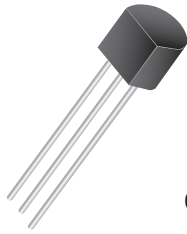
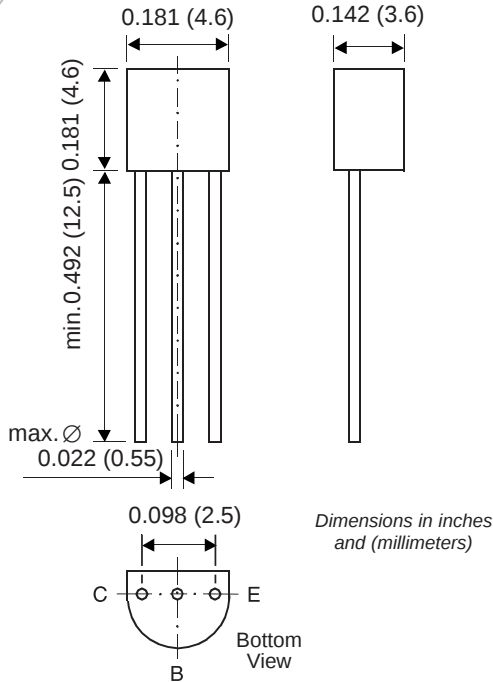


**Small Signal Transistors (NPN)****TO-226AA (TO-92)****Features**

- NPN Silicon Epitaxial Planar Transistors
- These transistors are subdivided into three groups A, B, and C according to their current gain. The type BC546 is available in groups A and B, however, the types BC547 and BC548 can be supplied in all three groups. As complementary types the PNP transistors BC556...BC558 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	BC546 BC547 BC548	80 50 30	V
Collector-Emitter Voltage	BC546 BC547 BC548	80 50 30	V
Collector-Emitter Voltage	BC546 BC547 BC548	65 45 30	V
Emitter-Base Voltage	BC546, BC547 BC548	6 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 2 mm from case.

Electrical Characteristics ($T_J = 25^\circ\text{C}$ unless otherwise noted)

