

NPN Epitaxial Silicon Transistor

BC546 / BC547 / BC548 / BC549 / BC550

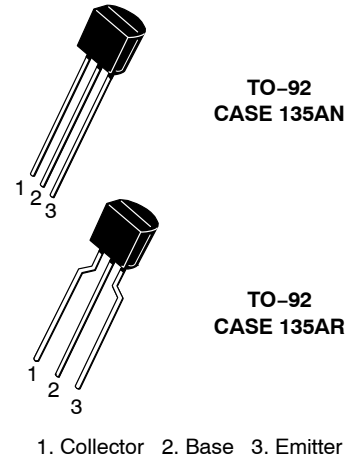
Features

- Switching and Amplifier
- High-Voltage: BC546, $V_{CEO} = 65\text{ V}$
- Low-Noise: BC549, BC550
- Complement to BC556, BC557, BC558, BC559, and BC560
- These are Pb-Free Devices

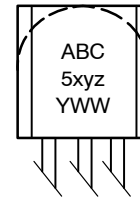
ABSOLUTE MAXIMUM RATINGS

| Parameter | Symbol | Value | Unit |
|--|-----------|----------------|------|
| Collector-Base Voltage BC546 BC547 / BC550 BC548 / BC549 | V_{CBO} | 80 50 30 | V |
| Collector-Emitter Voltage BC546 BC547 / BC550 BC548 / BC549 | V_{CEO} | 65 45 30 | V |
| Emitter-Base Voltage BC546 / BC547 BC548 / BC549 / BC550 | V_{EBO} | 6 5 | V |
| Collector Current (DC) | I_C | 100 | mA |
| Collector Power Dissipation | P_C | 500 | mW |
| Junction Temperature | T_J | 150 | °C |
| Storage Temperature Range | T_{STG} | -65 to +150 | °C |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.



MARKING DIAGRAM



BC5xyz = Device Code
 x = 4 or 5
 y = 6, 7, 8, 9 or 0
 z = A, B, C
 A = Assembly Location
 Y = Year
 WW = Work Week

ORDERING INFORMATION

See detailed ordering and shipping information on page 4 of this data sheet.

BC546 / BC547 / BC548 / BC549 / BC550

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ 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 | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C = 10\text{ mA}, I_B = 0.5\text{ mA}$ | | 90 | 250 | mV |
| | | $I_C = 100\text{ mA}, I_B = 5\text{ mA}$ | | 250 | 600 | |
| $V_{BE(sat)}$ | 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 | | |
| $V_{BE(on)}$ | 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 | |
| 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 | 6.0 | pF |
| C_{ib} | Input Capacitance | $V_{EB} = 0.5\text{ V}, I_C = 0, f = 1\text{ MHz}$ | | 9 | | pF |
| NF | Noise Figure | BC546 / BC547 / BC548 | $V_{CE} = 5\text{ V}, I_C = 200\text{ }\mu\text{A}, f = 1\text{ kHz}, R_G = 2\text{ k}\Omega$ | 2.0 | 10.0 | dB |
| | | BC549 / BC550 | | 1.2 | 4.0 | |
| | | BC549 | $V_{CE} = 5\text{ V}, I_C = 200\text{ }\mu\text{A}, R_G = 2\text{ k}\Omega, f = 30\text{ to }15000\text{ MHz}$ | 1.4 | 4.0 | |
| | | BC550 | | 1.4 | 3.0 | |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

