

NPN Epitaxial Silicon Transistor

BC546 / BC547 / BC548 / **BC549 / BC550**

Features

• Switching and Amplifier

• High-Voltage: BC546, V_{CEO} = 65 V

• Low-Noise: BC549, BC550

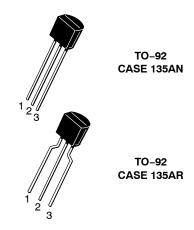
• Complement to BC556, BC557, BC558, BC559, and BC560

• These are Pb-Free Devices

ABSOLUTE MAXIMUM RATINGS

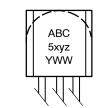
| Parameter | Symbol | Value | Unit |
|--|------------------|----------------|------|
| Collector-Base Voltage BC546 BC547 / BC550 BC548 / BC549 | V_{CBO} | 80 50 30 | V |
| Collector-Emitter Voltage BC546 BC547 / BC550 BC548 / BC549 | V _{CEO} | 65 45 30 | > |
| Emitter-Base Voltage BC546 / BC547 BC548 / BC549 / BC550 | V _{EBO} | 6 5 | ٧ |
| Collector Current (DC) | I _C | 100 | mA |
| Collector Power Dissipation | P _C | 500 | mW |
| Junction Temperature | TJ | 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.



1. Collector 2. Base 3. Emitter

MARKING DIAGRAM



BC5xyz = Device Code

= 4 or 5

= 6, 7, 8, 9 or 0

= A, B, C

= Assembly Location

= 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.

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BC546 / BC547 / BC548 / BC549 / BC550

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

| Symbol | | Parameter | Test Condition | Min. | Тур. | Max. | Units |
|-----------------------|--------------------------------------|-----------------------|--|------|------|------|-------|
| I _{CBO} | Collector Cut-off Current | | V _{CB} = 30 V, I _E = 0 | | | 15 | nA |
| h _{FE} | DC Current Ga | in | V _{CE} = 5 V, I _C = 2 mA | 110 | | 800 | |
| V _{CE} (sat) | Collector-Emitter Saturation Voltage | | I _C = 10 mA, I _B = 0.5 mA | | 90 | 250 | mV |
| | | | I _C = 100 mA, I _B = 5 mA | | 250 | 600 | |
| V _{BE} (sat) | at) Base-Emitter Saturation Voltage | | I _C = 10 mA, I _B = 0.5 mA | | 700 | | mV |
| | | | $I_{\rm C}$ = 100 mA, $I_{\rm B}$ = 5 mA | | 900 | |] |
| V _{BE} (on) | Base-Emitter On Voltage | | V _{CE} = 5 V, I _C = 2 mA | 580 | 660 | 700 | mV |
| | | | V _{CE} = 5 V, I _C = 10 mA | | | 720 | |
| f _T | Current Gain Bandwidth Product | | $V_{CE} = 5 \text{ V}, I_{C} = 10 \text{ mA},$ f = 100 MHz | | 300 | | MHz |
| C _{ob} | Output Capacitance | | V _{CB} = 10 V, I _E = 0, f = 1 MHz | | 3.5 | 6.0 | pF |
| C _{ib} | Input Capacitance | | V _{EB} = 0.5 V, I _C = 0, f = 1 MHz | | 9 | | pF |
| NF | NF Noise Figure | BC546 / BC547 / BC548 | V_{CE} = 5 V, I_{C} = 200 μA, f = 1 kHz, R_{G} = 2 k Ω | | 2.0 | 10.0 | dB |
| | | BC549 / BC550 | | | 1.2 | 4.0 | |
| | | BC549 | $V_{CE} = 5 \text{ V, } I_{C} = 200 \text{ μA,}$ $R_{G} = 2 \text{ k}\Omega, f = 30 \text{ to } 15000 \text{ MHz}$ | | 1.4 | 4.0 | 1 |
| | | BC550 | | | 1.4 | 3.0 | 1 |

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.

hFE CLASSIFICATION

| Classification | Α | В | С |
|-----------------|-----------|-----------|-----------|
| h _{FE} | 110 ~ 220 | 200 ~ 450 | 420 ~ 800 |

