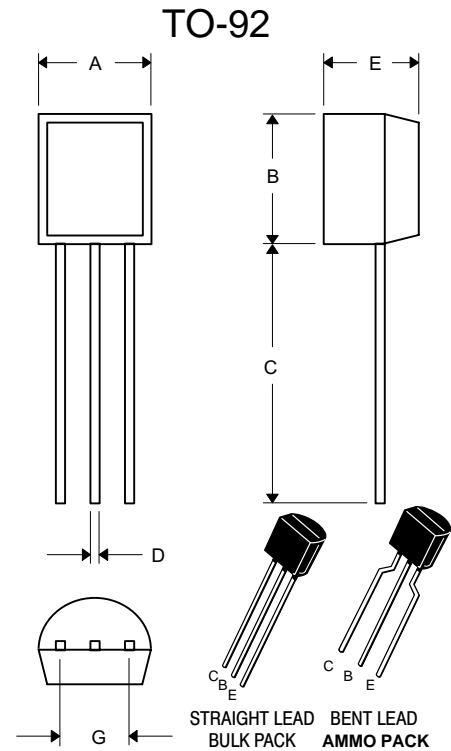


Features

- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Through Hole Package
- 150°C Junction Temperature
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Halogen free available upon request by adding suffix "-HF"

Mechanical Data

- Case: TO-92, Molded Plastic
- Polarity:indicated as below



| DIMENSIONS | | | | | |
|------------|--------|------|-------|------|---------------|
| DIM | INCHES | | MM | | NOTE |
| | MIN | MAX | MIN | MAX | |
| A | .175 | .185 | 4.45 | 4.70 | |
| B | .175 | .185 | 4.45 | 4.70 | |
| C | .500 | --- | 12.70 | --- | |
| D | .016 | .020 | 0.41 | 0.63 | |
| E | .135 | .145 | 3.43 | 3.68 | |
| G | .095 | .105 | 2.42 | 2.67 | Straight Lead |
| | .173 | .220 | 4.40 | 5.60 | |

* For ammo packing detailed specification, click here to visit our website of product packaging for details.

Maximum Ratings and Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.

| Charateristic | Symbol | Value | Unit |
|---|-----------------|---------|-------|
| Collector-Emitter Voltage | BC546 | 65 | V |
| | BC547 | 45 | |
| | BC548 | 30 | |
| Collector-Base Voltage | BC546 | 80 | V |
| | BC547 | 50 | |
| | BC548 | 30 | |
| Emitter-Base Voltage | | 6.0 | V |
| Collector Current(DC) | | 100 | mA |
| Power Dissipation@ $T_A=25^\circ\text{C}$ | | 625 | mW |
| | | 5.0 | mW/°C |
| Power Dissipation@ $T_C=25^\circ\text{C}$ | | 1.5 | W |
| | | 12 | mW/°C |
| Thermal Resistance, Junction to Ambient Air | $R_{\theta JA}$ | 200 | °CW |
| Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 83.3 | °CW |
| Operating & Storage Temperature | T_i, T_{STG} | -55~150 | °C |



ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

| Characteristic | Symbol | Min | Typ | Max | Unit |
|----------------|--------|-----|-----|-----|------|
|----------------|--------|-----|-----|-----|------|

OFF CHARACTERISTICS

| | | | | | | |
|--|-------|---------------|-----|---|---|---|
| Collector–Emitter Breakdown Voltage ($I_C = 1.0\text{ mA}$, $I_B = 0$) | BC546 | $V_{(BR)CEO}$ | 65 | — | — | V |
| | BC547 | | 45 | — | — | |
| | BC548 | | 30 | — | — | |
| Collector–Base Breakdown Voltage ($I_C = 100\ \mu\text{A}$) | BC546 | $V_{(BR)CBO}$ | 80 | — | — | V |
| | BC547 | | 50 | — | — | |
| | BC548 | | 30 | — | — | |
| Emitter–Base Breakdown Voltage ($I_E = 10\ \mu\text{A}$, $I_C = 0$) | BC546 | $V_{(BR)EBO}$ | 6.0 | — | — | V |
| | BC547 | | 6.0 | — | — | |
| | BC548 | | 6.0 | — | — | |

