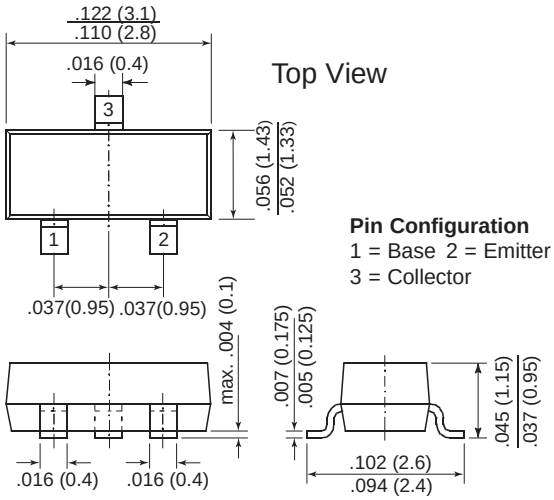
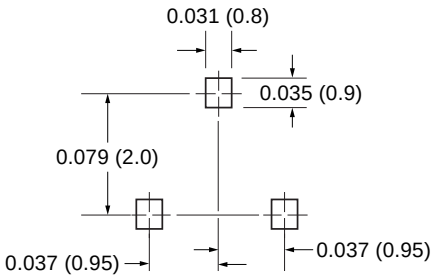
Small Signal Transistors (PNP)

TO-236AB (SOT-23)



Dimensions in inches and (millimeters)

Mounting Pad Layout



Mechanical Data

Case: SOT-23 Plastic Package

Weight: approx. 0.008 grams

Marking Codes: BC807-16 = 5A, -25 = 5B, -40 = 5C; BC808-16 = 5E, -25 = 5F, -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 recomended.

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 ˚C		P_{tot}	310(1)	mW
Thermal Resistance Junction to Ambient Air		$R_{\theta JA}$	450(1)	°C/W
Thermal Resistance Junction to Substrate Backside		$R_{\theta SB}$	320(1)	°C/W
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_S	–65 to +150	°C

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

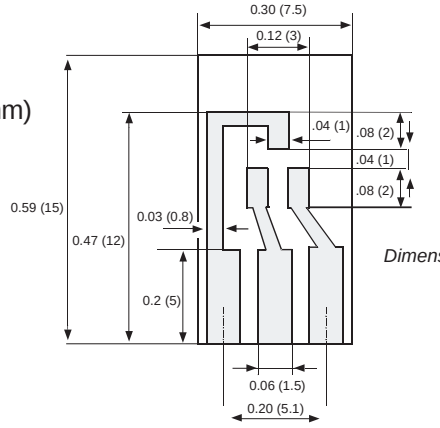
Electrical Characteristics (T_J = 25°C unless otherwise noted)

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	—	—	100	nA
		$-V_{CB}$ = 20V, T_J = 150°C	—	—	5	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 $R_{\theta JA}$ test

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

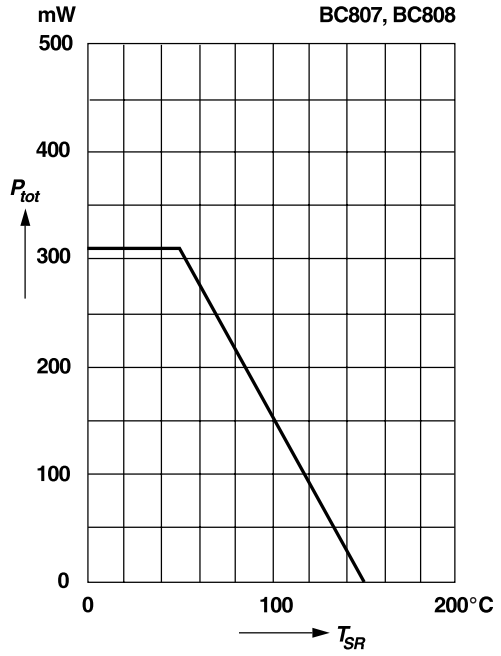


Dimensions in inches (millimeters)

