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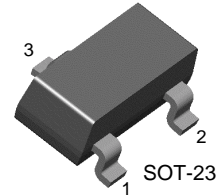
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BC856- BC860

PNP Epitaxial Silicon Transistor

Features

- 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

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

| Symbol | Parameter | Value | Units |
|-----------|-----------------------------|-----------|------------------|
| V_{CB0} | 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 | $^\circ\text{C}$ |

* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

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 : BC859/860 | $V_{CE} = -5\text{V}, I_C = -200\mu\text{A}$ $R_G = 2\text{K}\Omega, f = 1\text{KHz}$ | 2 | 10 | dB |
| | | | | 1 | 4 | dB |
| | | : BC859 : BC860 | $V_{CE} = -5\text{V}, I_C = -200\mu\text{A}$ $R_G = 2\text{K}\Omega, f = 30 \sim 15000\text{Hz}$ | 1.2 | 4 | dB |
| | | | | 1.2 | 2 | dB |

* Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$

h_{FE} Classification

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

Ordering Information

| Device ^(note1) | Device Marking | Package | Packing Method | Qty(pcs) | Pin Difinitions |
|---------------------------|----------------|---------|----------------|----------|------------------------------|
| BC856AMTF | 9AA | SOT-23 | Tape & Reel | 3000 | 1.Base 2.Emitter 3.Collector |
| BC856BMTF | 9AB | SOT-23 | Tape & Reel | 3000 | 1.Base 2.Emitter 3.Collector |
| BC856CMTF | 9AC | SOT-23 | Tape & Reel | 3000 | 1.Base 2.Emitter 3.Collector |
| BC857AMTF | 9BA | SOT-23 | Tape & Reel | 3000 | 1.Base 2.Emitter 3.Collector |
| BC857BMTF | 9BB | SOT-23 | Tape & Reel | 3000 | 1.Base 2.Emitter 3.Collector |
| BC857CMTF | 9BC | SOT-23 | Tape & Reel | 3000 | 1.Base 2.Emitter 3.Collector |
| BC858AMTF | 9CA | SOT-23 | Tape & Reel | 3000 | 1.Base 2.Emitter 3.Collector |
| BC858BMTF | 9CB | SOT-23 | Tape & Reel | 3000 | 1.Base 2.Emitter 3.Collector |
| BC858CMTF | 9CC | SOT-23 | Tape & Reel | 3000 | 1.Base 2.Emitter 3.Collector |
| BC859AMTF | 9DA | SOT-23 | Tape & Reel | 3000 | 1.Base 2.Emitter 3.Collector |
| BC859BMTF | 9DB | SOT-23 | Tape & Reel | 3000 | 1.Base 2.Emitter 3.Collector |
| BC859CMTF | 9DC | SOT-23 | Tape & Reel | 3000 | 1.Base 2.Emitter 3.Collector |
| BC860AMTF | 9EA | SOT-23 | Tape & Reel | 3000 | 1.Base 2.Emitter 3.Collector |
| BC860BMTF | 9EB | SOT-23 | Tape & Reel | 3000 | 1.Base 2.Emitter 3.Collector |
| BC860CMTF | 9EC | SOT-23 | Tape & Reel | 3000 | 1.Base 2.Emitter 3.Collector |

Note1 : Affix "-A,-B,-C" means hFE classification.

Affix "-M" means the matte type package.

Affix "-TF" means the tape & reel type packing.