ON CHARACTERISTICS

| | | | | | | |
|--|------------------|---------------|------|-----|------|---|
| DC Current Gain ($I_C = 10\ \mu\text{A}$, $V_{CE} = 5.0\text{ V}$) | BC546A/547A/548A | h_{FE} | — | 90 | — | — |
| | BC546B/547B/548B | | — | 150 | — | |
| | BC546C/547C/548C | | — | 270 | — | |
| ($I_C = 2.0\text{ mA}$, $V_{CE} = 5.0\text{ V}$) | BC546A/547A/548A | | 110 | 180 | 220 | |
| | BC546B/547B/548B | | 200 | 290 | 450 | |
| | BC546C/547C/548C | | 420 | 520 | 800 | |
| ($I_C = 100\text{ mA}$, $V_{CE} = 5.0\text{ V}$) | BC546A/547A/548A | | — | 120 | — | |
| | BC546B/547B/548B | | — | 180 | — | |
| | BC546C/547C/548C | | — | 300 | — | |
| Collector–Emitter Saturation Voltage ($I_C = 100\text{ mA}$, $I_B = 5.0\text{ mA}$) | | $V_{CE(sat)}$ | — | — | 0.3 | V |
| Base–Emitter Saturation Voltage ($I_C = 100\text{ mA}$, $I_B = 5.0\text{ mA}$) | | $V_{BE(sat)}$ | — | — | 1.0 | V |
| Base–Emitter On Voltage ($I_C = 2.0\text{ mA}$, $V_{CE} = 5.0\text{ V}$) ($I_C = 10\text{ mA}$, $V_{CE} = 5.0\text{ V}$) | | $V_{BE(on)}$ | 0.55 | — | 0.7 | V |
| | | | — | — | 0.77 | |

SMALL–SIGNAL CHARACTERISTICS

| | | | | | | |
|---|------------------|-----------|-----|-----|-----|-----|
| Current–Gain — Bandwidth Product ($I_C = 10\text{ mA}$, $V_{CE} = 5.0\text{ V}$, $f = 100\text{ MHz}$) | BC546 | f_T | 150 | 300 | — | MHz |
| | BC547 | | 150 | 300 | — | |
| | BC548 | | 150 | 300 | — | |
| Output Capacitance ($V_{CB} = 10\text{ V}$, $I_C = 0$, $f = 1.0\text{ MHz}$) | | C_{obo} | — | 1.7 | 4.5 | pF |
| Input Capacitance ($V_{EB} = 0.5\text{ V}$, $I_C = 0$, $f = 1.0\text{ MHz}$) | | C_{ibo} | — | 10 | — | pF |
| Small–Signal Current Gain ($I_C = 2.0\text{ mA}$, $V_{CE} = 5.0\text{ V}$, $f = 1.0\text{ kHz}$) | BC546A/547A/548A | h_{fe} | 125 | 220 | 260 | — |
| | BC546B/547B/548B | | 240 | 330 | 500 | |
| | BC546C/547C/548C | | 450 | 600 | 900 | |
| Noise Figure ($I_C = 0.2\text{ mA}$, $V_{CE} = 5.0\text{ V}$, $R_S = 2\text{ k}\Omega$, $f = 1.0\text{ kHz}$, $\Delta f = 200\text{ Hz}$) | BC546 | NF | — | 2.0 | 10 | dB |
| | BC547 | | — | 2.0 | 10 | |
| | BC548 | | — | 2.0 | 10 | |

