

MAXIMUM RATINGS

Rating	Symbol	BC 546	BC 547	BC 548	Unit
Collector-Emitter Voltage	V_{CEO}	65	45	30	Vdc
Collector-Base Voltage	V_{CBO}	80	50	30	Vdc
Emitter-Base Voltage	V_{EBO}	6.0			Vdc
Collector Current - Continuous	I_C	100			mA dc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	625	5.0		mW mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	1.5	12		Watt mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-55 to +150			$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	200	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	83.3	$^\circ\text{C/W}$

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

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage ($I_C = 1.0\text{ mA}, I_B = 0$)	$V_{(BR)CEO}$	65 45 30	— — —	— — —	V
Collector-Base Breakdown Voltage ($I_C = 100\text{ }\mu\text{A dc}$)	$V_{(BR)CBO}$	80 50 30	— — —	— — —	V
Emitter-Base Breakdown Voltage ($I_E = 10\text{ }\mu\text{A}, I_C = 0$)	$V_{(BR)EBO}$	6.0 6.0 6.0	— — —	— — —	V
Collector Cutoff Current ($V_{CE} = 70\text{ V}, V_{BE} = 0$) ($V_{CE} = 50\text{ V}, V_{BE} = 0$) ($V_{CE} = 35\text{ V}, V_{BE} = 0$) ($V_{CE} = 30\text{ V}, T_A = 125^\circ\text{C}$)	I_{CES}	— — — —	0.2 0.2 0.2 —	15 15 15 4.0	nA μA

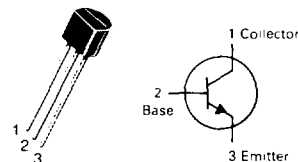
ON CHARACTERISTICS

DC Current Gain ($I_C = 10\text{ }\mu\text{A}, V_{CE} = 5.0\text{ V}$) ($I_C = 2.0\text{ mA}, V_{CE} = 5.0\text{ V}$) ($I_C = 100\text{ mA}, V_{CE} = 5.0\text{ V}$)	BC546A, 547A, 548A BC546B, 547B, 548B BC548C BC546 BC547 BC548 BC546A, 547A, 548A BC546B, 547B, 548B BC547C, BC548C BC546A, 547A, 548A BC546B, 547B, 548B BC548C	h_{FE}	— — — 110 110 110 110 200 420 — — —	90 150 270 — — — 180 290 520 120 180 300	— — — 450 800 800 220 450 800 — — —	—
Collector-Emitter Saturation Voltage ($I_C = 10\text{ mA}, I_B = 0.5\text{ mA}$) ($I_C = 100\text{ mA}, I_B = 5.0\text{ mA}$) ($I_C = 10\text{ mA}, I_B = \text{See Note 1}$)		$V_{CE(sat)}$	— — —	0.09 0.2 0.3	0.25 0.6 0.6	V
Base-Emitter Saturation Voltage ($I_C = 10\text{ mA}, I_B = 0.5\text{ mA}$)		$V_{BE(sat)}$	—	0.7	—	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 0.77	V

NOTE 1: I_B is value for which $I_C = 11\text{ mA}$ at $V_{CE} = 1.0\text{ V}$.

BC546, A, B BC547, A, B, C BC548, A, B, C

CASE 29-04, STYLE 17
TO-92 (TO-226AA)



AMPLIFIER TRANSISTORS

NPN SILICON

BC546, A, B, BC547, A, B, C, BC548, A, B, C

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

Characteristic		Symbol	Min	Typ	Max	Unit
SMALL-SIGNAL CHARACTERISTICS						
Current-Gain Bandwidth Product ($I_C = 10\text{ mA}$, $V_{CE} = 5.0\text{ V}$, $f = 100\text{ MHz}$)	BC546 BC547 BC548	f_T	150 150 150	300 300 300	— — —	MHz
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 ($I_C = 2.0\text{ mA}$, $V_{CE} = 5.0\text{ V}$, $f = 1.0\text{ kHz}$)	BC546 BC547/548 BC546A/547A/548A BC546B/547B/548B BC547C/548C	h_{fe}	125 125 125 240 450	— — 220 330 600	500 900 260 500 900	—
Noise Figure ($I_C = 0.2\text{ mA}$, $V_{CE} = 5.0\text{ V}$, $R_S = 2\text{ kohms}$, $f = 1.0\text{ kHz}$, $\Delta f = 200\text{ Hz}$)	BC546 BC547 BC548	NF	— — —	2.0 2.0 2.0	10 10 10	dB

