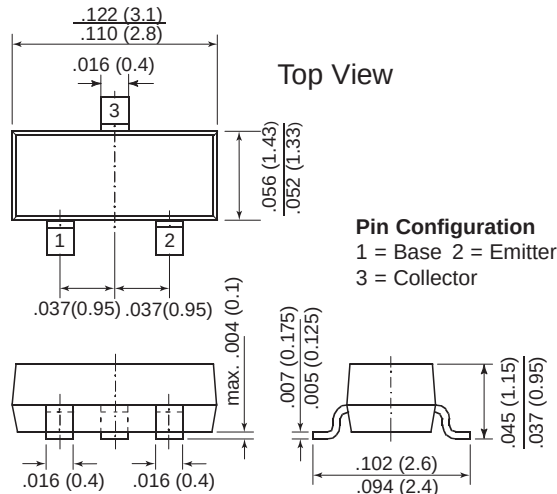




Small Signal Transistors (PNP)

TO-236AB (SOT-23)



Dimensions in inches and (millimeters)

Mechanical Data

Case: SOT-23 Plastic Package

Weight: approx. 0.008 grams

Marking	BC807-16 = 5A	BC808-16 = 5E
Codes:	-25 = 5B	-25 = 5F
	-40 = 5C	-40 = 5G

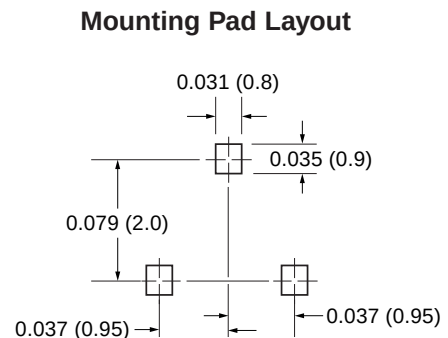
Packaging Codes/Options:

E8/10K per 13" reel (8mm tape), 30K/box

E9/3K per 7" reel (8mm tape), 30K/box

Features

- PNP Silicon Epitaxial Planar Transistors for switching, AF driver and amplifier applications.
- Especially suited for automatic insertion in thick and thin-film circuits.
- These transistors are subdivided into three groups (-16, -25, and -40) according to their current gain.
- As complementary types, the NPN transistors BC817 and BC818 are recommended.



Maximum Ratings and Thermal Characteristics (T_A = 25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Emitter Voltage (Base shorted) BC807 BC808	$-V_{CES}$	50 30	V
Collector-Emitter Voltage (Base open) BC807 BC808	$-V_{CEO}$	45 25	V
Emitter-Base Voltage	$-V_{EBO}$	5	V
Collector Current	$-I_C$	800	mA
Peak Collector Current	$-I_{CM}$	1000	mA
Peak Base Current	$-I_{BM}$	200	mA
Peak Emitter Current	I_{EM}	1000	mA
Power Dissipation at $T_{SB} = 50\text{ }^{\circ}\text{C}$	P_{tot}	310 ⁽¹⁾	mW
Thermal Resistance Junction to Ambient Air	$R_{\theta JA}$	450 ⁽¹⁾	$^{\circ}\text{C/W}$
Thermal Resistance Junction to Substrate Backside	$R_{\theta SB}$	320 ⁽¹⁾	$^{\circ}\text{C/W}$
Junction Temperature	T_j	150	$^{\circ}\text{C}$
Storage Temperature Range	T_S	-65 to +150	$^{\circ}\text{C}$

Note: (1) Device on fiberglass substrate, see layout on next page.

