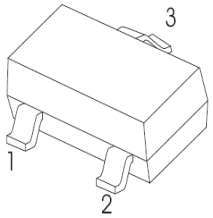
# SOT-23 Plastic-Encapsulate Transistor

**BC817- 16**
**BC817- 25**
**BC817- 40**

TRANSISTOR (NPN)

**SOT-23**




1. BASE
2. EMITTER
3. COLLECTOR

## FEATURES

- For general AF applications
- High collector current
- High current gain
- Low collector-emitter saturation voltage
- Complementary types: BC807 (PNP)

## PACKAGE SPECIFICATIONS

| Package | Reel Size | Reel DIA. (mm) | Q'TY/Reel (pcs) | Box Size (mm) | QTY/Box (pcs) | Carton Size (mm) | Q'TY/Carton (pcs) |
|---|---|---|---|---|---|---|---|
| SOT-23 | 7' | 330 | 3000 | 203×203×195 | 45000 | 438×438×220 | 180000 |

## MAXIMUM RATINGS ($T_a$=25℃ unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Collector Base Voltage | $V_{CBO}$ | 50 | V |
| Collector Emitter Voltage | $V_{CEO}$ | 45 | V |
| Emitter Base Voltage | $V_{EBO}$ | 5 | V |
| Collector Current | $I_C$ | 0.5 | A |
| Power Dissipation | $P_{tot}$ | 300 | mW |
| Junction Temperature | $T_j$ | 150 | °C |
| Storage Temperature Range | $T_{stg}$ | - 55 to + 150 | °C |

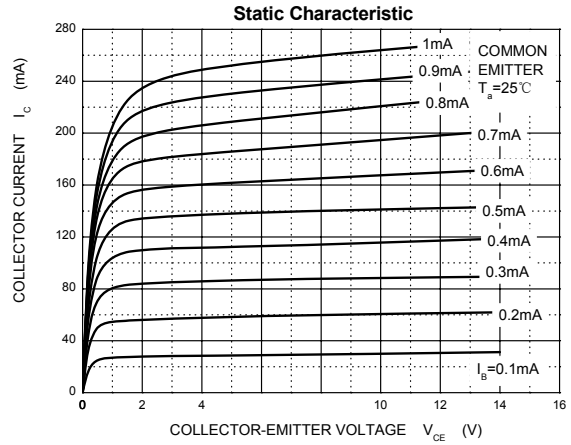
## ELECTRICAL CHARACTERISTICS (Tamb=25℃ unless otherwise specified)

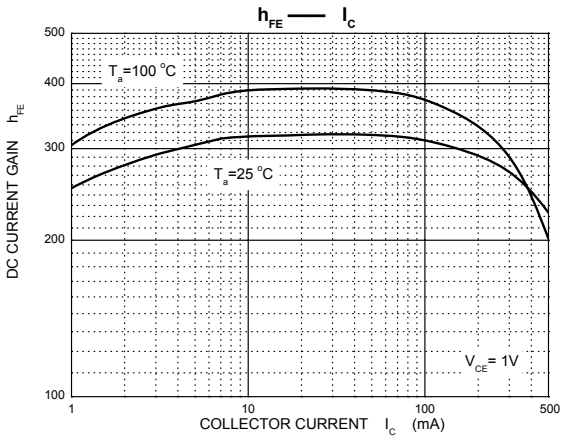
| Parameter | Symbol | Test conditions | MIN | | MAX | UNIT |
|---|---|---|---|---|---|---|
| **Collector-base breakdown voltage** | $V_{CBO}$ | $I_C$= 10μA, $I_E$=0 | 50 | | | V |
| **Collector-emitter breakdown voltage** | $V_{CEO}$ | $I_C$= 10mA, $I_B$=0 | 45 | | | V |
| **Emitter-base breakdown voltage** | $V_{EBO}$ | $I_E$= 1μA, $I_C$=0 | 5 | | | V |
| **Collector cut-off current** | $I_{CBO}$ | $V_{CB}$= 45 V , $I_E$=0 | | | 0.1 | μA |
| **Emitter cut-off current** | $I_{EBO}$ | $V_{EB}$= 4V, $I_C$=0 | | | 0.1 | μA |
| **DC current gain** | $h_{FE(1)}$ | $V_{CE}$= 1V, $I_C$= 100mA | 100 | | 600 | |
| | $h_{FE(2)}$ | $V_{CE}$= 1V, $I_C$= 500mA | 40 | | | |
| **Collector-emitter saturation voltage** | $V_{CE}$(sat) | $_C$= 500mA, $I_B$= 50mA | | | 0.7 | |
| **Base-emitter saturation voltage** | $V_{BE}$(sat) | $_C$= 500mA, $I_B$= 50mA | | | 1.2 | |
| **Base-emitter voltage** | $V_{BE}$ | $V_{CE}$= 1 V, $I_C$= 500mA | | | 1.2 | |
| **Collecter capactiance** | $C_{ob}$ | $V_{CB}$=10V ,f=1MHz | | 10 | | pF |
| **Transition frequency** | $f_T$ | $V_{CE}$= 5 V, $I_C$= 10mA f=100MHz | 100 | | | MHz |

