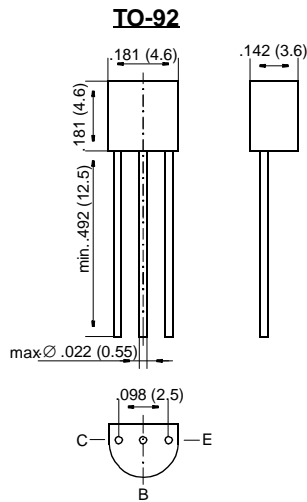


BC556 THRU BC559

Small Signal Transistors (PNP)



Dimensions in inches and (millimeters)

FEATURES

- ◆ PNP Silicon Epitaxial Planar Transistors for switching and AF amplifier applications.
- ◆ These transistors are subdivided into three groups A, B and C according to their current gain. The type BC556 is available in groups A and B, however, the types BC557 and BC558 can be supplied in all three groups. The BC559 is a low-noise type available in all three groups. As complementary types, the NPN transistors BC546 ... BC549 are recommended.
- ◆ On special request, these transistors are also manufactured in the pin configuration TO-18.



MECHANICAL DATA

Case: TO-92 Plastic Package

Weight: approx. 0.18 g

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified

	Symbol	Value	Unit
Collector-Base Voltage	BC556 BC557 BC558, BC559	$-V_{CBO}$ $-V_{CBO}$ $-V_{CBO}$	V V V
Collector-Emitter Voltage	BC556 BC557 BC558, BC559	$-V_{CES}$ $-V_{CES}$ $-V_{CES}$	V V V
Collector-Emitter Voltage	BC556 BC557 BC558, BC559	$-V_{CEO}$ $-V_{CEO}$ $-V_{CEO}$	V V V
Emitter-Base Voltage		$-V_{EBO}$	V
Collector Current		$-I_C$	mA
Peak Collector Current		$-I_{CM}$	mA
Peak Base Current		$-I_{BM}$	mA
Peak Emitter Current		I_{EM}	mA
Power Dissipation at $T_{amb} = 25\text{ °C}$		P_{tot}	mW
Junction Temperature		T_j	°C
Storage Temperature Range		T_S	°C

¹⁾ Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case.

BC556 THRU BC559

ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified

	Symbol	Min.	Typ.	Max.	Unit
h-Parameters at $-V_{CE} = 5\text{ V}$, $-I_C = 2\text{ mA}$, $f = 1\text{ kHz}$					
Current Gain	Current Gain Group A B C	h_{fe} h_{fe} h_{fe}	— 220 330 600	— — —	— — —
Input Impedance	Current Gain Group A B C	h_{ie} h_{ie} h_{ie}	1.6 2.7 4.5 8.7	4.5 8.5 15	$k\Omega$ $k\Omega$ $k\Omega$
Output Admittance	Current Gain Group A B C	h_{oe} h_{oe} h_{oe}	— 18 30 60	30 60 110	μS μS μS
Reverse Voltage Transfer Ratio	Current Gain Group A B C	h_{re} h_{re} h_{re}	— $1.5 \cdot 10^{-4}$ $2 \cdot 10^{-4}$ $3 \cdot 10^{-4}$	— — —	— — —
DC Current Gain at $-V_{CE} = 5\text{ V}$, $-I_C = 10\text{ }\mu A$					
	Current Gain Group A B C	h_{FE} h_{FE} h_{FE}	— 90 150 270	— — —	— — —
at $-V_{CE} = 5\text{ V}$, $-I_C = 2\text{ mA}$					
	Current Gain Group A B C	h_{FE} h_{FE} h_{FE}	110 200 420	180 290 500	220 450 800
at $-V_{CE} = 5\text{ V}$, $-I_C = 100\text{ mA}$					
	Current Gain Group A B C	h_{FE} h_{FE} h_{FE}	— 120 200 400	— — —	— — —
Thermal Resistance Junction to Ambient Air	R_{thJA}	—	—	250 ¹⁾	K/W
Collector Saturation Voltage at $-I_C = 10\text{ mA}$, $-I_B = 0.5\text{ mA}$ at $-I_C = 100\text{ mA}$, $-I_B = 5\text{ mA}$					
	$-V_{CEsat}$ $-V_{CEsat}$	— —	80 250	300 650	mV mV
Base Saturation Voltage at $-I_C = 10\text{ mA}$, $-I_B = 0.5\text{ mA}$ at $-I_C = 100\text{ mA}$, $-I_B = 5\text{ mA}$					
	$-V_{BEsat}$ $-V_{BEsat}$	— —	700 900	— —	mV mV
Base-Emitter Voltage at $-V_{CE} = 5\text{ V}$, $-I_C = 2\text{ mA}$ at $-V_{CE} = 5\text{ V}$, $-I_C = 10\text{ mA}$					
	$-V_{BE}$ $-V_{BE}$	600 —	660 —	750 800	mV mV
Collector-Emitter Cutoff Current at $-V_{CE} = 80\text{ V}$ at $-V_{CE} = 50\text{ V}$ at $-V_{CE} = 30\text{ V}$ at $-V_{CE} = 80\text{ V}$, $T_j = 125\text{ }^\circ C$ at $-V_{CE} = 50\text{ V}$, $T_j = 125\text{ }^\circ C$ at $-V_{CE} = 30\text{ V}$, $T_j = 125\text{ }^\circ C$					
	BC556 BC557 BC558 BC556 BC557 BC558, BC559	$-I_{CES}$ $-I_{CES}$ $-I_{CES}$ $-I_{CES}$ $-I_{CES}$ $-I_{CES}$	— — — — — —	0.2 0.2 0.2 4 4 4	15 15 15 μA μA μA

