

**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
- Halogen free available upon request by adding suffix "-HF"



TO-92

**Mechanical Data**

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

**Maximum Ratings and Electrical Characteristics**  $T_A = 25^\circ\text{C}$  unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.

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

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

Characteristic		Symbol	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>						
Collector–Emitter Breakdown Voltage ( $I_C = 1.0\text{ mA}$ , $I_B = 0$ )	BC546	$V_{(BR)CEO}$	65	—	—	V
	BC547		45	—	—	
	BC548		30	—	—	
Collector–Base Breakdown Voltage ( $I_C = 100\ \mu\text{A}$ )	BC546	$V_{(BR)CBO}$	80	—	—	V
	BC547		50	—	—	
	BC548		30	—	—	
Emitter–Base Breakdown Voltage ( $I_E = 10\ \mu\text{A}$ , $I_C = 0$ )	BC546	$V_{(BR)EBO}$	6.0	—	—	V
	BC547		6.0	—	—	
	BC548		6.0	—	—	

**ON CHARACTERISTICS**

DC Current Gain ( $I_C = 10\ \mu\text{A}$ , $V_{CE} = 5.0\text{ V}$ )	BC546A/547A/548A	$h_{FE}$	—	90	—	—
	BC546B/547B/548B		—	150	—	
	BC546C/547C/548C		—	270	—	
( $I_C = 2.0\text{ mA}$ , $V_{CE} = 5.0\text{ V}$ )	BC546A/547A/548A		110	180	220	
	BC546B/547B/548B		200	290	450	
	BC546C/547C/548C		420	520	800	
( $I_C = 100\text{ mA}$ , $V_{CE} = 5.0\text{ V}$ )	BC546A/547A/548A		—	120	—	
	BC546B/547B/548B		—	180	—	
	BC546C/547C/548C		—	300	—	
Collector–Emitter Saturation Voltage ( $I_C = 100\text{ mA}$ , $I_B = 5.0\text{ mA}$ )		$V_{CE(sat)}$	—	—	0.3	V
Base–Emitter Saturation Voltage ( $I_C = 100\text{ mA}$ , $I_B = 5.0\text{ mA}$ )		$V_{BE(sat)}$	—	—	1.0	V
Base–Emitter On Voltage ( $I_C = 2.0\text{ mA}$ , $V_{CE} = 5.0\text{ V}$ ) ( $I_C = 10\text{ mA}$ , $V_{CE} = 5.0\text{ V}$ )		$V_{BE(on)}$	0.55	—	0.7	V
			—	—	0.77	

**SMALL–SIGNAL CHARACTERISTICS**

Current–Gain — Bandwidth Product ( $I_C = 10\text{ mA}$ , $V_{CE} = 5.0\text{ V}$ , $f = 100\text{ MHz}$ )	BC546	$f_T$	150	300	—	MHz
	BC547		150	300	—	
	BC548		150	300	—	
Output Capacitance ( $V_{CB} = 10\text{ V}$ , $I_C = 0$ , $f = 1.0\text{ MHz}$ )		$C_{obo}$	—	1.7	4.5	pF
Input Capacitance ( $V_{EB} = 0.5\text{ V}$ , $I_C = 0$ , $f = 1.0\text{ MHz}$ )		$C_{ibo}$	—	10	—	pF
Small–Signal Current Gain ( $I_C = 2.0\text{ mA}$ , $V_{CE} = 5.0\text{ V}$ , $f = 1.0\text{ kHz}$ )	BC546A/547A/548A	$h_{fe}$	125	220	260	—
	BC546B/547B/548B		240	330	500	
	BC546C/547C/548C		450	600	900	
Noise Figure ( $I_C = 0.2\text{ mA}$ , $V_{CE} = 5.0\text{ V}$ , $R_S = 2\text{ k}\Omega$ , $f = 1.0\text{ kHz}$ , $\Delta f = 200\text{ Hz}$ )	BC546	NF	—	2.0	10	dB
	BC547		—	2.0	10	
	BC548		—	2.0	10	

