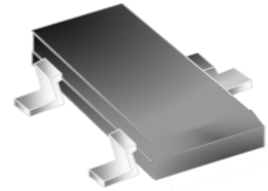




FEATURES

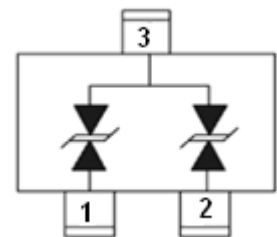
- ◇ 350 Watts peak pulse power per line ($t_P=8/20\mu s$)
- ◇ Protect for two I/O lines with bi-directional
- ◇ Low clamping voltage
- ◇ Working voltage:24V
- ◇ Low leakage current
- ◇ RoHS compliant



SOT-23

MAIN APPLICATIONS

- ◇ RS-232, RS-422 & RS-485
- ◇ Servers, notebook, and desktop
- ◇ Cellular handsets and accessories
- ◇ Control & monitoring systems
- ◇ Portable electronics
- ◇ Wireless bus protection
- ◇ Set-top box



Pin Configuration

PROTECTION SOLUTION TO MEET

- ◇ IEC61000-4-2 (ESD) $\pm 30kV$ (air), $\pm 30kV$ (contact)
- ◇ IEC61000-4-4 (EFT) 40A (5/50ns)
- ◇ IEC61000-4-5 (Lightning) 6A(8/20 μs)

MECHANICAL CHARACTERISTICS

- ◇ SOT-23 package
- ◇ Molding compound flammability rating : UL 94V-0
- ◇ Weight 8 milligrams (approximate)
- ◇ Quantity per reel : 3,000pcs
- ◇ Lead finish : lead free
- ◇ Marking code: CB2

ABSOLUTE MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$, $\text{RH}=45\%-75\%$, unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|--|-----------|----------------|--------------------|
| Peak pulse power dissipation on 8/20 μs waveform | P_{PP} | 350 | W |
| ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact) | V_{ESD} | +/-30 +/-30 | kV |
| Lead soldering temperature | T_L | 260 (10 sec.) | $^{\circ}\text{C}$ |
| Operating junction temperature range | T_J | -55 to +125 | $^{\circ}\text{C}$ |
| Storage temperature range | T_{STG} | -55 to +150 | $^{\circ}\text{C}$ |

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$)

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|---------------------------|-------------------------|---|------|-----|-----|---------------|
| Reverse working voltage | V_{RWM} | | | | 24 | V |
| Reverse breakdown voltage | V_{BR} | $I_T=1\text{mA}$ | 26.7 | | | V |
| Reverse leakage current | I_R | $V_{RWM}=24\text{V}$ | | | 1 | μA |
| Clamping voltage | V_C | $I_{PP}^{\textcircled{1}}=1\text{A}, t_p=8/20\mu\text{s}$ | | | 43 | V |
| | | $I_{PP}^{\textcircled{1}}=6\text{A}, t_p=8/20\mu\text{s}$ | | | 60 | V |
| Junction capacitance | $C_J^{\textcircled{2}}$ | $V_{RWM}=0\text{V}, f=1\text{MHz}$ | | 15 | | pF |

① Surge waveform: 8/20 μs

② C_J measured @ $V_{RWM}=0\text{V}$, 1MHz (pin 1 to pin3, pin 2 to pin3)

RATINGS AND V-I CHARACTERISTICS CURVES ($T_A=25^{\circ}\text{C}$, unless otherwise noted)

FIG.1: V- I curve characteristics (Bi-directional)

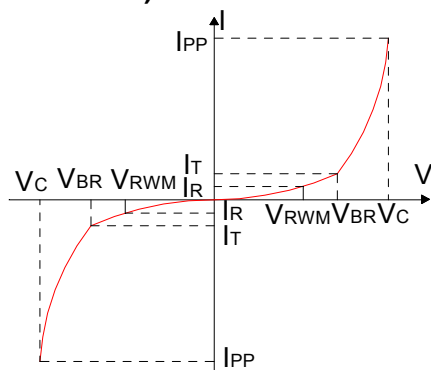


FIG.2: Pulse waveform (8/20 μs)