¹⁾ Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case.

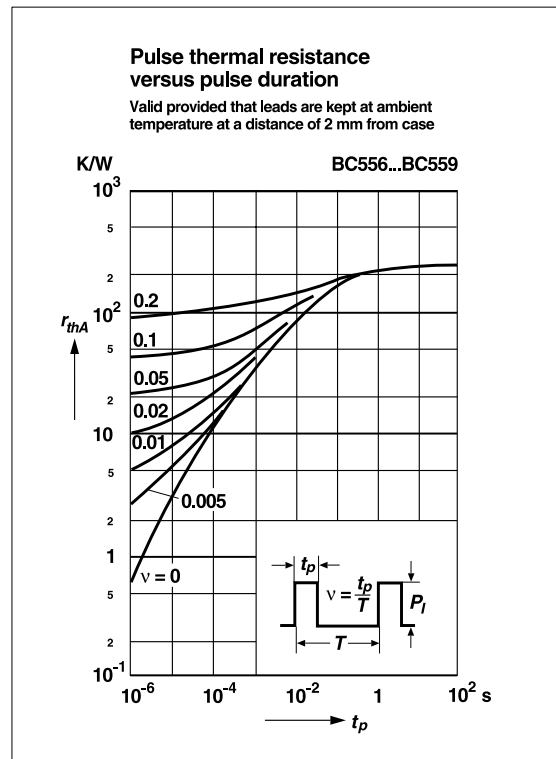
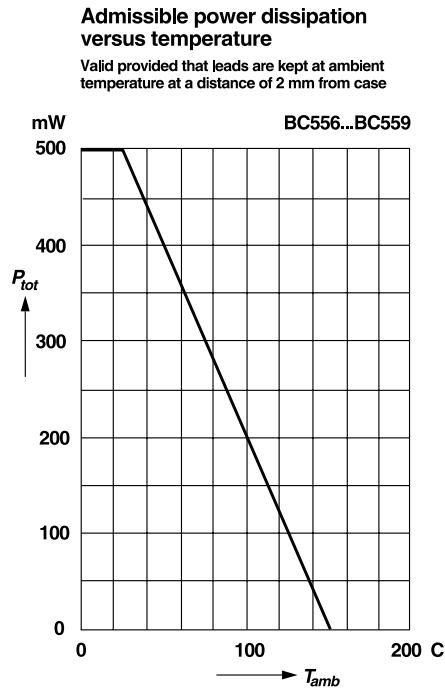
BC556 THRU BC559

ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified

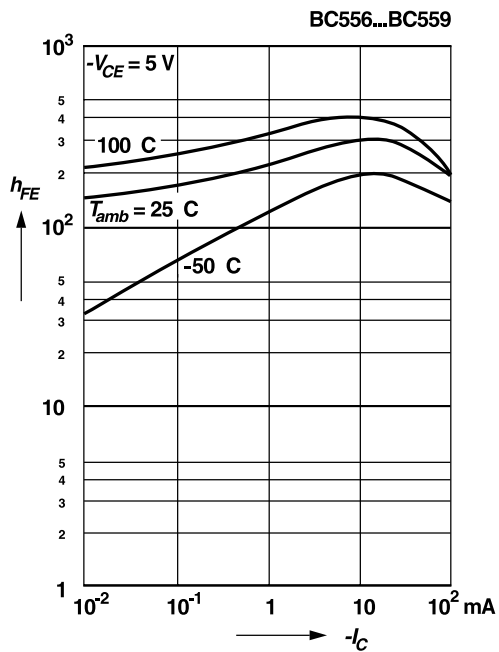
	Symbol	Min.	Typ.	Max.	Unit
Gain-Bandwidth Product at $-V_{CE} = 5\text{ V}$, $-I_C = 10\text{ mA}$, $f = 100\text{ MHz}$	f_T	—	150	—	MHz
Collector-Base Capacitance at $-V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$	C_{CBO}	—	—	6	pF
Noise Figure at $-V_{CE} = 5\text{ V}$, $-I_C = 200\text{ }\mu\text{A}$, $R_G = 2\text{ k}\Omega$, $f = 1\text{ kHz}$, $\Delta f = 200\text{ Hz}$ BC556, BC557, BC558 BC559	F F	— —	2 1	10 4	dB dB
Noise Figure at $-V_{CE} = 5\text{ V}$, $-I_C = 200\text{ }\mu\text{A}$, $R_G = 2\text{ k}\Omega$, $f = 30 \dots 15000\text{ Hz}$ BC559	F	—	1.2	4	dB

RATINGS AND CHARACTERISTIC CURVES BC556 THRU BC559

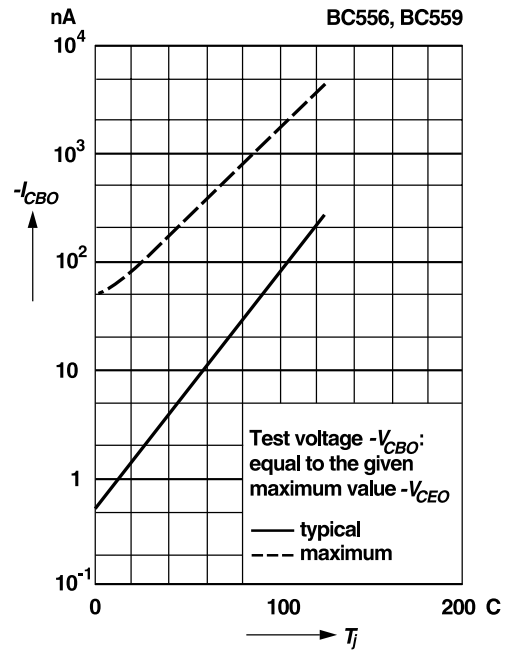


RATINGS AND CHARACTERISTIC CURVES BC556 THRU BC559

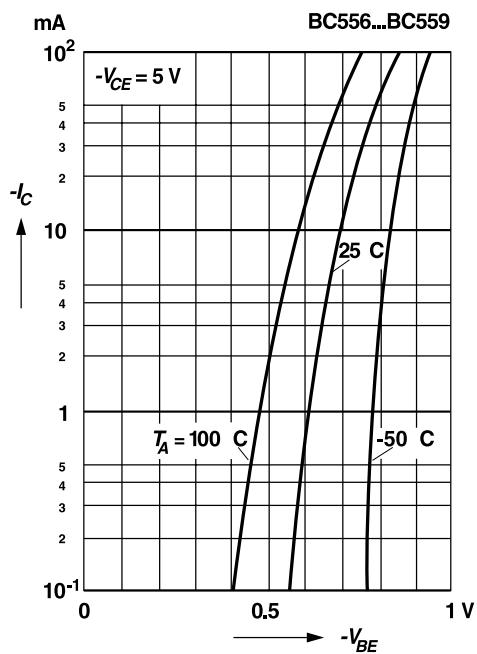
DC current gain
versus collector current



