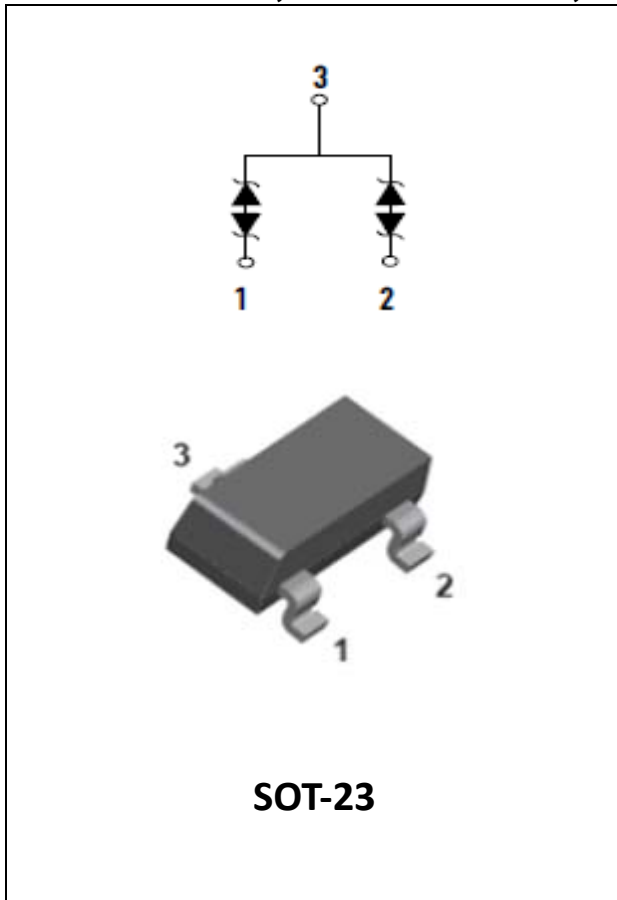


## 2-Line, Bi-directional, Transient Voltage Suppressor



### Features

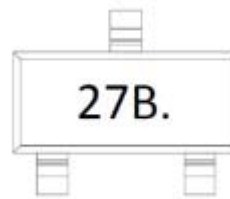
- Stand-off voltage: 27 V Max
- Transient protection for each line according to  
IEC61000-4-2(ESD):  $\pm 30\text{kV}$  (contact)  
IEC61000-4-5(surge): 6A (8/20 $\mu\text{s}$ )
- Low leakage current
- Low clamping voltage
- RoHS Compliant

### Applications

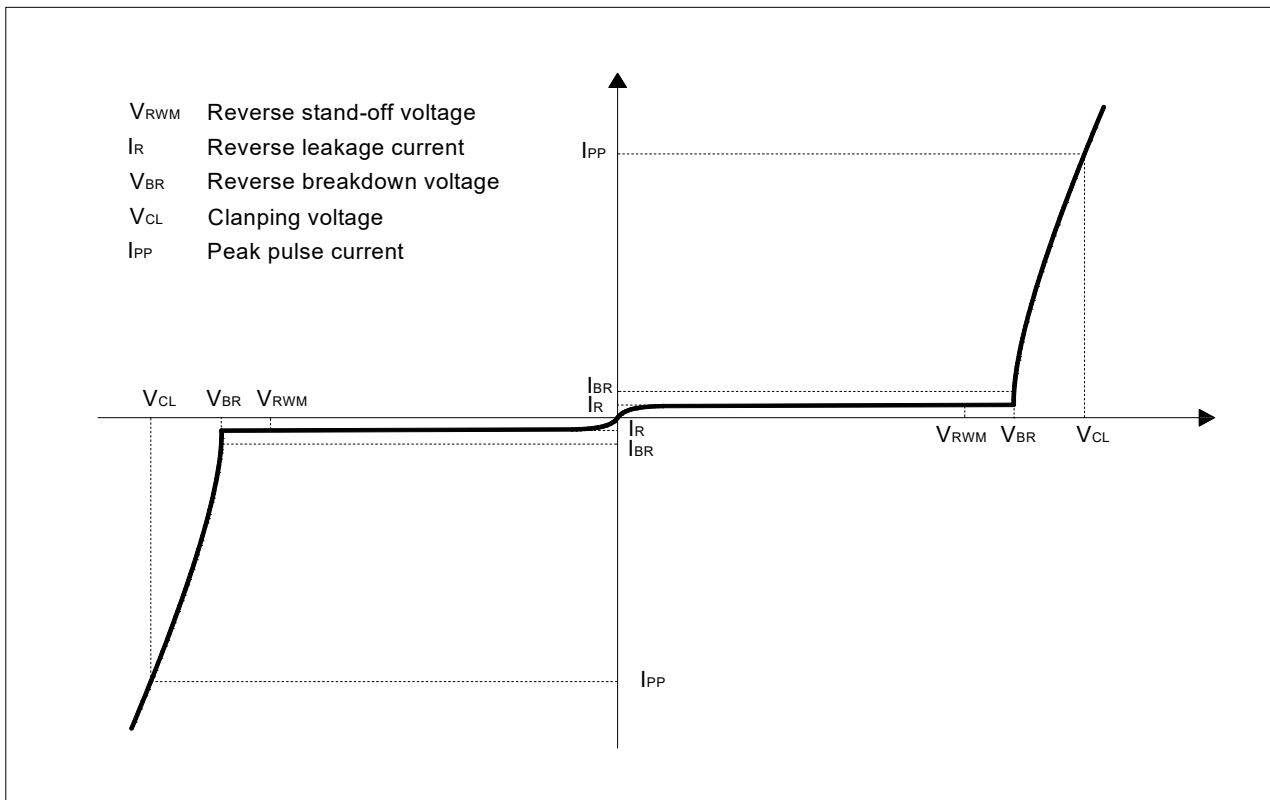
- Cellular Handsets and Accessories
- Notebooks and Handhelds
- Portable Instrumentation
- Set Top Box
- Industrial Controls
- Server and Desktop PC

