

## NPN Epitaxial Silicon Transistor

# BC546 / BC547 / BC548 / BC549 / BC550

#### **Features**

• Switching and Amplifier

• High-Voltage: BC546, V<sub>CEO</sub> = 65 V

• Low-Noise: BC549, BC550

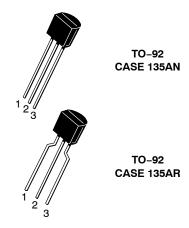
• Complement to BC556, BC557, BC558, BC559, and BC560

• These are Pb-Free Devices

#### **ABSOLUTE MAXIMUM RATINGS**

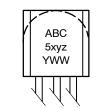
Parameter	Symbol	Value	Unit
Collector-Base Voltage BC546 BC547 / BC550 BC548 / BC549	V <sub>CBO</sub>	80 50 30	<b>&gt;</b>
Collector–Emitter Voltage BC546 BC547 / BC550 BC548 / BC549	V <sub>CEO</sub>	65 45 30	٧
Emitter-Base Voltage BC546 / BC547 BC548 / BC549 / BC550	V <sub>EBO</sub>	6 5	<b>V</b>
Collector Current (DC)	I <sub>C</sub>	100	mA
Collector Power Dissipation	P <sub>C</sub>	500	mW
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature Range	T <sub>STG</sub>	-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 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.

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## BC546 / BC547 / BC548 / BC549 / BC550

## **ELECTRICAL CHARACTERISTICS** (T<sub>C</sub> = 25°C unless otherwise noted)

Symbol		Parameter	Test Condition	Min.	Тур.	Max.	Units
I <sub>CBO</sub>	Collector Cut-off Current		V <sub>CB</sub> = 30 V, I <sub>E</sub> = 0			15	nA
h <sub>FE</sub>	DC Current Ga	in	V <sub>CE</sub> = 5 V, I <sub>C</sub> = 2 mA	110		800	
V <sub>CE</sub> (sat)	Collector–Emitter Saturation Voltage		I <sub>C</sub> = 10 mA, I <sub>B</sub> = 0.5 mA		90	250	mV
			I <sub>C</sub> = 100 mA, I <sub>B</sub> = 5 mA		250	600	
V <sub>BE</sub> (sat)	BE(sat) Base-Emitter Saturation Voltage		I <sub>C</sub> = 10 mA, I <sub>B</sub> = 0.5 mA		700		mV
			$I_{\rm C}$ = 100 mA, $I_{\rm B}$ = 5 mA		900		]
V <sub>BE</sub> (on)	Base-Emitter On Voltage		V <sub>CE</sub> = 5 V, I <sub>C</sub> = 2 mA	580	660	700	mV
			V <sub>CE</sub> = 5 V, I <sub>C</sub> = 10 mA			720	
f <sub>T</sub>	Current Gain Bandwidth Product		$V_{CE} = 5 \text{ V}, I_{C} = 10 \text{ mA},$ f = 100 MHz		300		MHz
C <sub>ob</sub>	Output Capacitance		V <sub>CB</sub> = 10 V, I <sub>E</sub> = 0, f = 1 MHz		3.5	6.0	pF
C <sub>ib</sub>	Input Capacitance		V <sub>EB</sub> = 0.5 V, I <sub>C</sub> = 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 $\Omega$		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.

