

# NPN Epitaxial Silicon Transistor

## BC546 / BC547 / BC548 / BC549 / BC550

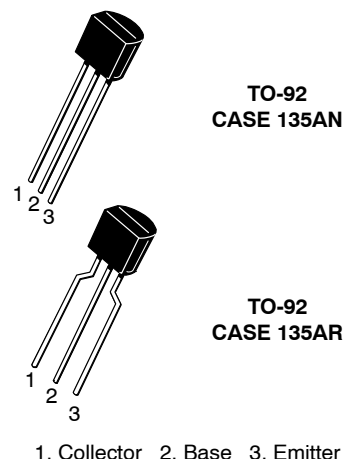
### Features

- 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

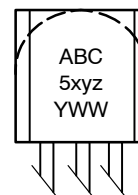
### ABSOLUTE MAXIMUM RATINGS

| Parameter                                                            | Symbol    | Value          | Unit |
|----------------------------------------------------------------------|-----------|----------------|------|
| Collector-Base Voltage<br>BC546<br>BC547 / BC550<br>BC548 / BC549    | $V_{CBO}$ | 80<br>50<br>30 | V    |
| Collector-Emitter Voltage<br>BC546<br>BC547 / BC550<br>BC548 / BC549 | $V_{CEO}$ | 65<br>45<br>30 | V    |
| Emitter-Base Voltage<br>BC546 / BC547<br>BC548 / BC549 / BC550       | $V_{EBO}$ | 6<br>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.

NOTE: Some of the devices on this data sheet have been **DISCONTINUED**. Please refer to the table on page 4.

# BC546 / BC547 / BC548 / BC549 / BC550

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

| Symbol        | Parameter                            |                       | Test Condition                                                                                                 | Min | Typ | Max  | Unit |
|---------------|--------------------------------------|-----------------------|----------------------------------------------------------------------------------------------------------------|-----|-----|------|------|
| $I_{CBO}$     | 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