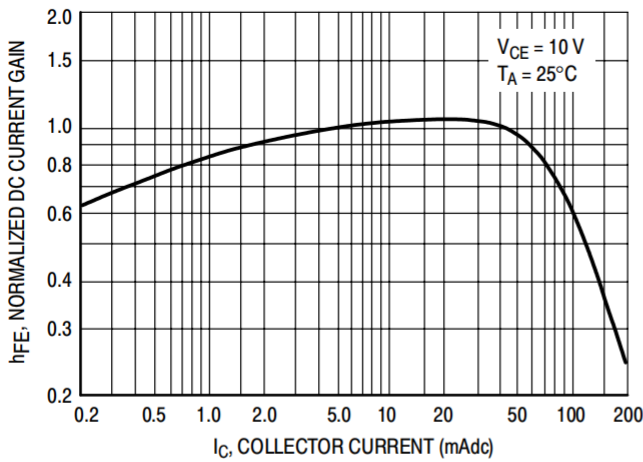


Figure 1. Normalized DC Current Gain

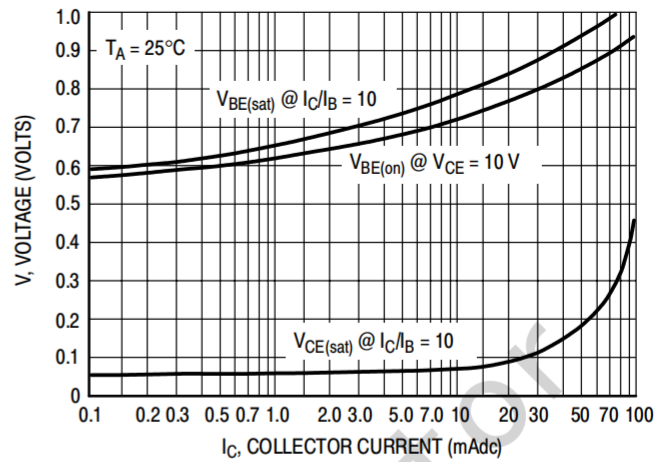


Figure 2. "Saturation" and "On" Voltages

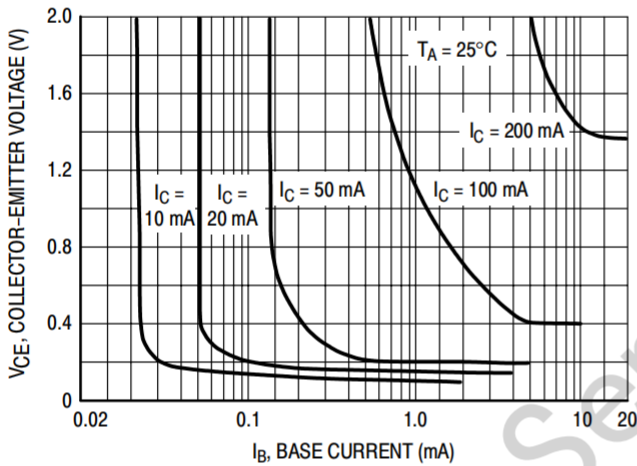


Figure 3. Collector Saturation Region

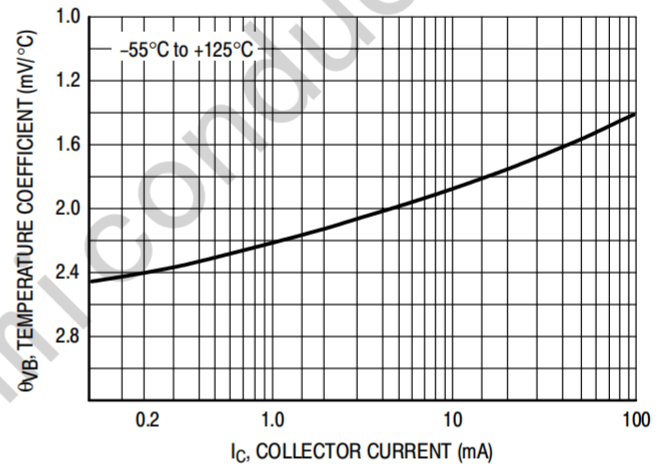


Figure 4. Base-Emitter Temperature Coefficient

**BC547/BC548**

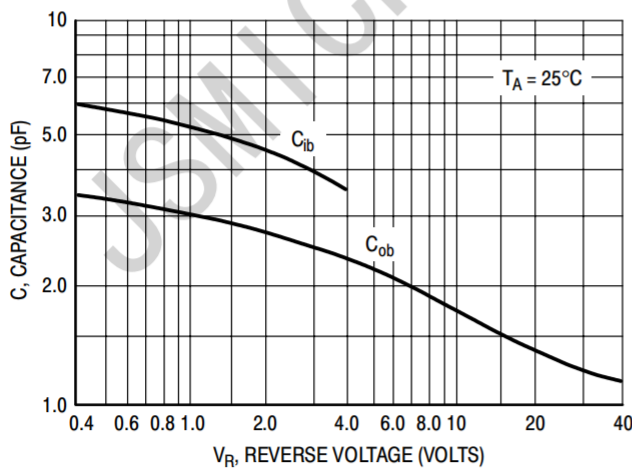


Figure 5. Capacitances