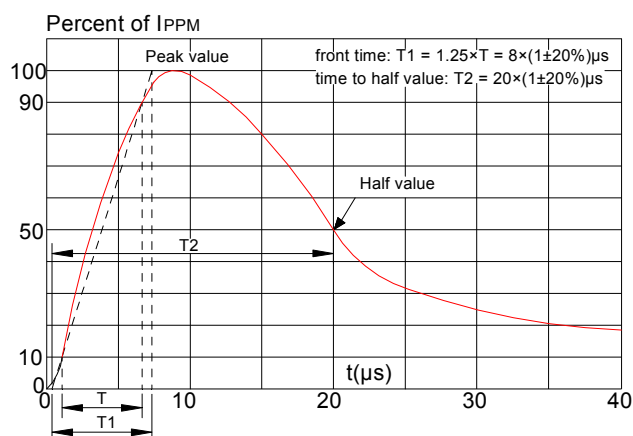


FIG.3: Pulse derating curve

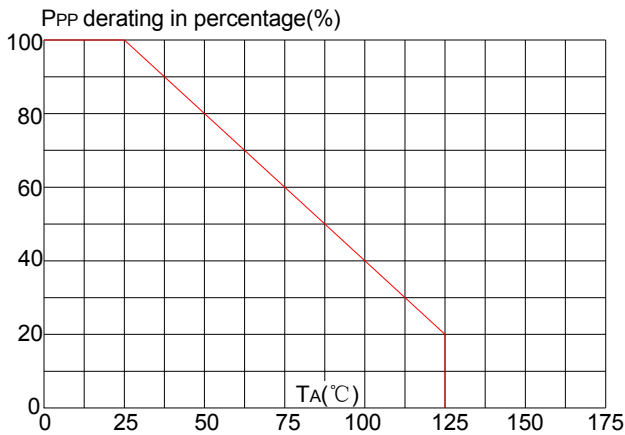
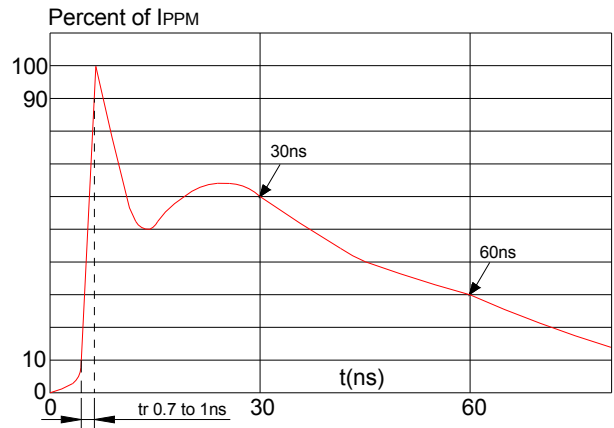
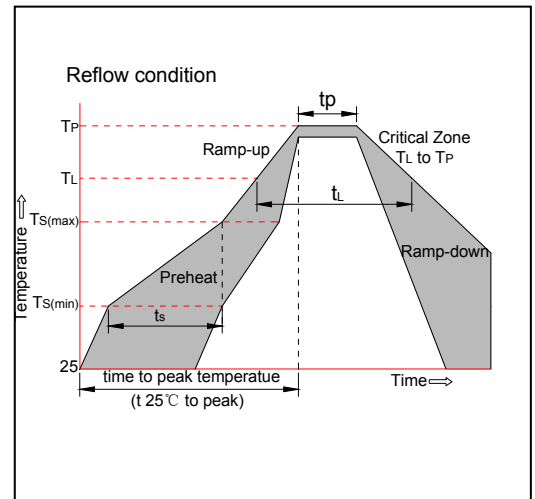


FIG.4: ESD clamping (30kV contact)

