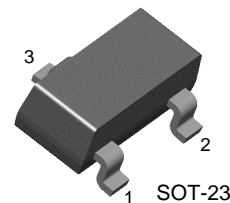


BC846/847/848/849/850

Switching and Amplifier Applications

- Suitable for automatic insertion in thick and thin-film circuits
- Low Noise: BC849, BC850
- Complement to BC856 ... BC860



1. Base 2. Emitter 3. Collector

NPN Epitaxial Silicon Transistor

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

| Symbol | Parameter | Value | Units |
|-----------|-----------------------------|-----------|------------------|
| V_{CB0} | Collector-Base Voltage | | |
| | : BC846 | 80 | V |
| | : BC847/850 | 50 | V |
| | : BC848/849 | 30 | V |
| V_{CEO} | Collector-Emitter Voltage | | |
| | : BC846 | 65 | V |
| | : BC847/850 | 45 | V |
| | : BC848/849 | 30 | V |
| V_{EBO} | Emitter-Base Voltage | | |
| | : BC846/847 | 6 | V |
| | : BC848/849/850 | 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 | 250 | mV |
| | | $I_C=100\text{mA}, I_B=5\text{mA}$ | | 200 | 600 | mV |
| $V_{BE}(\text{sat})$ | Collector-Base 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 | $V_{CE}=5\text{V}, I_C=2\text{mA}$ | 580 | 660 | 700 | mV |
| | | $V_{CE}=5\text{V}, I_C=10\text{mA}$ | | | 720 | mV |
| f_T | Current Gain Bandwidth Product | $V_{CE}=5\text{V}, I_C=10\text{mA}, f=100\text{MHz}$ | | 300 | | MHz |
| C_{ob} | Output Capacitance | $V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$ | | 3.5 | 6 | pF |
| C_{ib} | Input Capacitance | $V_{EB}=0.5\text{V}, I_C=0, f=1\text{MHz}$ | | 9 | | pF |
| NF | Noise Figure | : BC846/847/848 | | 2 | 10 | dB |
| | | : BC849/850 | $f=1\text{KHz}, R_G=2\text{K}\Omega$ | 1.2 | 4 | dB |
| | | : BC849 | $V_{CE}=5\text{V}, I_C=200\mu\text{A}$ | 1.4 | 4 | dB |
| | | : BC850 | $R_G=2\text{K}\Omega, f=30\sim 15000\text{Hz}$ | 1.4 | 3 | dB |

h_{FE} Classification

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

Marking Code

| Type | 846 | | | 847 | | | 848 | | | 849 | | | 850 | | |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | A | B | C | A | B | C | A | B | C | A | B | C | A | B | C |
| Mark | 8AA | 8AB | 8AC | 8BA | 8BB | 8BC | 8CA | 8CB | 8CC | 8DA | 8DB | 8DC | 8EA | 8EB | 8EC |

