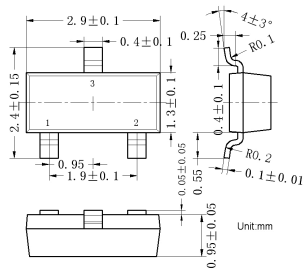
SHENZHEN LONG JING MICRO-ELECTRONICS CO., LTD.

# SOT-23 Plastic-Encapsulate Transistors

## BC857B PNP Transistors




1. Base
2. Emitter
3. Collector

### Features

- Ideally suited for automatic insertion
- For switching and AF amplifier applications

### Marking

- BC857A: 3E
- BC857B: 3F
- BC857C: 3G

### Maximum Ratings ($T_a$=25°C unless otherwise noted)

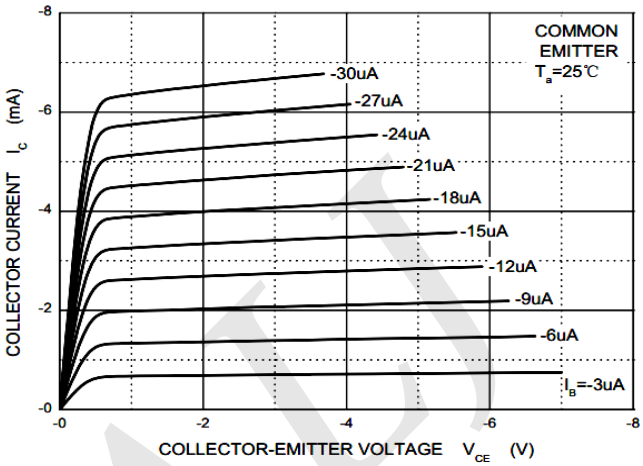
| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_{CBO}$ | Collector Base Voltage | -50 | V |
| $V_{CEO}$ | Collector Emitter Voltage | -45 | V |
| $V_{EBO}$ | Emitter Base Voltage | -5 | V |
| $I_C$ | Collector Current | -0.1 | A |
| $P_C$ | Collector Power Dissipation | 200 | mW |
| $R_{\theta JA}$ | Thermal Resistance from Junction to Ambient | 625 | °C/W |
| $T_j$ | Junction Temperature | 150 | °C |
| $T_{stg}$ | Storage Temperature | - 55 to +150 | °C |

### Electrical Characteristics ($T_a$=25°C unless otherwise specified)

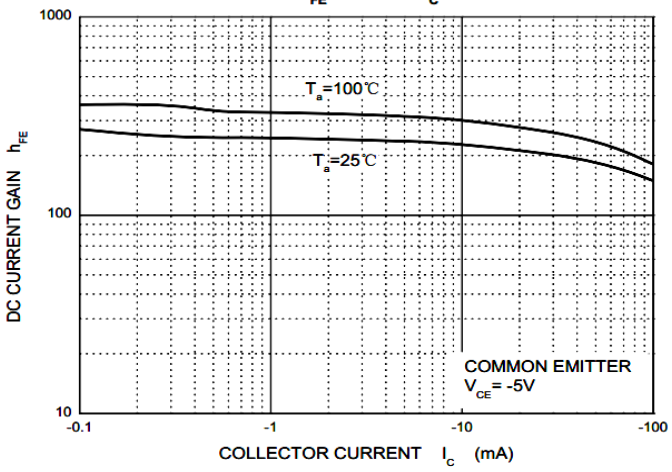
| Symbol | Parameter | Test Conditions | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| $V_{(BR)CBO}$ | Collector-base breakdown voltage | $I_C$ = -10μA, $I_E$ = 0 | | -50 | | | V |
| $V_{(BR)CEO}$ | Collector-emitter breakdown voltage | $I_C$ = -10mA, $I_B$ = 0 | | -45 | | | V |
| $V_{(BR)EBO}$ | Emitter-base breakdown voltage | $I_E$ = -1μA, $I_C$ = 0 | | -5 | | | V |
| $I_{CBO}$ | Collector cut-off current | $V_{CB}$ = -45V, $I_E$ = 0 | | | | -100 | nA |
| $I_{CEO}$ | Collector cut-off current | $V_{CE}$ = -40V, $I_B$ = 0 | | | | -100 | nA |
| $I_{EBO}$ | Emitter cut-off current | $V_{EB}$ = -5V, $I_C$ = 0 | | | | -100 | nA |
| $h_{FE}$ | DC current gain | BC857A | $V_{CE}$ = -5V, $I_C$ = -2mA | 125 | 210 | 250 | |
| | | BC857B | | 220 | 310 | 475 | |
| | | BC857C | | 420 | 520 | 800 | |
| | | $V_{CE}$ = -5V, $I_C$ = -1mA | | 125 | | | |
| $V_{CE(sat)}$ | Collector-emitter saturation voltage | $I_C$ = -100mA, $I_B$ = -5mA | | | | -0.5 | V |
| $V_{BE(sat)}$ | Base-emitter saturation voltage | $I_C$ = -100mA, $I_B$ = -5mA | | | | -1.1 | V |
| $f_T$ | Transition frequency | $V_{CE}$ = -5V, $I_C$= -10mA, f = 100MHz | | 100 | | | MHz |
| $C_{ob}$ | Collector output capacitance | $V_{CB}$ = -10V, f = 1MHz | | | | 4.5 | pF |