h_{FE} CLASSIFICATION

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

TYPICAL PERFORMANCE CHARACTERISTICS

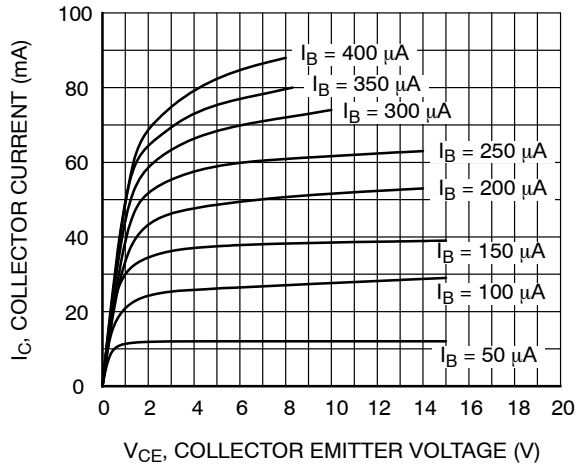


Figure 1. Static Characteristic

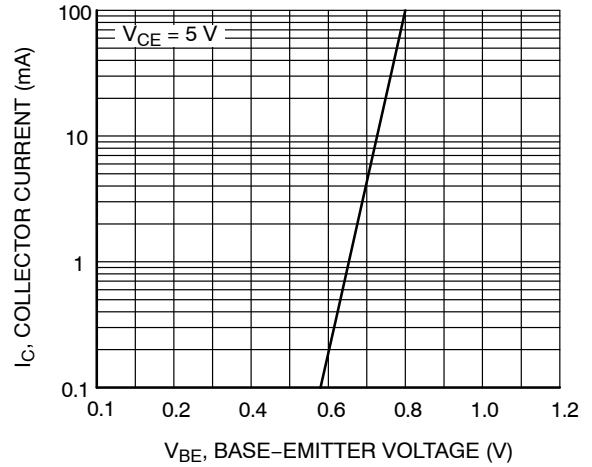


Figure 2. Transfer Characteristics

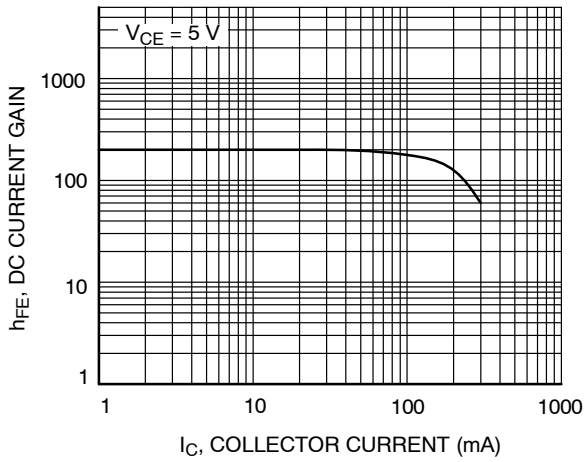


Figure 3. DC Current Gain

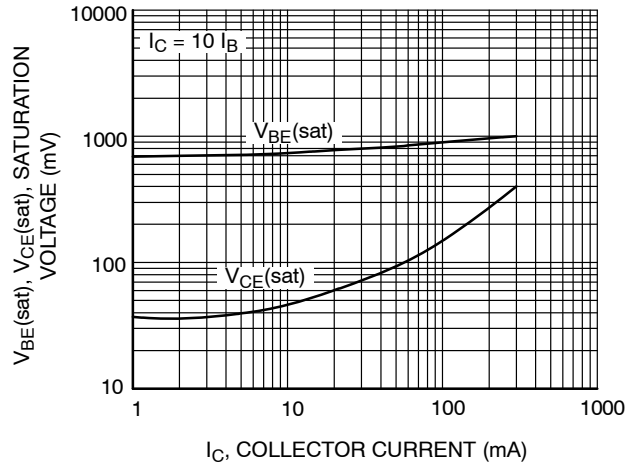


Figure 4. Base-Emitter Saturation Voltage and Collector-Emitter Saturation Voltage

