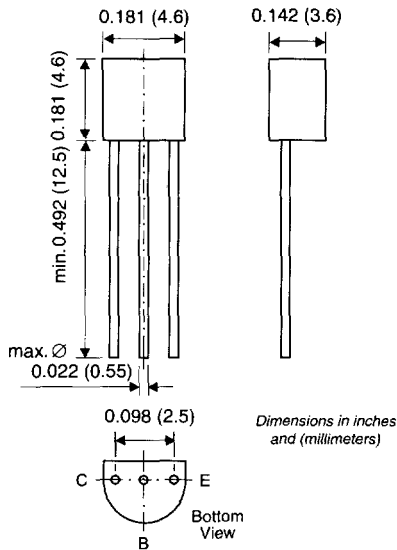




TO-226AA (TO-92)



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. 0.18g

Packaging Codes/Options:

E6/Bulk – 5K per container, 20K/box

E7/4K per Ammo mag., 20K/box

Maximum Ratings & Thermal Characteristics Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Collector-Base Voltage	-V _{CB0}	BC556	80
		BC557	50
		BC558, BC559	30
Collector-Emitter Voltage	-V _{CE5}	BC556	80
		BC557	50
		BC558, BC559	30
Collector-Emitter Voltage	-V _{CEO}	BC556	65
		BC557	45
		BC558, BC559	30
Emitter-Base Voltage	-V _{EB0}	5	V
Collector Current	-I _c	100	mA
Peak Collector Current	-I _{CM}	200	mA
Peak Base Current	-I _{BM}	200	mA
Peak Emitter Current	I _{EM}	200	mA
Power Dissipation at T _{amb} = 25°C	P _{tot}	500 ⁽¹⁾	mW
Thermal Resistance Junction to Ambient Air	R _{θJA}	250 ⁽¹⁾	°C/W
Junction Temperature	T _j	150	°C
Storage Temperature Range	T _s	-65 to +150	°C

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

BC556 thru BC559

Small Signal Transistors (PNP)

Electrical Characteristics (TA = 25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Small Signal Current Gain	Current gain group A	$-V_{CE} = 5V, -I_C = 2mA,$ $f = 1\text{ kHz}$	—	220	—	—
	B		—	330	—	—
	C		—	600	—	—
Input Impedance	Current gain group A	$-V_{CE} = 5V, -I_C = 2mA,$ $f = 1\text{ kHz}$	1.6	2.7	4.5	k Ω
	B		3.2	4.5	8.5	
	C		6	8.7	15	
Output Admittance	Current gain group A	$-V_{CE} = 5V, -I_C = 2mA,$ $f = 1\text{ kHz}$	—	18	30	μS
	B		—	30	60	
	C		—	60	110	
Reverse Voltage Transfer Ratio	Current gain group A	$-V_{CE} = 5V, -I_C = 2mA,$ $f = 1\text{ kHz}$	—	$1.5 \cdot 10^{-4}$	—	—
	B		—	$2 \cdot 10^{-4}$	—	
	C		—	$3 \cdot 10^{-4}$	—	
DC Current Gain	Current gain group A	$-V_{CE} = 5V, -I_C = 10\mu\text{A}$	—	90	—	—
	B		—	150	—	
	C		—	270	—	
	Current gain group A	$-V_{CE} = 5V, -I_C = 2mA$	110	180	220	
	B		200	290	450	
	C		420	500	800	
Current gain group A	$-V_{CE} = 5V, -I_C = 100mA$	—	120	—		
B		—	200	—		
C		—	400	—		
Collector Saturation Voltage	$-V_{CEsat}$	$-I_C = 10mA, -I_B = 0.5mA$ $-I_C = 100mA, -I_B = 5mA$	— —	80 250	300 650	mV
Base Saturation Voltage	$-V_{BEsat}$	$-I_C = 10mA, -I_B = 0.5mA$ $-I_C = 100mA, -I_B = 5mA$	— —	700 900	— —	mV
Base-Emitter Voltage	$-V_{BE}$	$-V_{CE} = 5V, -I_C = 2mA$	600	660	750	mV
		$-V_{CE} = 5V, -I_C = 10mA$	—	—	800	
Collector-Emitter Cutoff Current	$-I_{CES}$	$-V_{CE} = 80V$	—	0.2	15	nA
		$-V_{CE} = 50V$	—	0.2	15	nA
		$-V_{CE} = 30V$	—	0.2	15	nA
		$-V_{CE} = 80V, T_j = 125^\circ\text{C}$	—	—	4	μA
		$-V_{CE} = 50V, T_j = 125^\circ\text{C}$	—	—	4	μA
		$-V_{CE} = 30V, T_j = 125^\circ\text{C}$	—	—	4	μA
Gain-Bandwidth Product	f_T	$-V_{CE} = 5V, -I_C = 10mA,$ $f = 100\text{ MHz}$	—	150	—	MHz
Collector-Base Capacitance	C_{CB0}	$-V_{CB} = 10V, f = 1\text{ MHz}$	—	—	6	pF
Noise Figure	BC556, BC557, BC558 BC559	$-V_{CE} = 5V, -I_C = 200\mu\text{A},$ $R_G = 2\text{ k}\Omega, f = 1\text{ kHz},$ $\Delta f = 200\text{ Hz}$	—	2	10	dB
			—	1	4	
			BC559	—	1.2	
		$-V_{CE} = 5V, -I_C = 200\mu\text{A},$ $R_G = 2\text{ k}\Omega, f = 30...15000\text{ Hz}$	—	—	—	

