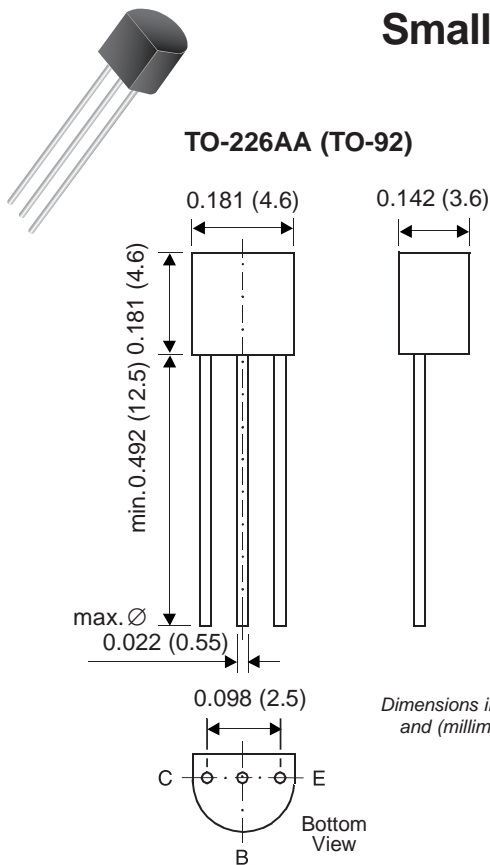


Small Signal Transistors (PNP)



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. As complementary types, the NPN transistors BC546...BC548 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	BC556	$-V_{CB0}$	80	V
	BC557		50	
	BC558		30	
Collector-Emitter Voltage	BC556	$-V_{CES}$	80	V
	BC557		50	
	BC558		30	
Collector-Emitter Voltage	BC556	$-V_{CEO}$	65	V
	BC557		45	
	BC558		30	
Emitter-Base Voltage		$-V_{EBO}$	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 $T_{amb} = 25^\circ\text{C}$		P_{tot}	500 ⁽¹⁾	mW
Thermal Resistance Junction to Ambient Air		$R_{\theta JA}$	250 ⁽¹⁾	$^\circ\text{C}/\text{W}$
Junction Temperature		T_j	150	$^\circ\text{C}$
Storage Temperature Range		T_s	-65 to +150	$^\circ\text{C}$

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

BC556 thru BC558

Vishay Semiconductors
formerly General Semiconductor



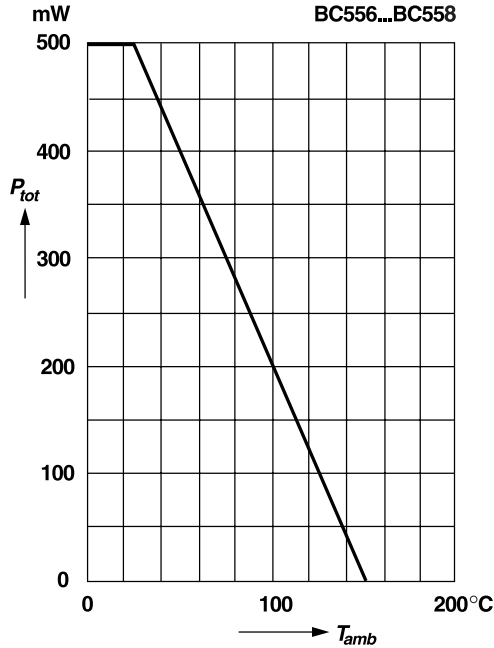
Electrical Characteristics (T_J = 25°C unless otherwise noted)

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	kΩ	
	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	$-V_{CE} = 5V, -I_C = 10\mu A$	—	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	$-V_{BE}$	$-V_{CE} = 5V, -I_C = 2mA$ $-V_{CE} = 5V, -I_C = 10mA$	600 —	660 —	750 800	mV	
Collector-Emitter Cutoff Current	BC556 BC557 BC558	$-I_{CES}$	$-V_{CE} = 80V$	—	0.2	15	nA
			$-V_{CE} = 50V$	—	0.2	15	nA
			$-V_{CE} = 30V$	—	0.2	15	nA
			$-V_{CE} = 80V, T_J = 125^\circ C$	—	—	4	μA
			$-V_{CE} = 50V, T_J = 125^\circ C$	—	—	4	μA
			$-V_{CE} = 30V, T_J = 125^\circ C$	—	—	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	F	$-V_{CE} = 5V, -I_C = 200\mu A,$ $R_G = 2k\Omega, f = 1\text{ kHz},$ $\Delta f = 200\text{ Hz}$	—	2	10	dB

