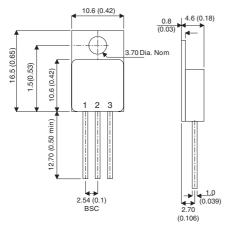


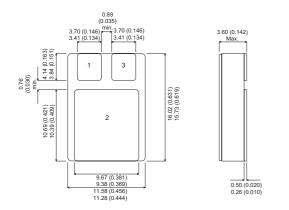
BDS10 BDS10SMD BDS10SMD05 BDS11 BDS11SMD BDS11SMD05 BDS12 BDS12SMD BDS12SMD05

MECHANICAL DATA

Dimensions in mm(inches)



TO220M - TO220 Metal Package - Isolated (TO-257AB)



SMD1 - Ceramic Surface Mount Package (TO-276AB)

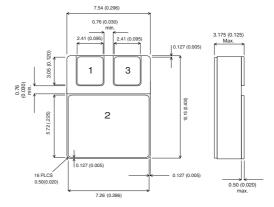
SILICON NPN EPITAXIAL BASE IN TO220 METAL AND CERAMIC SURFACE MOUNT PACKAGES

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



SMD05 - Ceramic Surface Mount Package (TO-276AA)

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

| ABSOLUTE MAXIMUM RATINGS (T _{case} =25°C unless otherwise stated) | BDS10 | BDS11 | BDS12 |
|---|------------|---|--------------|
| $\begin{array}{lll} V_{CBO} & Collector - Base\ voltage\ (I_E=0) \\ V_{CEO} & Collector - Emitter\ voltage\ (I_B=0) \\ V_{EBO} & Emitter\ - Base\ voltage\ (I_C=0) \\ I_E\ ,\ I_C & Emitter\ ,\ Collector\ current \\ I_B & Base\ current \\ P_{tot} & Total\ power\ dissipation\ at\ T_{case}=25^{\circ}C \\ T_{stg} & Storage\ Temperature \\ T_j & Junction\ Temperature \\ \end{array}$ | 60V 60V | 80V 80V 5V 15A 5A 43.75W -65 to 200°C | 100V 100V |

Semelab Plc 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.

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BDS10 BDS11 **BDS12**

BDS10SMD BDS11SMD BDS12SMD

BDS10SMD05 BDS11SMD05 BDS12SMD05

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

| | Parameter | Test Co | onditions | Min. | Тур. | Max. | Unit |
|------------------------|-----------------------------------|----------------------|------------------------|------|------|------|------|
| I _{CBO} | Collector cut-off current | BDS10 | $V_{CB} = 60V$ | | | 500 | |
| | | BDS11 | $V_{CB} = 80V$ | | | 500 | μΑ |
| | $(I_E = 0)$ | BDS12 | V _{CB} = 100V | | | 500 | |
| | Collector out off ourrent | BDS10 | $V_{CE} = 30V$ | | | 1.0 | |
| I _{CEO} | Collector cut-off current | BDS11 | $V_{CE} = 40V$ | | | 1.0 | mA |
| | $(I_B = 0)$ | BDS12 | $V_{CE} = 50V$ | | | 1.0 | |
| I _{EBO} | Emitter cut-off current | $V_{EB} = 5V$ | | | | 1.0 | mA |
| V _{CEO(sus)*} | $(I_C = 0)$ | BDS10 | | 60 | | | |
| | Collector - Emitter | BDS11 | $I_C = 100 \text{mA}$ | 80 | | | V |
| | sustaining voltage $(I_B = 0)$ | BDS12 | | 100 | | | |
| _\ | Collector - Emitter | I _C = 5A | $I_{B} = 0.5A$ | | | 1.0 | V |
| V _{CE(sat)*} | saturation voltage | I _C = 10A | I _B = 2.5A | | | 3 |] |
| V _{BE(sat)*} | Base - Emitter saturation voltage | I _C = 10A | I _B = 2.5A | | | 2.5 | V |
| V _{BE*} | Base - Emitter voltage | I _C = 5A | $V_{CE} = 4V$ | | | 1.5 | V |
| | | $I_{\rm C} = 0.5 A$ | $V_{CE} = 4V$ | 40 | | 250 | |
| h _{FE*} | DC Current Gain | I _C = 5A | $V_{CE} = 4V$ | 15 | | 150 | |
| | | I _C = 10A | $V_{CE} = 4V$ | 5 | | | |
| f _T | Transition frequency | $I_{\rm C} = 0.5 A$ | $V_{CE} = 4V$ | 3 | | | MHz |
| | | f = 1MHz | | | | | |

^{*}Pulsed : Pulse duration = 300 μ s , duty cycle = 1.5%

SWITCHING CHARACTERISTICS

| | Parameter | Test Conditions | Max. | Unit |
|-----------------|-----------------------|---|------|------|
| t _{on} | On Time $(t_d + t_r)$ | $I_C = 4A$ $V_{CC} = 30V$ $I_{B1} = 0.4A$ | 0.7 | μs |
| t _s | Storage Time | $I_C = 4A$ $V_{CC} = 30V$ | 1.0 | μs |
| t _r | Fall Time | $I_{B1} = -I_{B2} = 0.4A$ | 0.8 | μs |

THERMAL CHARACTERISTICS

| | Test Conditions | Max. | Unit |
|------------------|-------------------------------------|------|------|
| $R_{\theta J-C}$ | Thermal Resistance Junction to Case | 4.0 | °C/W |

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