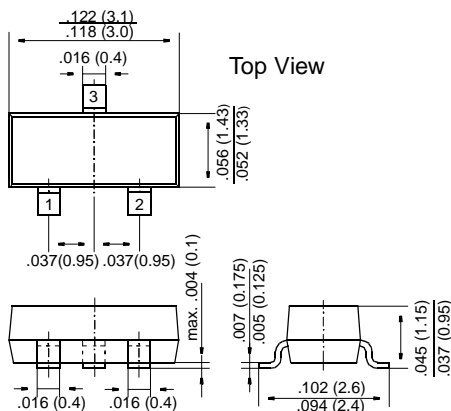


BC817, BC818

Small Signal Transistors (NPN)

SOT-23



Dimensions in inches and (millimeters)

Pin configuration

1 = Base, 2 = Emitter, 3 = Collector.

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. 0.008 g

Marking code

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

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified

		Symbol	Value	Unit
Collector-Emitter Voltage	BC817	V_{CES}	50	V
	BC818	V_{CES}	30	V
Collector-Emitter Voltage	BC817	V_{CEO}	45	V
	BC818	V_{CEO}	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 $T_{SB} = 50\text{ °C}$		P_{tot}	310 ¹⁾	mW
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_S	-65 to +150	°C

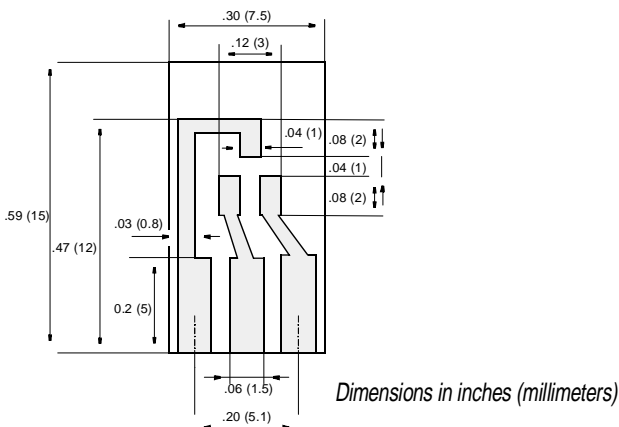
¹⁾ Device on fiberglass substrate, see layout

BC817 THRU BC818

ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified

	Symbol	Min.	Typ.	Max.	Unit	
DC Current Gain at $V_{CE} = 1\text{ V}$, $I_C = 100\text{ mA}$ Current Gain Group-16	h_{FE}	100	–	250	–	
	-25 h_{FE}	160	–	400	–	
	-40 h_{FE}	250	–	600	–	
	at $V_{CE} = 1\text{ V}$, $I_C = 300\text{ mA}$	-16 h_{FE}	60	–	–	–
	-25 h_{FE}	100	–	–	–	
	-40 h_{FE}	170	–	–	–	
Thermal Resistance Junction Substrate Backside	R_{thSB}	–	–	320 ¹⁾	K/W	
Thermal Resistance Junction to Ambient Air	R_{thJA}	–	–	450 ¹⁾	K/W	
Collector Saturation Voltage at $I_C = 500\text{ mA}$, $I_B = 50\text{ mA}$	V_{CEsat}	–	–	0.7	V	
Base-Emitter Voltage at $V_{CE} = 1\text{ V}$, $I_C = 300\text{ mA}$	V_{BE}	–	–	1.2	V	
Collector-Emitter Cutoff Current at $V_{CE} = 45\text{ V}$ at $V_{CE} = 25\text{ V}$ at $V_{CE} = 25\text{ V}$, $T_j = 150\text{ °C}$	BC817 I_{CES}	–	–	100	nA	
	BC818 I_{CES}	–	–	100	nA	
	I_{CES}	–	–	5	μA	
Emitter-Base Cutoff Current at $V_{EB} = 4\text{ V}$	I_{EBO}	–	–	100	nA	
Gain-Bandwidth Product at $V_{CE} = 5\text{ V}$, $I_C = 10\text{ mA}$, $f = 50\text{ MHz}$	f_T	–	100	–	MHz	
Collector-Base Capacitance at $V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$	C_{CBO}	–	12	–	pF	
1) Device on fiberglass substrate, see layout						