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

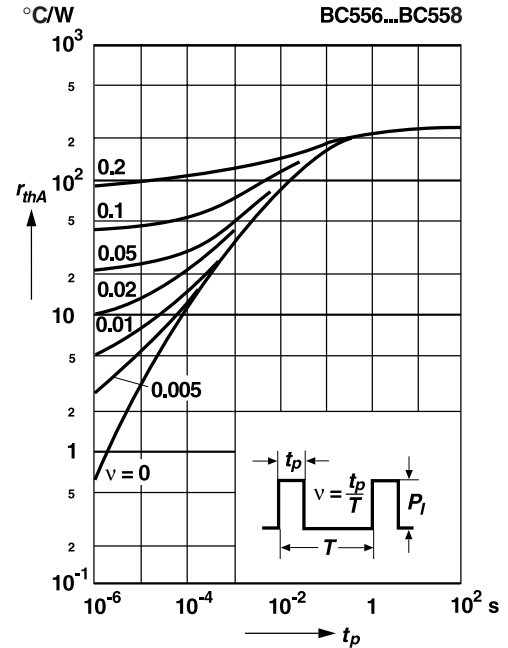
Admissible power dissipation versus temperature

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

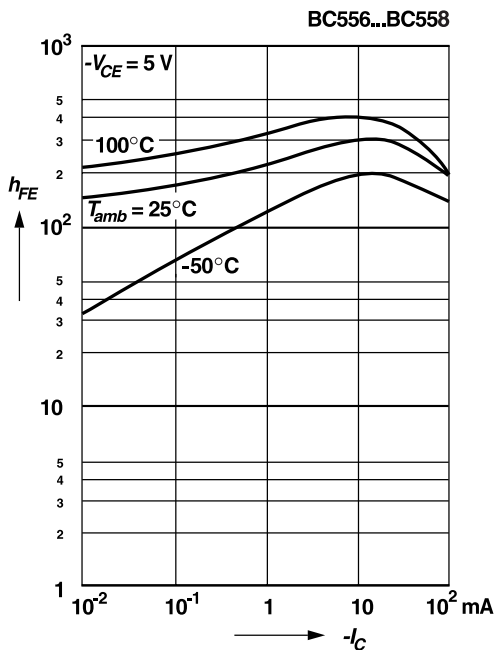


Pulse thermal resistance versus pulse duration

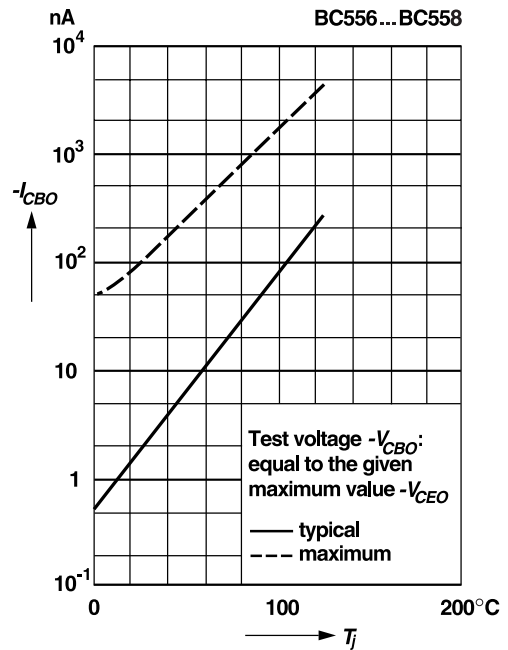
Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case



