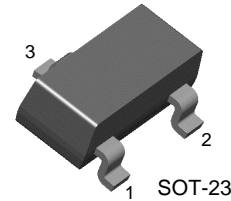


BC856/857/858/859/860

Switching and Amplifier Applications

- Suitable for automatic insertion in thick and thin-film circuits
- Low Noise: BC859, BC860
- Complement to BC846 ... BC850



1. Base 2. Emitter 3. Collector

PNP Epitaxial Silicon Transistor

Absolute Maximum Ratings $T_a=25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Value | Units | |
|-----------|-----------------------------|-------------|------------------|---|
| V_{CBO} | Collector-Base Voltage | : BC856 | -80 | V |
| | | : BC857/860 | -50 | V |
| | | : BC858/859 | -30 | V |
| V_{CEO} | Collector-Emitter Voltage | : BC856 | -65 | V |
| | | : BC857/860 | -45 | V |
| | | : BC858/859 | -30 | V |
| V_{EBO} | Emitter-Base Voltage | -5 | V | |
| I_C | Collector Current (DC) | -100 | mA | |
| P_C | Collector Power Dissipation | 310 | mW | |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ | |
| T_{STG} | Storage Temperature | -65 ~ 150 | $^\circ\text{C}$ | |

Electrical Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Units |
|----------------------|--------------------------------------|--|--|------|------|-------|
| I_{CBO} | Collector Cut-off Current | $V_{CB} = -30\text{V}, I_E = 0$ | | | -15 | nA |
| h_{FE} | DC Current Gain | $V_{CE} = -5\text{V}, I_C = -2\text{mA}$ | 110 | | 800 | |
| $V_{CE}(\text{sat})$ | Collector-Emitter Saturation Voltage | $I_C = -10\text{mA}, I_B = -0.5\text{mA}$ | | -90 | -300 | mV |
| | | $I_C = -100\text{mA}, I_B = -5\text{mA}$ | | -250 | -650 | mV |
| $V_{BE}(\text{sat})$ | Base-Emitter Saturation Voltage | $I_C = -10\text{mA}, I_B = -0.5\text{mA}$ | | -700 | | mV |
| | | $I_C = -100\text{mA}, I_B = -5\text{mA}$ | | -900 | | mV |
| $V_{BE}(\text{on})$ | Base-Emitter On Voltage | $V_{CE} = -5\text{V}, I_C = -2\text{mA}$ | -600 | -660 | -750 | mV |
| | | $V_{CE} = -5\text{V}, I_C = -10\text{mA}$ | | | -800 | mV |
| f_T | Current Gain Bandwidth Product | $V_{CE} = -5\text{V}, I_C = -10\text{mA}$ $f = 100\text{MHz}$ | | 150 | | MHz |
| C_{ob} | Output Capacitance | $V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$ | | | 6 | pF |
| NF | Noise Figure | : BC856/857/858 | | 2 | 10 | dB |
| | | : BC859/860 | $V_{CE} = -5\text{V}, I_C = -200\mu\text{A}$ $f = 1\text{KHz}, R_G = 2\text{K}\Omega$ | 1 | 4 | dB |
| | | : BC859 | $V_{CE} = -5\text{V}, I_C = -200\mu\text{A}$ | 1.2 | 4 | dB |
| | | : BC860 | $R_G = 2\text{K}\Omega, f = 30 \sim 15000\text{Hz}$ | 1.2 | 2 | dB |

h_{FE} Classification

| | | | |
|-----------------|-----------|-----------|-----------|
| Classification | A | B | C |
| h _{FE} | 110 ~ 220 | 200 ~ 450 | 420 ~ 800 |

Marking Code

| | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|
| Type | 856A | 856B | 856C | 857A | 857B | 857C | 858A | 858B | 858C |
| Mark | 9AA | 9AB | 9AC | 9BA | 9BB | 9BC | 9CA | 9CB | 9CC |
| Type | 859A | 859B | 859C | 860A | 860B | 860C | | | |
| Mark | 9DA | 9DB | 9DC | 9EA | 9EB | 9EC | | | |

