



Micro Commercial Components



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20736 Marilla Street Chatsworth  
CA 91311  
Phone: (818) 701-4933  
Fax: (818) 701-4939

# BC546A/B/C BC547A/B/C BC548A/B/C

## NPN Silicon Amplifier Transistor 625mW

### Features

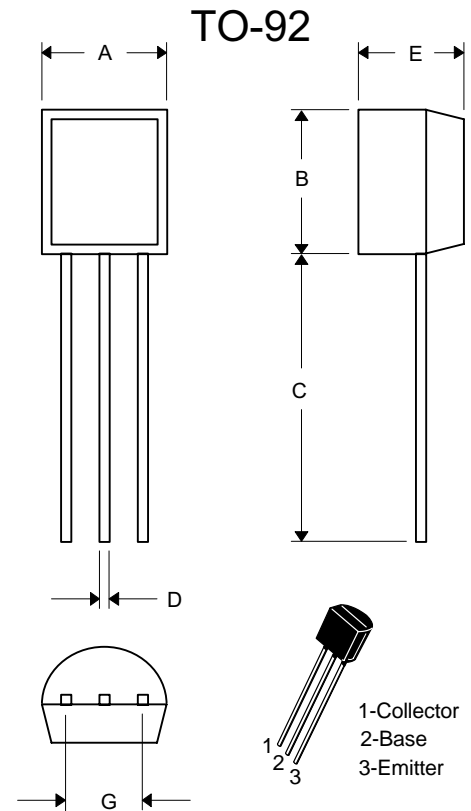
- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Through Hole Package
- 150°C Junction Temperature
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

### Mechanical Data

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

### Maximum Ratings @ 25°C Unless Otherwise Specified

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



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	.170	.190	4.33	4.83	
B	.170	.190	4.30	4.83	
C	.550	.590	13.97	14.97	
D	.010	.020	0.36	0.56	
E	.130	.160	3.30	3.96	
G	.096	.104	2.44	2.64	

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

Characteristic	Symbol	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>					
Collector–Emitter Breakdown Voltage (I <sub>C</sub> = 1.0 mA, I <sub>B</sub> = 0)	BC546	65	—	—	V
	BC547	45	—	—	
	BC548	30	—	—	
Collector–Base Breakdown Voltage (I <sub>C</sub> = 100 μAdc)	BC546	80	—	—	V
	BC547	50	—	—	
	BC548	30	—	—	
Emitter–Base Breakdown Voltage (I <sub>E</sub> = 10 μA, I <sub>C</sub> = 0)	BC546	6.0	—	—	V
	BC547	6.0	—	—	
	BC548	6.0	—	—	

## ON CHARACTERISTICS

DC Current Gain (I <sub>C</sub> = 10 μA, V <sub>CE</sub> = 5.0 V)	BC546A/547A/548A	h <sub>FE</sub>	—	90	—	—
	BC546B/547B/548B		—	150	—	—
	BC546C/547C/548C		—	270	—	—
(I <sub>C</sub> = 2.0 mA, V <sub>CE</sub> = 5.0 V)	BC546A/547A/548A		110	180	220	
	BC546B/547B/548B		200	290	450	
	BC546C/547C/548C		420	520	800	
(I <sub>C</sub> = 100 mA, V <sub>CE</sub> = 5.0 V)	BC546A/547A/548A		—	120	—	—
	BC546B/547B/548B		—	180	—	—
	BC546C/547C/548C		—	300	—	—
Collector–Emitter Saturation Voltage (I <sub>C</sub> = 100 mA, I <sub>B</sub> = 5.0 mA)	V <sub>CE(sat)</sub>	—	—	0.3	V	
Base–Emitter Saturation Voltage (I <sub>C</sub> = 100 mA, I <sub>B</sub> = 5.0 mA)	V <sub>BE(sat)</sub>	—	—	1.0	V	
Base–Emitter On Voltage (I <sub>C</sub> = 2.0 mA, V <sub>CE</sub> = 5.0 V) (I <sub>C</sub> = 10 mA, V <sub>CE</sub> = 5.0 V)	V <sub>BE(on)</sub>	0.55	—	0.7	V	
		—	—	0.77		