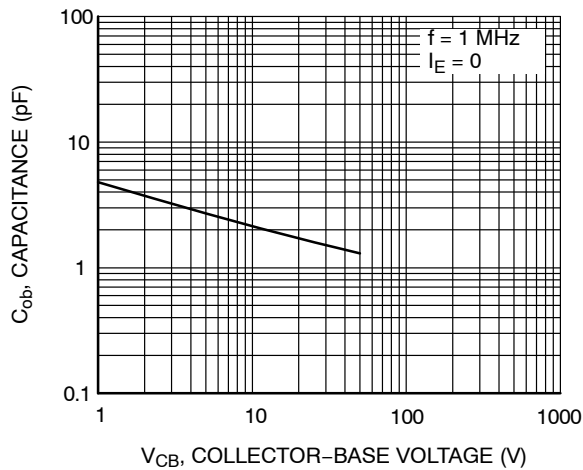


Figure 5. Output Capacitance

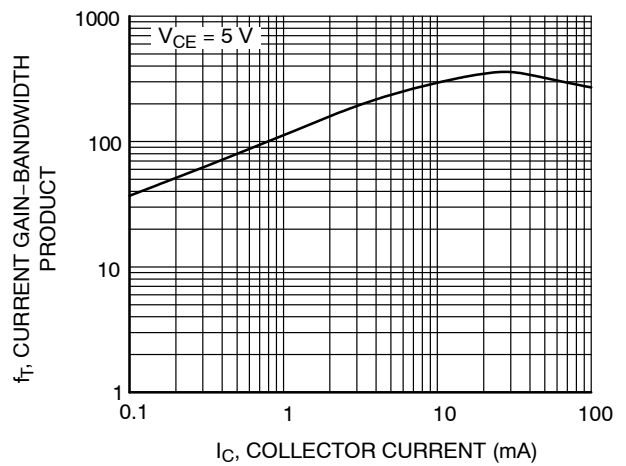


Figure 6. Current Gain Bandwidth Product

BC546 / BC547 / BC548 / BC549 / BC550**ORDERING INFORMATION**

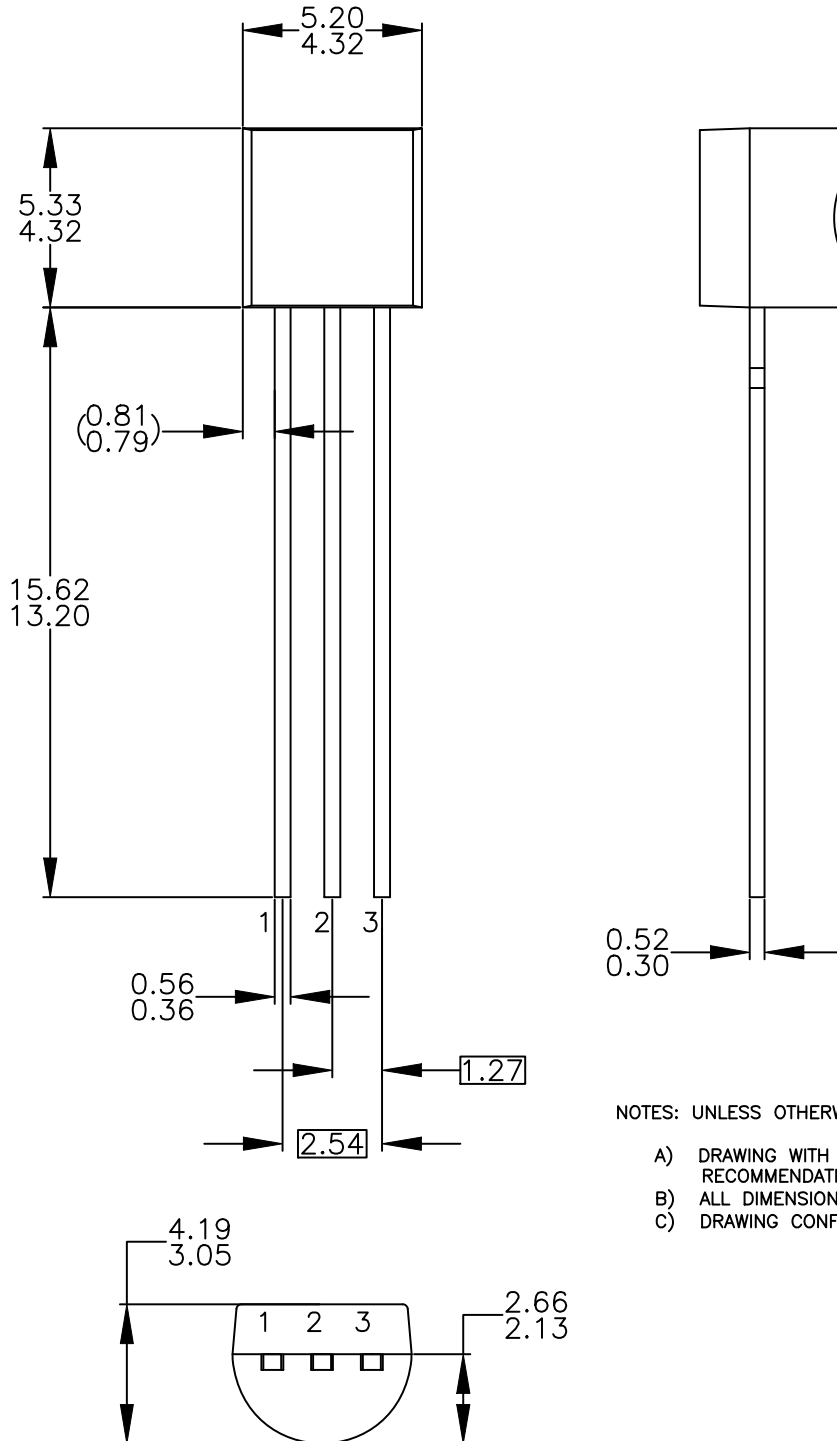
| Part Number | Marking | Package | Packing Method† |
|--------------------|----------------|-------------------|------------------------|
| BC546ABU | BC546A | TO-92-3 (Pb-Free) | 10000 / Bulk Bag |
| BC546ATA | BC546A | TO-92-3 (Pb-Free) | 2000 / Ammo Pack |
| BC546BTA | BC546B | TO-92-3 (Pb-Free) | 2000 / Ammo Pack |
| BC546BTF | BC546B | TO-92-3 (Pb-Free) | 2000 / Tape & Reel |
| BC546CTA | BC546C | TO-92-3 (Pb-Free) | 2000 / Ammo Pack |
| BC547ATA | BC547A | TO-92-3 (Pb-Free) | 2000 / Ammo Pack |
| BC547B | BC547B | TO-92-3 (Pb-Free) | 10000 / Bulk Bag |
| BC547BBU | BC547B | TO-92-3 (Pb-Free) | 10000 / Bulk Bag |
| BC547BTA | BC547B | TO-92-3 (Pb-Free) | 2000 / Ammo Pack |
| BC547BTF | BC547B | TO-92-3 (Pb-Free) | 2000 / Tape & Reel |