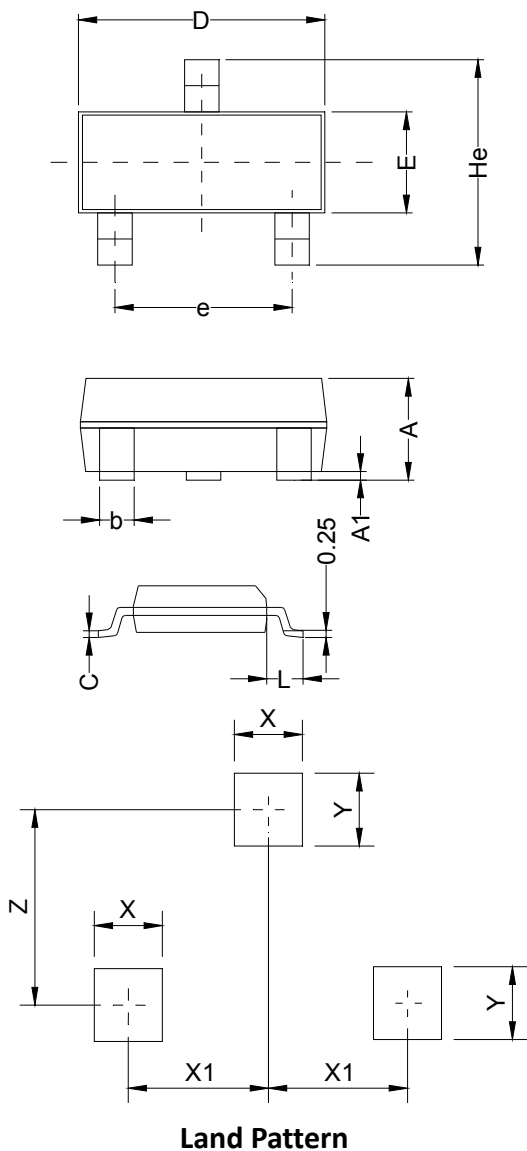


SOLDERING PARAMETERS

| | | |
|--|-----------------------------------|---|
| Reflow Condition | | Pb-Free assembly (see figure at right) |
| Pre Heat | -Temperature Min ($T_{s(min)}$) | +150°C |
| | -Temperature Max($T_{s(max)}$) | +200°C |
| | -Time (Min to Max) (ts) | 60-180 secs. |
| Average ramp up rate (Liquidus Temp (T_L) to peak) | | 3°C/sec. Max |
| $T_{s(max)}$ to T_L - Ramp-up Rate | | 3°C/sec. Max |
| Reflow | -Temperature(T_L)(Liquidus) | +217°C |
| | -Temperature(t_L) | 60-150 secs. |
| Peak Temp (T_P) | | +260(+0/-5)°C |
| Time within 5°C of actual Peak Temp (t_p) | | 20-40secs. |
| Ramp-down Rate | | 6°C/sec. Max |
| Time 25°C to Peak Temp (T_P) | | 8 min. Max |
| Do not exceed | | +260°C |