## SMALL–SIGNAL CHARACTERISTICS

Current–Gain — Bandwidth Product (I <sub>C</sub> = 10 mA, V <sub>CE</sub> = 5.0 V, f = 100 MHz)	BC546	f <sub>T</sub>	150	300	—	MHz
	BC547		150	300	—	
	BC548		150	300	—	
Output Capacitance (V <sub>CB</sub> = 10 V, I <sub>C</sub> = 0, f = 1.0 MHz)	C <sub>obo</sub>	—	1.7	4.5	pF	
Input Capacitance (V <sub>EB</sub> = 0.5 V, I <sub>C</sub> = 0, f = 1.0 MHz)	C <sub>ibo</sub>	—	10	—	pF	
Small–Signal Current Gain (I <sub>C</sub> = 2.0 mA, V <sub>CE</sub> = 5.0 V, f = 1.0 kHz)	BC546A/547A/548A	h <sub>fe</sub>	125	220	260	—
	BC546B/547B/548B		240	330	500	
	BC546C/547C/548C		450	600	900	
Noise Figure (I <sub>C</sub> = 0.2 mA, V <sub>CE</sub> = 5.0 V, R <sub>S</sub> = 2 kΩ, f = 1.0 kHz, Δf = 200 Hz)	BC546	NF	—	2.0	10	dB
	BC547		—	2.0	10	
	BC548		—	2.0	10	