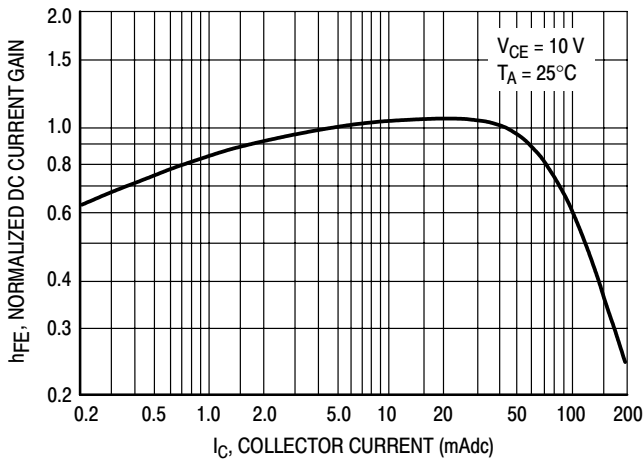


Figure 1. Normalized DC Current Gain

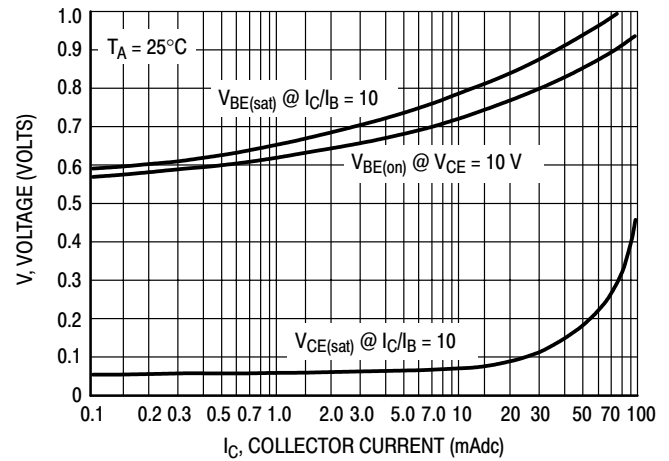


Figure 2. "Saturation" and "On" Voltages

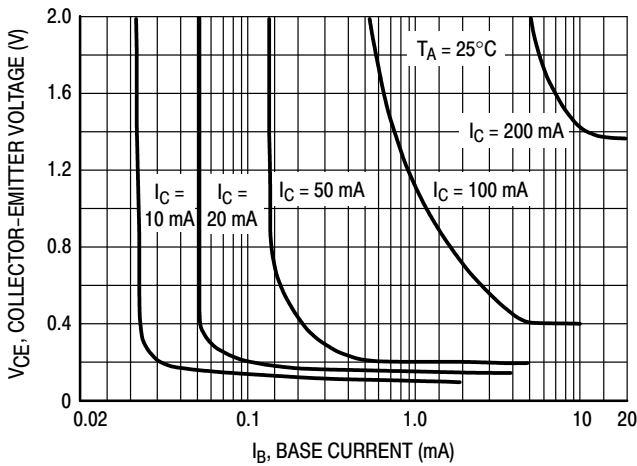


Figure 3. Collector Saturation Region

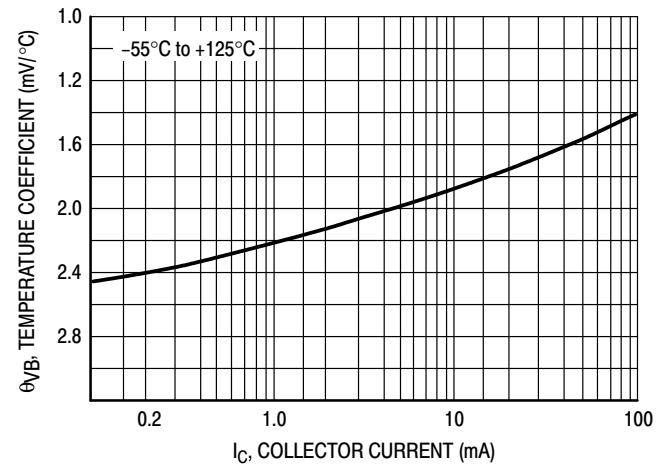


Figure 4. Base-Emitter Temperature Coefficient

