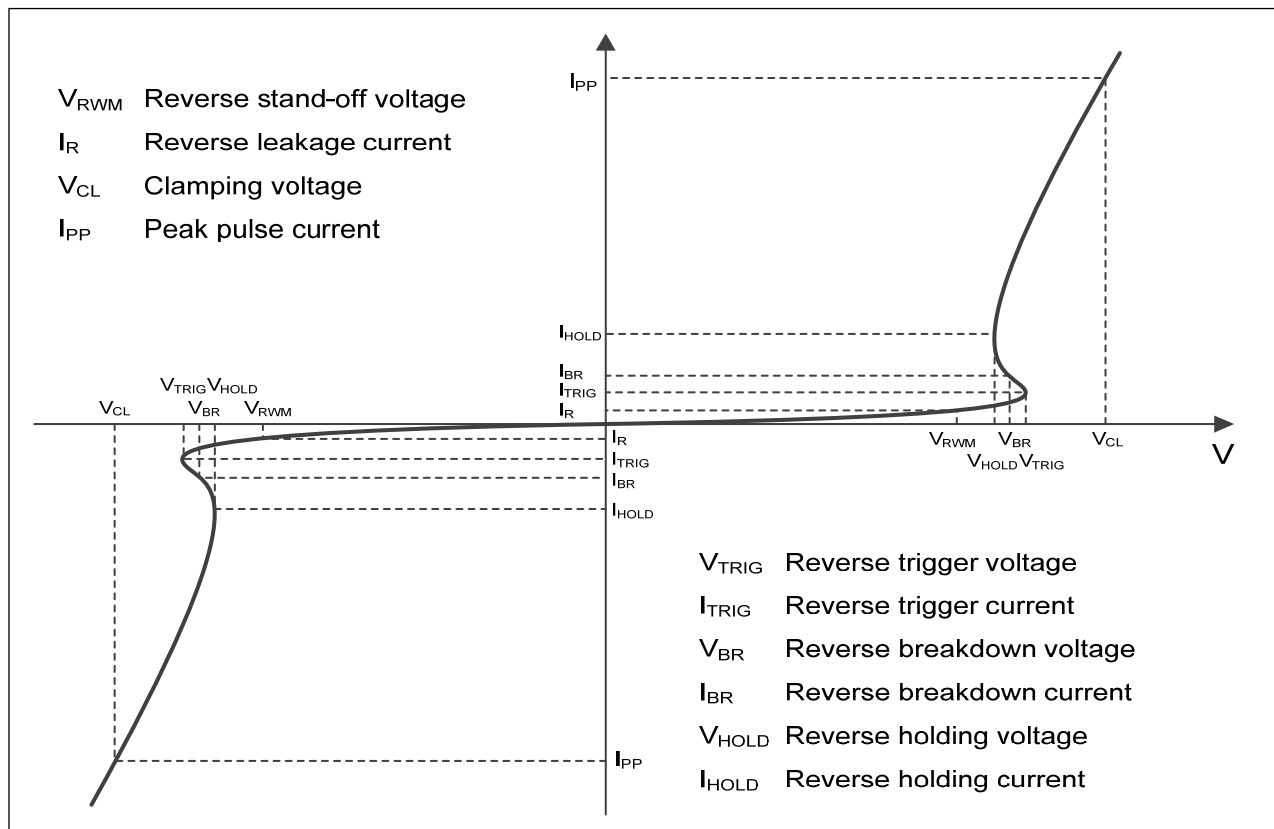
- Cellular Handsets and Accessories
- Notebooks and Handhelds
- Portable Instrumentation
- Set Top Box
- Industrial Controls
- Server and Desktop PC

Mechanical Data

- Package: SOT-23
- Case Material: "Green" Molding Compound
- Marking Information: See Below



