

## PESD5V0U2BT ESD Protection Diode

### Feature

- Bi-directional ESD protection of two lines
- 40 Watts peak pulse power ( $t_p = 8/20\mu s$ )
- Working voltage: 5V
- Junction capacitance: 3.5pF(Typ)
- Low clamping voltage
- Low leakage current
- IEC 61000-4-2  $\pm 20kV$  contact  $\pm 20kV$  air
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 3.5A (8/20 $\mu s$ )

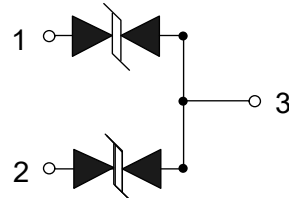
### Application

- Dataline
- Automatic Teller Machines
- Net works
- Power line

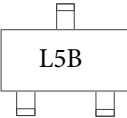
### Mechanical Data

- Package: SOT-23
- Molding compound flammability rating: UL 94V-0
- RoHS/WEEE Compliant

### Schematic & PIN Configuration



### Ordering Information

| Part Number | Package | Marking                                                                                 | Packing          | Reel Size |
|-------------|---------|-----------------------------------------------------------------------------------------|------------------|-----------|
| PESD5V0U2BT | SOT-23  |  L5B | 3000 Tape & Reel | 7 inches  |

### Absolute Maximum Rating ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| Parameter                                                      | Symbol    | Value           | Unit             |
|----------------------------------------------------------------|-----------|-----------------|------------------|
| Peak Pulse Power (8/20 $\mu\text{s}$ )                         | $P_{pk}$  | 40              | W                |
| Peak Pulse Current (8/20 $\mu\text{s}$ )                       | $I_{PP}$  | 3.5             | A                |
| ESD per IEC 61000-4-2 (Air)<br>ESD per IEC 61000-4-2 (Contact) | $V_{ESD}$ | 20<br>20        | kV               |
| Lead Soldering Temperature                                     | $T_L$     | 260 (10seconds) | $^\circ\text{C}$ |
| Junction Temperature                                           | $T_J$     | -55 to +125     | $^\circ\text{C}$ |
| Storage Temperature Range                                      | $T_{stg}$ | -55 to +125     | $^\circ\text{C}$ |

### Electrical Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

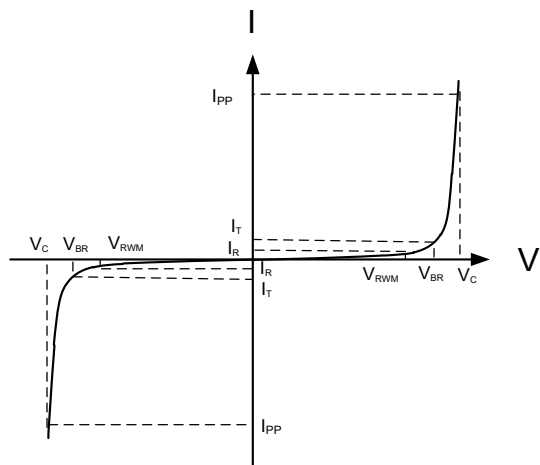
| Parameter               | Symbol    | Test Condition                                      | Min | Typ | Max | Unit          |
|-------------------------|-----------|-----------------------------------------------------|-----|-----|-----|---------------|
| Reverse Working Voltage | $V_{RWM}$ |                                                     |     |     | 5   | V             |
| Breakdown Voltage       | $V_{BR}$  | $I_T = 1\text{mA}$                                  | 5.5 | 7.2 | 8.5 | V             |
| Reverse Leakage Current | $I_R$     | $V_{RWM}=5\text{V}, T=25^\circ\text{C}$             |     | 0.1 | 0.5 | $\mu\text{A}$ |
| Peak Pulse Current      | $I_{PP}$  | $t_p=8/20\mu\text{s}$                               |     |     | 3.5 | A             |
| Clamping Voltage        | $V_C$     | $I_{PP} = 3.5\text{A}$ (8 x 20 $\mu\text{s}$ pulse) |     |     | 11  | V             |
| Junction Capacitance    | $C_J$     | $V_R = 0\text{V}, f = 1\text{MHz}$                  |     | 3.5 | 4.0 | pF            |



## Electrical Parameters

| Symbol    | Parameter                                   |
|-----------|---------------------------------------------|
| $I_{PP}$  | Maximum Reverse Peak Pulse Current          |
| $V_C$     | Clamping Voltage @ $I_{PP}$                 |
| $V_{RWM}$ | Working Peak Reverse Voltage                |
| $I_R$     | Maximum Reverse Leakage Current @ $V_{RWM}$ |
| $V_{BR}$  | Breakdown Voltage @ $I_T$                   |
| $I_T$     | Test Current                                |

Note: 8/20 $\mu$ s pulse waveform.