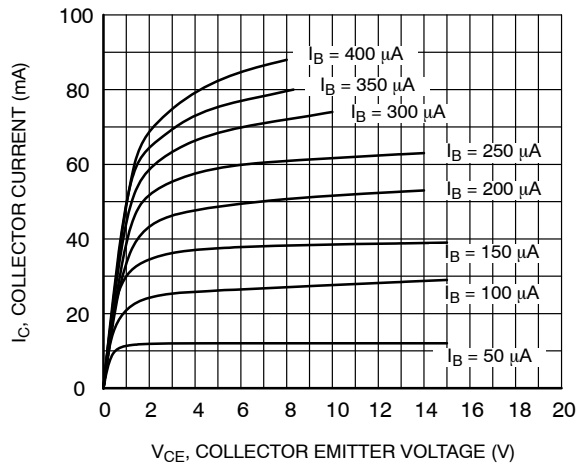


Figure 1. Static Characteristic

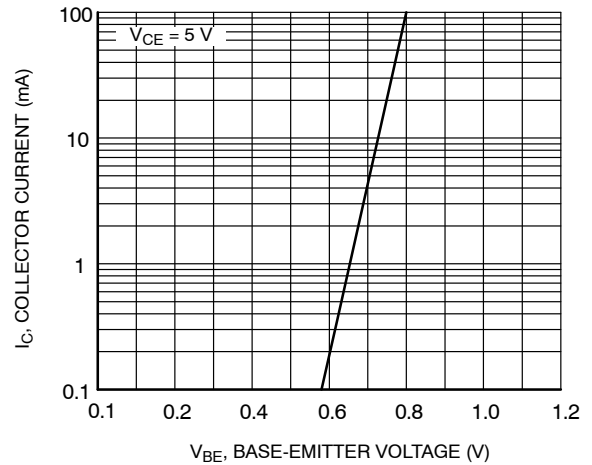


Figure 2. Transfer Characteristics

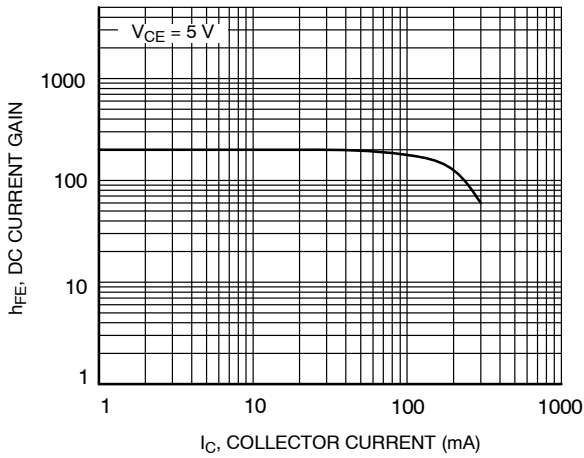


Figure 3. DC Current Gain

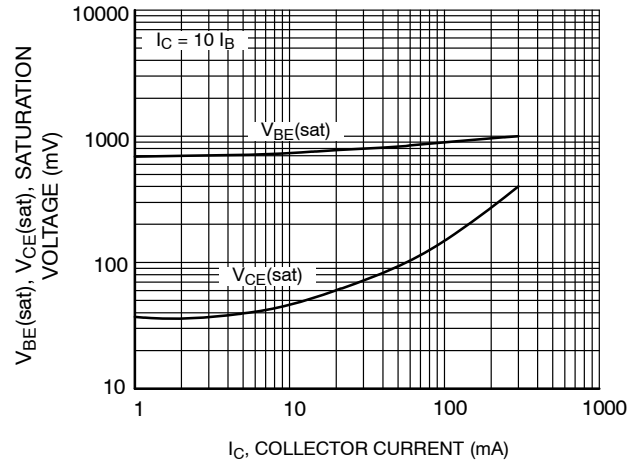


Figure 4. Base-Emitter Saturation Voltage and Collector-Emitter Saturation Voltage

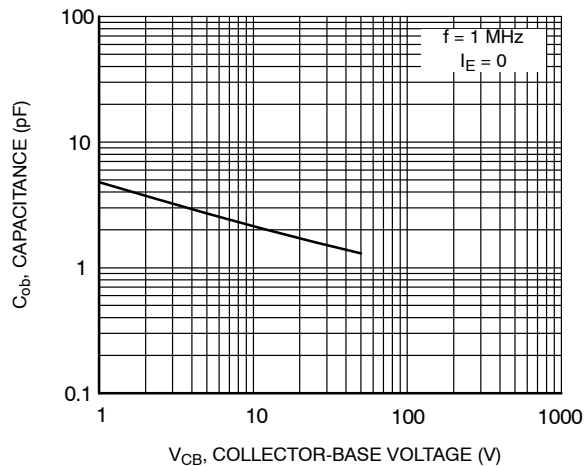


Figure 5. Output Capacitance

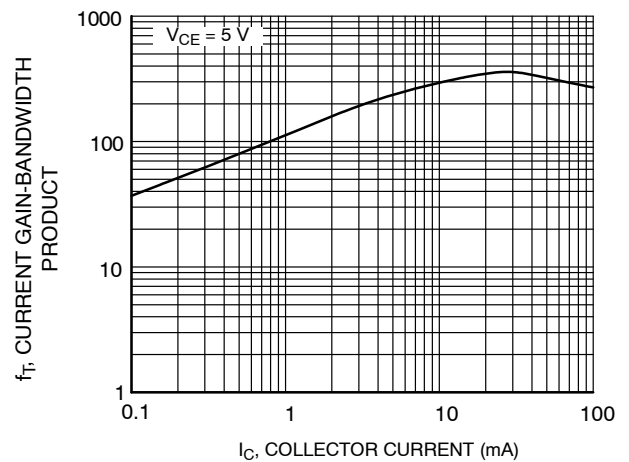


Figure 6. Current Gain Bandwidth Product

## ORDERING INFORMATION

| Part Number | Marking | Package           | Packing Method†    |
|-------------|---------|-------------------|--------------------|
| BC546ABU    | BC546A  | TO-92-3 (Pb-Free) | 10000 / Bulk Bag   |
| BC546CTA    | BC546C  | TO-92-3 (Pb-Free) | 2000 / Ammo Pack   |
| BC547BBU    | BC547B  | TO-92-3 (Pb-Free) | 10000 / Bulk Bag   |
| 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   |
| BC549BTA    | BC549B  | TO-92-3 (Pb-Free) | 2000 / Ammo Pack   |
| BC549CTA    | BC549C  | TO-92-3 (Pb-Free) | 2000 / Ammo Pack   |
| BC550CBU    | BC550C  | TO-92-3 (Pb-Free) | 10000 / Bulk Bag   |