FIGURE 1 – NORMALIZED DC CURRENT GAIN

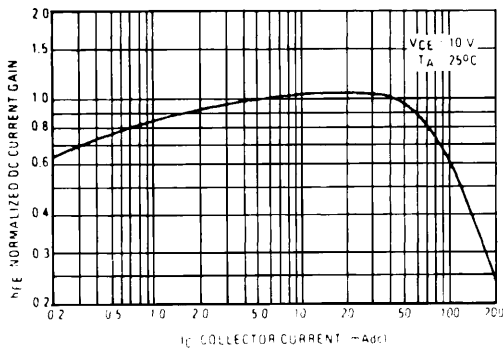


FIGURE 2 – "SATURATION" AND "ON" VOLTAGES

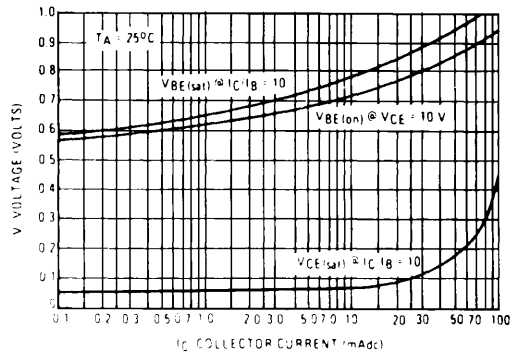


FIGURE 3 – COLLECTOR SATURATION REGION

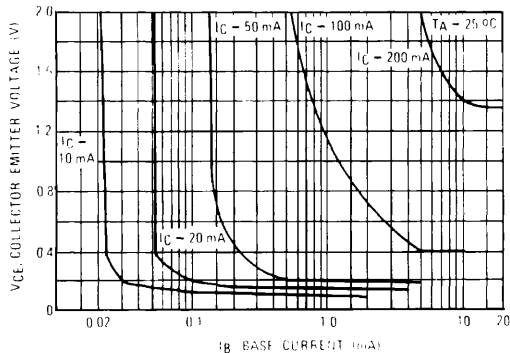
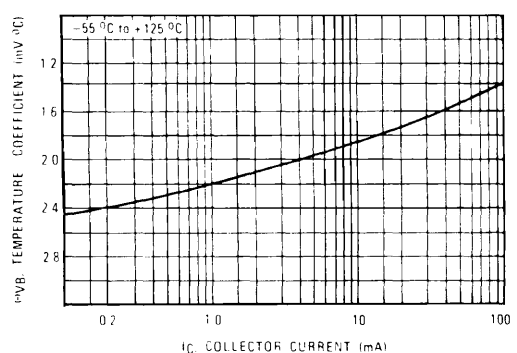