## Typical Characteristics

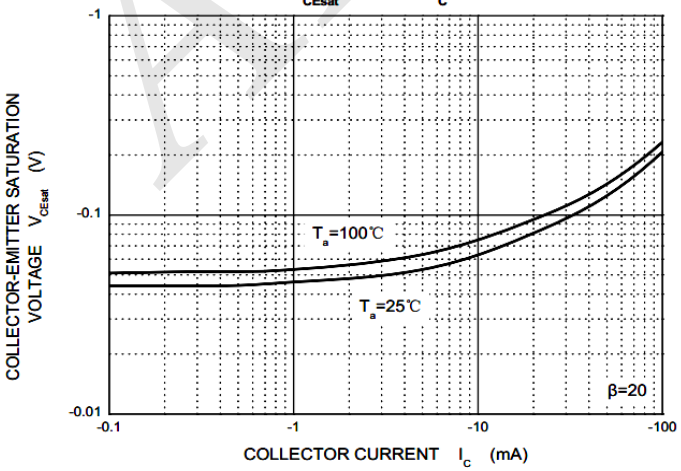
**Static Characteristic**



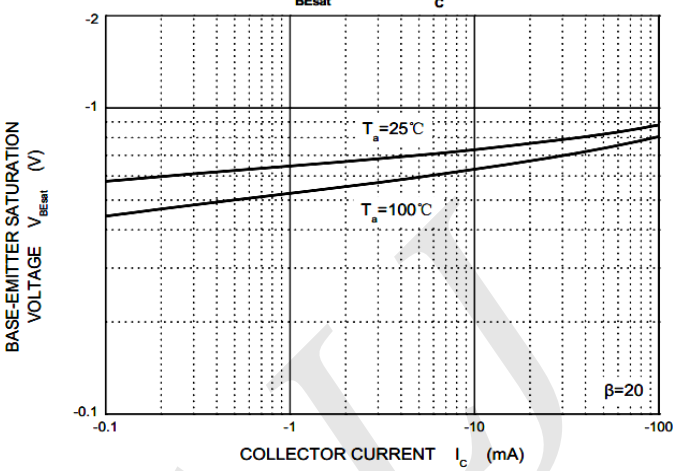

**$h_{FE}$ — $I_C$**



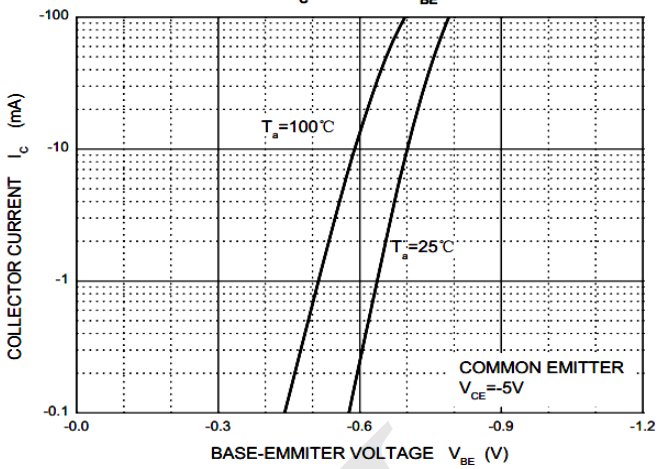

**$V_{CEsat}$ — $I_C$**



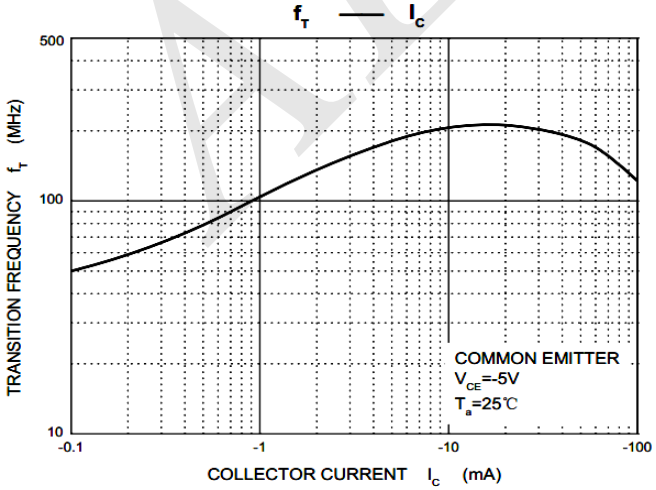

**$V_{BEsat}$ — $I_C$**



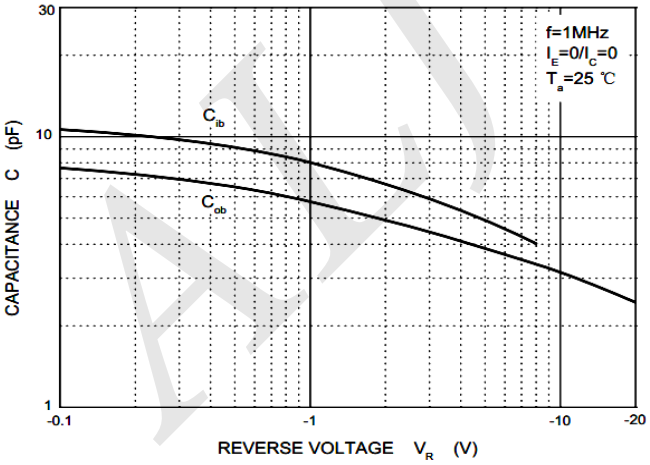

**$I_C$ — $V_{BE}$**




**$f_T$ — $I_C$**




**$C_{ob}$/ $C_{ib}$ — $V_{CB}$/ $V_{EB}$**




**$P_C$ — $T_a$**