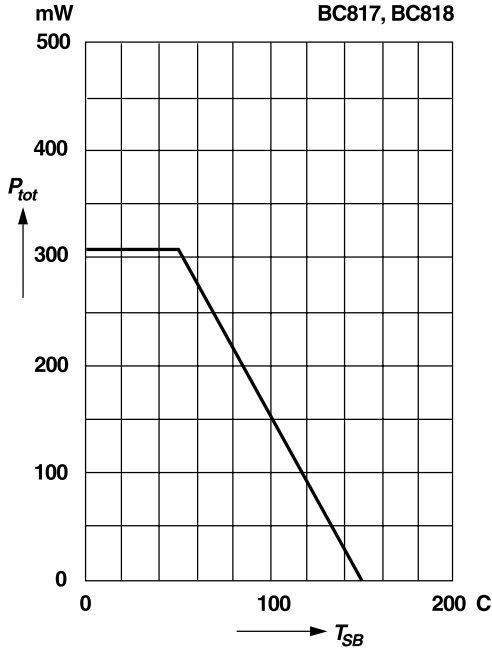


Layout for R_{thJA} test

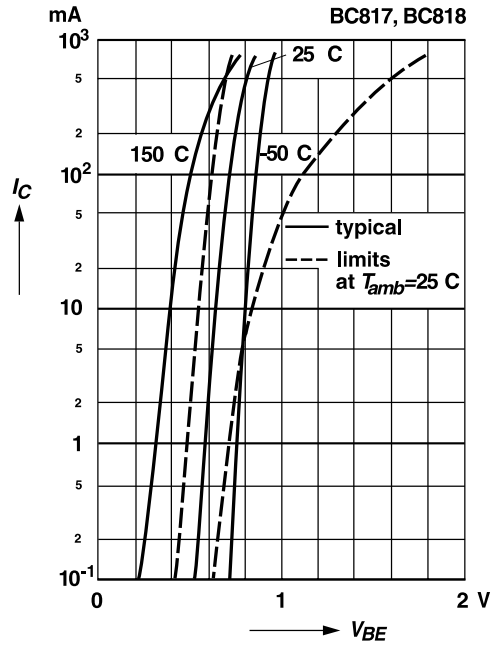
Thickness: Fiberglass 0.059 in (1.5 mm)
Copper leads 0.012 in (0.3 mm)

RATINGS AND CHARACTERISTIC CURVES BC817, BC818

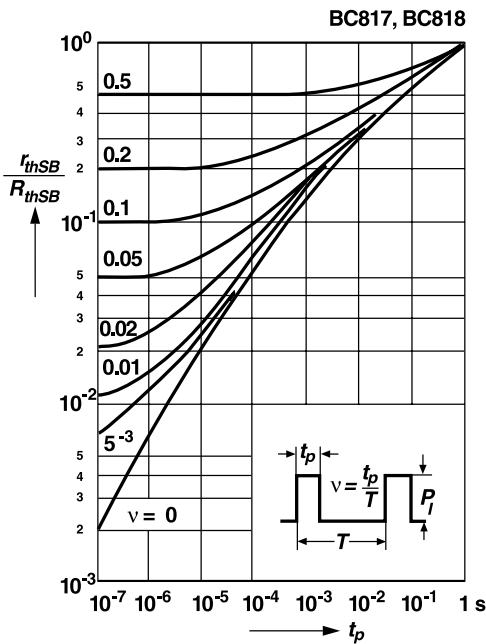
Admissible power dissipation versus temperature of substrate backside
 Device on fiberglass substrate, see layout



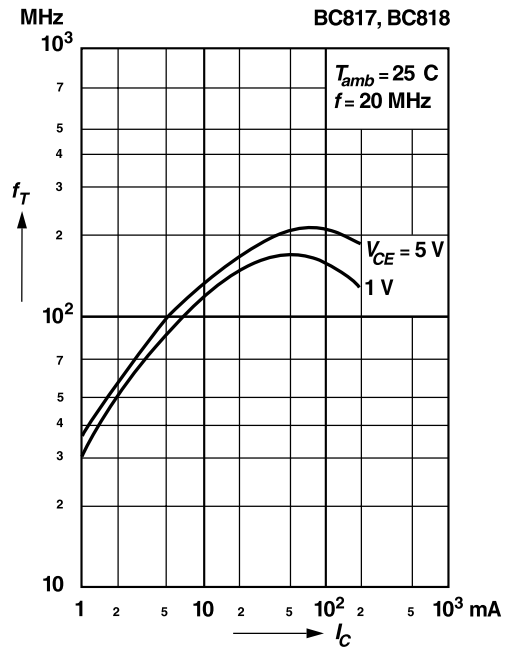
Collector current versus base-emitter voltage