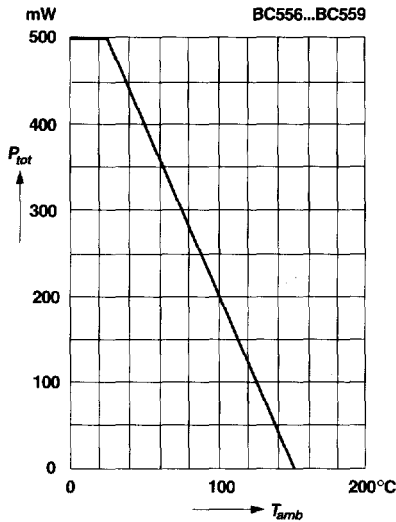
BC556 thru BC559

Small Signal Transistors (PNP)

Ratings and Characteristic Curves (T_A = 25°C unless otherwise noted)

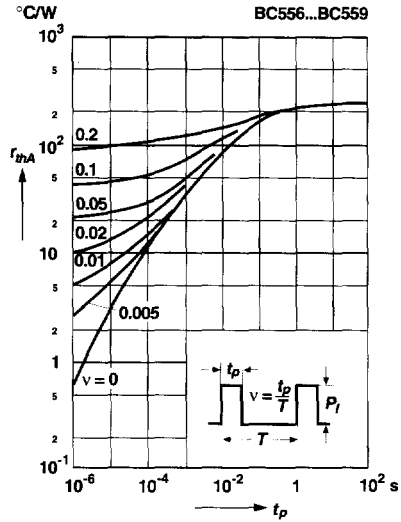
Admissible power dissipation versus temperature

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

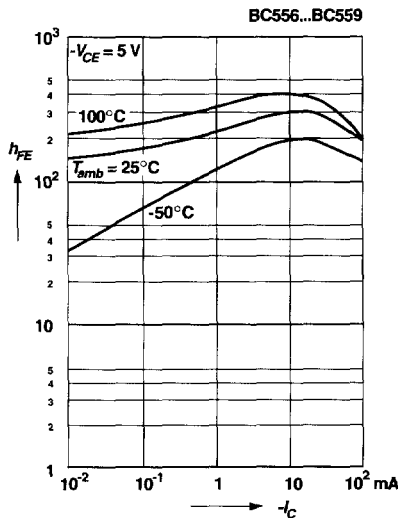


Pulse thermal resistance versus pulse duration

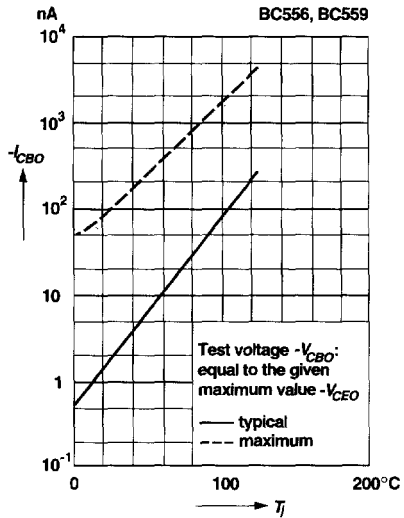
Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case



