



BC847CS/BC857CS

GENERAL PURPOSE TRANSISTORS

VOLTAGE 45 Volts **POWER** 150 mW

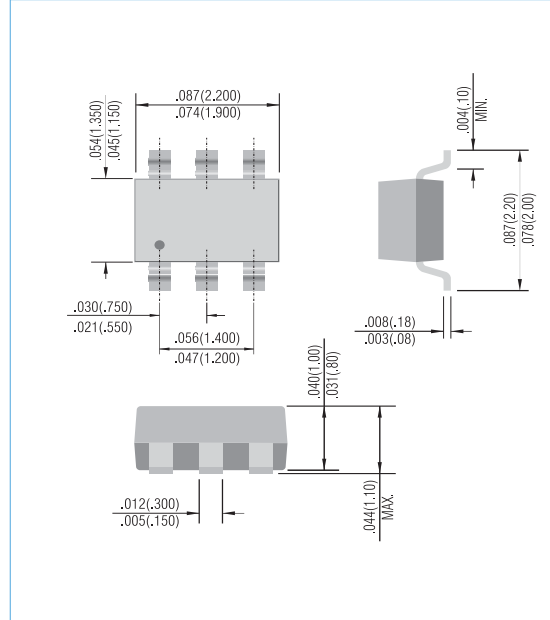
SOT-363 Unit: inch (mm)

FEATURES

- General Purpose Amplifier Applications
- Collector Current $I_C = -100\text{mA}$
- In compliance with EU RoHS 2002/95/EC directives

MECHANICAL DATA

Case: SOT-363
 Terminals : Solderable per MIL-STD-750,Method 2026
 Approx Weight: 0.006 grams
 Device Marking : BC847CS=47C
 BC857CS=57C



ABSOLUTE MAXIMUM RATINGS

| PARAMETER | SYMBOL | BC847CS | BC857CS | UNITS |
|--|----------------|-------------|---------|-------|
| Collector-Emitter Voltage | V_{CEO} | 45 | | V |
| Collector-Base Voltage | V_{CBO} | 50 | | V |
| Emitter-Base Voltage | V_{EBO} | 5 | | V |
| Collector Current-Continuous | I_C | 100 | | mA |
| Max Power Dissipation (Note 1) | P_{TOT} | 225 | | mW |
| Operating Junction and Storage Temperature Range | T_J, T_{STG} | -55 to +150 | | °C |
| Circuit Figure | | Fig.54 | Fig.53 | |

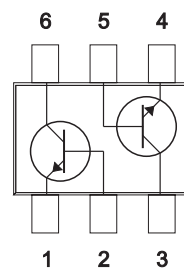


Fig.54

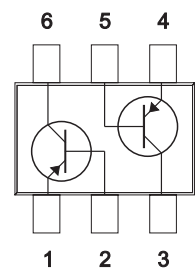


Fig.53



BC847CS/BC857CS

THERMAL CHARACTERISTICS

| PARAMETER | SYMBOL | VALUE | UNITS |
|---|-----------------|-------|---------------|
| Thermal Resistance, Junction to Ambient | $R_{\theta JA}$ | 556 | $^{\circ}C/W$ |

Note 1 : Transistor mounted on FR-4 board 70 x 60 x 1mm

ELECTRICAL CHARACTERISTICS ($T_J=25^{\circ}C$, unless otherwise noted)

| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT |
|--|---------------|----------|------------|--------------|---------------|
| Collector-Emitter Breakdown Voltage ($I_C=10mA, I_B=0$) | $V_{(BR)CEO}$ | 45 | - | - | V |
| Collector-Base Breakdown Voltage ($I_C=10\mu A, I_B=0$) | $V_{(BR)CBO}$ | 50 | - | - | V |
| Emitter-Base Breakdown Voltage ($I_E=1\mu A, I_C=0$) | $V_{(BR)EBO}$ | 5.0 | - | - | V |
| Emitter-Base Cutoff Current ($V_{EB}=5V$) | I_{EBO} | - | - | 100 | nA |
| Collector-Base Cutoff Current ($V_{CE}=30V, I_E=0$) $T_J=150^{\circ}C$ | I_{CBO} | - | - | 15 4.0 | nA μA |
| DC Current Gain ($I_C=10\mu A, V_{CE}=5V$) ($I_C=2.0mA, V_{CE}=5V$) | h_{FE} | - 420 | 270 520 | - 800 | - |
| Collector-Emitter Saturation Voltage ($I_C=10mA, I_B=0.5mA$) ($I_C=100mA, I_B=5.0mA$) | $V_{CE(SAT)}$ | - - | - - | 0.3 0.65 | V |
| Base-Emitter Saturation Voltage ($I_C=10mA, I_B=0.5mA$) ($I_C=100mA, I_B=5.0mA$) | $V_{BE(SAT)}$ | - - | 0.7 0.9 | - - | V |
| Base-Emitter On Voltage ($I_C=2.0mA, V_{CE}=5.0V$) ($I_C=10mA, V_{CE}=5.0V$) | $V_{BE(ON)}$ | 0.6 - | - - | 0.75 0.82 | V |
| Collector-Base Capacitance ($V_{CB}=10V, I_E=0, f=1MHz$) | C_{CB} | - | - | 4.5 | pF |
| Current-Gain-Bandwidth Product ($I_C=10mA, V_{CE}=5.0V, f=100MHz$) | F_T | - | 200 | - | MHz |