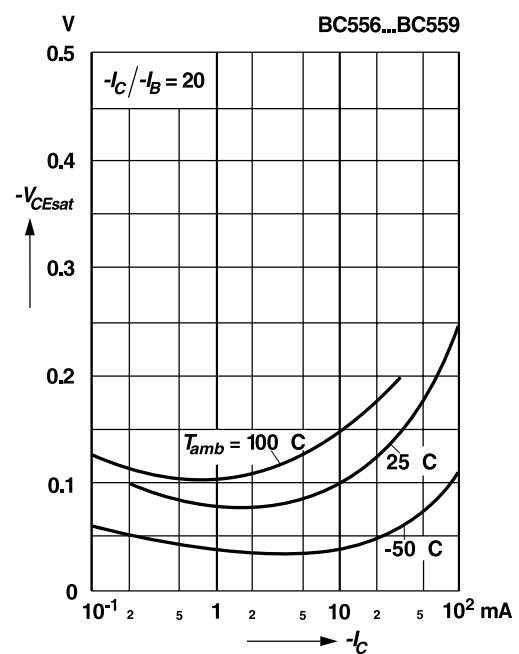
Collector-base cutoff current
versus junction temperature



Collector current
versus base-emitter voltage

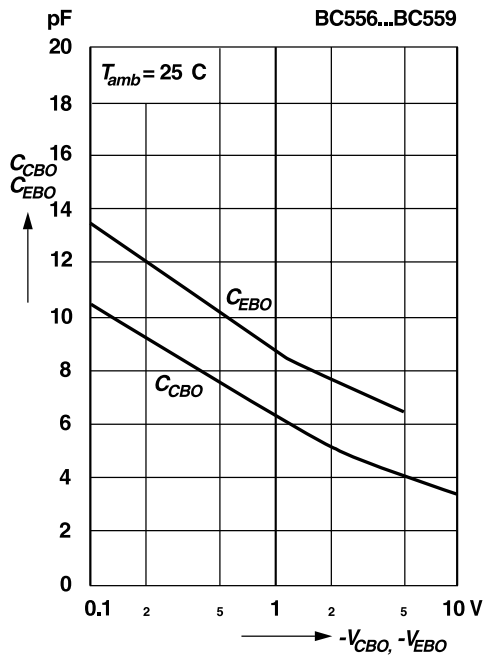


Collector saturation voltage
versus collector current

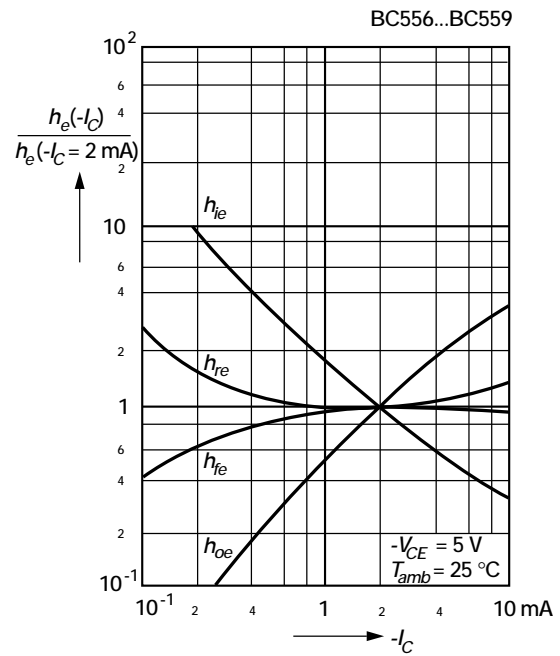


RATINGS AND CHARACTERISTIC CURVES BC556 THRU BC559

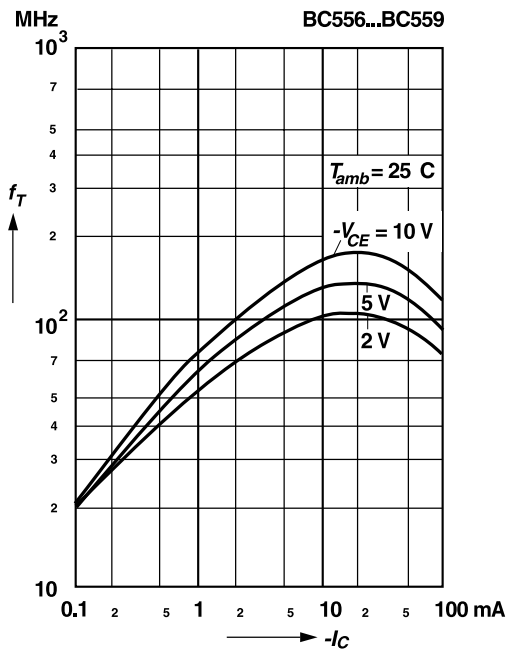
Collector-base capacitance,
