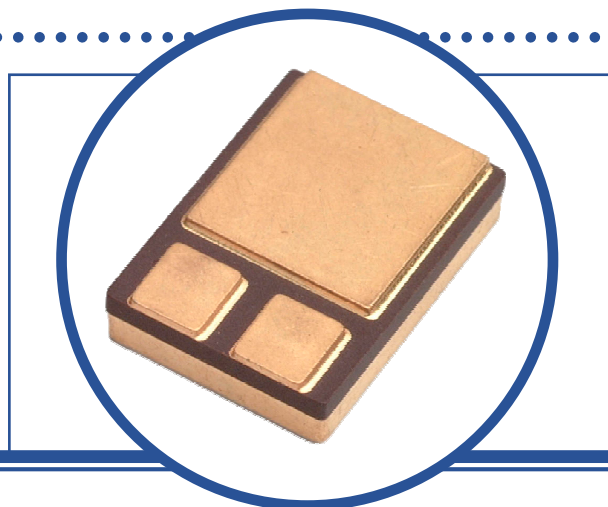


SILICON PLANAR EPITAXIAL PNP TRANSISTOR

BDS19SMD

- High Voltage
- Hermetic Ceramic Surface Mount Package
- Ideally suited for Power Linear, Switching and general Purpose Applications
- Screening Options Available



ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$ unless otherwise stated)

| | | |
|-----------|---|--------------------------------|
| V_{CBO} | Collector – Base Voltage | -150V |
| V_{CEO} | Collector – Emitter Voltage | -150V |
| V_{EBO} | Emitter – Base Voltage | -5V |
| I_C | Continuous Collector Current | -8A |
| I_B | Base Current | -2A |
| P_D | Total Power Dissipation at $T_C \leq 75^\circ\text{C}$ Derate Above 75°C | 80W 0.64W/ $^\circ\text{C}$ |
| T_J | Junction Temperature Range | -65 to $+200^\circ\text{C}$ |
| T_{stg} | Storage Temperature Range | -65 to $+200^\circ\text{C}$ |

THERMAL PROPERTIES

| Symbols | Parameters | Max. | Units |
|-----------------|--------------------------------------|------|--------------------|
| $R_{\theta JC}$ | Thermal Resistance, Junction To Case | 1.56 | $^\circ\text{C/W}$ |

** This datasheet supersedes document 3346

Semelab Limited reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.



SILICON PLANAR EPITAXIAL PNP TRANSISTOR BDS19SMD

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise stated)

| Symbols | Parameters | Test Conditions | Min. | Typ | Max. | Units |
|---------------------|--------------------------------------|--|------|-----|------|---------------|
| $V_{(BR)CEO}^{(1)}$ | Collector-Emitter Breakdown Voltage | $I_C = -10\text{mA}$ $I_B = 0$ | -150 | | | V |
| I_{CEO} | Collector Cut-Off Current | $V_{CE} = -75\text{V}$ $I_B = 0$ | | | -0.1 | mA |
| I_{CBO} | Collector Cut-Off Current | $V_{CB} = -150\text{V}$ $I_E = 0$ | | | -20 | μA |
| I_{EBO} | Emitter Cut-Off Current | $V_{EB} = -5\text{V}$ $I_C = 0$ | | | -10 | |
| $h_{FE}^{(1)}$ | Forward-current transfer ratio | $I_C = -0.5\text{A}$ $V_{CE} = -2\text{V}$ | 40 | | 250 | |
| | | $I_C = -4\text{A}$ $V_{CE} = -2\text{V}$ | 15 | | 150 | |
| $V_{CE(sat)}^{(1)}$ | Collector-Emitter Saturation Voltage | $I_C = -0.5\text{A}$ $I_B = -0.05\text{A}$ | | | -0.4 | V |
| | | $I_C = -4\text{A}$ $I_B = -0.4\text{A}$ | | | -1.5 | |
| $V_{BE(on)}^{(1)}$ | Base-Emitter Voltage | $I_C = -1.0\text{A}$ $V_{CE} = -2\text{V}$ | | | -1.4 | |

DYNAMIC CHARACTERISTICS

| | | | | | | |
|----------|----------------------|--|----|--|-----|---------------|
| f_T | Transition Frequency | $I_C = -0.5\text{A}$ $V_{CE} = -4\text{V}$ $f = 5\text{MHz}$ | 10 | | | MHz |
| t_{on} | Turn-On Time | $I_C = -2\text{A}$ $V_{CC} = -80\text{V}$ $I_{B1} = -0.2\text{A}$ | | | 0.5 | μs |
| t_s | Storage Time | $I_C = -2\text{A}$ $V_{CC} = -80\text{V}$ | | | 1.5 | |
| t_f | Fall Time | $I_{B1} = -I_{B2} = -0.2\text{A}$ | | | 0.3 | |

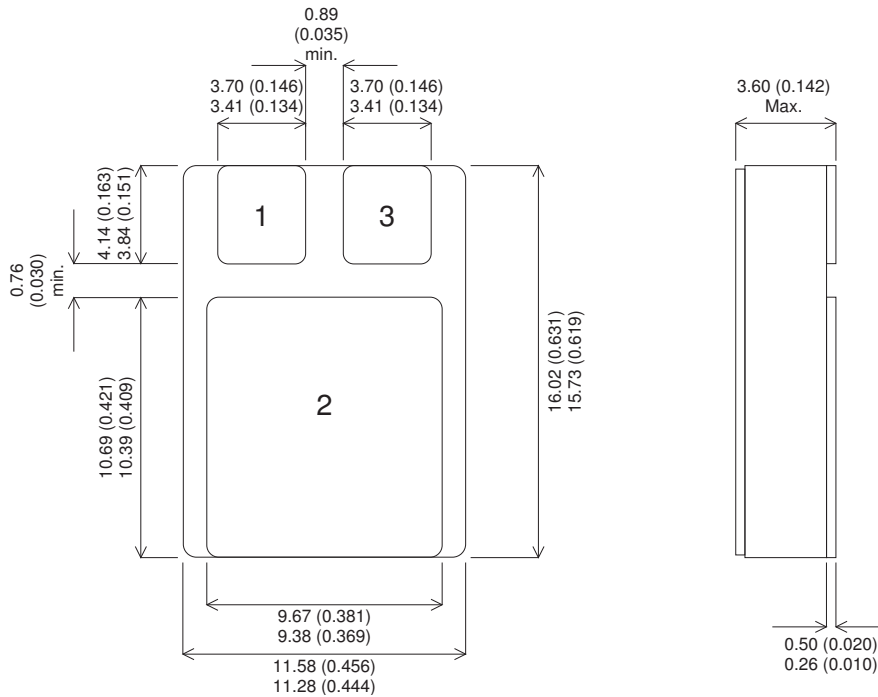
Notes

(1) Pulse Width $\leq 300\mu\text{s}$, $\delta \leq 2\%$

SILICON PLANAR EPITAXIAL PNP TRANSISTOR BDS19SMD

MECHANICAL DATA

Dimensions in mm (inches)



SMD1 (TO-276AB)

Underside View

Pad 1 – Base Pad 2 – Collector Pad 3 - Emitter