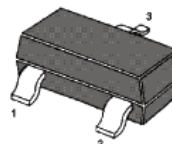


NPN Silicon Epitaxial Transistor

for switching and amplifier applications

As complementary types the PNP transistors BC856...BC860 is recommended.

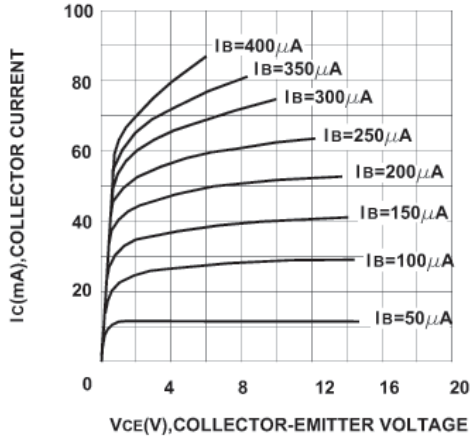


1. Base 2. Emitter 3. Collector
SOT-23 Plastic Package

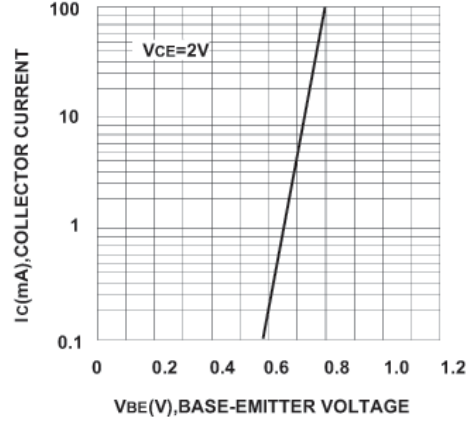
Absolute Maximum Ratings ($T_a = 25\text{ }^\circ\text{C}$)

| Parameter | Symbol | Value | Units |
|---------------------------|---------------------|---------------|------------------|
| Collector Base Voltage | BC846 | V_{CBO} | 80 V |
| | BC847, BC850 | V_{CBO} | 50 V |
| | BC848, BC849 | V_{CBO} | 30 V |
| Collector Emitter Voltage | BC846 | V_{CEO} | 65 V |
| | BC847, BC850 | V_{CEO} | 45 V |
| | BC848, BC849 | V_{CEO} | 30 V |
| Emitter Base Voltage | BC846, BC847 | V_{EBO} | 6 V |
| | BC848, BC849, BC850 | V_{EBO} | 5 V |
| Collector Current | I_C | 100 | mA |
| Peak Collector Current | I_{CM} | 200 | mA |
| Power Dissipation | P_{tot} | 200 | mW |
| Junction Temperature | T_J | 150 | $^\circ\text{C}$ |
| Storage Temperature Range | T_S | - 65 to + 150 | $^\circ\text{C}$ |