BC547/BC548

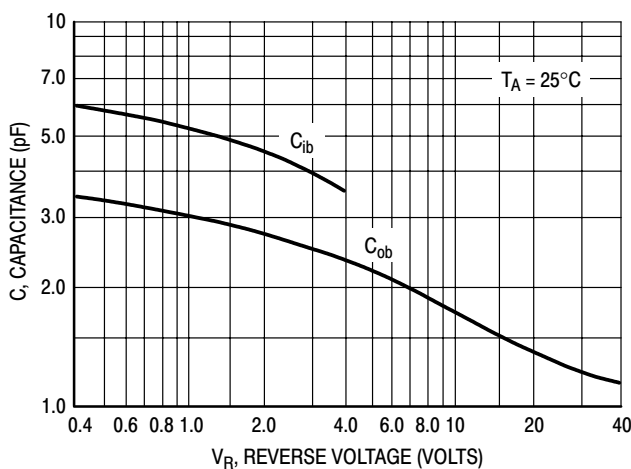


Figure 5. Capacitances

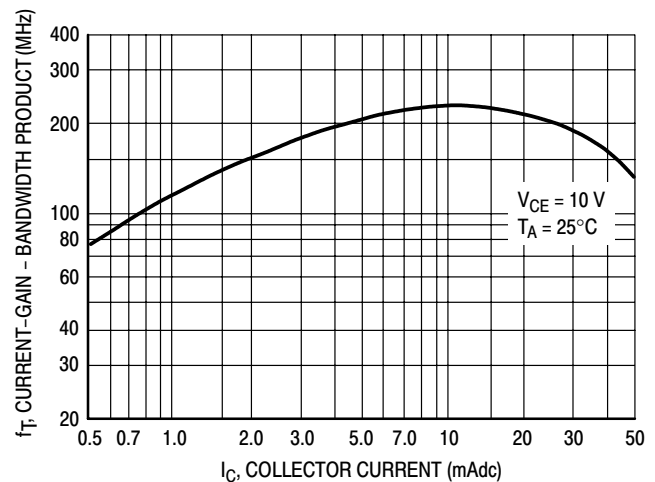


Figure 6. Current-Gain - Bandwidth Product

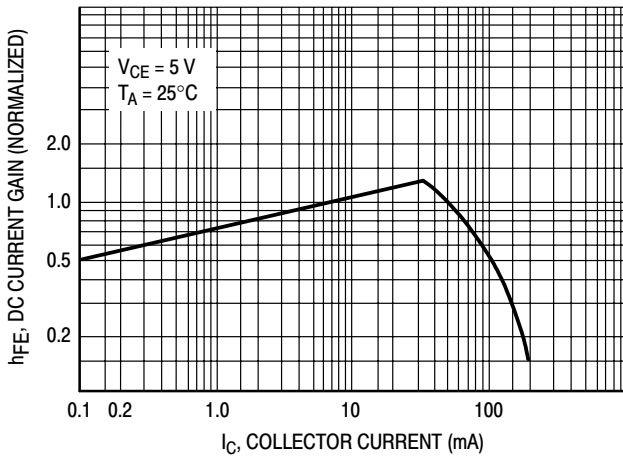


Figure 7. DC Current Gain

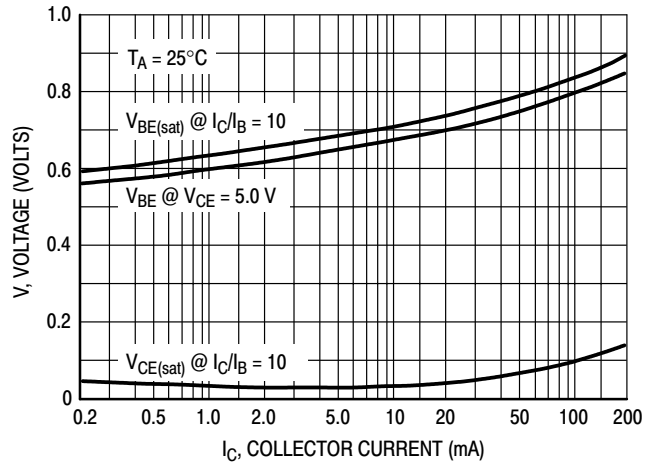


Figure 8. "On" Voltage