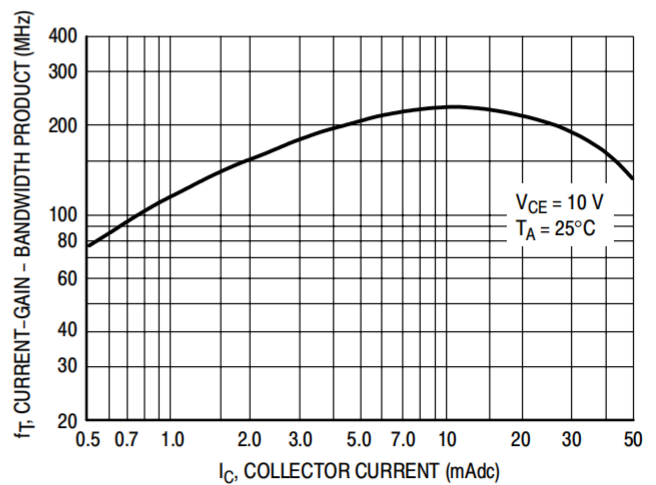


Figure 6. Current-Gain - Bandwidth Product

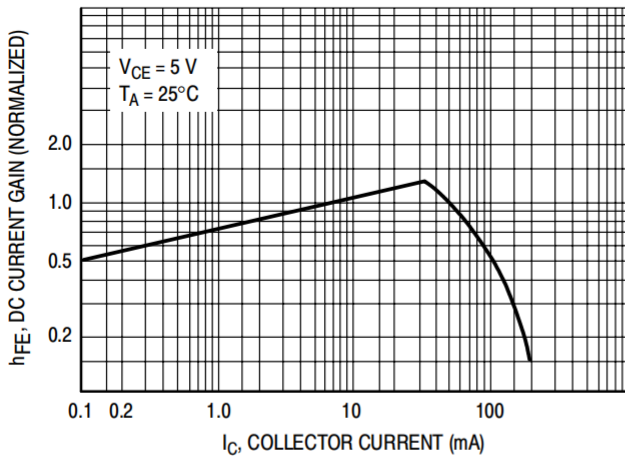


Figure 7. DC Current Gain

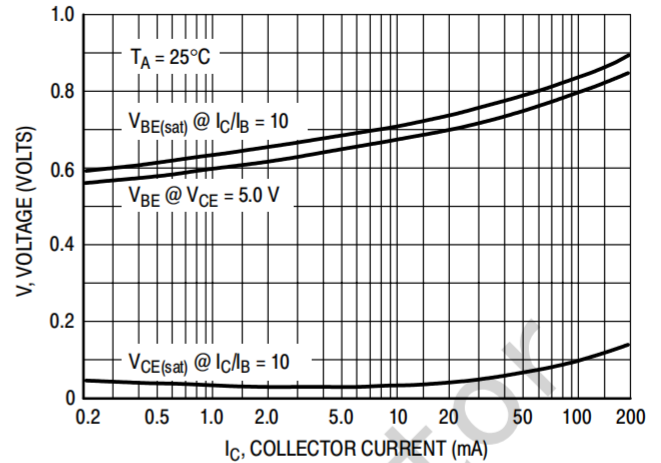


Figure 8. "On" Voltage

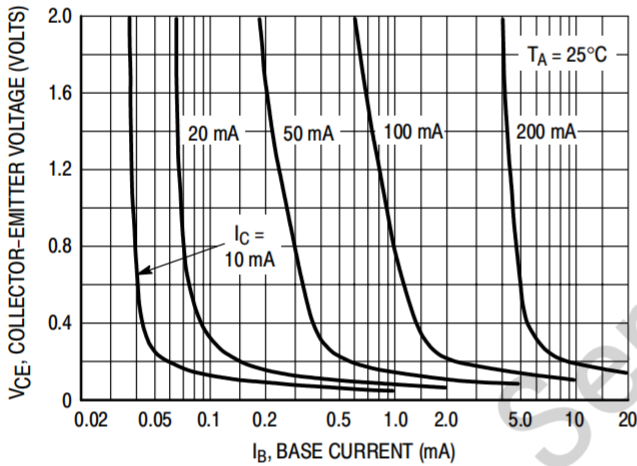


Figure 9. Collector Saturation Region

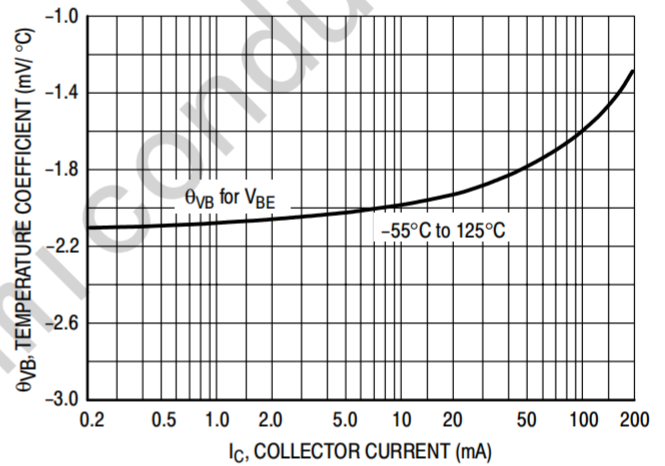


Figure 10. Base-Emitter Temperature Coefficient