### Mechanical Data

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



### ■Definitions of electrical characteristics





## ESD2702EB

### ■Maximum Ratings

| PARAMETER                                       | SYMBOL    | LIMITS   | UNIT |
|-------------------------------------------------|-----------|----------|------|
| Peak pulse power ( $t_p = 8/20\mu s$ )          | $P_{pk}$  | 420      | W    |
| Peak pulse current ( $t_p = 8/20\mu s$ )        | $I_{PP}$  | 6        | A    |
| ESD according to IEC61000-4-2 air discharge     | $V_{ESD}$ | $\pm 30$ | KV   |
| ESD according to IEC61000-4-2 contact discharge |           | $\pm 30$ |      |
| Junction temperature                            | $T_J$     | -55~150  | °C   |
| Storage temperature                             | $T_{STG}$ | -55~150  | °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       |                                   |     |     | 27  |
| Reverse breakdown voltage       | $V_{(BR)}$ | V       | $I_T = 1mA$ ,                     | 31  |     |     |
| Reverse leakage current         | $I_R$      | $\mu A$ | $V_{RWM} = 27V$ ,                 |     |     | 0.5 |
| Clamping voltage                | $V_{CL}$   | V       | $I_{PP} = 1A$ , $t_p = 8/20\mu s$ |     |     | 50  |
|                                 |            | V       | $I_{PP} = 6A$ , $t_p = 8/20\mu s$ |     |     | 70  |
| Junction capacitance            | CJ         | pF      | $V_R = 0V$ , $f = 1MHz$           |     | 15  |     |

Notes:

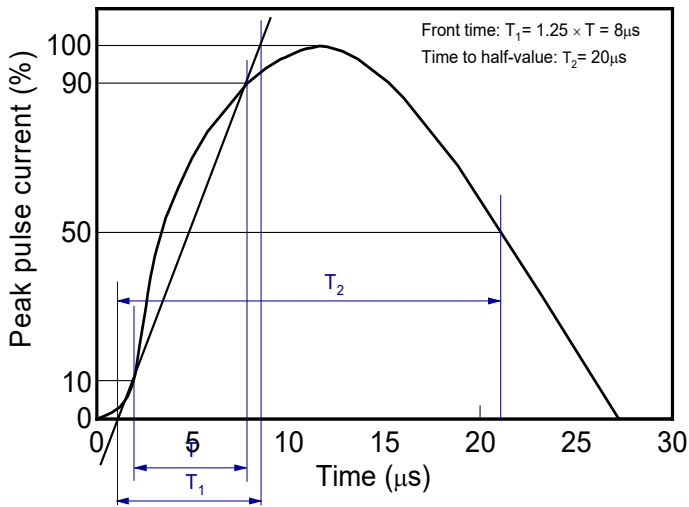
- (1). TLP parameter:  $Z_0 = 50\Omega$ ,  $t_p = 100ns$ ,  $t_r = 2ns$ , averaging window from 60ns to 80ns. RDYN is calculated from 4A to 16A.
- (2). Contact discharge mode, according to IEC61000-4-2.
- (3). Non-repetitive current pulse, according to IEC61000-4-5