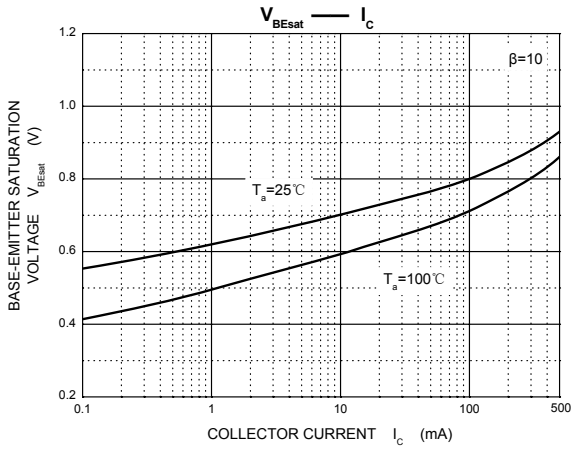
**CLASSIFICATION OF** $h_{FE\ (1)}$

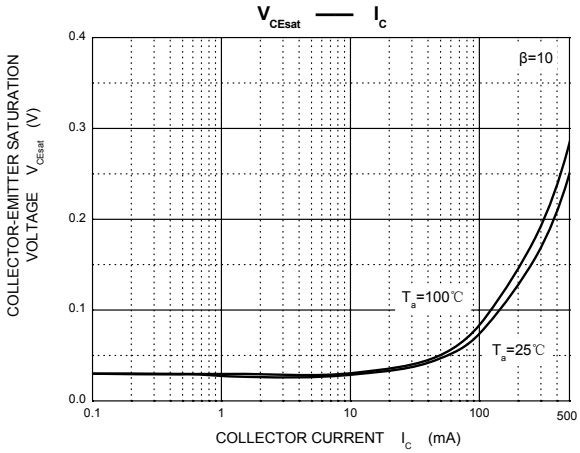
| Rank | BC817-16 | BC817-25 | BC817-40 |
|---|---|---|---|
| Range | 100-250 | 160-400 | 250-600 |
| Marking | 6A | 6B | 6C |