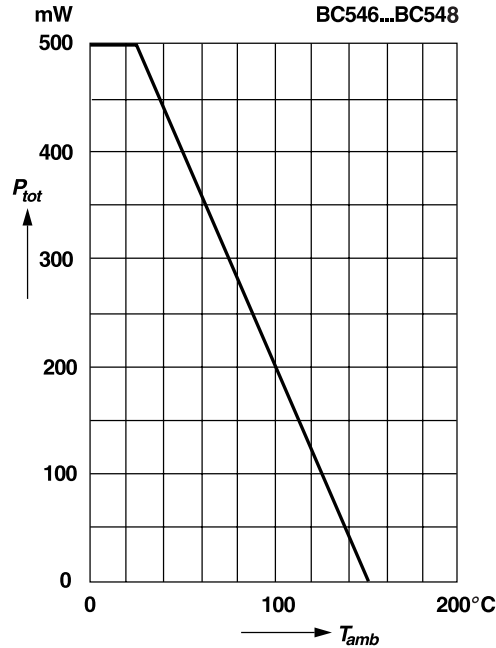
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Small Signal Current Gain	Current gain group A B C h_{fe}	$V_{CE} = 5\text{ V}$, $I_C = 2\text{ mA}$, $f = 1\text{ kHz}$	— — —	220 330 600	— — —	—
Input Impedance	Current gain group A B C h_{ie}	$V_{CE} = 5\text{ V}$, $I_C = 2\text{ mA}$, $f = 1\text{ kHz}$	1.6 3.2 6	2.7 4.5 8.7	4.5 8.5 15	$k\Omega$
Output Admittance	Current gain group A B C h_{oe}	$V_{CE} = 5\text{ V}$, $I_C = 2\text{ mA}$, $f = 1\text{ kHz}$	— — —	18 30 60	30 60 110	μS
Reverse Voltage Transfer Ratio	Current gain group A B C h_{re}	$V_{CE} = 5\text{ V}$, $I_C = 2\text{ mA}$, $f = 1\text{ kHz}$	— — —	$1.5 \cdot 10^{-4}$ $2 \cdot 10^{-4}$ $3 \cdot 10^{-4}$	— — —	—
DC Current Gain	Current gain group A B C	$V_{CE} = 5\text{ V}$, $I_C = 10\text{ }\mu\text{A}$	— — —	90 150 270	— — —	—
	Current gain group A B C	$V_{CE} = 5\text{ V}$, $I_C = 2\text{ mA}$	110 200 420	180 290 500	220 450 800	
	Current gain group A B C	$V_{CE} = 5\text{ V}$, $I_C = 100\text{ mA}$	— — —	120 200 400	— — —	
	Current gain group A B C	$V_{CE} = 5\text{ V}$, $I_C = 100\text{ mA}$	— — —	120 200 400	— — —	
	Current gain group A B C	$V_{CE} = 5\text{ V}$, $I_C = 100\text{ mA}$	— — —	120 200 400	— — —	
	Current gain group A B C	$V_{CE} = 5\text{ V}$, $I_C = 100\text{ mA}$	— — —	120 200 400	— — —	
Collector Saturation Voltage	V_{CEsat}	$I_C = 10\text{ mA}$, $I_B = 0.5\text{ mA}$ $I_C = 100\text{ mA}$, $I_B = 5\text{ mA}$	— —	80 200	200 600	mV
Base Saturation Voltage	V_{BEsat}	$I_C = 10\text{ mA}$, $I_B = 0.5\text{ mA}$ $I_C = 100\text{ mA}$, $I_B = 5\text{ mA}$	— —	700 900	— —	mV
Base-Emitter Voltage	V_{BE}	$V_{CE} = 5\text{ V}$, $I_C = 2\text{ mA}$ $V_{CE} = 5\text{ V}$, $I_C = 10\text{ mA}$	580 —	660 —	700 720	mV
Collector-Emitter Cutoff Current	BC546	$V_{CE} = 80\text{ V}$	—	0.2	15	nA
	BC547	$V_{CE} = 50\text{ V}$	—	0.2	15	nA
	BC548	$V_{CE} = 30\text{ V}$	—	0.2	15	nA
	BC546	$V_{CE} = 80\text{ V}$, $T_J = 125^\circ\text{C}$	—	—	4	μA
	BC547	$V_{CE} = 50\text{ V}$, $T_J = 125^\circ\text{C}$	—	—	4	μA
	BC548	$V_{CE} = 30\text{ V}$, $T_J = 125^\circ\text{C}$	—	—	4	μA
Gain-Bandwidth Product	f_T	$V_{CE} = 5\text{ V}$, $I_C = 10\text{ mA}$, $f = 100\text{ MHz}$	—	300	—	MHz
Collector-Base Capacitance	C_{CBO}	$V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$	—	3.5	6	pF
Emitter-Base Capacitance	C_{EBO}	$V_{EB} = 0.5\text{ V}$, $f = 1\text{ MHz}$	—	9	—	pF
Noise Figure	BC546, BC547 BC548 F	$V_{CE} = 5\text{ V}$, $I_C = 200\text{ }\mu\text{A}$, $R_G = 2\text{ k}\Omega$, $f = 1\text{ kHz}$, $\Delta f = 200\text{ Hz}$	—	2	10	dB