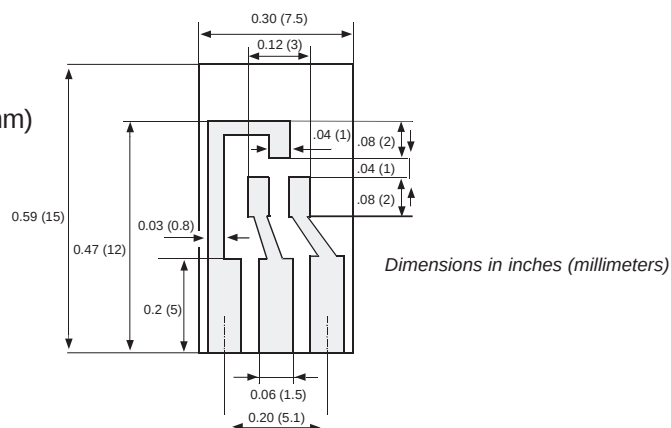
Electrical Characteristics (T_J = 25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
DC Current Gain						
Current Gain Group -16	h _{FE}	-V _{CE} = 1V, -I _C = 100mA	100	—	250	—
-25			160	—	400	—
-40			250	—	600	—
		-V _{CE} = 1V, -I _C = 500mA	40	—	—	—
Collector Saturation Voltage	-V _{CEsat}	-I _C = 500mA, -I _B = 50mA	—	—	0.7	V
Base Saturation Voltage	V _{BEsat}	-I _C = 500mA, -I _B = 50mA	—	—	1.3	V
Base-Emitter Voltage	-V _{BEon}	-V _{CE} = 1V, -I _C = 500mA	—	—	1.2	V
Collector-Base Cutoff Current	-I _{CBO}	-V _{CB} = 20V -V _{CB} = 20V, T _J = 150°C	— —	— —	100 5	nA μA
Emitter-Base Cutoff Current	-I _{EBO}	-V _{EB} = 4 V	—	—	100	nA
Gain-Bandwidth Product	f _T	-V _{CE} = 5V, -I _C = 10mA f = 50 MHz	—	100	—	MHz
Collector-Base Capacitance	C _{CBO}	-V _{CB} = 10V, f = 1 MHz	—	12	—	pF

Note: (1) Device on fiberglass substrate, see layout.

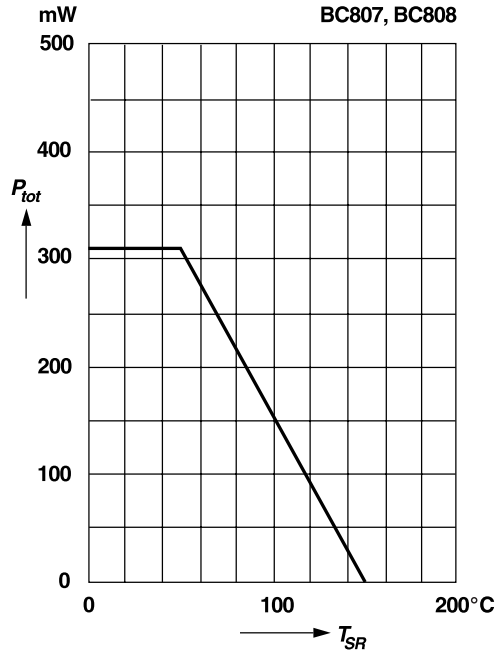
Layout for R_{θJA} test

Thickness: Fiberglass 0.059 in. (1.5 mm)
Copper leads 0.012 in. (0.3 mm)

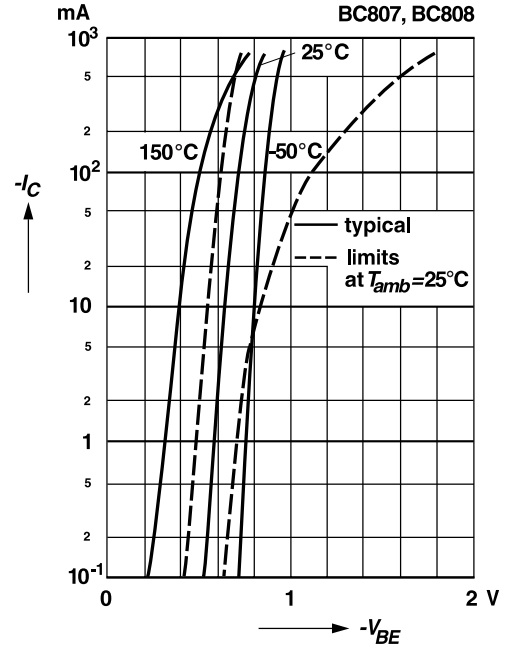


Ratings and Characteristic Curves ($T_A = 25^\circ\text{C}$ unless otherwise noted)