Typical Characteristics

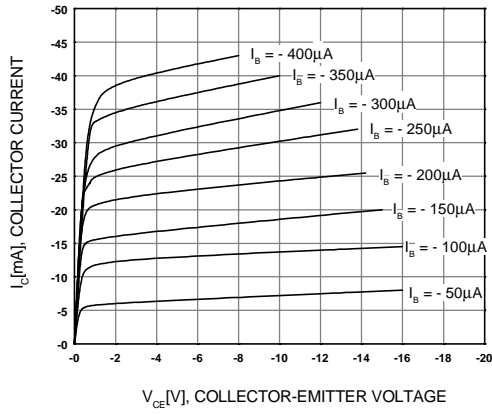


Figure 1. Static Characteristic

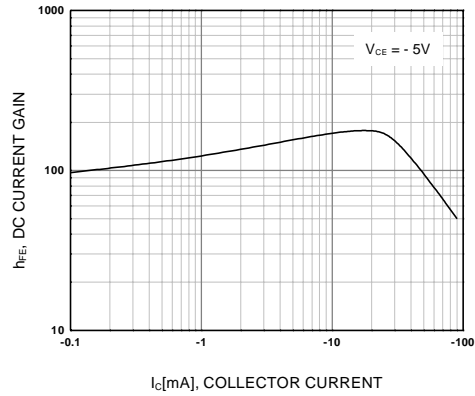


Figure 2. DC current Gain

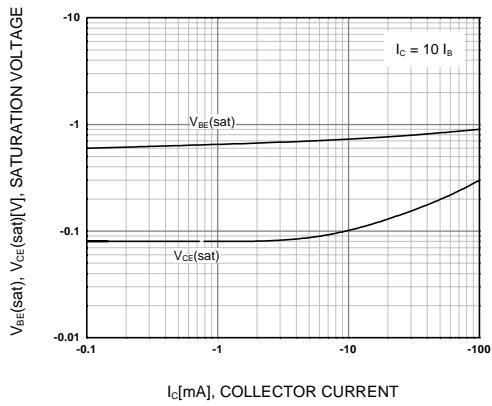


Figure 3. Base-Emitter Saturation Voltage
Collector-Emmitter Saturation Voltage

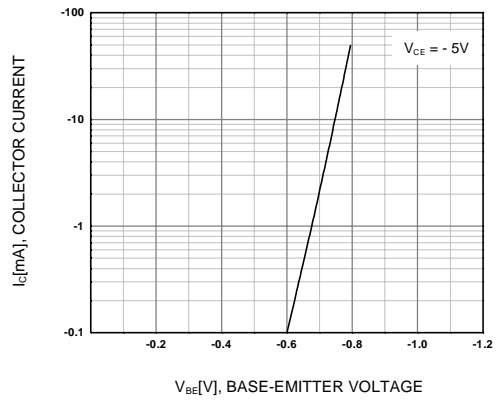


Figure 4. Base-Emitter On Voltage

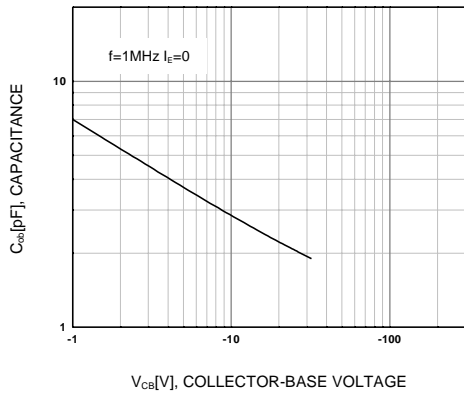


Figure 5. Collector Output Capacitance

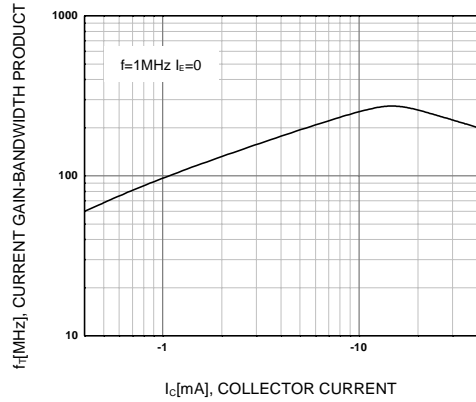
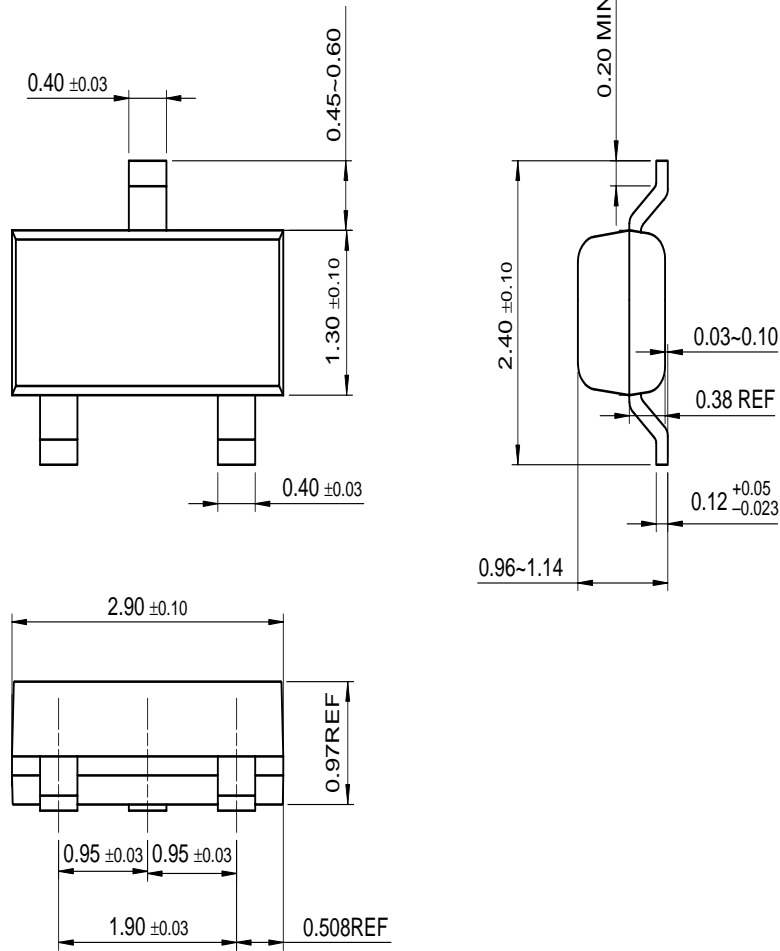


Figure 6. Current Gain Bandwidth Product

Package Dimensions

SOT-23



Dimensions in Millimeters

BC856/857/858/859/860

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