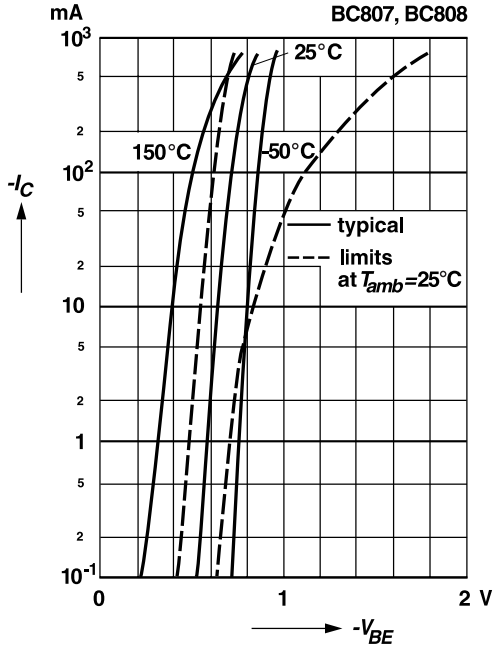
Ratings and Characteristic Curves (T_A = 25°C unless otherwise noted)

Admissible power dissipation versus temperature of substrate backside

Device on fiberglass substrate, see layout

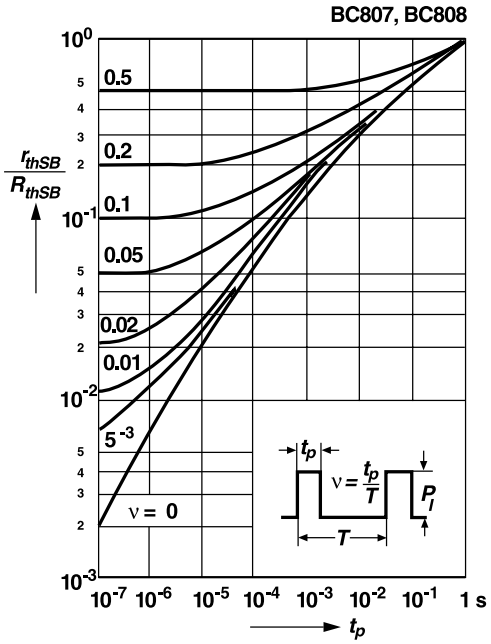


Collector current versus base-emitter voltage

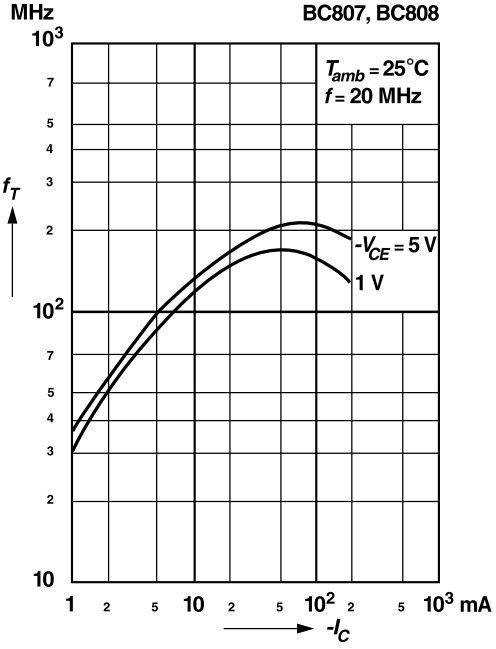


Pulse thermal resistance versus pulse duration (normalized)

