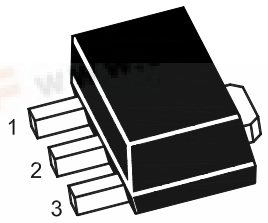
# ST 2SB9435U



## PNP SILICON EPITAXIAL POWER TRANSISTOR




1.Base 2.Collector 3.Emitter

SOT-89 Plastic Package

### Absolute Maximum Ratings ($T_C$ = 25 °C)

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Collector Base Voltage | $-V_{CBO}$ | 45 | V |
| Collector Emitter Voltage | $-V_{CEO}$ | 30 | V |
| Emitter Base Voltage | $-V_{EBO}$ | 6 | V |
| Collector Current - DC<br>Collector Current - Peak | $-I_C$<br>$-I_C$ | 3<br>5 | A<br>A |
| Base Current - DC | $-I_B$ | 1 | A |
| Total Power Dissipation @ $T_A$ = 25 °C [1] | $P_{tot}$ | 0.72 | W |
| Total Power Dissipation @ $T_C$ = 25 °C | $P_{tot}$ | 3 | W |
| Operating and Storage Junction Temperature Range | $T_J$, $T_s$ | - 55 to + 150 | °C |

[1] Mounted on 0.012" sq. (7.6 sq. mm) Collector pad on FR-4 bd material.

### Characteristics at $T_C$ = 25 °C

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| DC Current Gain<br>at $-V_{CE}$ = 1 V, $-I_C$ = 0.8 A<br>at $-V_{CE}$ = 1 V, $-I_C$ = 1.2 A<br>at $-V_{CE}$ = 1 V, $-I_C$ = 3 A | <br>$h_{FE}$<br>$h_{FE}$<br>$h_{FE}$ | <br>125<br>110<br>90 | <br>-<br>-<br>- | <br>-<br>-<br>- | <br>-<br>-<br>- |
| Collector Emitter Sustaining Voltage<br>at $-I_C$ = 10 mA | $-V_{(SUS)CEO}$ | 30 | - | - | V |
| Emitter Base Breakdown Voltage<br>at $-I_E$ = 50 µA | $-V_{(BR)EBO}$ | 6 | - | - | V |
| Collector Cutoff Current<br>at $-V_{CE}$ = 25 V, $R_{BE}$ = 200 Ω | $-I_{CER}$ | - | - | 20 | µA |
| Emitter Cutoff Current<br>at $-V_{EB}$ = 5 V | $-I_{EBO}$ | - | - | 10 | µA |
| Collector Emitter Saturation Voltage<br>at $-I_C$ = 0.8 A, $-I_B$ = 20 mA<br>at $-I_C$ = 1.2 A, $-I_B$ = 20 mA<br>at $-I_C$ = 3 A, $-I_B$ = 300 mA | $-V_{CE(sat)}$ | -<br>-<br>- | -<br>-<br>- | 0.21<br>0.275<br>0.55 | V |
| Base Emitter Saturation Voltage<br>at $-I_C$ = 3 A, $-I_B$ = 300 mA | $-V_{BE(sat)}$ | - | - | 1.25 | V |
| Base Emitter On Voltage<br>at $-I_C$ = 1.2 A, $-V_{CE}$ = 4 V | $-V_{BE(on)}$ | - | - | 1.1 | V |
| Output Capacitance<br>at $-V_{CB}$ = 10 V, f = 1 MHz | $C_{ob}$ | - | - | 150 | pF |
| Input Capacitance<br>at $-V_{CB}$ = 8 V | $C_{ib}$ | - | 135 | - | pF |
| Current Gain Bandwidth Product<br>at $-I_C$ = 500 mA, $-V_{CE}$ = 10 V, f = 1 MHz | $f_T$ | - | 110 | - | MHz |



**SEMTECH ELECTRONICS LTD.**

(Subsidiary of Sino-Tech International Holdings Limited, a company listed on the Hong Kong Stock Exchange, Stock Code: 724)

ISO/TS 16949 : 2002 Certificate No. 05103
ISO 14001:2004 Certificate No. 7116
ISO 9001:2000 Certificate No. 0506098