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

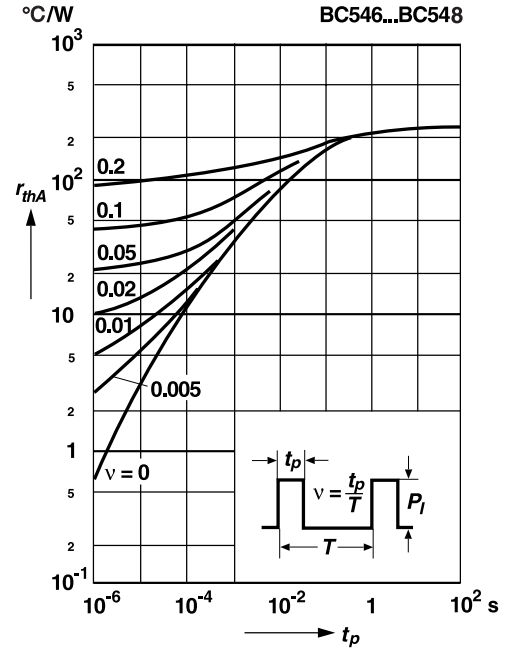
Admissible power dissipation versus temperature

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

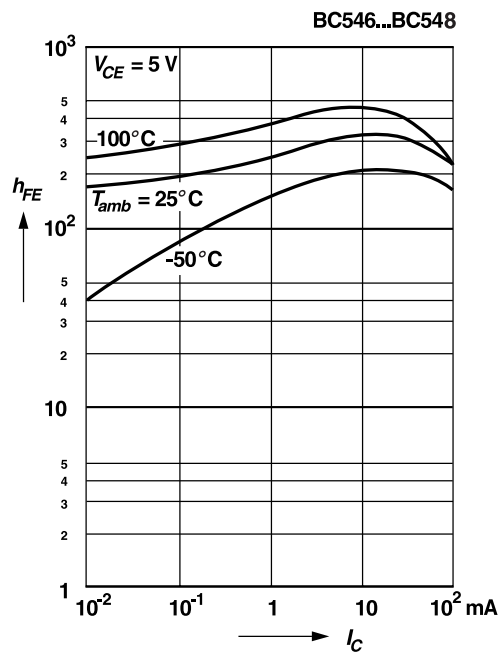


Pulse thermal resistance versus pulse duration

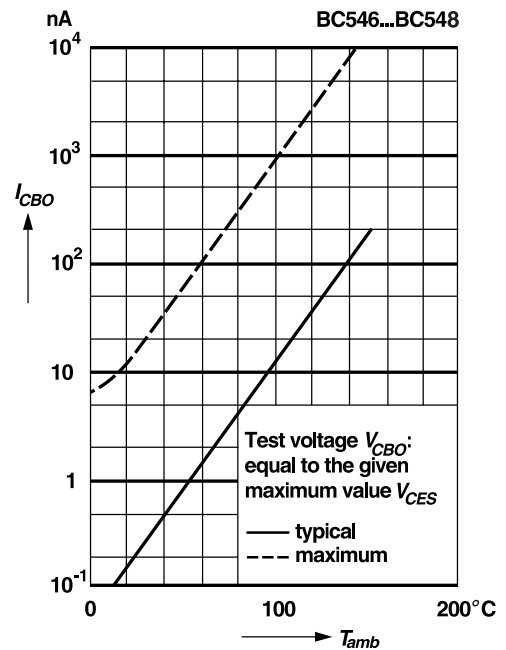
Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case



