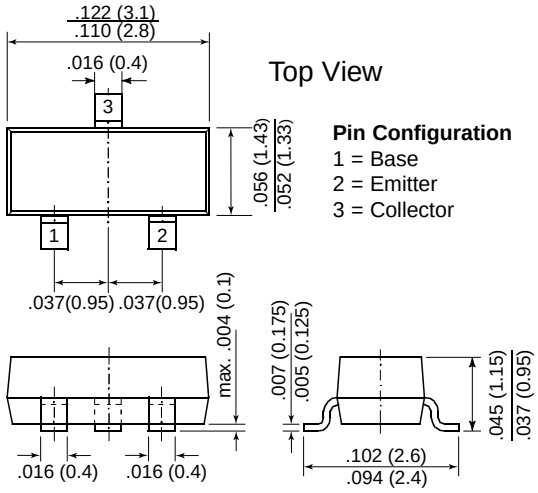
GENERAL SEMICONDUCTOR®

BC817, BC818

Small Signal Transistors (NPN)

TO-236AB (SOT-23)



Dimensions in inches and (millimeters)

Features

- NPN 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 PNP transistors BC807 and BC808 are recommended.

Mechanical Data

Case: SOT-23 Plastic Package

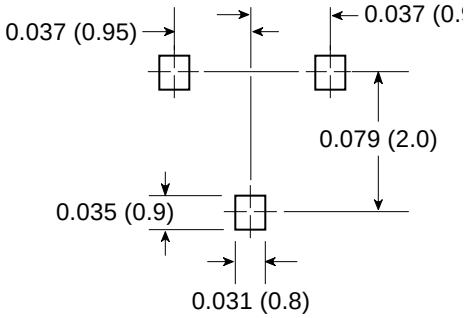
Weight: approx. 0.008g

Packaging Codes/Options:

E8/10K per 13” reel (8mm tape), 30K/box
E9/3K per 7” reel (8mm tape), 30K/box

Type	Marking
BC817-16	6A
-25	6B
-40	6C
BC818-16	6E
-25	6F
-40	6G

Mounting Pad Layout



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

Parameter		Symbol	Value	Unit
Collector-Emitter Voltage (base shorted)	BC817 BC818	V_{CES}	50 30	V
Collector-Emitter Voltage (base open)	BC817 BC818	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 Ambiant 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 third page.

5/22/00

BC817, BC818

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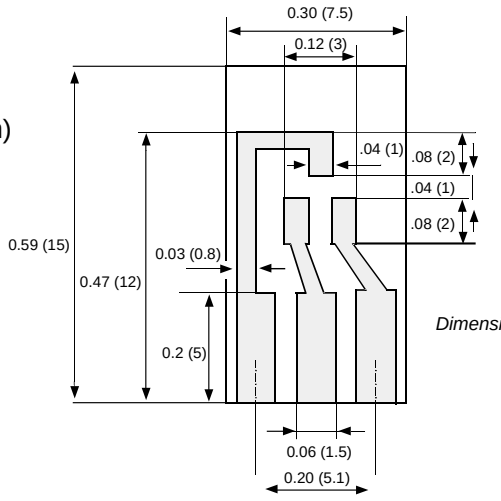
Electrical Characteristics (T_J = 25°C unless otherwise noted)

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	—
	h_{FE}	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-Emitter Cutoff Current						
BC817	I_{CES}	V_{CE} = 45V	—	—	100	nA
BC818		V_{CE} = 25V	—	—	100	nA
		V_{CE} = 25 V, T_j = 150˚C	—	—	5	µA
Emitter-Base Cutoff Current	I_{EBO}	V_{EB} = 4V	—	—	100	nA
Gain-Bandwidth Product	f_T	V_{CE} = 5V, I_C = 10mA f = 50MHz	—	100	—	MHz
Collector-Base Capacitance	C_{CBO}	V_{CB} = 10V, f = 1MHz	—	12	—	pF

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

Layout for $R_{\theta JA}$ test

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

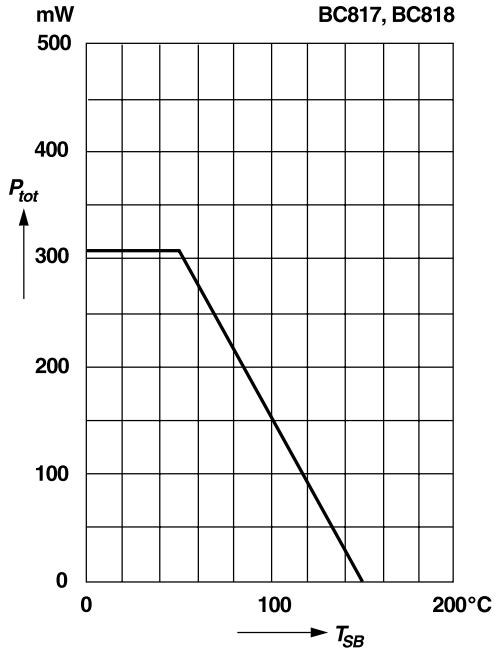


Dimensions in inches (millimeters)

