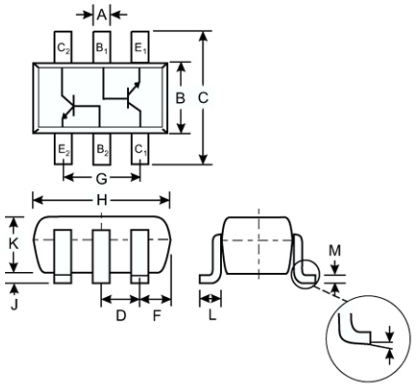
# BC847BS

## Features

Ideally Suited for Automatic Insertion
For Switching and AF Amplifier Applications
Ultra-Small Surface Mount Package

## Mechanical Data

Case: SOT-363, Molded Plastic
Case material - UL Flammability Rating Classification 94V - 0
Moisture sensitivity: Level 1 per J-STD-020A
Terminals: Solderable per MIL-STD-202, Method 208
Terminal Connections: See Diagram
Marking: K1F (See Page 2)
Weight: 0.006 grams
Ordering & Date Code Information: See Page 2




| SOT-363 | | |
|---|---|---|
| **Dim** | **Min** | **Max** |
| **A** | 0.10 | 0.30 |
| **B** | 1.15 | 1.35 |
| **C** | 2.00 | 2.20 |
| **D** | 0.65 Nominal | |
| **F** | 0.30 | 0.40 |
| **H** | 1.80 | 2.20 |
| **J** | — | 0.10 |
| **K** | 0.90 | 1.00 |
| **L** | 0.25 | 0.40 |
| **M** | 0.10 | 0.25 |
| α | °8 | |
| **All Dimensions in mm** | | |

## Maximum Ratings @ $T_A$ = 25°C unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Collector-Base Voltage | $V_{CBO}$ | 50 | V |
| Collector-Emitter Voltage | $V_{CEO}$ | 45 | V |
| Emitter-Base Voltage | $V_{EBO}$ | 5.0 | V |
| Collector Current | $I_C$ | 100 | mA |
| Peak Collector Current | $I_{CM}$ | 200 | mA |
| Peak Base Current | $I_{BM}$ | 200 | mA |
| Power Dissipation (Note 1) | $P_d$ | 200 | mW |
| Thermal Resistance, Junction to Ambient (Note 1) | $R_{\theta JA}$ | 500 | °C/W |
| Operating and Storage Temperature Range | $T_j$, $T_{STG}$ | -55 to +125 | °C |

## Electrical Characteristics @ $T_A$ = 25°C unless otherwise specified

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|---|---|---|---|---|---|---|
| DC Current Gain (Note 2) | $h_{FE}$ | 200 | — | 450 | — | $V_{CE}$ = 5.0V, $I_C$ = 2.0mA |
| Collector-Emitter Saturation Voltage (Note 2) | $V_{CE(SAT)}$ | — | —<br>— | 100<br>400 | mV | $I_C$ = 10mA, $I_B$ = 0.5mA<br>$I_C$ = 100mA, $I_B$ = 5.0mA |
| Base-Emitter Saturation Voltage (Note 2) | $V_{BE(SAT)}$ | — | 755 | — | mV | $I_C$ = 10mA, $I_B$ = 0.5mA |
| Base-Emitter Voltage (Note 2) | $V_{BE}$ | 580 | 665 | 700 | mV | $V_{CE}$ = 5.0V, $I_C$ = 2.0mA |
| Collector Cutoff Current (Note 2) | $I_{CBO}$<br>$I_{CBO}$ | — | —<br>— | 15<br>5.0 | nA<br>µA | $V_{CB}$ = 30V, $I_E$ = 0<br>$V_{CB}$ = 30V, $T_j$ = 125°C |
| Emitter Cutoff Current (Note 2) | $I_{EBO}$ | — | — | 100 | nA | $V_{EB}$ = 5.0V, $I_C$ = 0 |
| Gain Bandwidth Product | $f_T$ | 100 | — | — | MHz | $V_{CE}$ = 5.0V, $I_C$ = 10mA, f = 100MHz |
| Collector-Base Capacitance | $C_{CBO}$ | — | — | 1.5 | pF | $V_{CB}$ = 10V, f = 1.0MHz |
| Emitter-Base Capacitance | $C_{EBO}$ | — | 11 | — | pF | $V_{EB}$ = 0.5V, f = 1.0MHz |