DC current gain versus collector current



Collector-base cutoff current versus ambient temperature



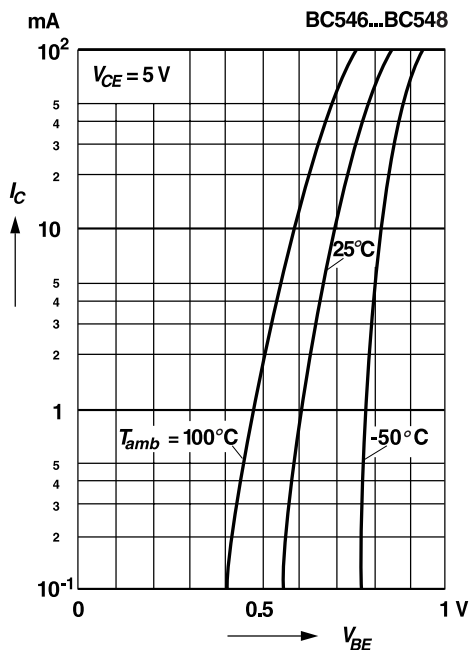
BC546 thru BC548

Vishay Semiconductors
formerly General Semiconductor

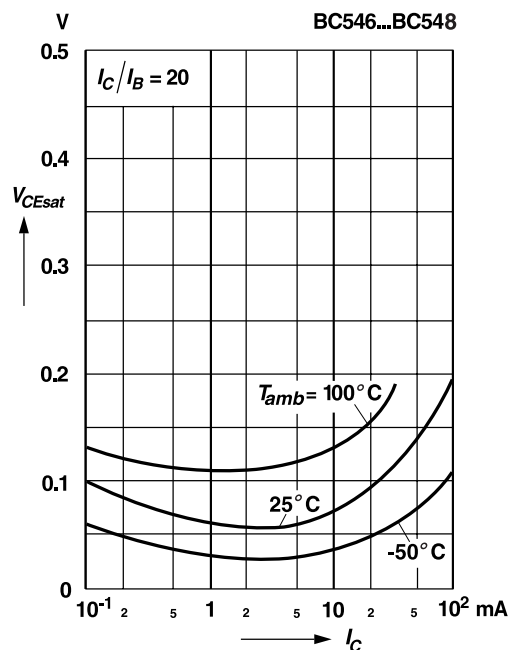


Ratings and Characteristic Curves ($T_A = 25^\circ\text{C}$ unless otherwise noted)

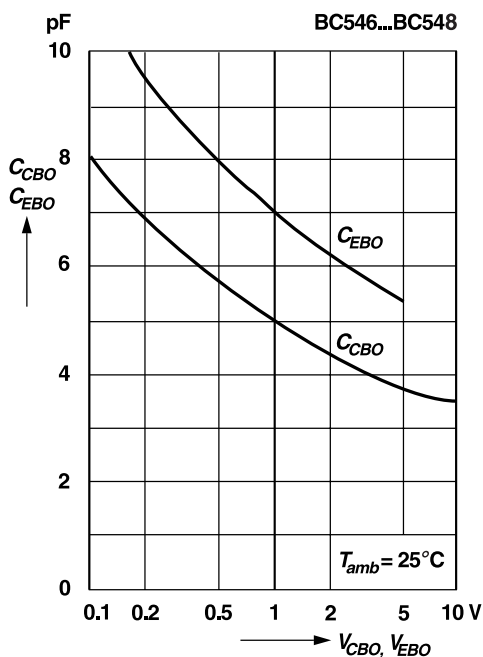
Collector current versus
base-emitter voltage



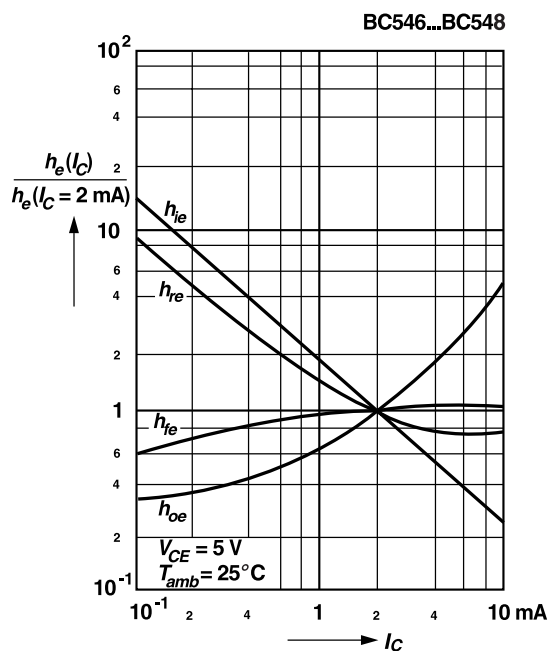
Collector saturation voltage
versus collector current



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