*Dated : 17/06/2006*

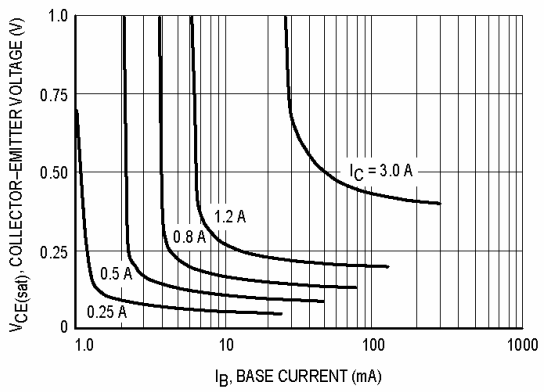



Figure 1. Collector Saturation Region

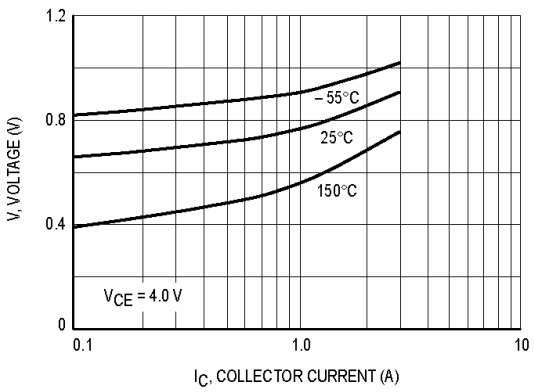



Figure 2. $V_{BE(on)}$ Voltage

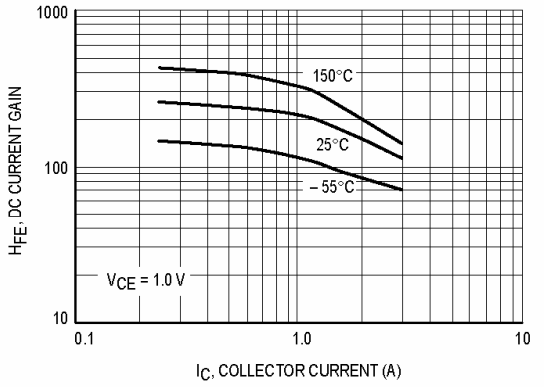



Figure 3. DC Current Gain

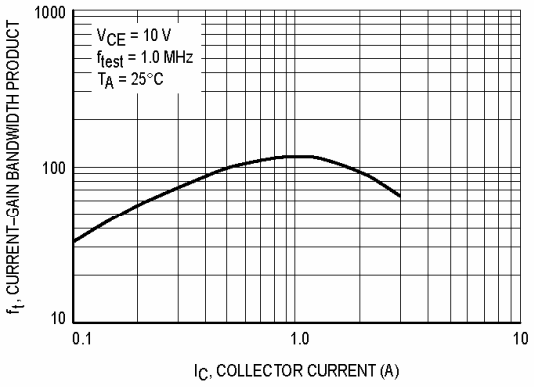



Figure 4. Current-Gain Bandwidth Product

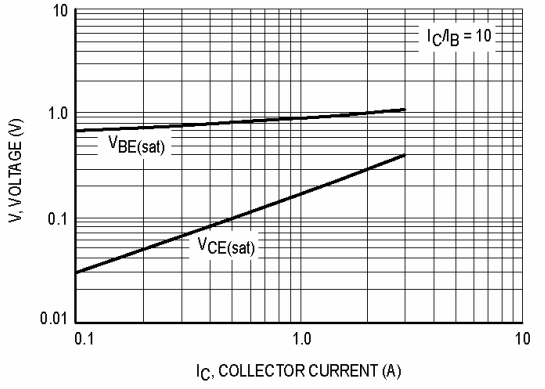



Figure 5. "On" Voltages

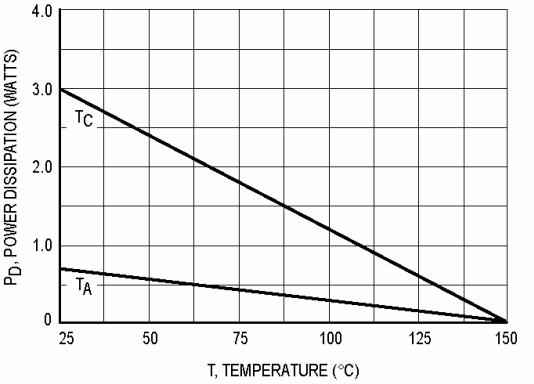
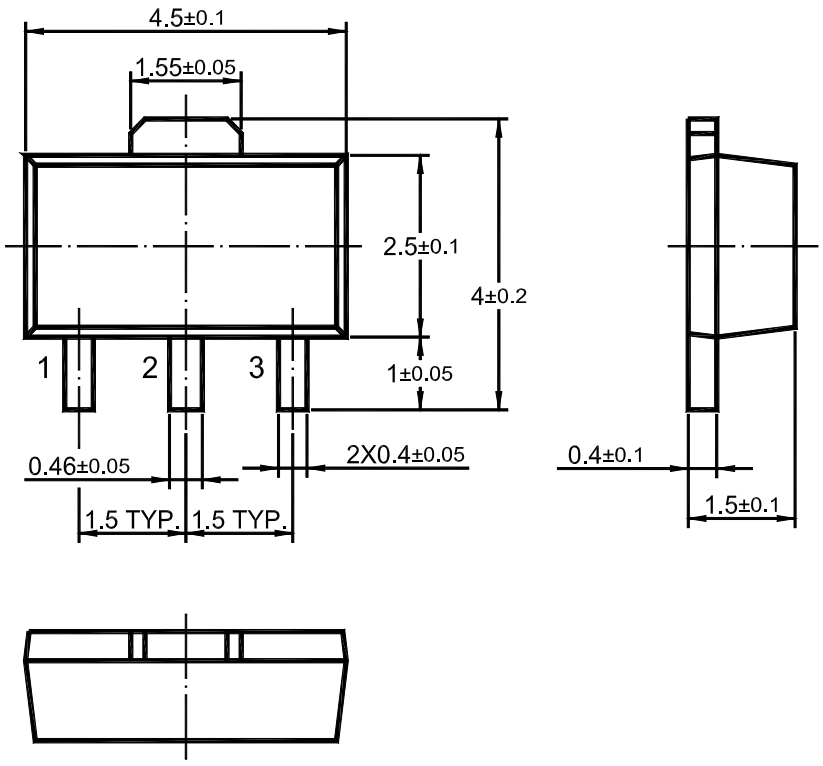



Figure 6. Power Derating

## SOT-89 PACKAGE OUTLINE




Dimensions in mm