# BC546 thru BC548

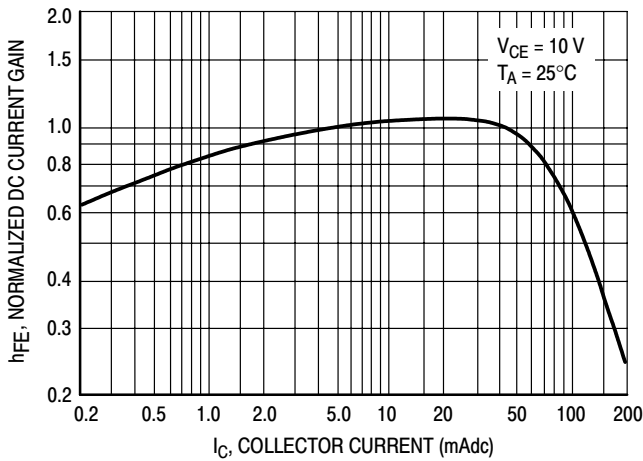


Figure 1. Normalized DC Current Gain

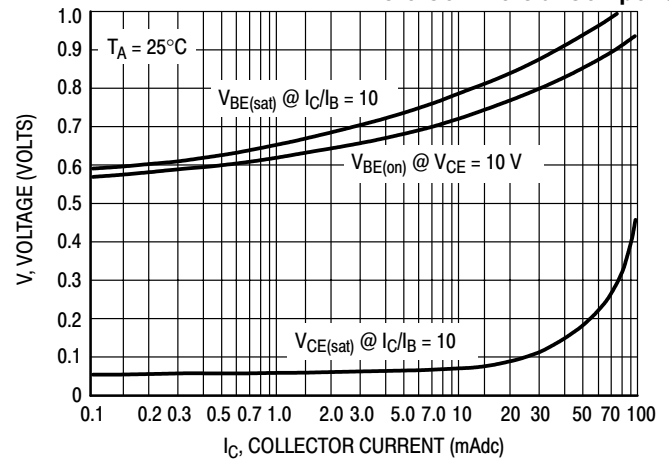


Figure 2. "Saturation" and "On" Voltages

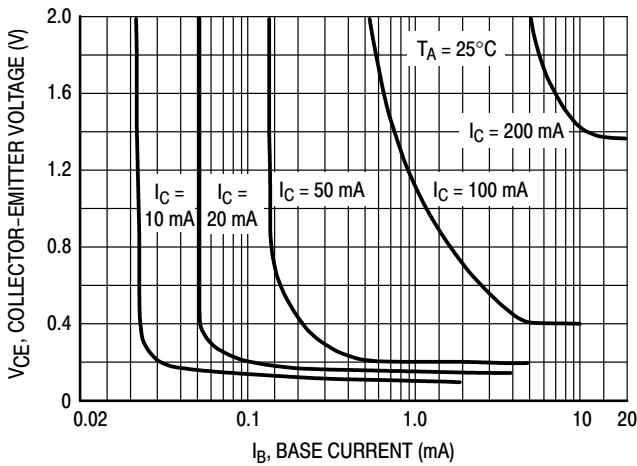


Figure 3. Collector Saturation Region

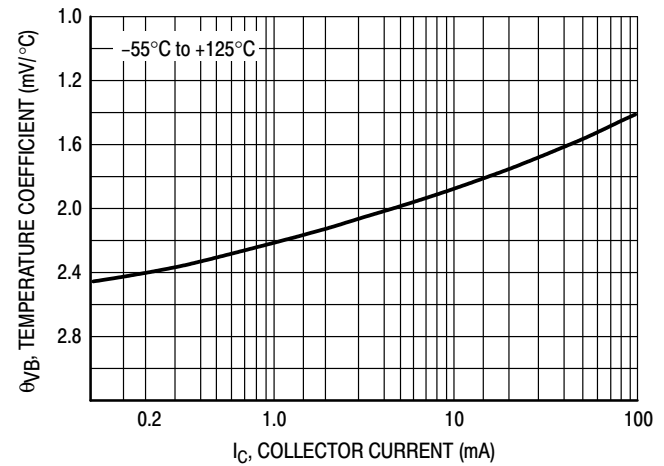


Figure 4. Base-Emitter Temperature Coefficient

## BC547/BC548

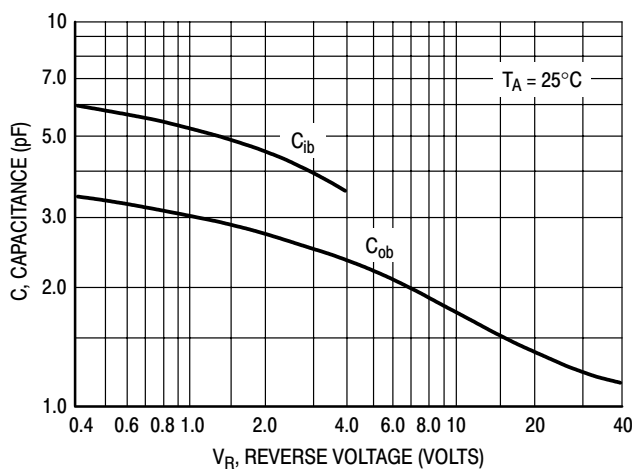


Figure 5. Capacitances

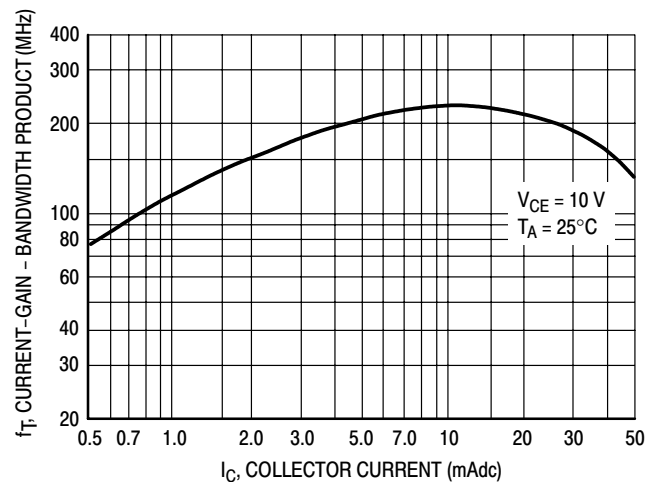


Figure 6. Current-Gain - Bandwidth Product

# BC546 thru BC548

## BC547/BC548

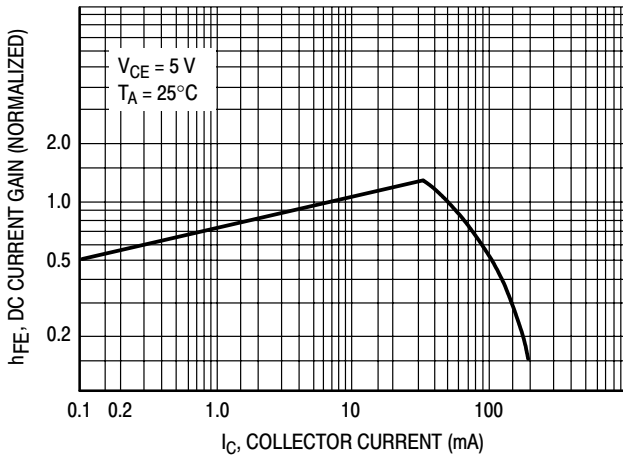


Figure 7. DC Current Gain