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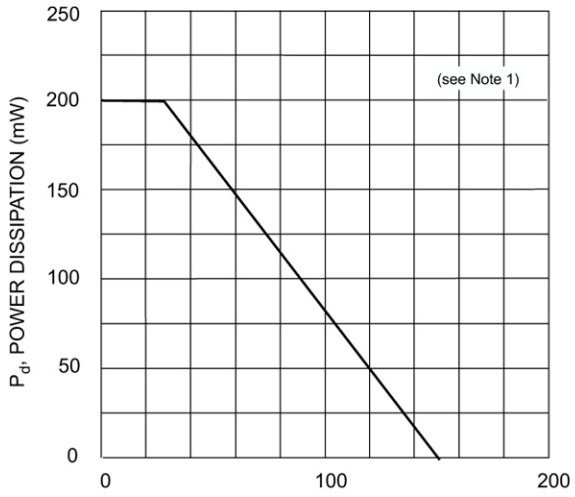


Fig. 1, Power Derating Curve

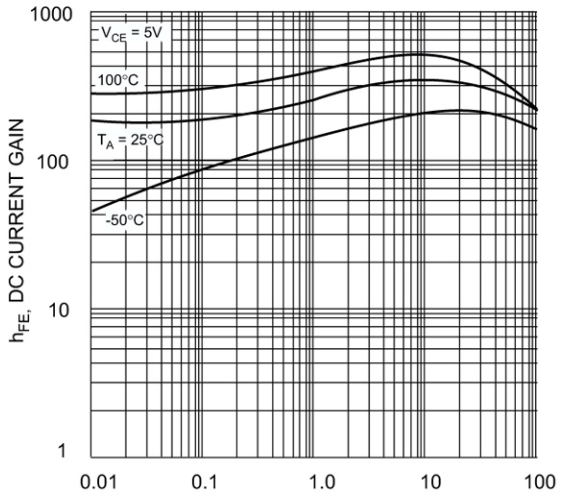


Fig. 2, DC Current Gain vs Collector Current

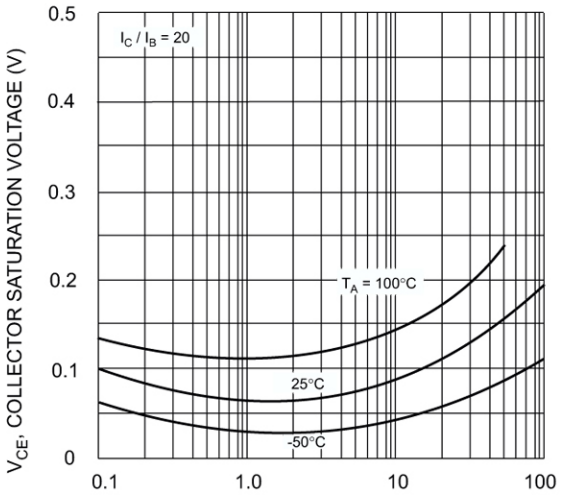


Fig. 3, Collector Saturation Voltage vs Collector Current

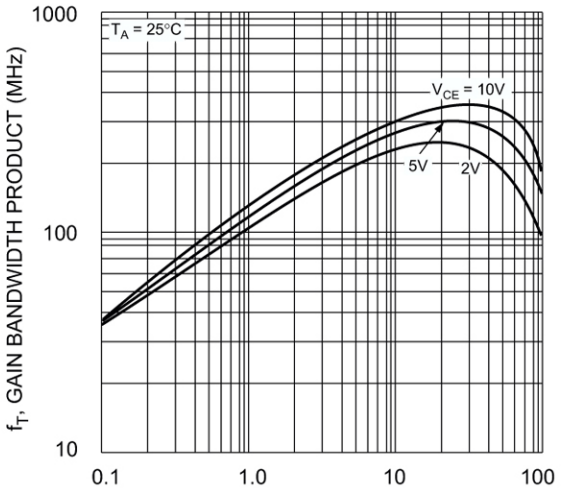


Fig. 4, Gain Bandwidth Product vs Collector Current

Notes: 1. Device mounted on FR4 printed circuit board.