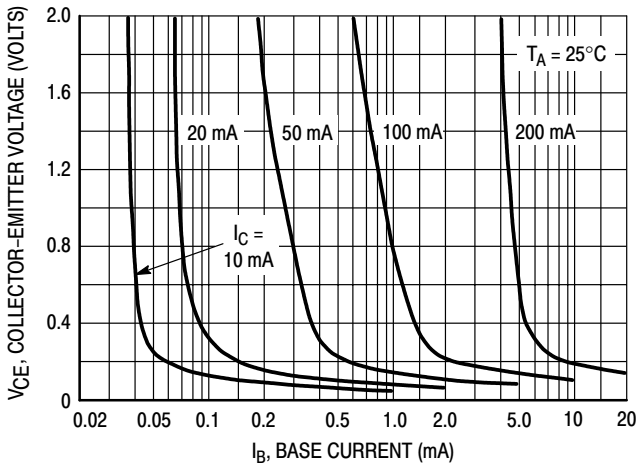


Figure 9. Collector Saturation Region

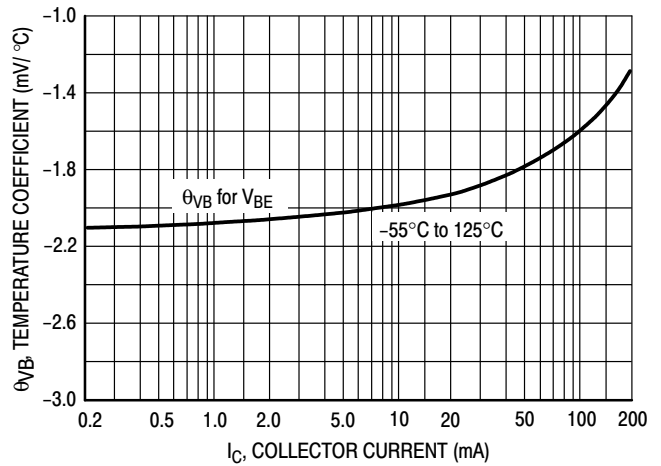


Figure 10. Base-Emitter Temperature Coefficient

BC546

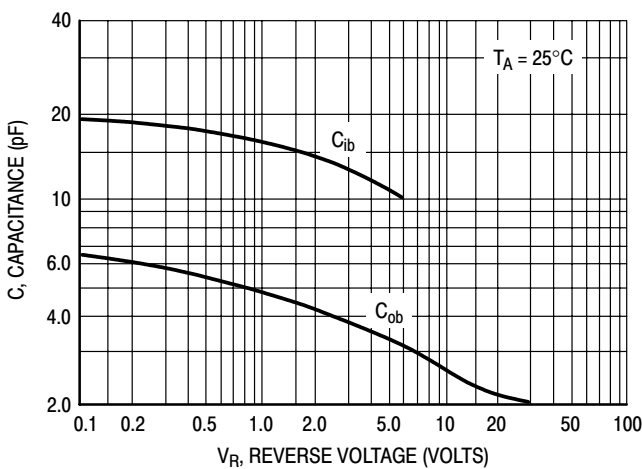


Figure 11. Capacitance

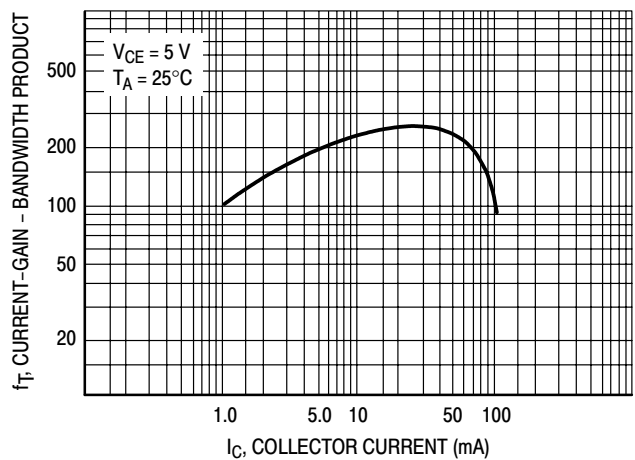


Figure 12. Current-Gain - Bandwidth Product