DC current gain versus collector current

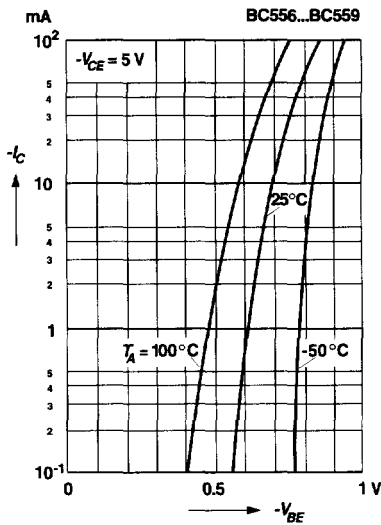


Collector-base cutoff current versus junction temperature

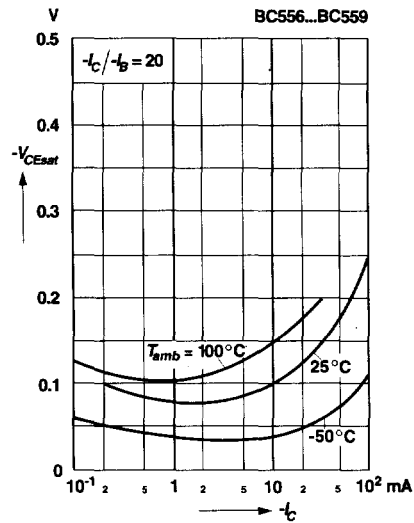


Ratings and Characteristic Curves ($T_A = 25^\circ\text{C}$ unless otherwise noted)

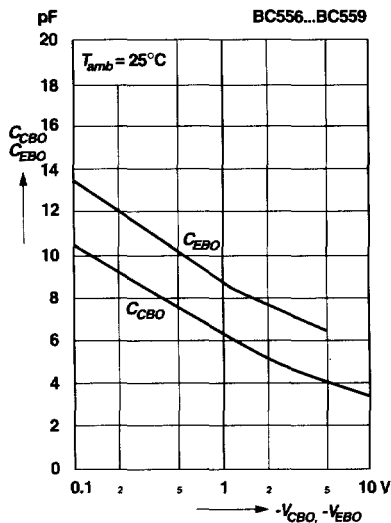
Collector current versus base-emitter voltage



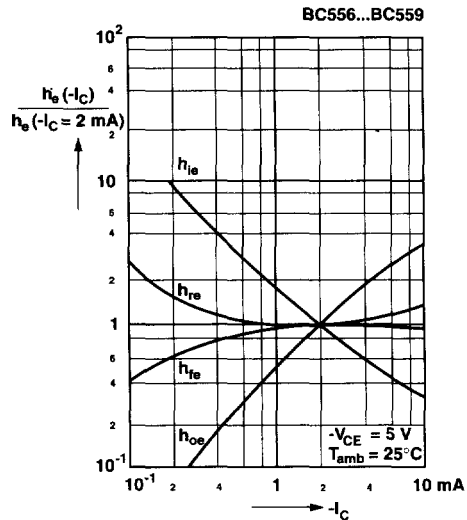
Collector saturation voltage versus collector current



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



Relative h-parameters versus collector current

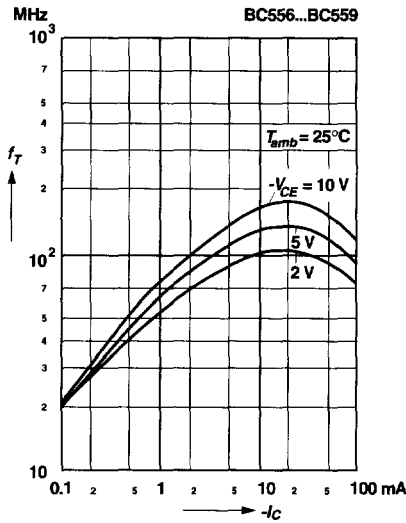


BC556 thru BC559

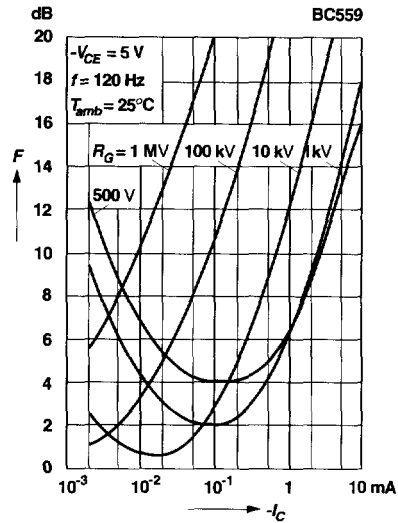
Small Signal Transistors (PNP)

Ratings and Characteristic Curves ($T_A = 25^\circ\text{C}$ unless otherwise noted)

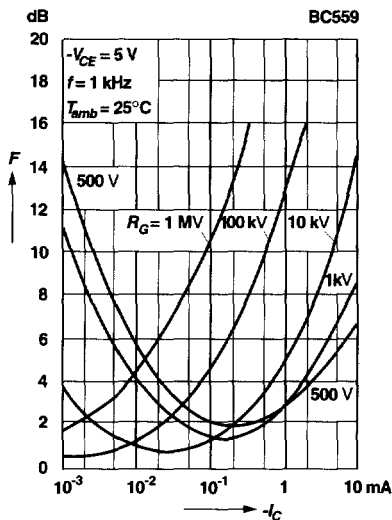
Gain-bandwidth product versus collector current



Noise figure versus collector current



Noise figure versus collector current



Noise figure versus collector-emitter voltage