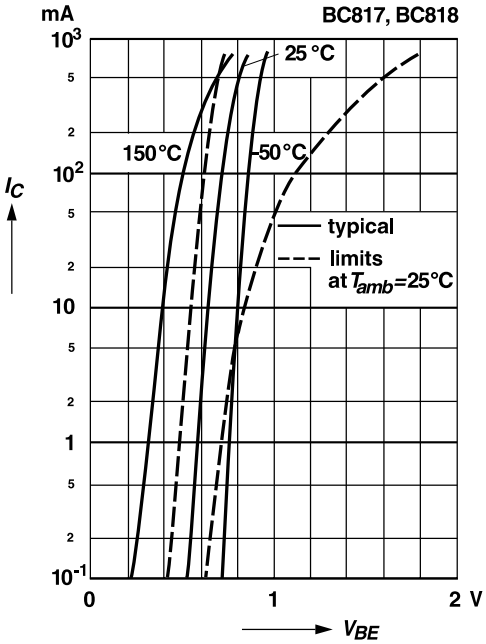
Ratings and Characteristic Curves (TA = 25°C unless otherwise noted)

Admissible power dissipation versus temperature of substrate backside

Device on fiberglass substrate, see layout

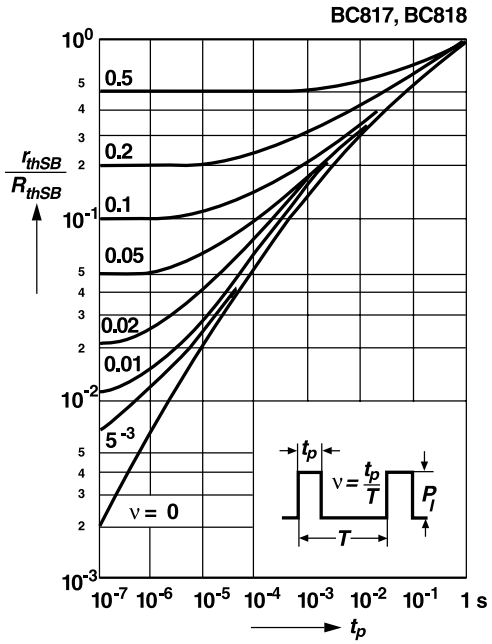


Collector current versus base-emitter voltage

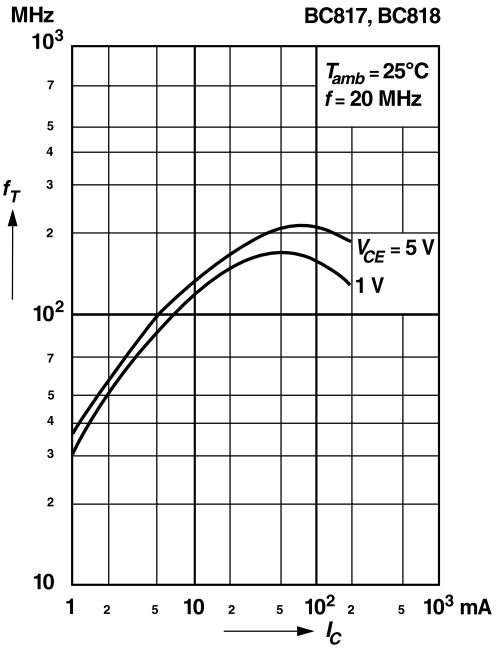


Pulse thermal resistance versus pulse duration (normalized)