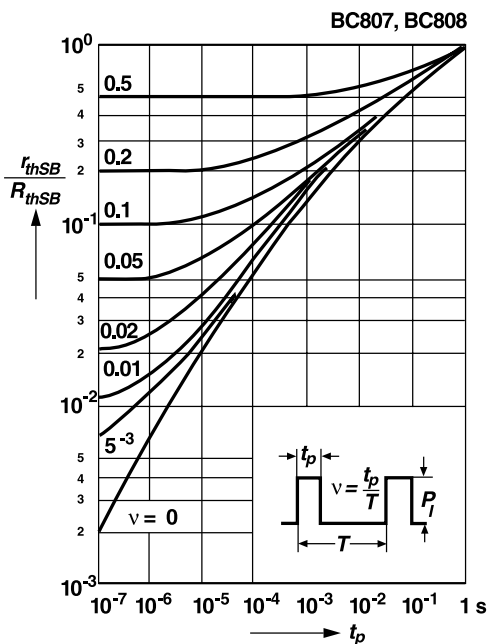
Admissible power dissipation versus temperature of substrate backside
Device on fiberglass substrate, see layout



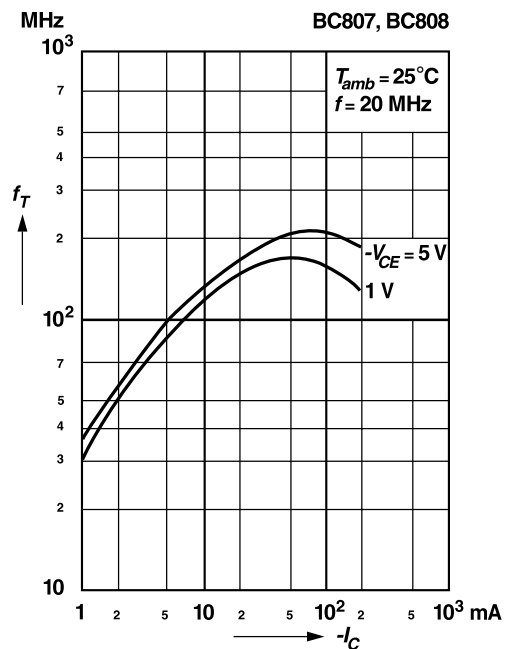
Collector current versus base-emitter voltage



Pulse thermal resistance versus pulse duration (normalized)
Device on fiberglass substrate, see layout



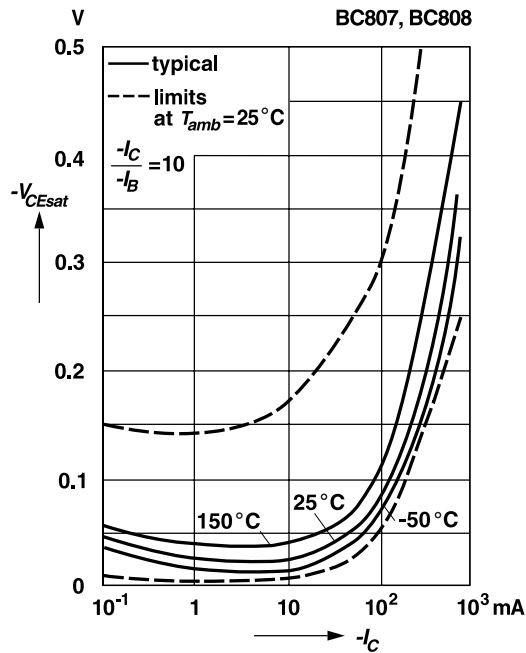
Gain-bandwidth product versus collector current