Typical Characteristics

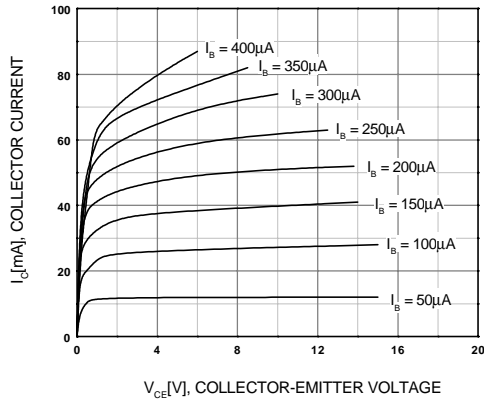


Figure 1. Static Characteristic

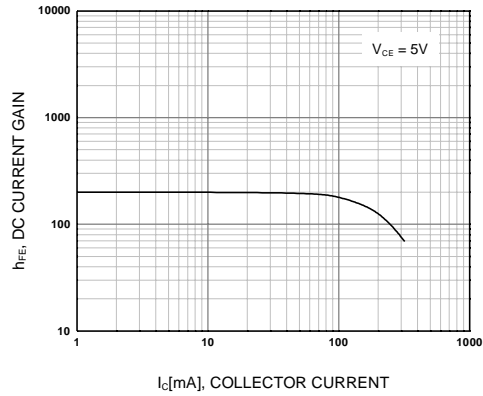


Figure 2. DC current Gain

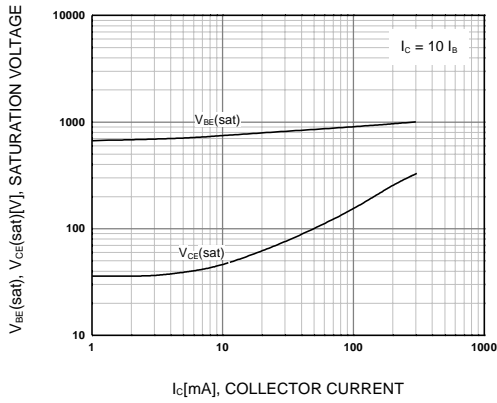


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

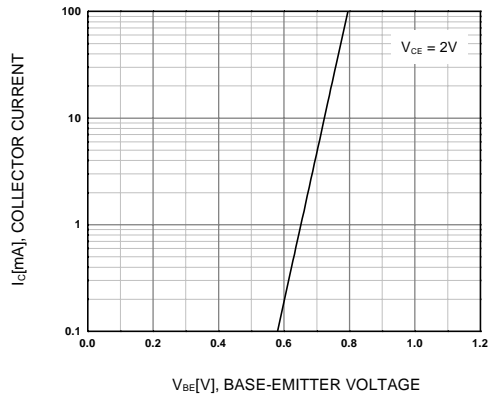


Figure 4. Base-Emitter On Voltage

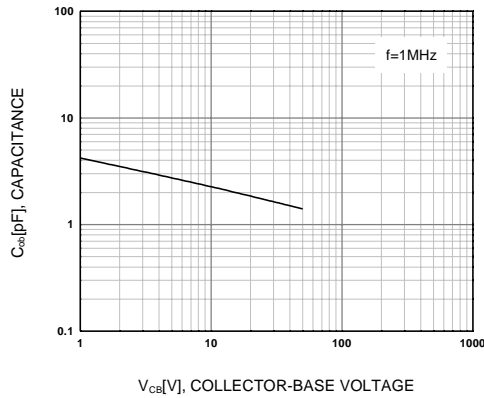


Figure 5. Collector Output Capacitance

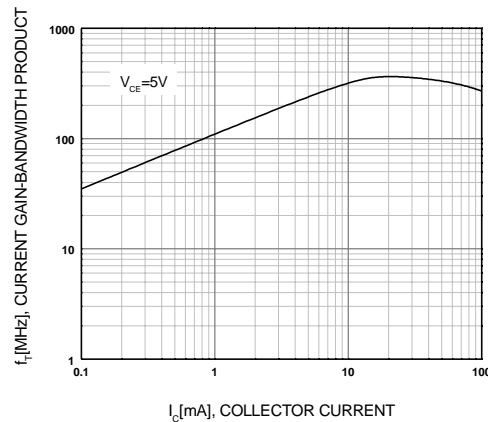
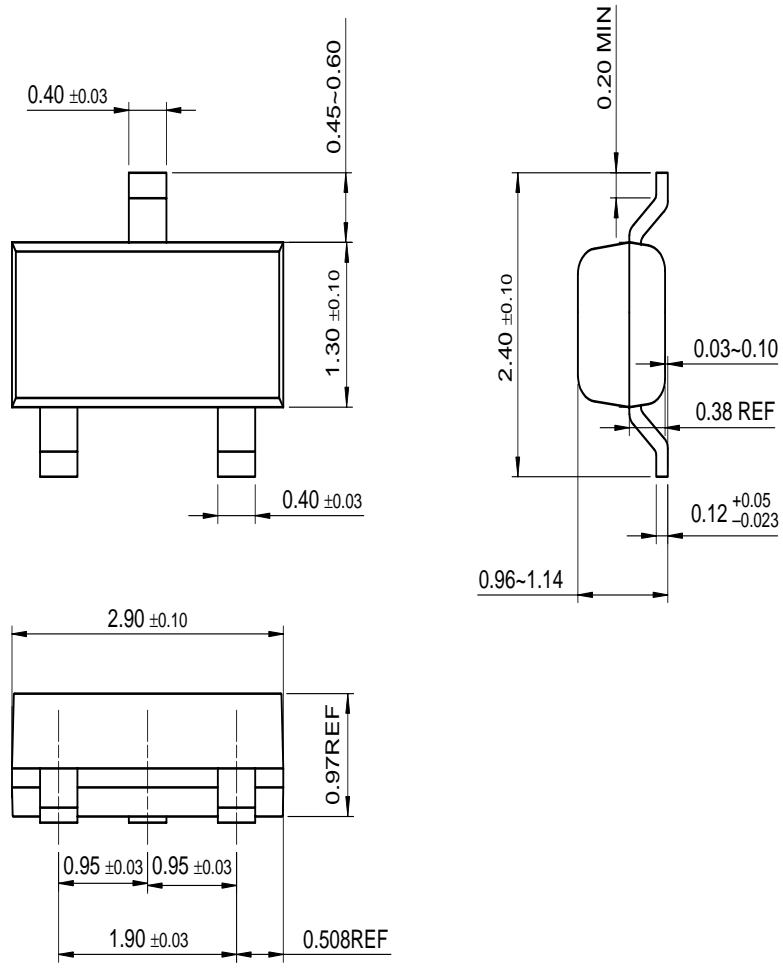


Figure 6. Current Gain Bandwidth Product

Package Dimensions

SOT-23



BC846/847/848/849/850

Dimensions in Millimeters

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