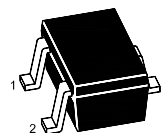


NPN Silicon Epitaxial Planar Transistor

for general purpose and switching applications



1.Base 2.Emitter 3.Collector
SOT-323 Plastic Package

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

| Parameter | Symbol | Value | Unit |
|---|-----------|----------------------------|------------------|
| Collector Base Voltage BC846W BC847W BC848W BC849W BC850W | V_{CBO} | 80 50 30 30 50 | V |
| Collector Emitter Voltage BC846W BC847W BC848W BC849W BC850W | V_{CEO} | 65 45 30 30 45 | V |
| Emitter Base Voltage BC846W BC847W BC848W BC849W BC850W | V_{EBO} | 6 6 5 5 5 | V |
| Collector Current | I_C | 100 | mA |
| Peak Collector Current | I_{CM} | 200 | mA |
| Total Power Dissipation | P_{tot} | 200 | mW |
| Junction Temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{stg} | - 55 to + 150 | $^\circ\text{C}$ |

MARKING CODE

| | | | | | | | | | |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| TYPE | 846AW | 846BW | 846CW | 847AW | 847BW | 847CW | 848AW | 848BW | 848CW |
| MARKING | 1A | 1B | 1C | 1E | 1F | 1G | 1J | 1K | 1L |
| TYPE | 849AW | 849BW | 849CW | 850AW | 850BW | 850CW | | | |
| MARKING | 2A | 2B | 2C | 2E | 2F | 2G | | | |

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

| Parameter | Symbol | Min. | Max. | Unit |
|--|-----------------------------|------|------|------|
| DC Current Gain at $V_{CE} = 5\text{ V}$, $I_C = 2\text{ mA}$ | BC846AW~BC850AW h_{FE} | 110 | 220 | - |
| | BC846BW~BC850BW h_{FE} | 200 | 450 | - |
| | BC846CW~BC850CW h_{FE} | 420 | 800 | - |
| Collector Base Voltage at $I_C = 10\text{ }\mu\text{A}$ | BC846W | 80 | - | V |
| | BC847W | 50 | - | |
| | BC848W | 30 | - | |
| | BC849W | 30 | - | |
| | BC850W | 50 | - | |
| Collector Emitter Voltage at $I_C = 10\text{ mA}$ | BC846W | 65 | - | V |
| | BC847W | 45 | - | |
| | BC848W | 30 | - | |
| | BC849W | 30 | - | |
| | BC850W | 45 | - | |
| Emitter Base Voltage at $I_E = 1\text{ }\mu\text{A}$ | BC846W | 6 | - | V |
| | BC847W | 6 | - | |
| | BC848W | 5 | - | |
| | BC849W | 5 | - | |
| | BC850W | 5 | - | |
| Collector Base Cutoff Current at $V_{CB} = 30\text{ V}$ | I_{CBO} | - | 15 | nA |
| Emitter Base Cutoff Current at $V_{EB} = 5\text{ V}$ | I_{EBO} | - | 100 | nA |
| Collector Emitter Saturation Voltage at $I_C = 10\text{ mA}$, $I_B = 0.5\text{ mA}$ $I_C = 100\text{ mA}$, $I_B = 5\text{ mA}$ | $V_{CE(sat)}$ | - | 0.25 | V |
| | | - | 0.6 | |
| Base Emitter Voltage at $V_{CE} = 5\text{ V}$, $I_C = 2\text{ mA}$ $V_{CE} = 5\text{ V}$, $I_C = 10\text{ mA}$ | V_{BE} | 0.58 | 0.7 | V |
| | | - | 0.77 | |
| Transition Frequency at $V_{CE} = 5\text{ V}$, $I_C = 10\text{ mA}$, $f = 100\text{ MHz}$ | f_T | 100 | - | MHz |
| Collector Output Capacitance at $V_{CB} = 10\text{ V}$, $I_E = 0$, $f = 1\text{ MHz}$ | C_{ob} | - | 4.5 | pF |