DC current gain versus collector current



Collector-base cutoff current versus junction temperature



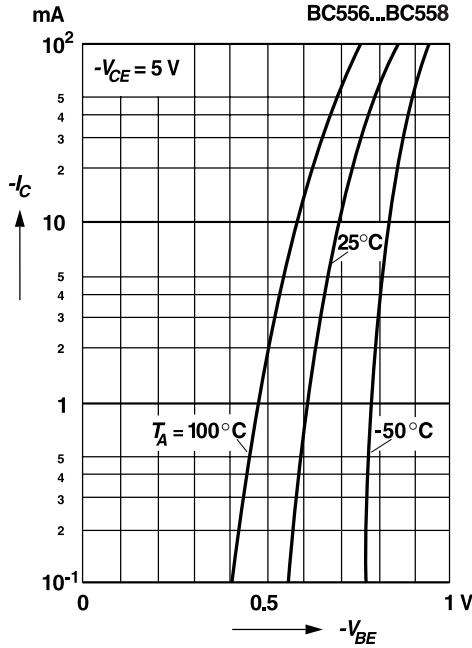
BC556 thru BC558



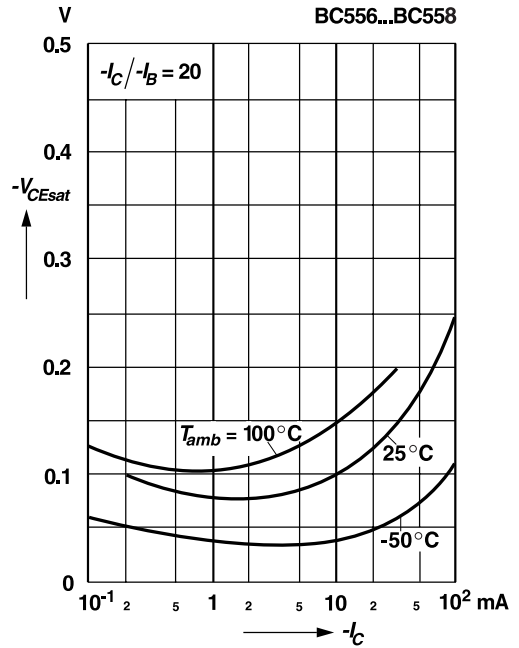
Vishay Semiconductors
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Ratings and Characteristic Curves ($T_A = 25^\circ\text{C}$ unless otherwise noted)

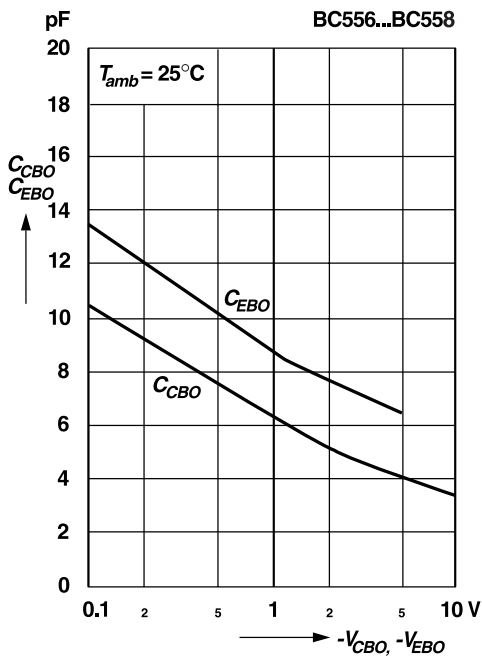
Collector current versus base-emitter voltage



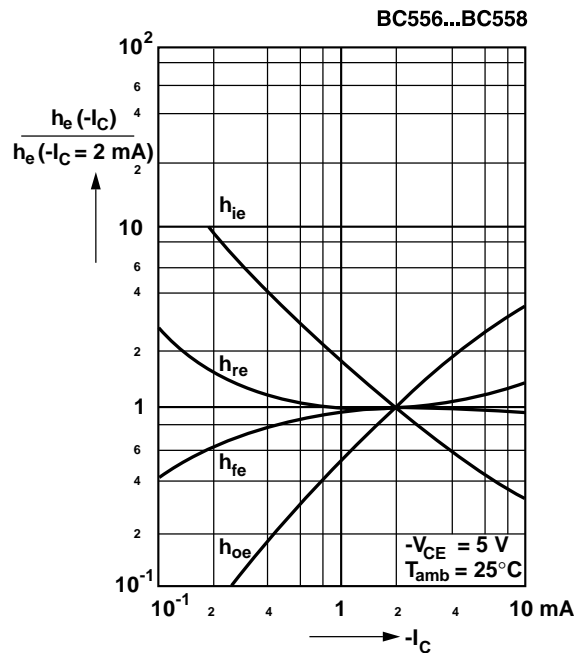
Collector saturation voltage versus collector current



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



Relative h-parameters versus collector current





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

Gain-bandwidth product
versus collector current