FIGURE 4 – BASE-EMITTER TEMPERATURE COEFFICIENT



BC547/BC548

FIGURE 5 – CAPACITANCES

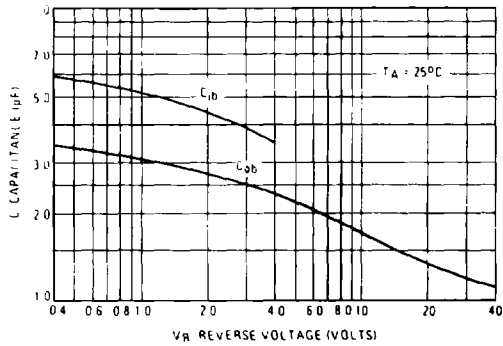


FIGURE 6 – CURRENT GAIN-BANDWIDTH PRODUCT

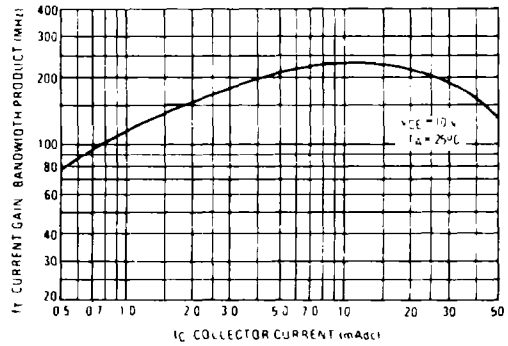


FIGURE 7 – DC CURRENT GAIN

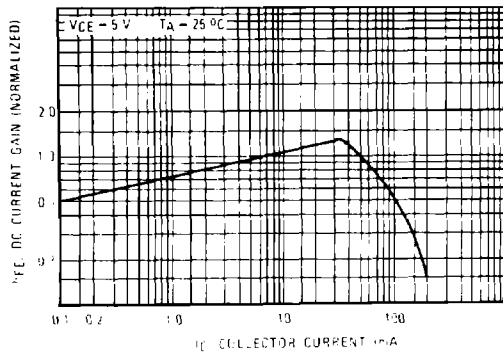


FIGURE 8 – "ON" VOLTAGE

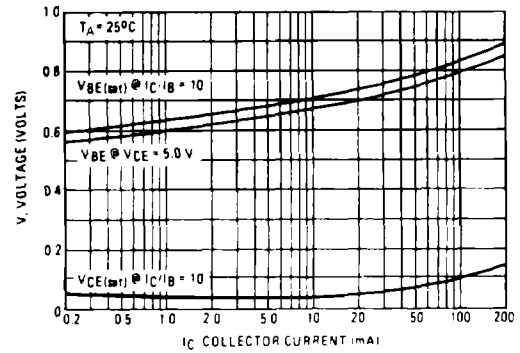


FIGURE 9 – COLLECTOR SATURATION REGION

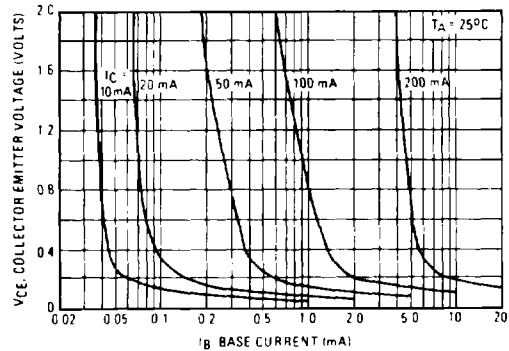
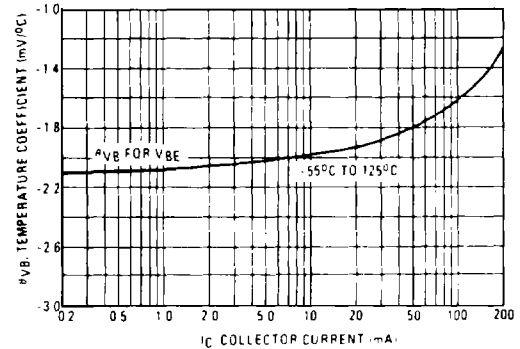


FIGURE 10 – BASE-EMITTER TEMPERATURE COEFFICIENT



BC546, A, B, BC547, A, B, C, BC548, A, B, C

BC546

FIGURE 11 - CAPACITANCE

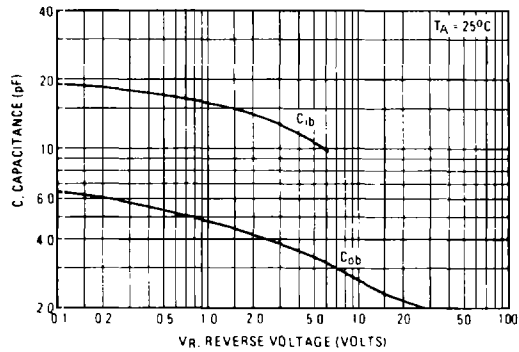


FIGURE 12 - CURRENT GAIN-BANDWIDTH PRODUCT