### ■Ordering Information (Example)

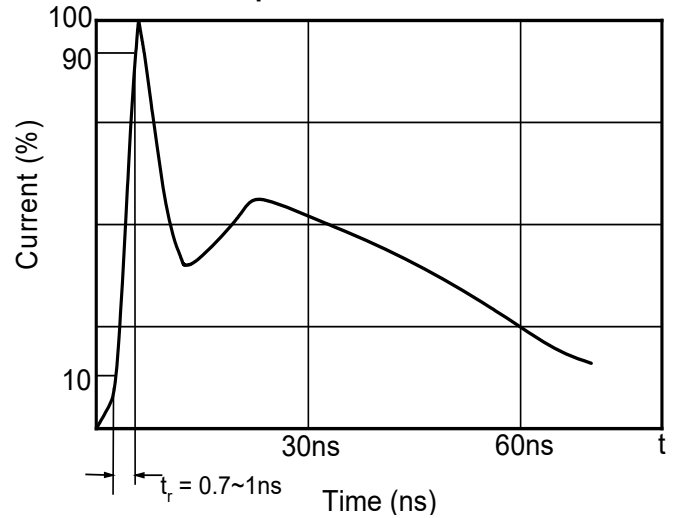
| PREFERRED P/N | PACKING CODE | UNIT WEIGHT(mg) | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---------------|--------------|-----------------|----------------------|-------------------------|----------------------------|---------------|
| ESD2702EB     | F2           | Approximate 8   | 3000                 | 30000                   | 120000                     | 7 reel        |

## ■ Characteristics (Typical)

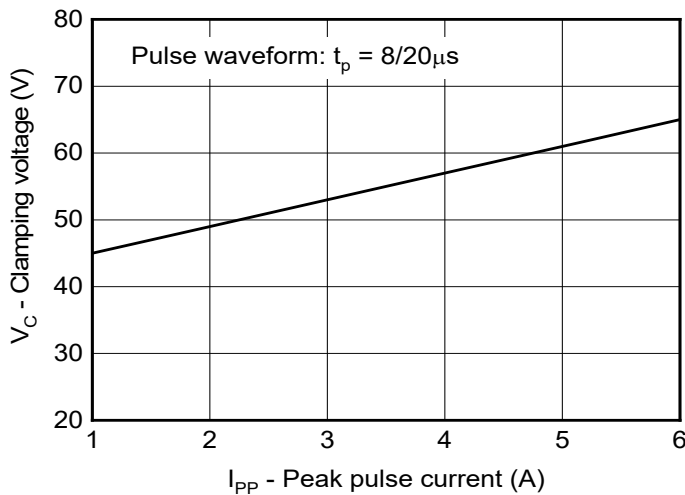
**Fig.1 8/20 $\mu$ s waveform per IEC61000-4-5**



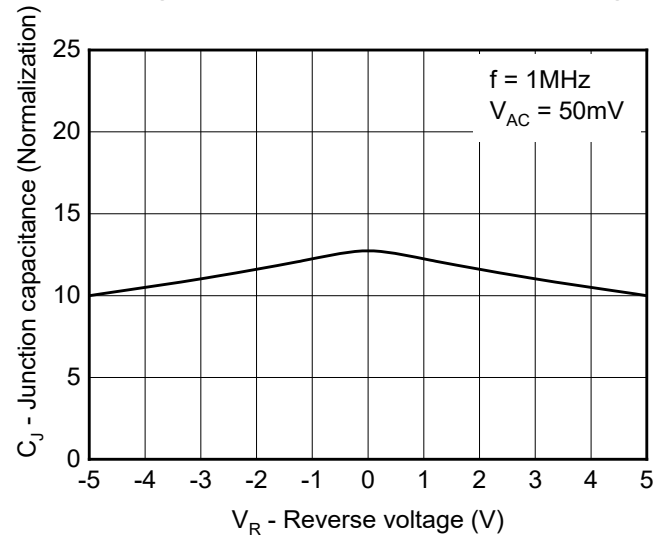
**Fig.2 Contact discharge current waveform per IEC61000-4-2**