Typical Performance Characteristics

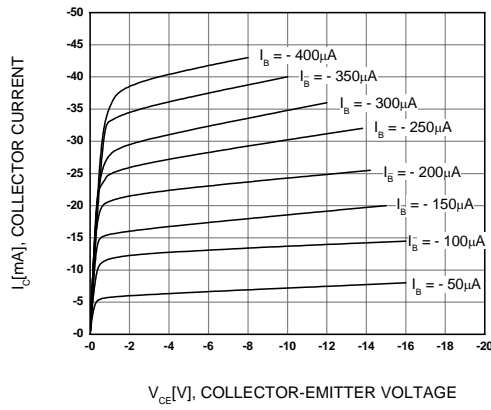


Figure 1. Static Characteristic

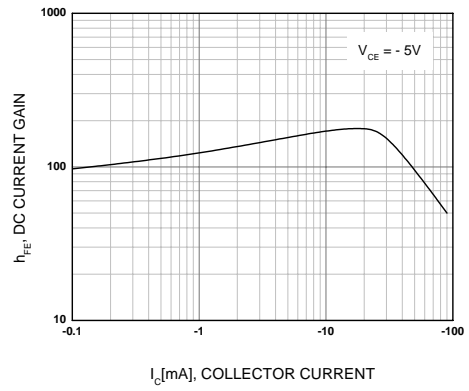


Figure 2. DC current Gain

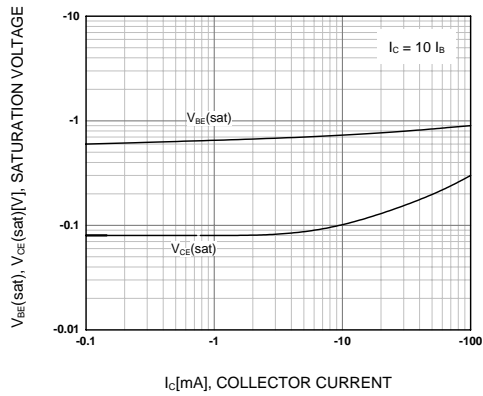


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

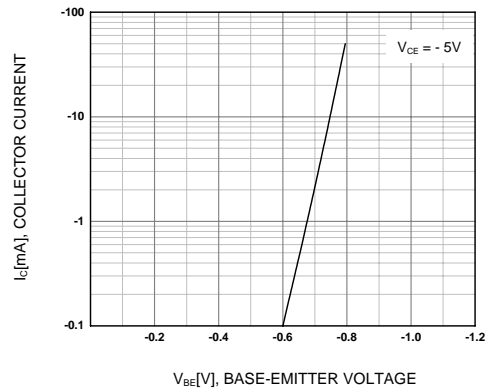


Figure 4. Base-Emitter On Voltage

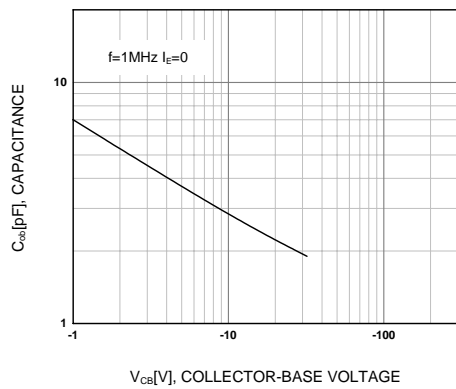


Figure 5. Collector Output Capacitance

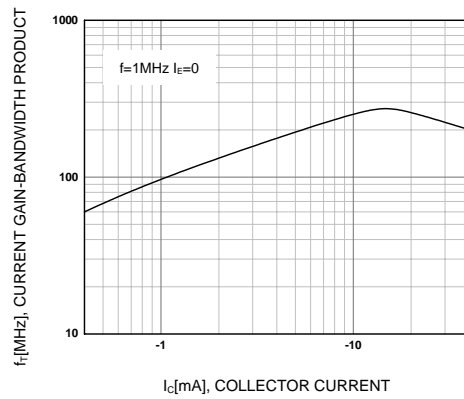
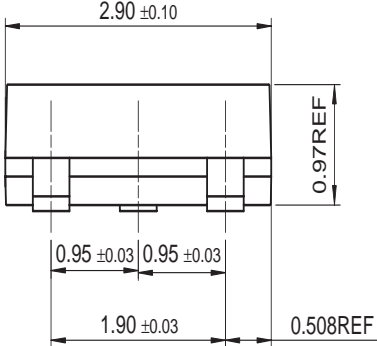
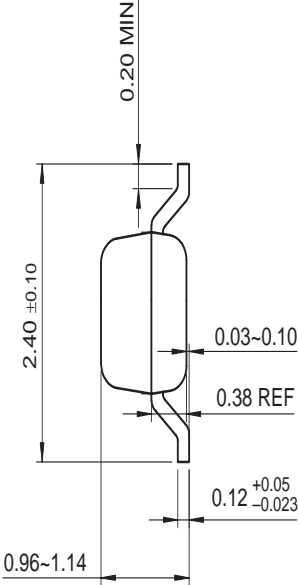
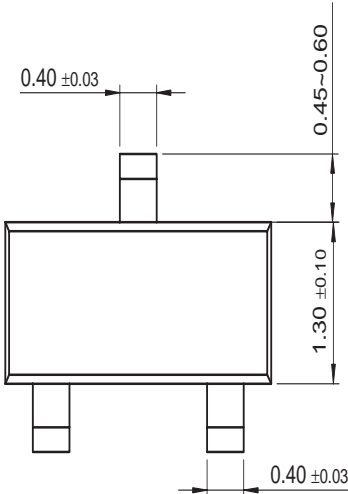


Figure 6. Current Gain Bandwidth Product

Mechanical Dimensions

SOT-23



Dimensions in Millimeters

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|--------------------------|------------------------|---|
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