## DISCONTINUED (Note 1)

|           |        |                   |                    |
|-----------|--------|-------------------|--------------------|
| 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 |
| BC547ATA  | BC547A | TO-92-3 (Pb-Free) | 2000 / Ammo Pack   |
| BC547BTA  | BC547B | 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   |
| BC549BTF  | BC549B | TO-92-3 (Pb-Free) | 2000 / Tape & Reel |
| BC550CTA  | BC550C | TO-92-3 (Pb-Free) | 2000 / Ammo Pack   |
| BC547B    | BC547B | TO-92-3 (Pb-Free) | 10000 / Bulk Bag   |

† 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](#).

1. **DISCONTINUED:** These devices are not available. Please contact your **onsemi** representative for information. The most current information on these devices may be available on [www.onsemi.com](http://www.onsemi.com).



**REVISION HISTORY**

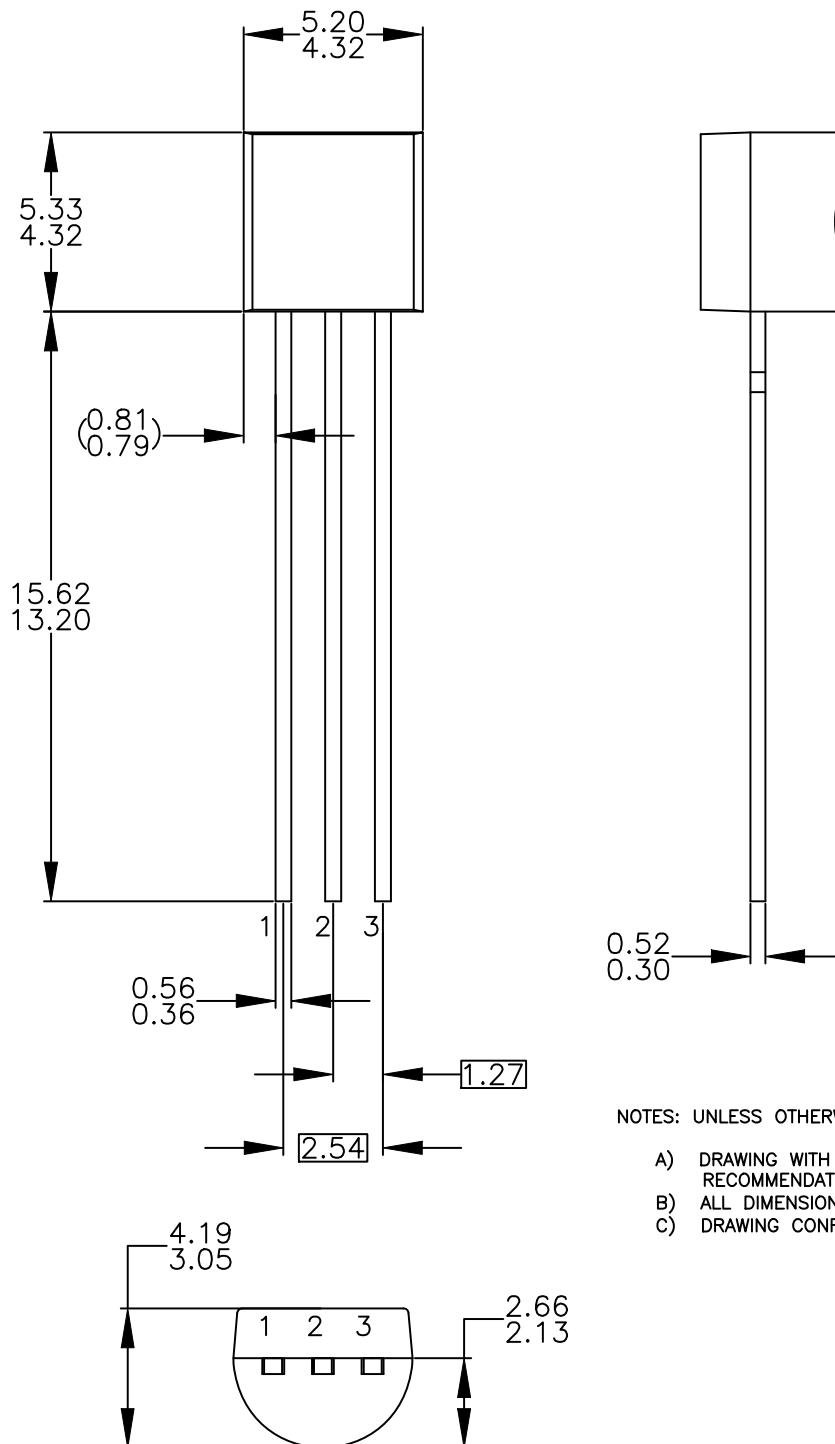
| Revision | Description of Changes             | Date      |
|----------|------------------------------------|-----------|
| 6        | BC547B OPN Marked as Discontinued. | 2/13/2026 |