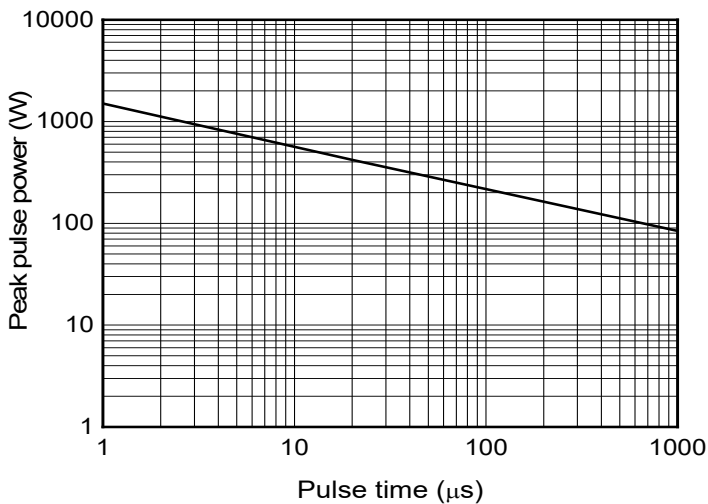
**Fig.3 Clamping voltage vs. Peak pulse current**



**Fig.4 Capacitance vs. Reverse voltage**



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



**Fig.6 Power derating vs. Ambient temperature**

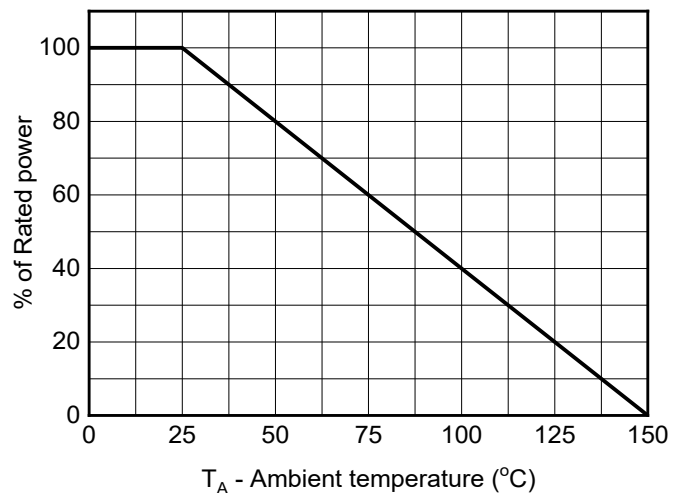
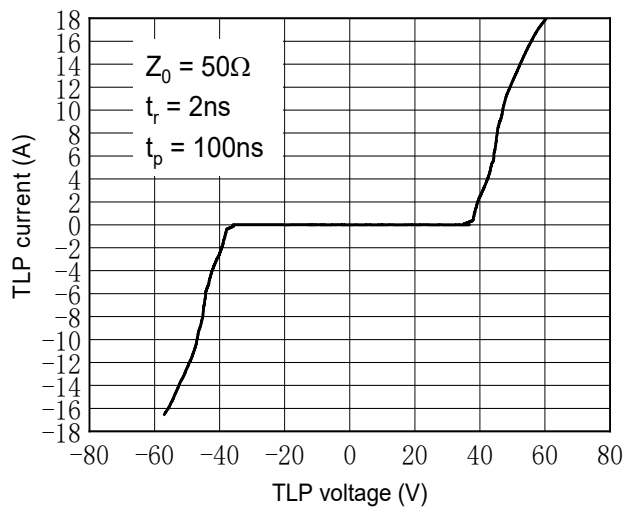




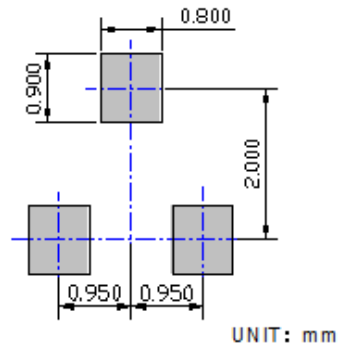
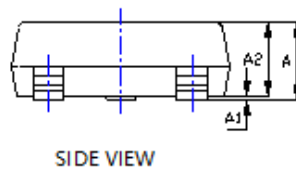
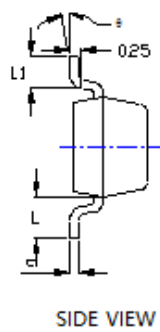
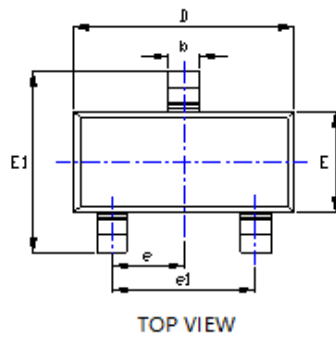
Fig.7 TLP Measurement





## ESD2702EB

### ■ Outline Dimensions



SUGGESTED SOLDER PAD LAYOUT

| 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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