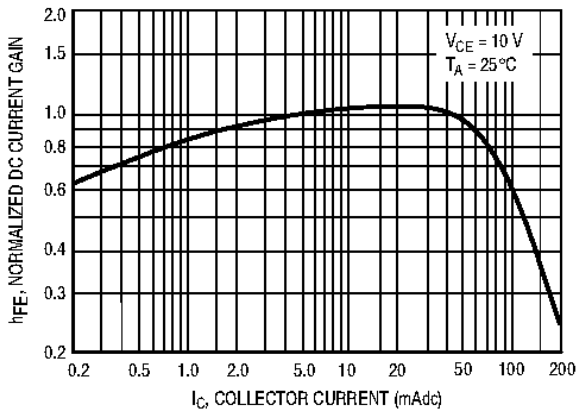


Figure 1. Normalized DC Current Gain

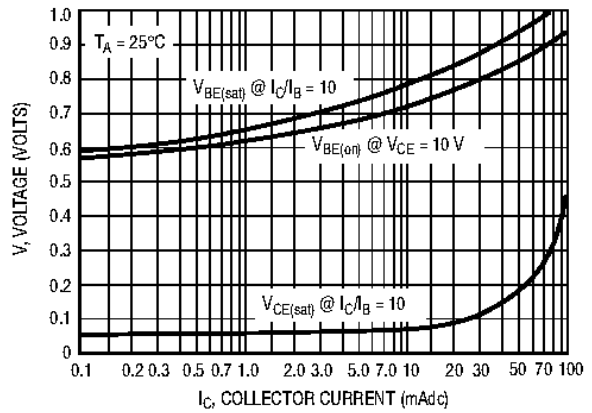


Figure 2. "Saturation" and "On" Voltages

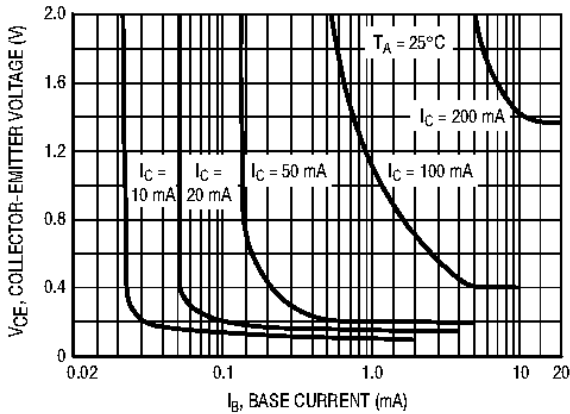


Figure 3. Collector Saturation Region

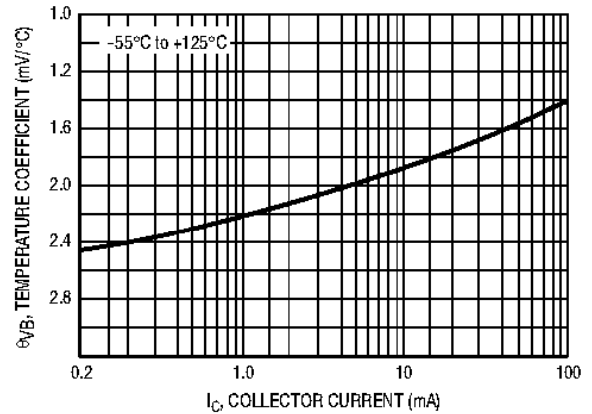


Figure 4. Base-Emitter Temperature Coefficient

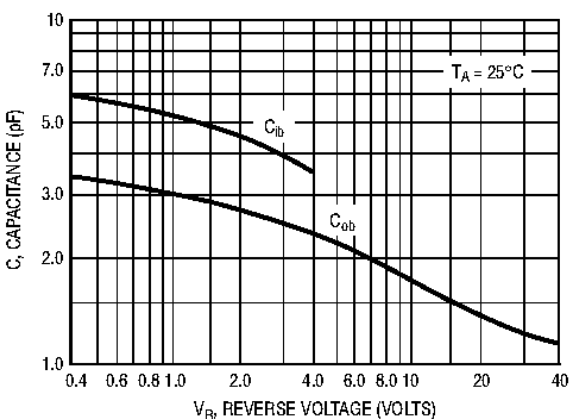


Figure 5. Capacitances

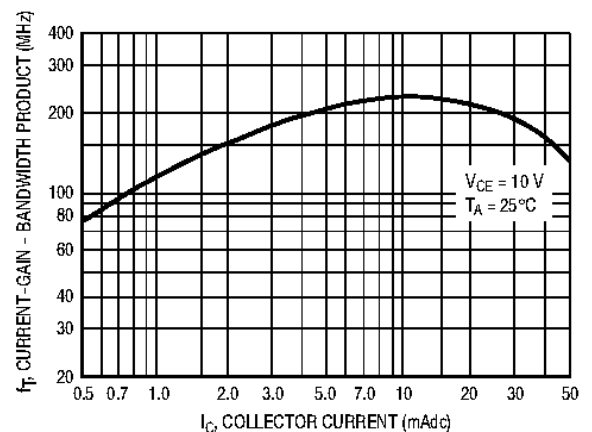


Figure 6. Current-Gain - Bandwidth Product

