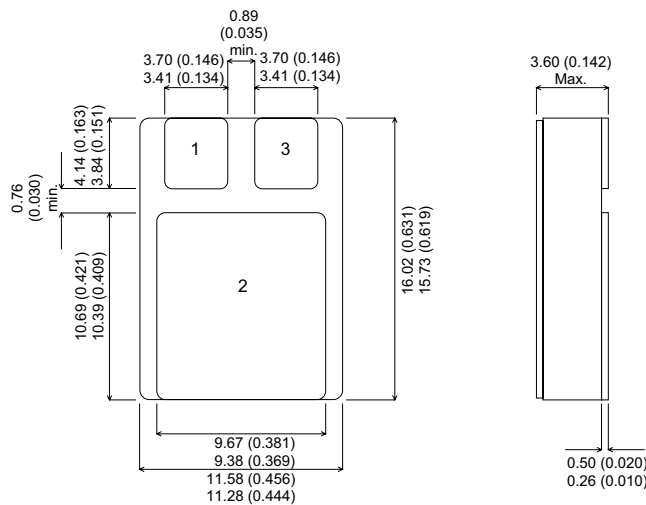
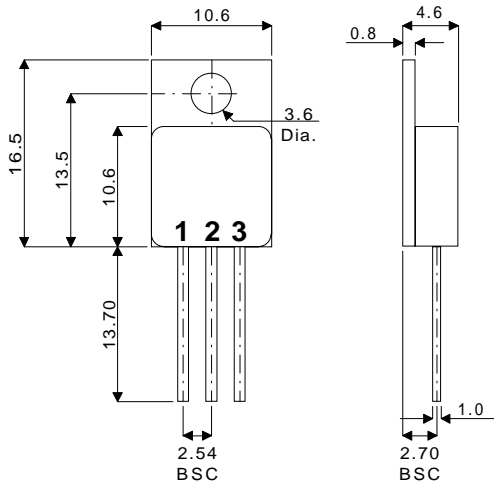


**MECHANICAL DATA**  
Dimensions in mm

**SILICON PNP  
EPITAXIAL BASE IN  
TO220 METAL AND  
SMD1 CERAMIC SURFACE  
MOUNT PACKAGES**



**FEATURES**

- HERMETIC METAL OR CERAMIC PACKAGES
- HIGH RELIABILITY
- MILITARY AND SPACE OPTIONS
- SCREENING TO CECC LEVELS
- FULLY ISOLATED (METAL VERSION)

**APPLICATIONS**

- POWER LINEAR AND SWITCHING APPLICATIONS
- GENERAL PURPOSE POWER

**TO220M** - TO220 Metal Package - Isolated  
**SMD1** - SMD1 Ceramic Surface Mount Package

**Pin 1** – Base      **Pin 2** – Collector      **Pin 3** – Emitter

| <b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_{case}=25^{\circ}C$ unless otherwise stated) |  | <b>BDS18</b> | <b>BDS19</b> |
|---|--|--------------|--------------|
| $V_{CBO}$   | Collector - Base voltage ( $I_E = 0$ )                 | -120V        | -150V        |
| $V_{CEO}$   | Collector - Emitter voltage ( $I_B = 0$ )              | -120V        | -150V        |
| $V_{EBO}$   | Emitter - Base voltage ( $I_C = 0$ )                   | -5V          |              |
| $I_E, I_C$  | Emitter, Collector current                             | -8A          |              |
| $I_B$   | Base current   | -2A          |              |
| $P_{tot}$   | Total power dissipation at $T_{case} \leq 75^{\circ}C$ | 50W          |              |
| $T_{stg}$   | Storage Temperature                                    | -65 TO 200°C |              |
| $T_j$   | Junction Temperature                                   | 200°C        |              |

**ELECTRICAL CHARACTERISTICS** ( $T_{case} = 25^{\circ}C$  unless otherwise stated)

| Parameter        | Test Conditions   | Min.   | Typ.         | Max.       | Unit    |
|------------------|---|--|--------------|------------|---------|
| $I_{CBO}$        | Collector cut-off current<br>( $I_E = 0$ )              | <b>BDS18</b> $V_{CB} = -120V$<br><b>BDS19</b> $V_{CB} = -150V$ |              |            | $\mu A$ |
| $I_{CEO}$        | Collector cut-off current<br>( $I_B = 0$ )              | <b>BDS18</b> $V_{CE} = -60V$<br><b>BDS19</b> $V_{CE} = -75V$   |              |            | mA      |
| $I_{EBO}$        | Emitter cut-off current<br>( $I_C = 0$ )                | $V_{EB} = -5V$   |              |            | $\mu A$ |
| $V_{CEO(sus)^*}$ | Collector - Emitter<br>sustaining voltage ( $I_B = 0$ ) | <b>BDS18</b><br><b>BDS19</b> $I_C = -100mA$                    | -120<br>-150 |            | V       |
| $V_{CE(sat)^*}$  | Collector - Emitter<br>saturation voltage               | $I_C = -1A$ $I_B = -0.1A$                                      |              | -0.5       | V       |
| $V_{BE(on)^*}$   | Base - Emitter voltage                                  | $I_C = -1A$ $V_{CE} = -2V$                                     |              | -1.0       | V       |
| $h_{FE}^*$       | DC Current gain   | $I_C = -0.5A$ $V_{CE} = -2V$<br>$I_C = -4A$ $V_{CE} = -2V$     | 40<br>15     | 250<br>150 |         |
| $f_T$            | Transition frequency                                    | $I_C = -0.5A$ $V_{CE} = -10V$                                  | 30           |            | MHz     |

\*Pulsed : Pulse duration = 300  $\mu s$  , duty cycle = 1.5%

**SWITCHING CHARACTERISTICS**

| Parameter | Test Conditions         | Max. | Unit    |
|-----------|-------------------------|------|---------|
| $t_{on}$  | On Time ( $t_d + t_r$ ) | 0.5  | $\mu s$ |
| $t_s$     | Storage Time            | 1.5  | $\mu s$ |
| $t_f$     | Fall Time               | 0.3  | $\mu s$ |

**THERMAL DATA**

|                |                                       |               |
|----------------|---------------------------------------|---------------|
| $R_{THj-case}$ | Thermal resistance junction - case    | Max. 2.5°C/W  |
| $R_{THj-a}$    | Thermal resistance junction - ambient | Max. 62.5°C/W |