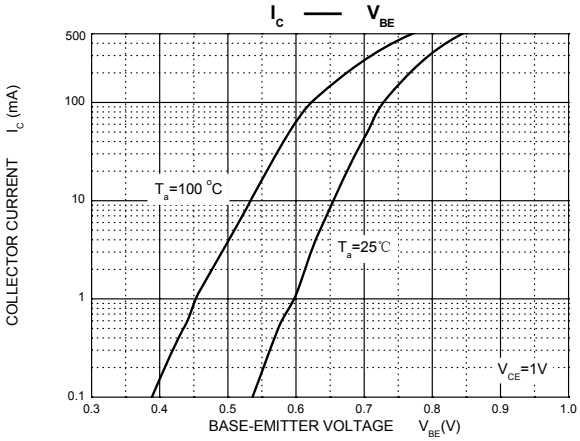
## Typical Characteristics

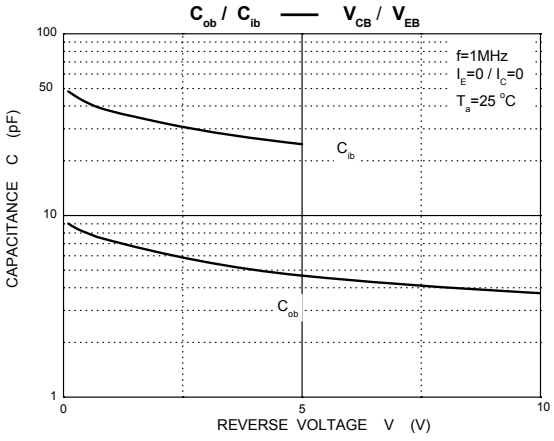


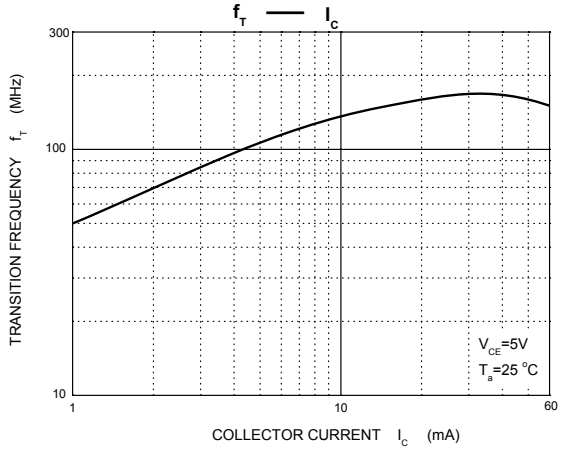



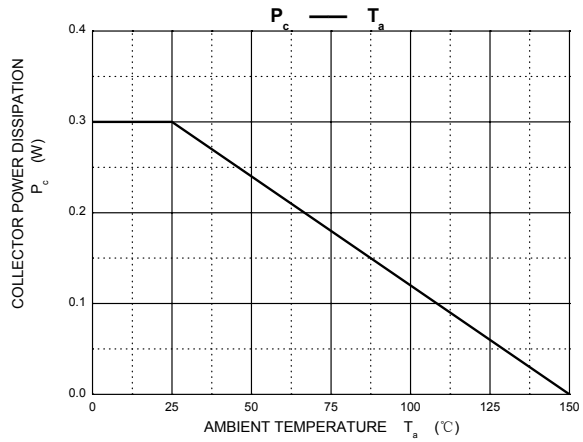



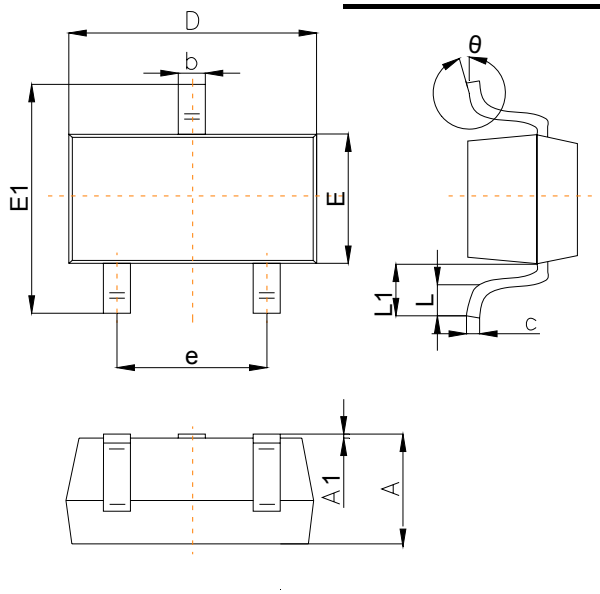




The curve above is for reference only.

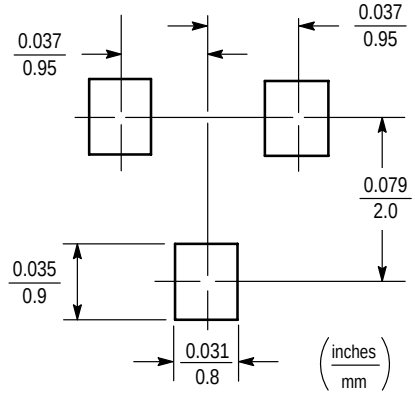
## Outlitne Drawing

SOT-23 Package Outline Dimensions




| Symbol | Dimensions In Millimeters | | |
|---|---|---|---|
| | Min | Typ | Max |
| A | 0.90 | | 1.40 |
| A1 | 0.00 | | 0.10 |
| b | 0.30 | | 0.50 |
| c | 0.08 | | 0.20 |
| D | 2.80 | 2.90 | 3.10 |
| E | 1.20 | | 1.60 |
| E1 | 2.25 | | 2.80 |
| e | 1.80 | 1.90 | 2.00 |
| L | 0.10 | | 0.50 |
| L1 | 0.4 | | 0.55 |
| θ | 0° | | 10° |

## Suggested Pad Layout




Note:
1.Controlling dimension:in/millimeters.
2.General tolerance: ±0.05mm.
3.The pad layout is for reference purposes only.