BC546 / BC547 / BC548 / BC549 / BC550

TYPICAL PERFORMANCE CHARACTERISTICS

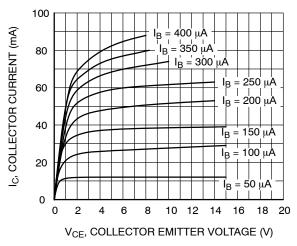


Figure 1. Static Characteristic

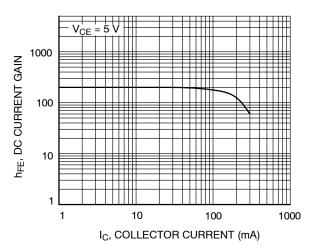


Figure 3. DC Current Gain

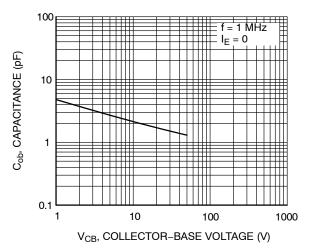


Figure 5. Output Capacitance

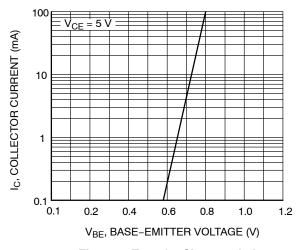


Figure 2. Transfer Characteristics

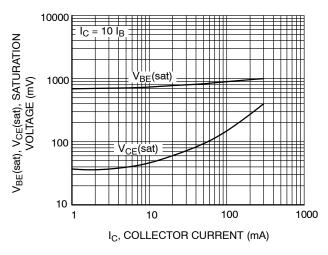


Figure 4. Base–Emitter Saturation Voltage and Collector–Emitter Saturation Voltage

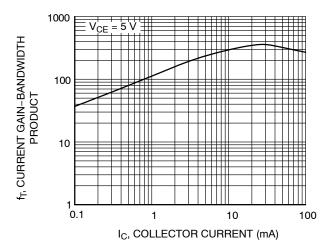


Figure 6. Current Gain Bandwidth Product

BC546 / BC547 / BC548 / BC549 / BC550

ORDERING INFORMATION

| Part Number | Marking | Package | Packing Method [†] |
|-------------|---------|-------------------|-----------------------------|
| BC546ABU | BC546A | TO-92-3 (Pb-Free) | 10000 / Bulk Bag |
| BC546CTA | BC546C | 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 |
| 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 |

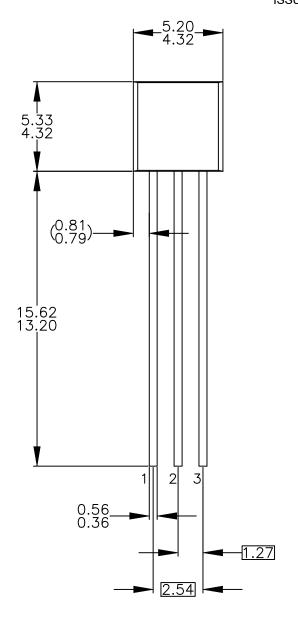
[†]For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

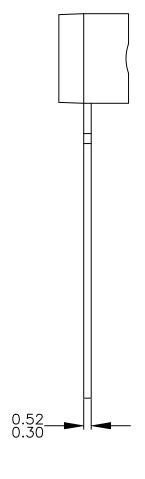
DISCONTINUED: These devices are not recommended for new design. Please contact your onsemi representative for information. The
most current information on these devices may be available on www.onsemi.com.



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

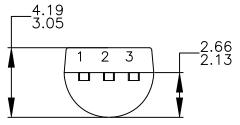
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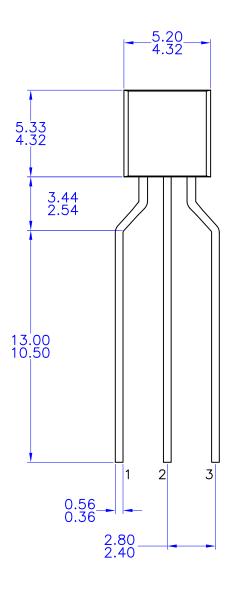
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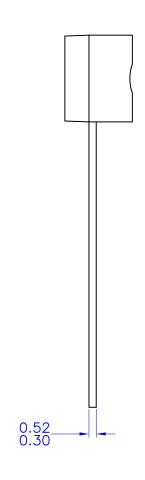


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CASE 135AR ISSUE O

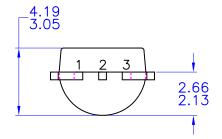
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