Emitter-base capacitance
versus reverse bias voltage



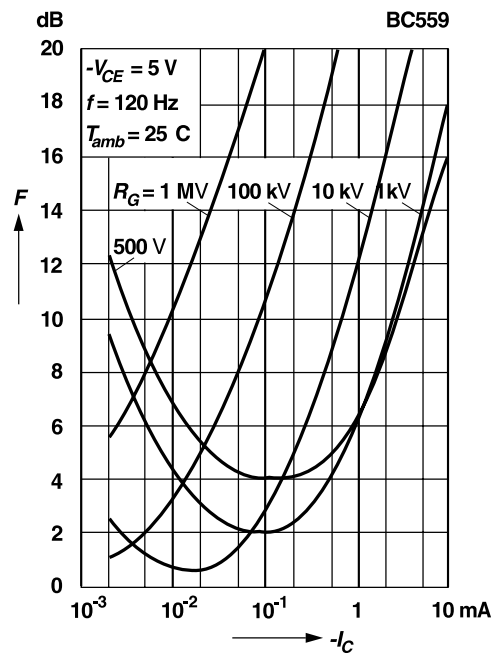
Relative h-parameters
versus collector current



Gain-bandwidth product
versus collector current

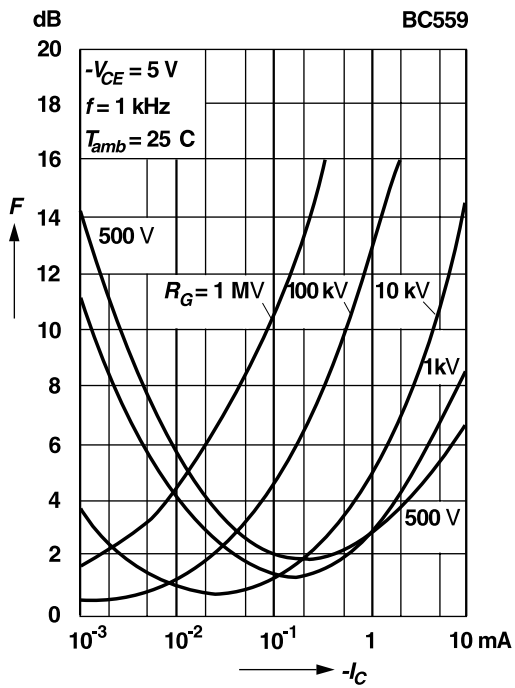


Noise figure
versus collector current



RATINGS AND CHARACTERISTIC CURVES BC556 THRU BC559

Noise figure
versus collector current



Noise figure
versus collector-emitter voltage