Device on fiberglass substrate, see layout

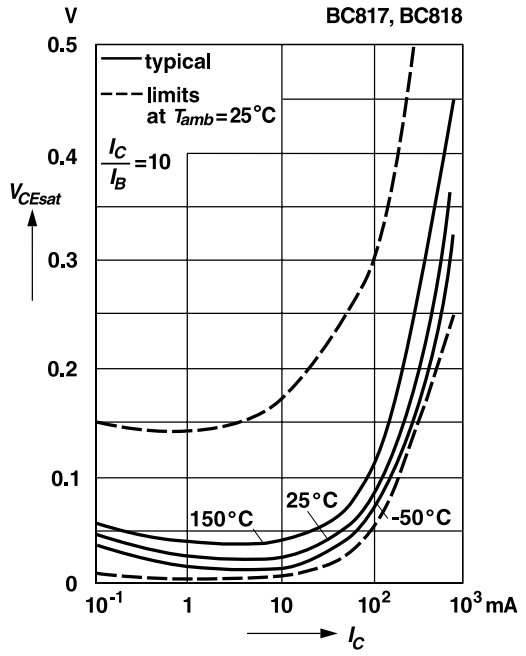


Gain-bandwidth product versus collector current

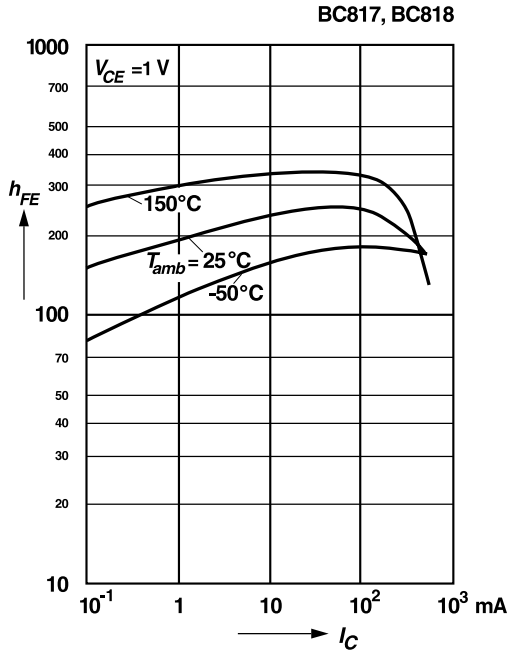


Ratings and Characteristic Curves (TA = 25°C unless otherwise noted)

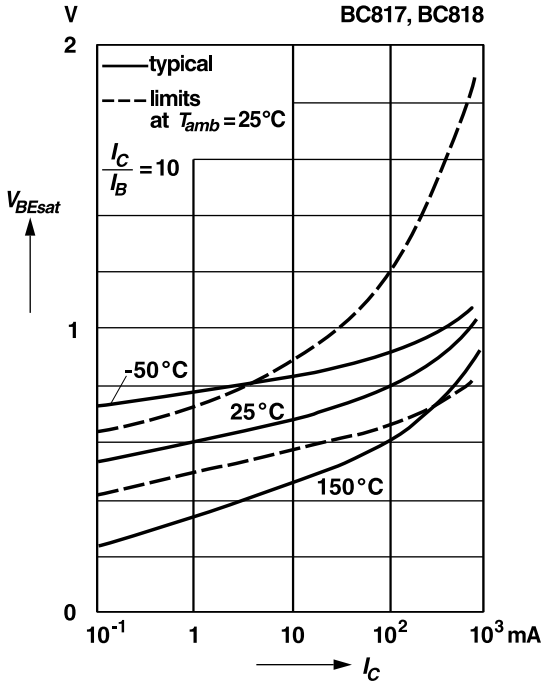
Collector saturation voltage versus collector current



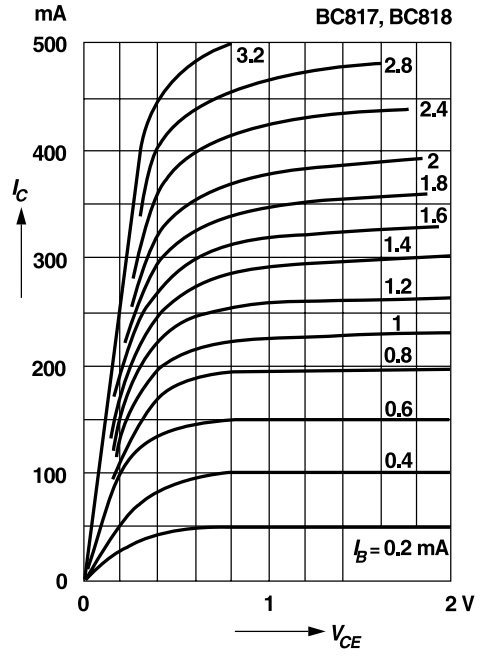
DC current gain versus collector current



Base saturation voltage versus collector current



Common emitter collector characteristics



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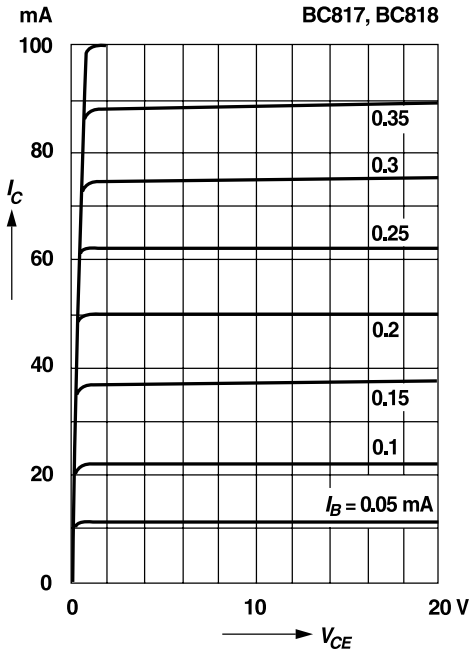

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