■ Definitions of electrical characteristics





ESD3302EB

■Maximum Ratings

PARAMETER	SYMBOL	LIMITS	UNIT
Peak pulse power ($t_p = 8/20\mu s$)	P_{pk}	320	W
Peak pulse current ($t_p = 8/20\mu s$)	I_{PP}	29	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	150	$^{\circ}C$
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				± 3.3
Reverse leakage current	I_R	μA	$V_{RWM} = 3.3V$			0.5
Reverse breakdown voltage	V_{BR}	V	$I_{BR} = 1mA$	3.7		6.0
Clamping voltage ¹⁾	V_{CL}	V	$I_{PP} = 16A, t_p = 100ns$		9	
Dynamic resistance ¹⁾	R_{DYN}	Ω			0.32	
Clamping voltage ²⁾	V_{CL}	V	$I_{PP} = 1A, t_p = 8/20\mu s$		5	6
		V	$I_{PP} = 10A, t_p = 8/20\mu s$		6	8
		V	$I_{PP} = 29A, t_p = 8/20\mu s$		10	12
Junction capacitance	C_J	pF	$V_R = 0V, f = 1MHz$		60	80

Notes:

- (1). TLP parameter: $Z_0 = 50\Omega$, $t_p = 100ns$, $t_r = 2ns$, averaging window from 60ns to 80ns. R_{DYN} is calculated from 4A to 16A.
 (2). Non-repetitive current pulse, according to IEC61000-4-5.

■Ordering Information (Example)

PREFERED P/N	PACKING CODE	UNIT WEIGHT(mg)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
ESD3302EB	F2	Approximate 4	3000	30000	120000	7 reel

■ Characteristics (Typical)

