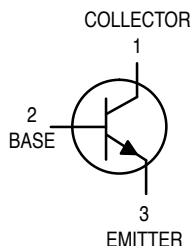
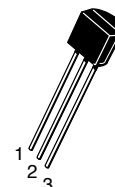


Amplifier Transistors

NPN Silicon



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



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

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			mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	625 5.0			mW mW/°C
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	1.5 12			Watt mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	–55 to +150			°C

THERMAL CHARACTERISTICS

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

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

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Collector–Emitter Breakdown Voltage ($I_C = 1.0\text{ mA}, I_B = 0$)	BC546 BC547 BC548	$V_{(BR)CEO}$	65 45 30	— — —	— — —	V
Collector–Base Breakdown Voltage ($I_C = 100\text{ }\mu\text{Adc}$)	BC546 BC547 BC548	$V_{(BR)CBO}$	80 50 30	— — —	— — —	V
Emitter–Base Breakdown Voltage ($I_E = 10\text{ }\mu\text{A}, I_C = 0$)	BC546 BC547 BC548	$V_{(BR)EBO}$	6.0 6.0 6.0	— — —	— — —	V
Collector Cutoff Current ($V_{CE} = 70\text{ V}, V_{BE} = 0$) ($V_{CE} = 50\text{ V}, V_{BE} = 0$) ($V_{CE} = 35\text{ V}, V_{BE} = 0$) ($V_{CE} = 30\text{ V}, T_A = 125^\circ\text{C}$)	BC546 BC547 BC548 BC546/547/548	I_{CES}	— — — —	0.2 0.2 0.2 —	15 15 15 4.0	nA μA



BC546, B BC547, A, B, C BC548, A, B, C**ELECTRICAL CHARACTERISTICS** ($T_A = 25^\circ\text{C}$ unless otherwise noted) (Continued)

Characteristic	Symbol	Min	Typ	Max	Unit
ON CHARACTERISTICS					
DC Current Gain ($I_C = 10\ \mu\text{A}$, $V_{CE} = 5.0\ \text{V}$)	h_{FE}	—	90	—	—
BC547A/548A		—	150	—	—
BC546B/547B/548B BC548C		—	270	—	—
($I_C = 2.0\ \text{mA}$, $V_{CE} = 5.0\ \text{V}$)	h_{FE}	110	—	450	—
BC546		110	—	800	—
BC547		110	—	800	—
BC548		110	180	220	—
BC547A/548A		200	290	450	—
BC546B/547B/548B BC547C/BC548C		420	520	800	—
($I_C = 100\ \text{mA}$, $V_{CE} = 5.0\ \text{V}$)	h_{FE}	—	120	—	—
BC547A/548A		—	180	—	—
BC546B/547B/548B BC548C		—	300	—	—
Collector–Emitter Saturation Voltage ($I_C = 10\ \text{mA}$, $I_B = 0.5\ \text{mA}$)	$V_{CE(sat)}$	—	0.09	0.25	V
($I_C = 100\ \text{mA}$, $I_B = 5.0\ \text{mA}$)		—	0.2	0.6	V
($I_C = 10\ \text{mA}$, $I_B = \text{See Note 1}$)		—	0.3	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 ($I_C = 2.0\ \text{mA}$, $V_{CE} = 5.0\ \text{V}$)	$V_{BE(on)}$	0.55	—	0.7	V
($I_C = 10\ \text{mA}$, $V_{CE} = 5.0\ \text{V}$)		—	—	0.77	V

SMALL–SIGNAL CHARACTERISTICS

Current–Gain — Bandwidth Product ($I_C = 10\ \text{mA}$, $V_{CE} = 5.0\ \text{V}$, $f = 100\ \text{MHz}$)	f_T	150	300	—	MHz
BC546		150	300	—	MHz
BC547 BC548		150	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 ($I_C = 2.0\ \text{mA}$, $V_{CE} = 5.0\ \text{V}$, $f = 1.0\ \text{kHz}$)	h_{fe}	125	—	500	—
BC546		125	—	900	—
BC547/548		125	220	260	—
BC547A/548A		240	330	500	—
BC546B/547B/548B BC547C/548C		450	600	900	—
Noise Figure ($I_C = 0.2\ \text{mA}$, $V_{CE} = 5.0\ \text{V}$, $R_S = 2\ \text{k}\Omega$, $f = 1.0\ \text{kHz}$, $\Delta f = 200\ \text{Hz}$)	NF	—	2.0	10	dB
BC546		—	2.0	10	dB
BC547 BC548		—	2.0	10	dB

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