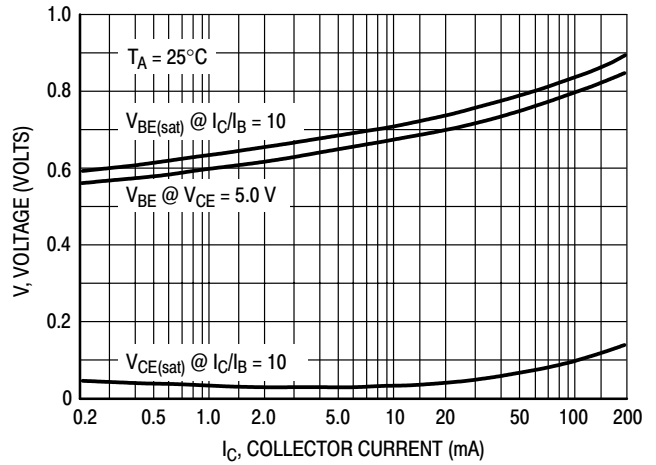


Figure 8. "On" Voltage

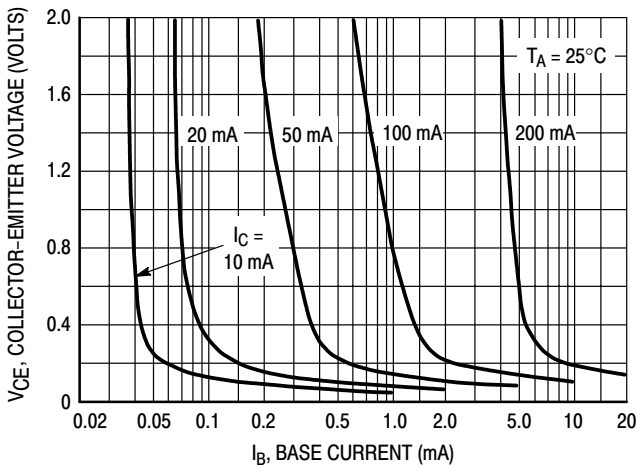


Figure 9. Collector Saturation Region

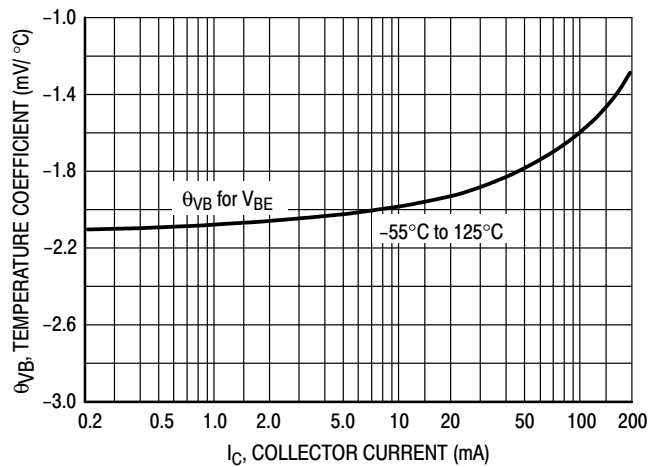


Figure 10. Base-Emitter Temperature Coefficient

## BC546

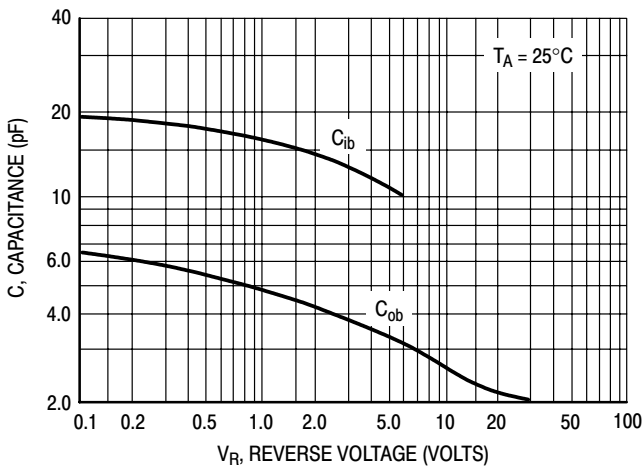


Figure 11. Capacitance

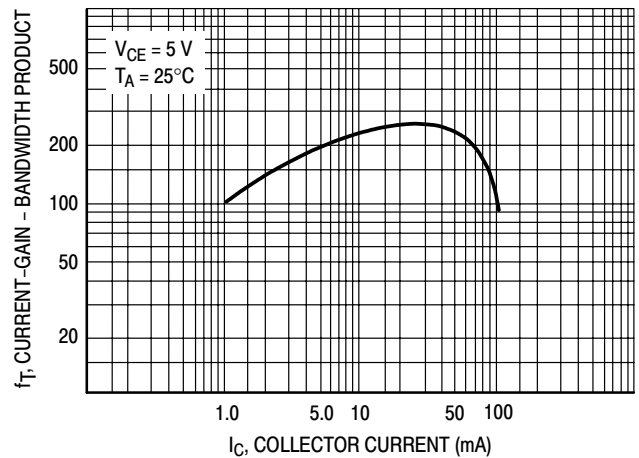


Figure 12. Current-Gain - Bandwidth Product



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### Ordering Information :

Device	Packing
Part Number-AP	Ammo Packing: 2Kpcs/Ammo Box
Part Number-BP	Bulk: 100Kpcs/Carton

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