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

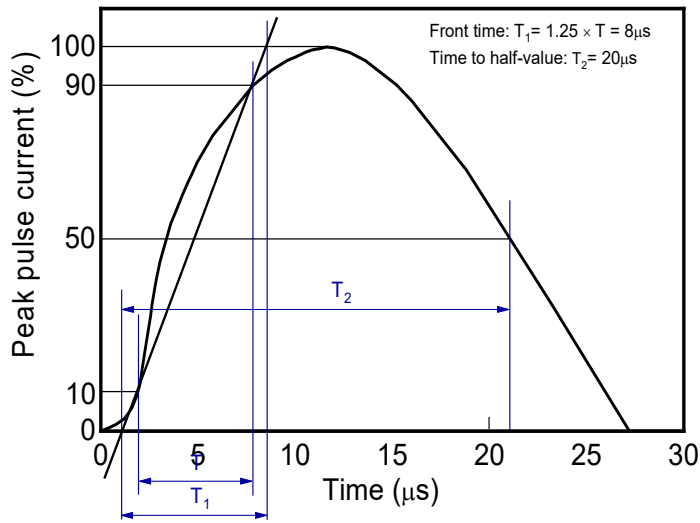


Fig.2 Contact discharge current waveform per IEC61000-4-2

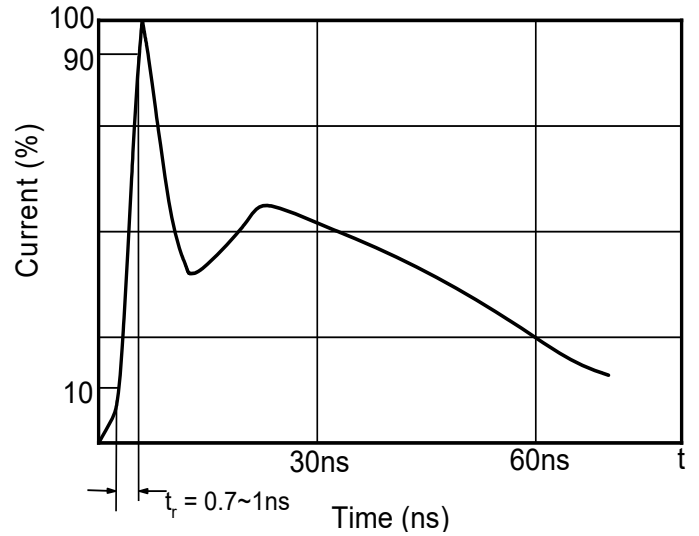


Fig.3 Clamping voltage vs. Peak pulse current

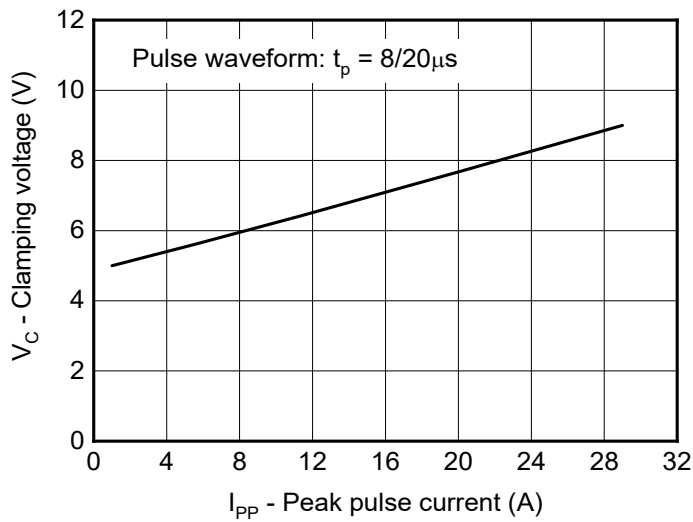


Fig.4 Capacitance vs. Reverse voltage

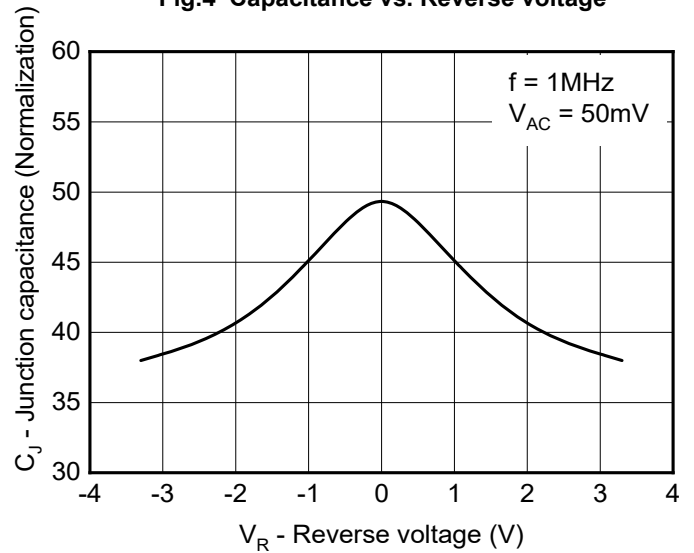


Fig.5 Non-repetitive peak pulse power vs. Pulse time

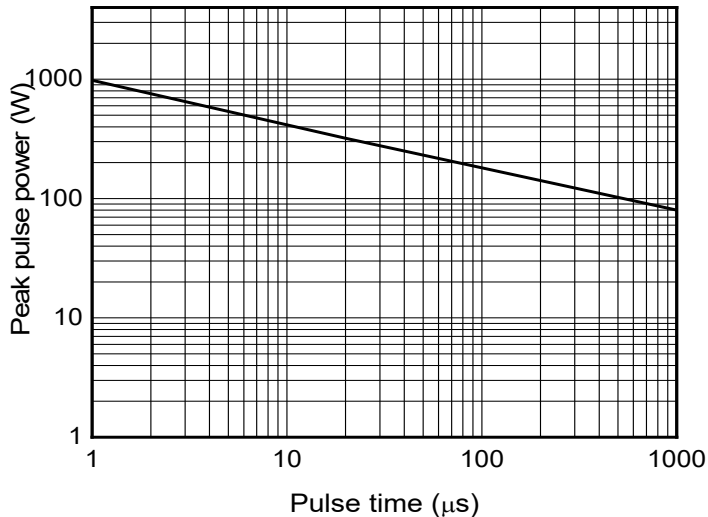