Device on fiberglass substrate, see layout

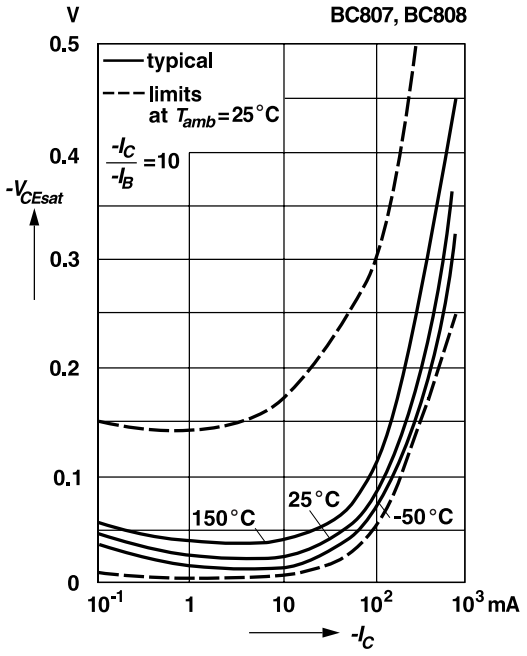


Gain-bandwidth product versus collector current

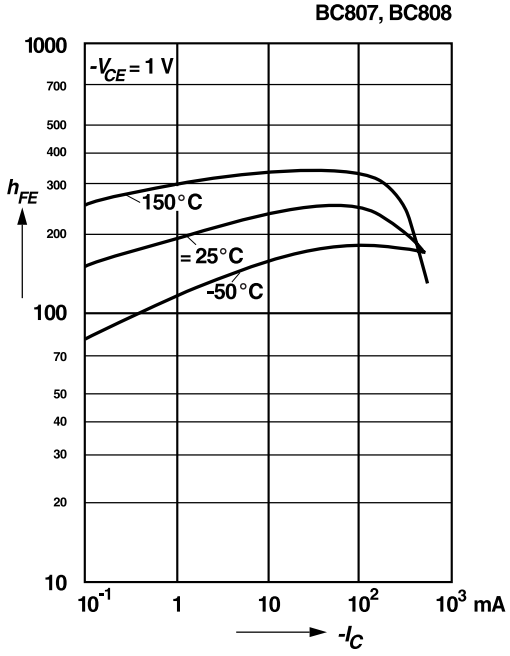


Ratings and Characteristic Curves (T_A = 25°C unless otherwise noted)

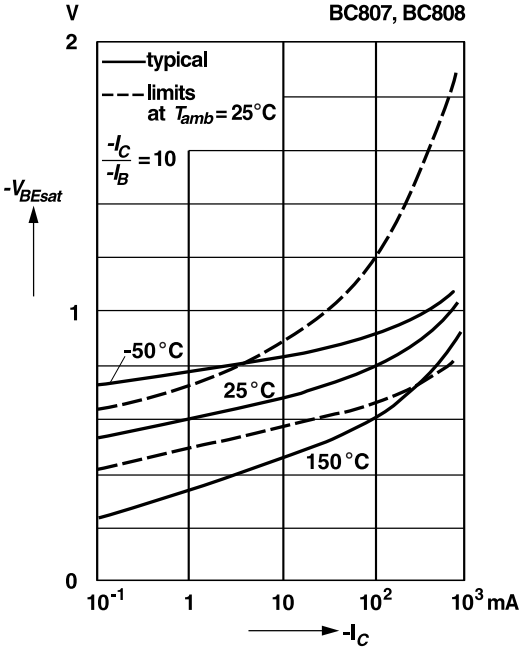
Collector saturation voltage versus collector current



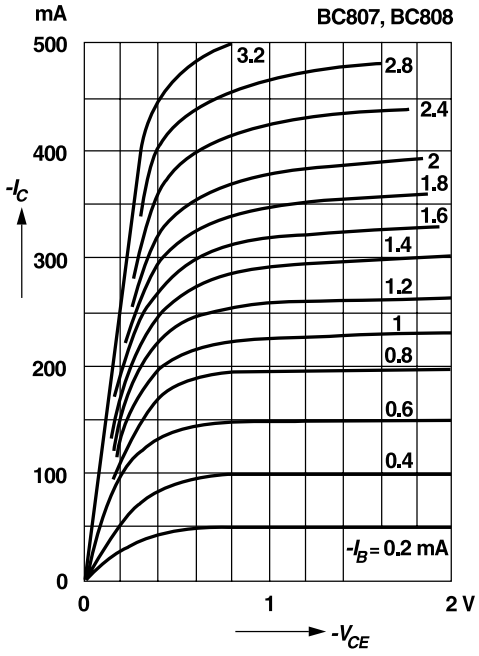
DC current gain versus collector current



Base saturation voltage versus collector current



Common emitter collector characteristics



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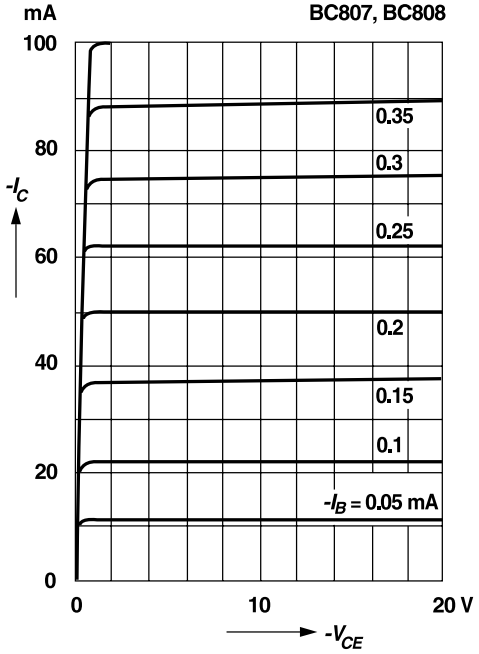

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