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ELECTRICAL CHARACTERISTICS CURVES

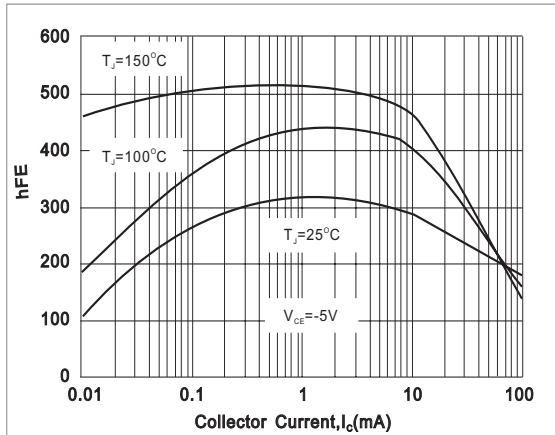


Fig.1- TYPICAL h_{FE} vs. Collector Current

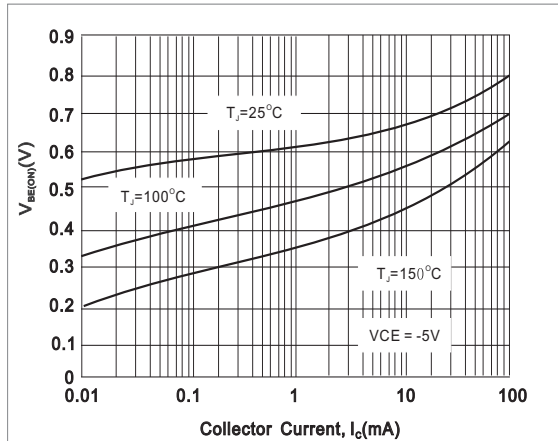


Fig.2- TYPICAL $V_{BE(ON)}$ vs. Collector Current

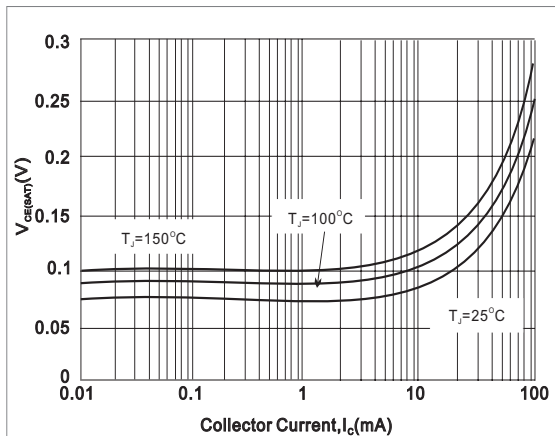


Fig.3- TYPICAL $V_{CE(SAT)}$ vs. Collector Current

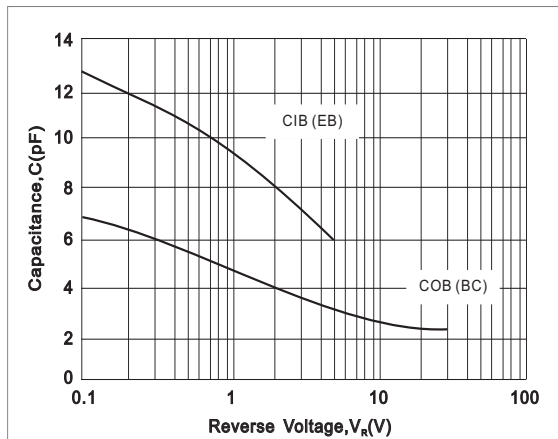
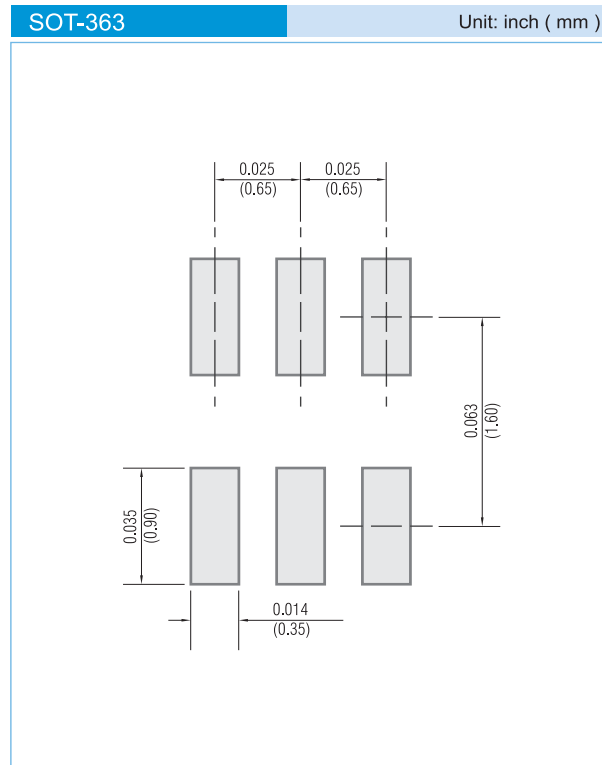


Fig.4- TYPICAL CAPACITANCES vs. REVERSE VOLTAGE



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MOUNTING PAD LAYOUT



ORDER INFORMATION

- Packing information
 - T/R - 10K per 13" plastic Reel
 - T/R - 3K per 7" plastic Reel

LEGAL STATEMENT

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