Fig.6 Power derating vs. Ambient temperature

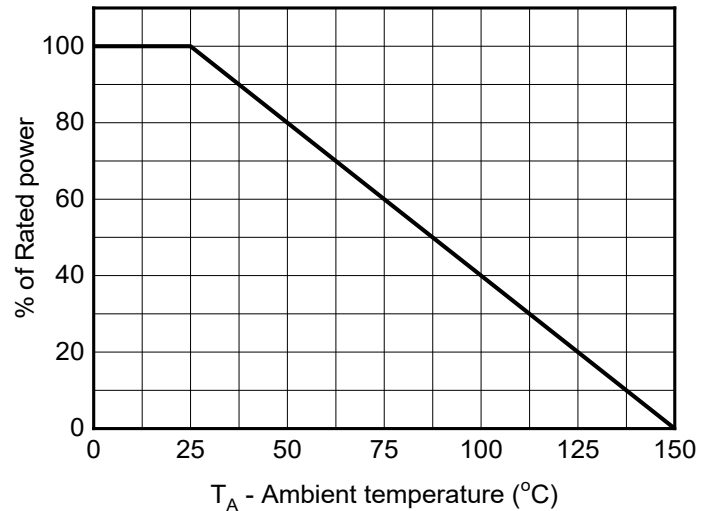
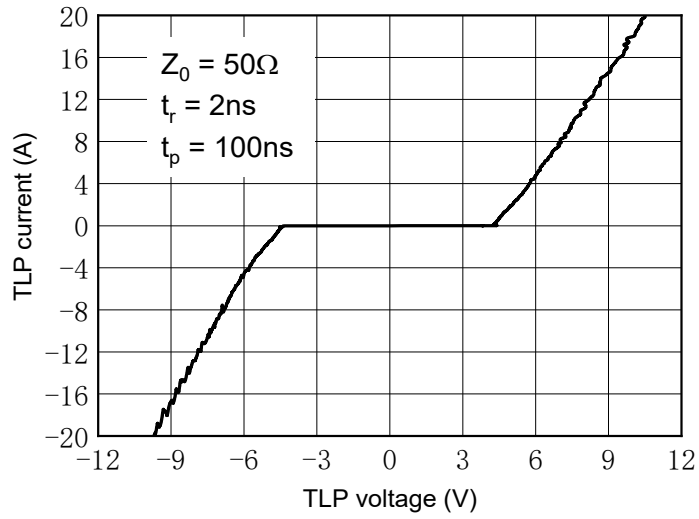




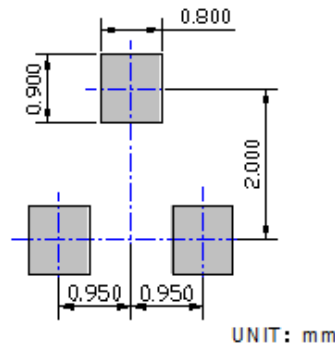
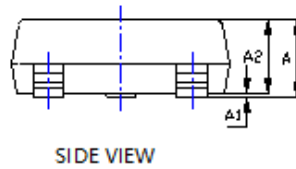
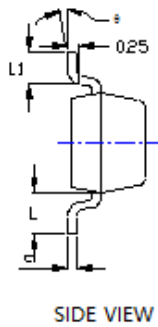
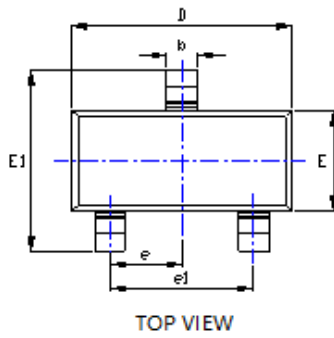
Fig.7 TLP Measurement





ESD3302EB

■ Outline Dimensions



SYMBOL	DIMENSIONS			
	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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