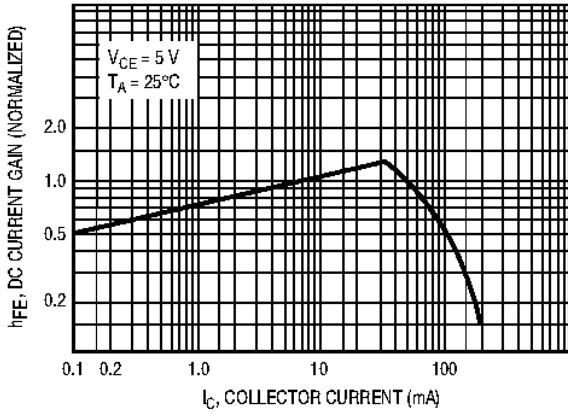


Figure 7. DC Current Gain

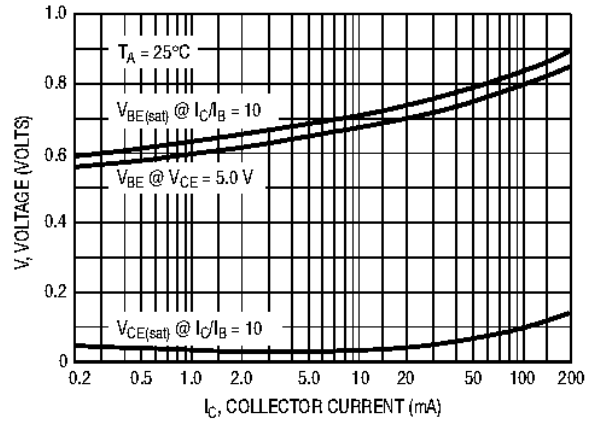


Figure 8. "On" Voltage

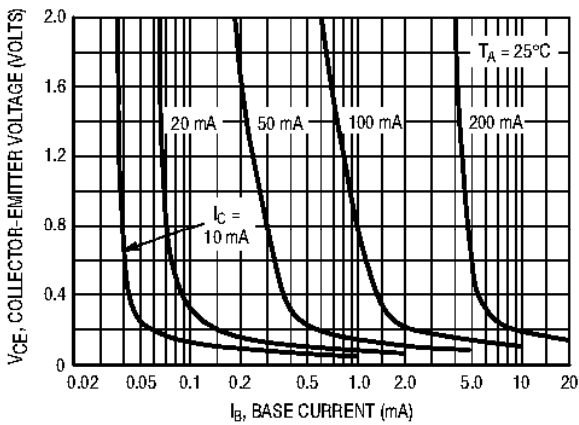


Figure 9. Collector Saturation Region

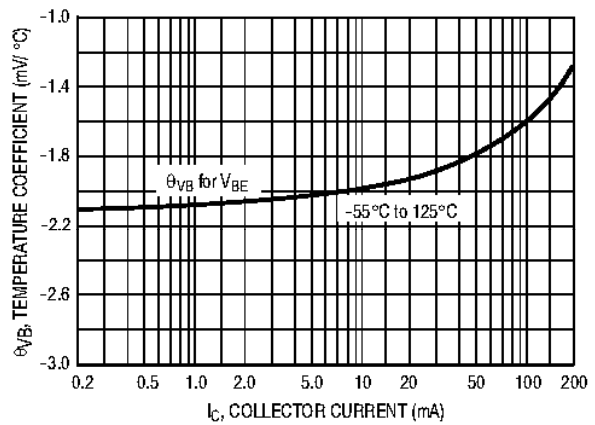


Figure 10. Base-Emitter Temperature Coefficient

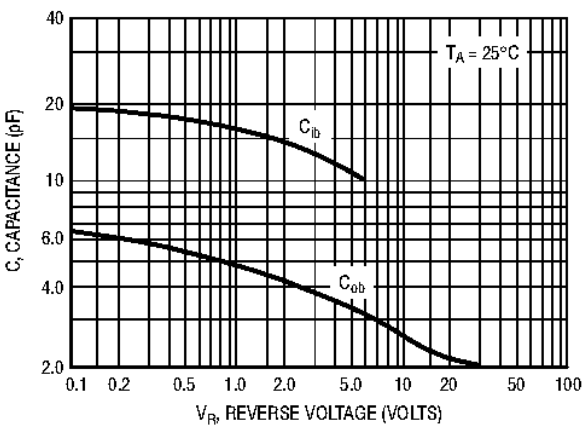


Figure 11. Capacitance

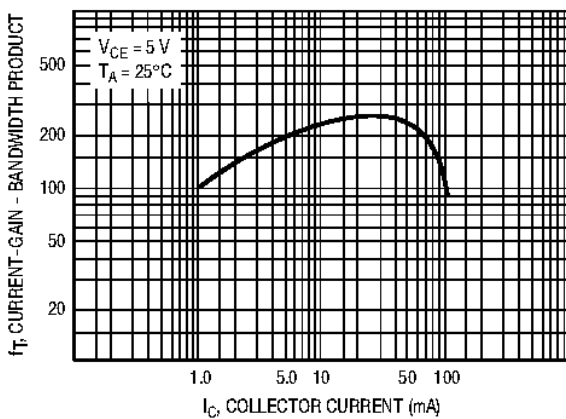


Figure 12. Current-Gain - Bandwidth Product

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