| BC547CBU | BC547C | TO-92-3 (Pb-Free) | 10000 / Bulk Bag |
| BC547CTA | BC547C | TO-92-3 (Pb-Free) | 2000 / Ammo Pack |
| BC547CTFR | BC547C | TO-92-3 (Pb-Free) | 2000 / Tape & Reel |
| BC548BU | BC548 | TO-92-3 (Pb-Free) | 10000 / Bulk Bag |
| BC548BTA | BC548B | TO-92-3 (Pb-Free) | 2000 / Ammo Pack |
| BC548CTA | BC548C | TO-92-3 (Pb-Free) | 2000 / Ammo Pack |
| BC549BTA | BC549B | TO-92-3 (Pb-Free) | 2000 / Ammo Pack |
| BC549BTF | BC549B | TO-92-3 (Pb-Free) | 2000 / Tape & Reel |
| BC549CTA | BC549C | TO-92-3 (Pb-Free) | 2000 / Ammo Pack |
| BC550CBU | BC550C | TO-92-3 (Pb-Free) | 10000 / Bulk Bag |
| BC550CTA | BC550C | TO-92-3 (Pb-Free) | 2000 / Ammo Pack |

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

TO-92 3 4.825x4.76
CASE 135AN
ISSUE O

DATE 31 JUL 2016



NOTES: UNLESS OTHERWISE SPECIFIED

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TO-92 3 4.83x4.76 LEADFORMED
CASE 135AR
ISSUE O


DATE 30 SEP 2016



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