## **h**FE CLASSIFICATION

Classification	Α	В	С
h <sub>FE</sub>	110 ~ 220	200 ~ 450	420 ~ 800

## BC546 / BC547 / BC548 / BC549 / BC550

#### TYPICAL PERFORMANCE CHARACTERISTICS

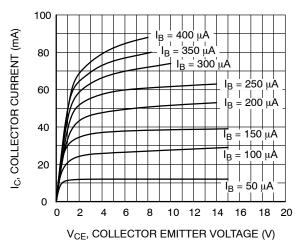


Figure 1. Static Characteristic

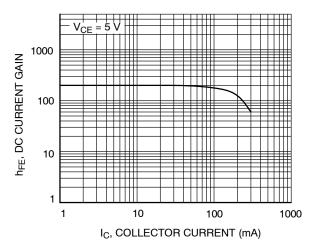


Figure 3. DC Current Gain

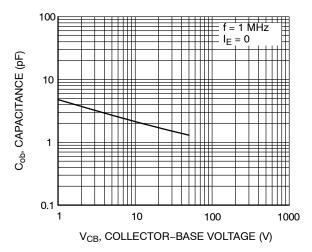


Figure 5. Output Capacitance

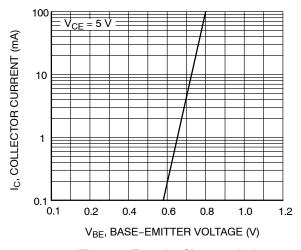


Figure 2. Transfer Characteristics

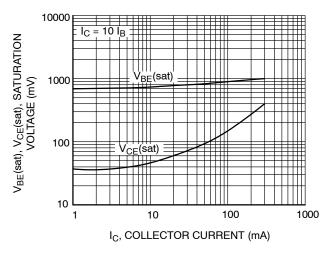


Figure 4. Base–Emitter Saturation Voltage and Collector–Emitter Saturation Voltage

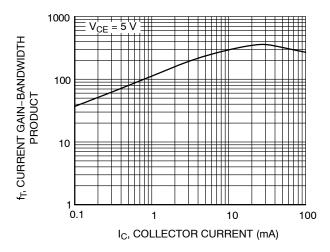


Figure 6. Current Gain Bandwidth Product

## BC546 / BC547 / BC548 / BC549 / BC550

## **ORDERING INFORMATION**

Part Number	Marking	Package	Packing Method <sup>†</sup>
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

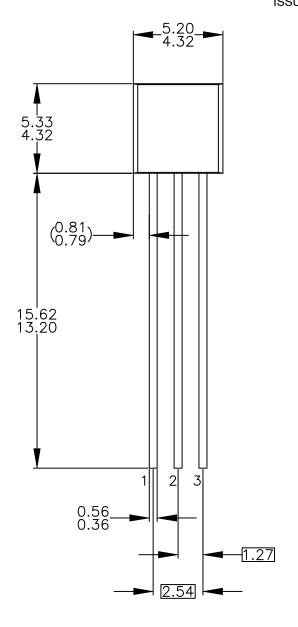
<sup>†</sup>For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

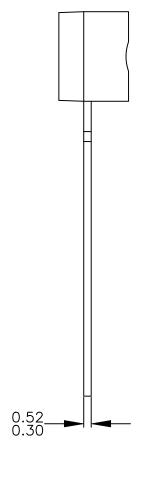
DISCONTINUED: These devices are not recommended for new design. Please contact your onsemi representative for information. The
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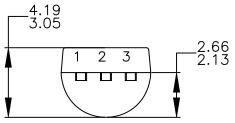
**DATE 31 JUL 2016** 





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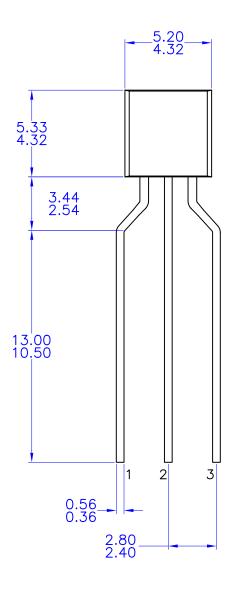


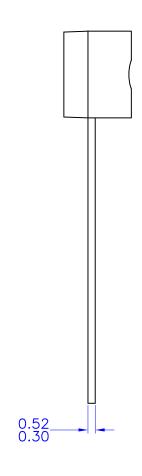


## TO-92 3 4.83x4.76 LEADFORMED

CASE 135AR ISSUE O

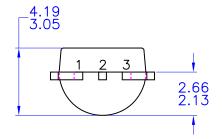
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