This document has undergone updates prior to the inclusion of this revision history table. The changes tracked here only reflect updates made on the noted approval dates.



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

DATE 31 JUL 2016



NOTES: UNLESS OTHERWISE SPECIFIED

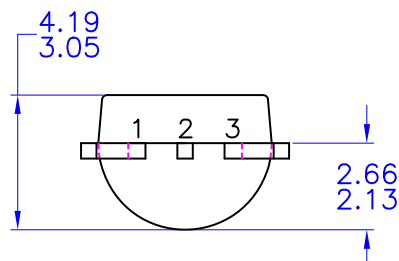
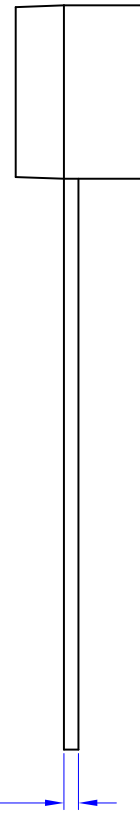
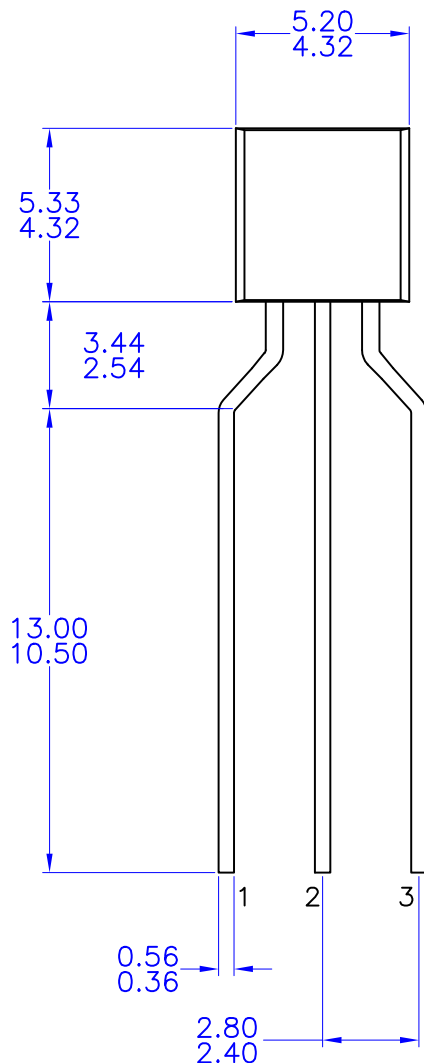
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**TO-92 3 4.83x4.76 LEADFORMED**  
CASE 135AR  
ISSUE O

DATE 30 SEP 2016



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