**BC546**

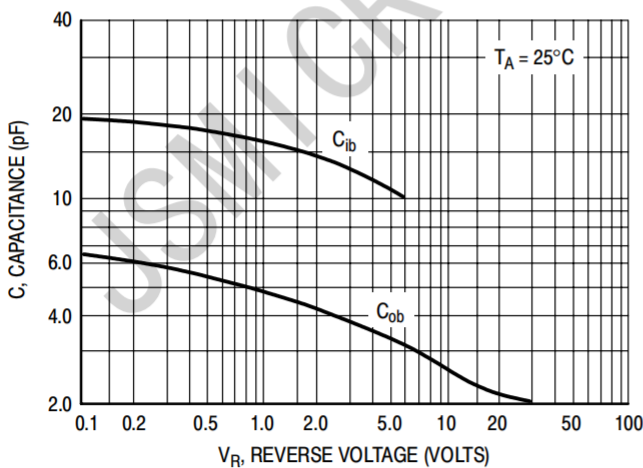


Figure 11. Capacitance

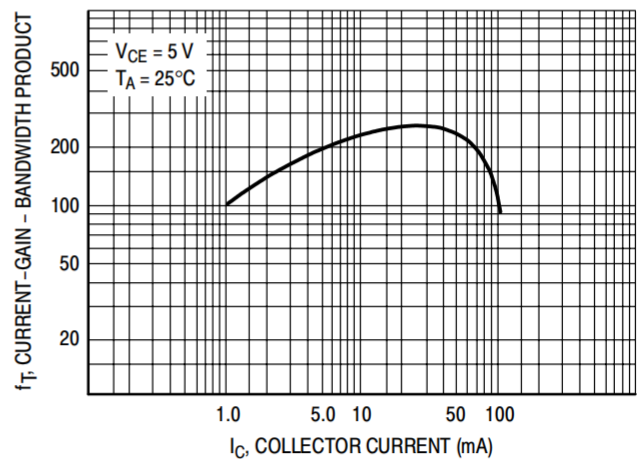
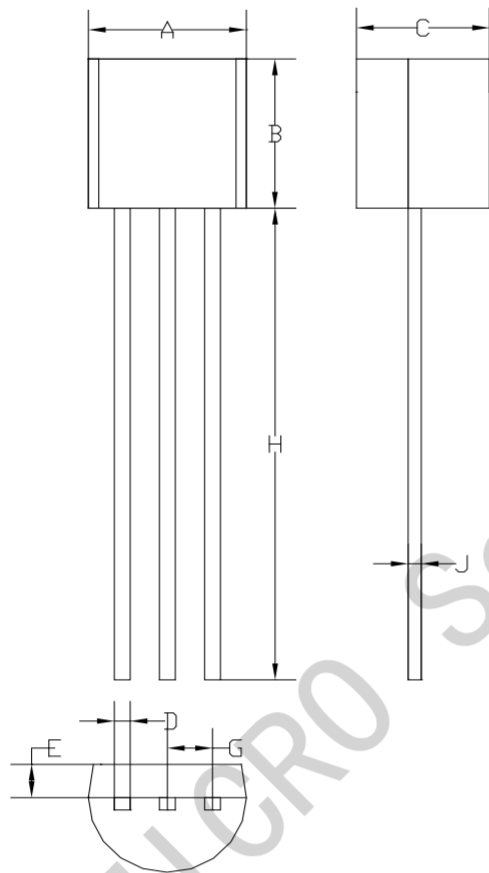


Figure 12. Current-Gain - Bandwidth Product

## Package Information

TO-92

Plastic surface mounted package



TO-92		
Dim	Min	Max
A	4.4	4.7
B	4.3	4.7
C	3.43 Typical	
D	0.38	0.55
E	1.1	1.4
G	1.27 Typical	
H	14.1	14.5
J	0.36	0.51
All Dimensions in mm		