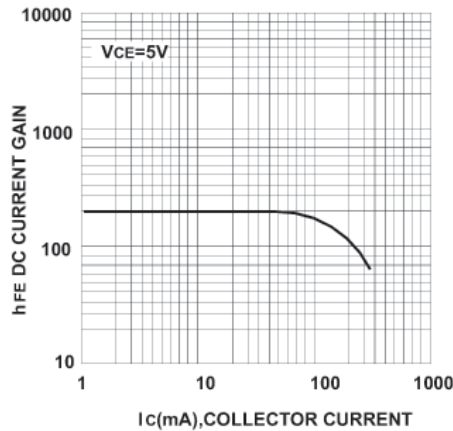
STATIC CHARACTERISTIC



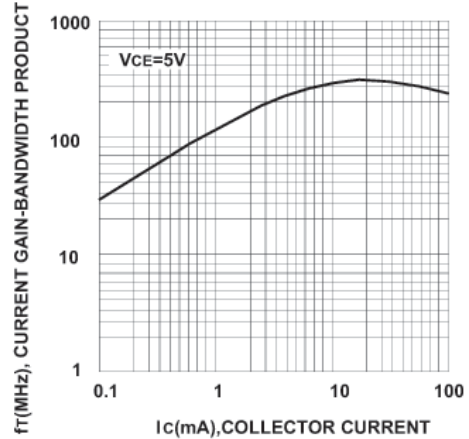
BASE-EMITTER ON VOLTAGE



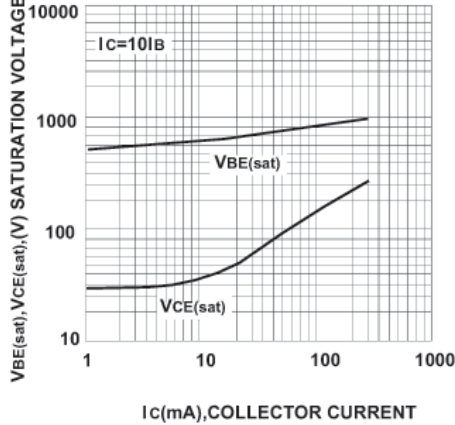
DC CURRENT GAIN



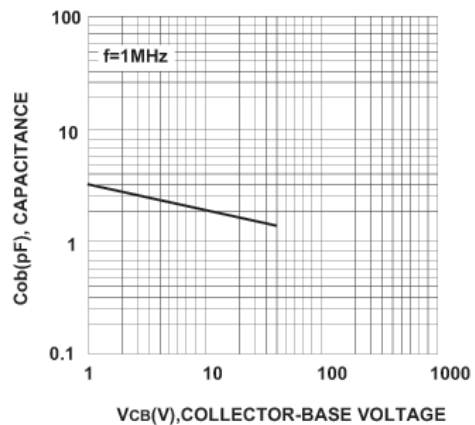
CURRENT GAIN BANDWIDTH PRODUCT



BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE



COLLECTOR OUTPUT CAPACITANCE



Characteristics at $T_{amb} = 25\text{ }^{\circ}\text{C}$

| Parameter | Symbol | Min. | Typ. | Max. | Units | |
|---|---------------------|----------|------|------|-------|----|
| DC Current Gain at $V_{CE} = 5\text{ V}$, $I_C = 2\text{ mA}$ | A | h_{FE} | 110 | - | 220 | - |
| | B | h_{FE} | 200 | - | 450 | - |
| | C | h_{FE} | 420 | - | 800 | - |
| Collector Emitter Saturation Voltage at $I_C = 10\text{ mA}$, $I_B = 0.5\text{ mA}$ at $I_C = 100\text{ mA}$, $I_B = 5\text{ mA}$ | V_{CEsat} | - | - | 250 | mV | |
| | V_{CEsat} | - | - | 600 | mV | |
| Base Emitter On Voltage at $I_C = 2\text{ mA}$, $V_{CE} = 5\text{ V}$ at $I_C = 10\text{ mA}$, $V_{CE} = 5\text{ V}$ | $V_{BE(on)}$ | 580 | - | 700 | mV | |
| | $V_{BE(on)}$ | - | - | 720 | mV | |
| Collector Cutoff Current at $V_{CB} = 30\text{ V}$ | I_{CBO} | - | - | 15 | nA | |
| Current Gain Bandwidth Product at $V_{CE} = 5\text{ V}$, $I_C = 10\text{ mA}$, $f = 100\text{ MHz}$ | f_T | - | 300 | - | MHz | |
| Output Capacitance at $V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$ | C_{ob} | - | - | 6 | pF | |
| Input Capacitance at $V_{EB} = 0.5\text{ V}$, $f = 1\text{ MHz}$ | C_{ib} | - | 9 | - | pF | |
| Noise Figure at $I_C = 200\text{ }\mu\text{A}$, $V_{CE} = 5\text{ V}$, $R_G = 2\text{ K}\Omega$, $f = 1\text{ KHz}$ at $I_C = 200\text{ }\mu\text{A}$, $V_{CE} = 5\text{ V}$, $R_G = 2\text{ K}\Omega$, $f = 30\text{ } \sim 15\text{ KHz}$ | BC846, BC847, BC848 | NF | - | - | 10 | dB |
| | BC849, BC850 | NF | - | - | 4 | dB |
| | BC849 | NF | - | - | 4 | dB |
| | BC850 | NF | - | - | 3 | dB |