## Typical Characteristic ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Figure 1: Peak Pulse Power vs. Pulse Time

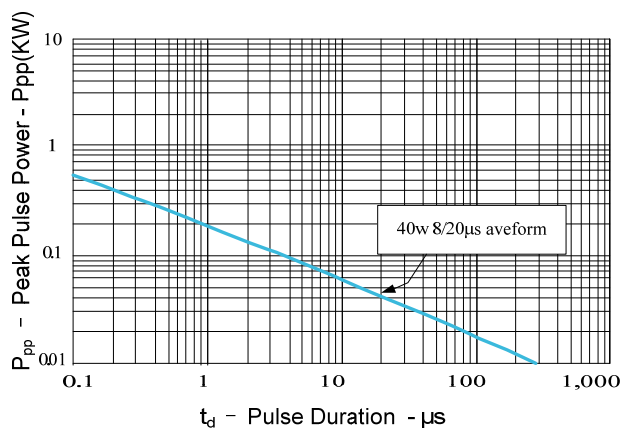


Figure 2: Power Derating Curve

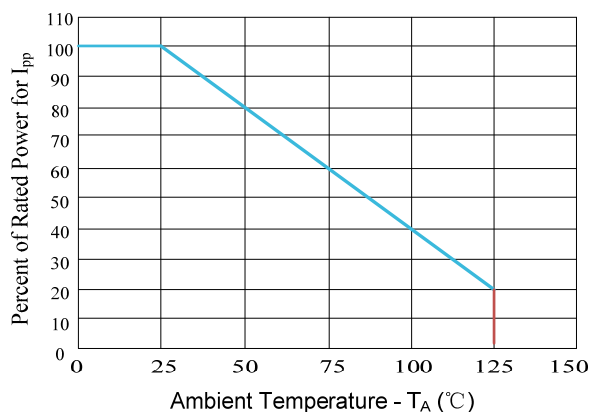


Figure3: Pulse Waveform

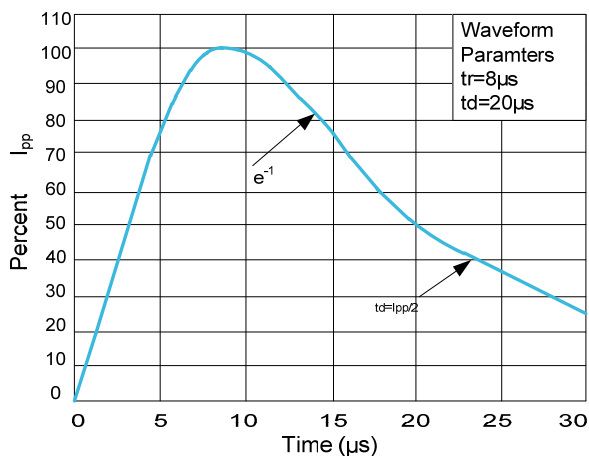
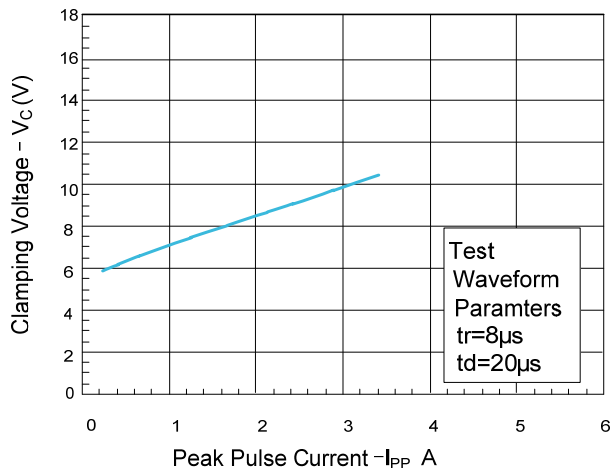
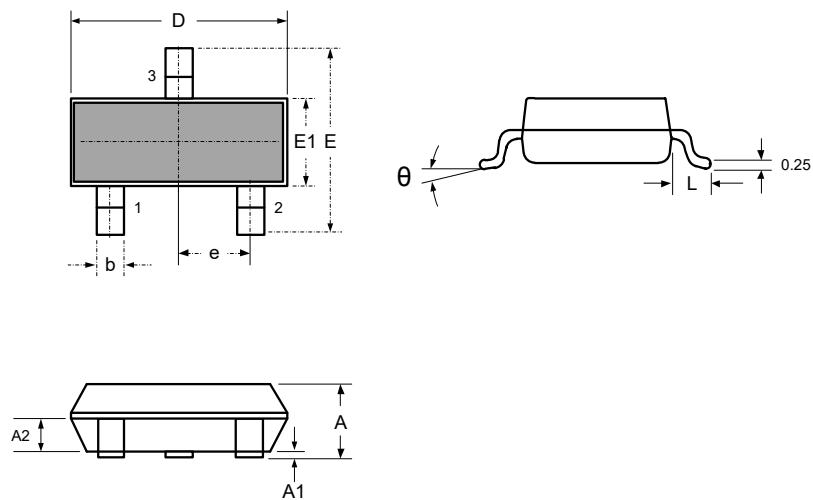


Figure 4: Clamping Voltage vs. I\_PP



## Outline Drawing –SOT-23



| DIMENSIONS |            |       |           |       |
|------------|------------|-------|-----------|-------|
| SYMBOL     | MILLIMETER |       | INCHES    |       |
|            | MIN        | MAX   | MIN       | MAX   |
| A          | 0.900      | 1.150 | 0.035     | 0.045 |
| A1         | 0.000      | 0.100 | 0.000     | 0.004 |
| A2         | 0.900      | 1.050 | 0.035     | 0.041 |
| D          | 2.800      | 3.000 | 0.110     | 0.118 |
| b          | 0.300      | 0.500 | 0.012     | 0.020 |
| E          | 2.250      | 2.550 | 0.089     | 0.100 |
| E1         | 1.200      | 1.400 | 0.047     | 0.055 |
| e          | 0.950 BSC  |       | 0.037 BSC |       |
| L          | 0.300      | 0.500 | 0.012     | 0.020 |
| θ          | 0          | 8°    | 0         | 8°    |