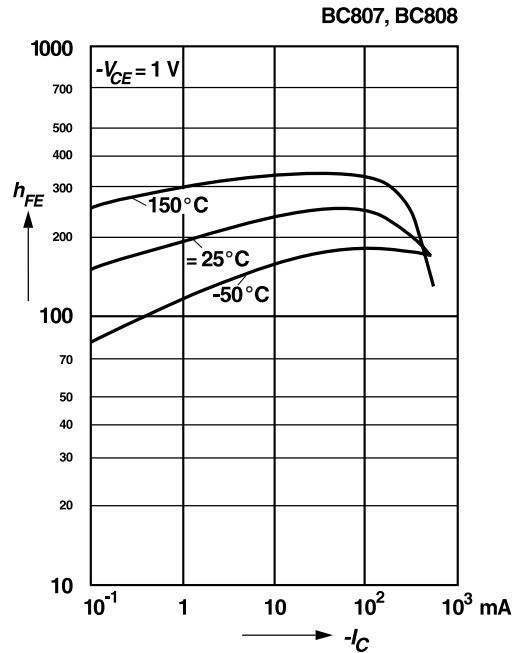


Ratings and
Characteristic Curves (T_A = 25°C unless otherwise noted)

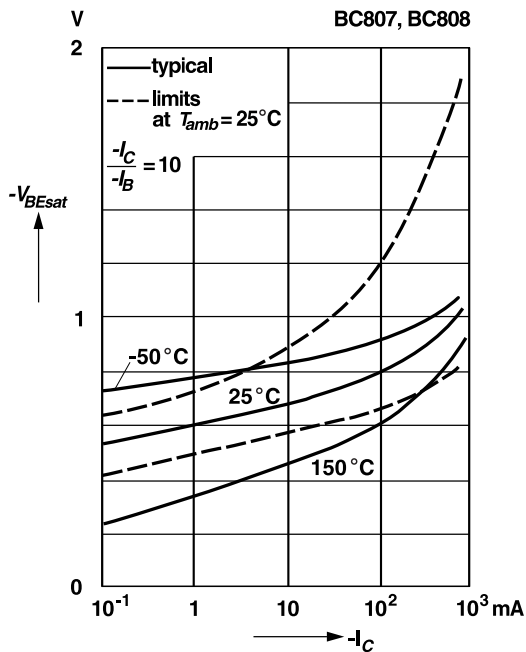
Collector saturation voltage
versus collector current



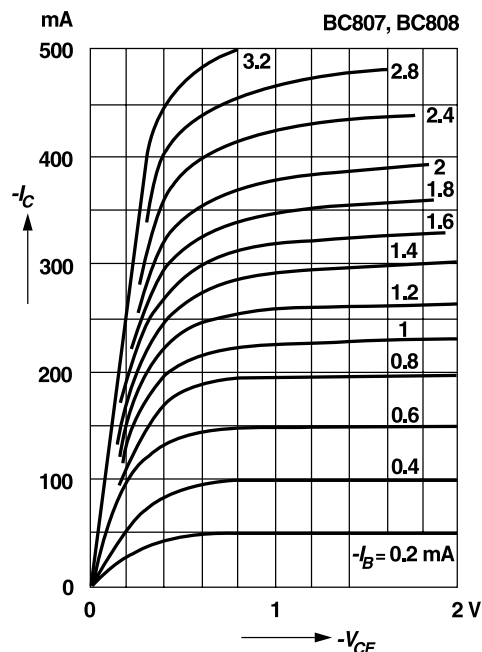
DC current gain
versus collector current



Base saturation voltage
versus collector current



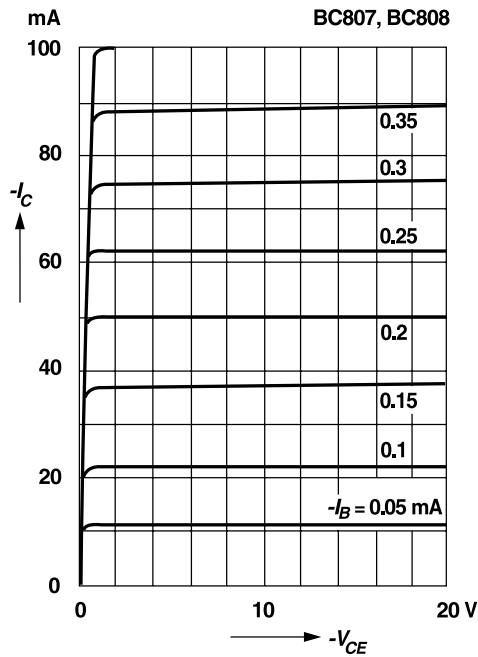
Common emitter
collector characteristics





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

**Common emitter
collector characteristics**



**Common emitter
collector characteristics**