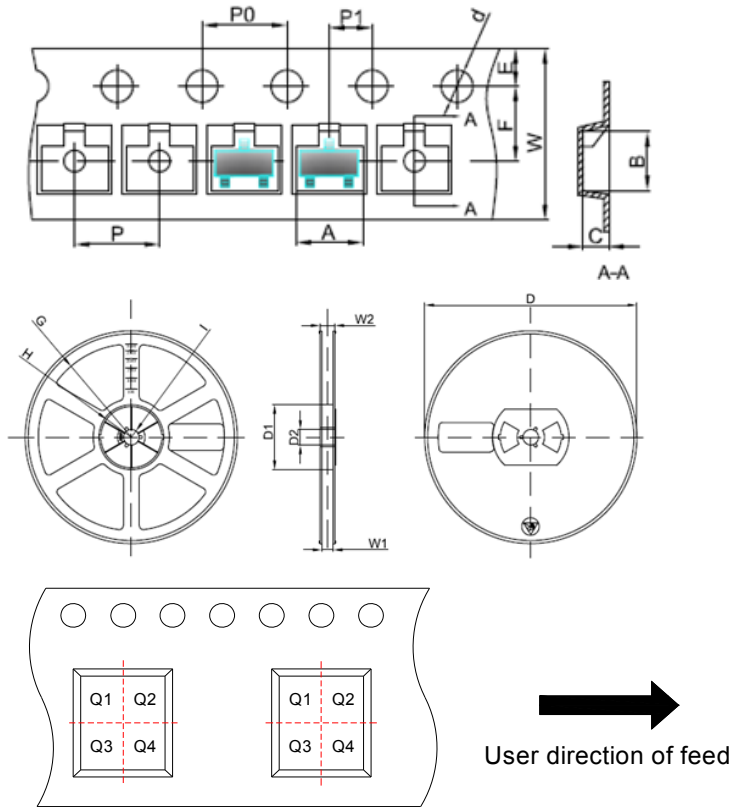


PACKAGE MECHANICAL DATA



| Symbol | Millimeters | | | Inches | | |
|--------|-------------|-------|------|----------|-------|-------|
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 0.90 | 1.063 | 1.15 | 0.035 | 0.042 | 0.045 |
| A1 | 0.00 | 0.075 | 0.14 | 0.000 | 0.003 | 0.006 |
| b | 0.30 | 0.40 | 0.50 | 0.012 | 0.016 | 0.020 |
| C | 0.07 | 0.10 | 0.15 | 0.003 | 0.004 | 0.006 |
| D | 2.80 | 2.90 | 3.00 | 0.110 | 0.114 | 0.118 |
| e | 1.80 | 1.90 | 2.00 | 0.071 | 0.075 | 0.079 |
| E | 1.20 | 1.30 | 1.40 | 0.047 | 0.051 | 0.055 |
| L | 0.55REF | | | 0.022REF | | |
| He | 2.25 | 2.40 | 2.55 | 0.089 | 0.094 | 0.100 |
| X | 0.80 | | | 0.031 | | |
| X1 | 0.95 | | | 0.037 | | |
| Y | 0.80 | | | 0.031 | | |
| Z | 2.02 | | | 0.080 | | |

TAPE AND REEL SPECIFICATION-SOT-23



Pin 1 quadrant: Q3

Packaging Description:

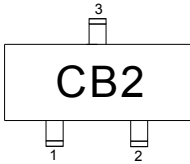
SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative(carbon filled) polycarbonate resin. The cover tape is a multilayer film(heat activated adhesive in nature)primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000units per 7" or 17.8cm diameter reel. The reels are clear in color and made of polystyrene plastic(anti-static coated).

| Symbol | Millimeters | Inches |
|--------|-------------|--------|
| | Typ. | Typ. |
| A | 3.15 | 0.124 |
| B | 2.77 | 0.109 |
| C | 1.22 | 0.048 |
| d | Φ1.50 | Φ0.059 |
| E | 1.75 | 0.069 |
| F | 3.50 | 0.138 |
| P0 | 4.00 | 0.157 |
| P | 4.00 | 0.157 |
| P1 | 2.00 | 0.079 |
| W | 8.00 | 0.315 |
| D | Φ178 | Φ7.008 |
| D1 | 54.40 | 2.142 |
| D2 | 13.00 | 0.512 |
| G | R78.00 | R3.071 |
| H | R25.60 | R1.008 |
| I | R6.50 | R0.256 |
| W1 | 9.50 | 0.374 |
| W2 | 12.30 | 0.484 |

ORDERING INFORMATION

| PART No. | PACKAGE TYPE | QUANTITY(PCS) REEL | DESCRIPTION |
|----------|--------------|--------------------|------------------|
| JEB24T2B | SOT-23 | 3,000 | 7 inch reel pack |

MARKING CODE

| Part Number | Marking Code |
|-------------|--|
| JEB24T2B |  |

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