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

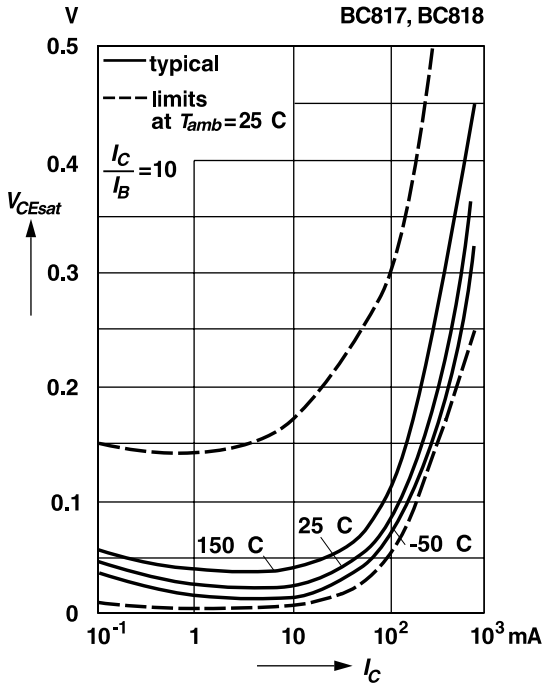


Gain-bandwidth product versus collector current

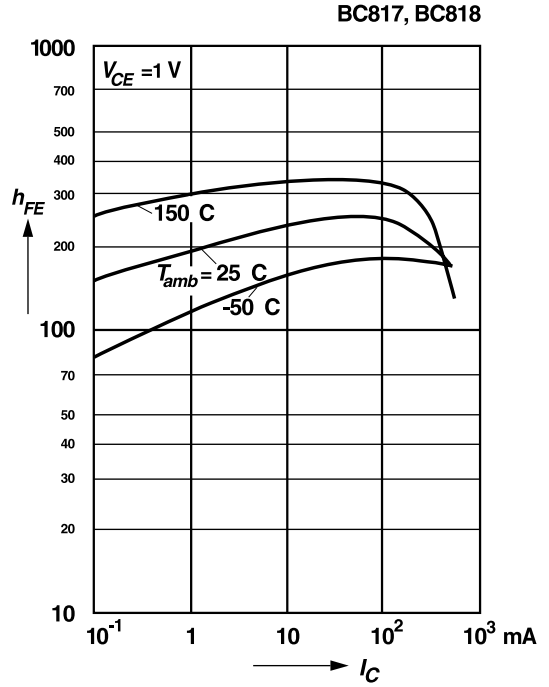


RATINGS AND CHARACTERISTIC CURVES BC817, BC818

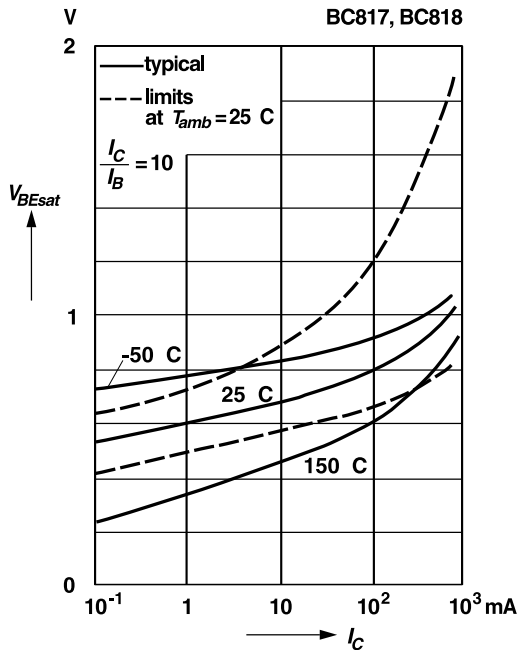
Collector saturation voltage
versus collector current



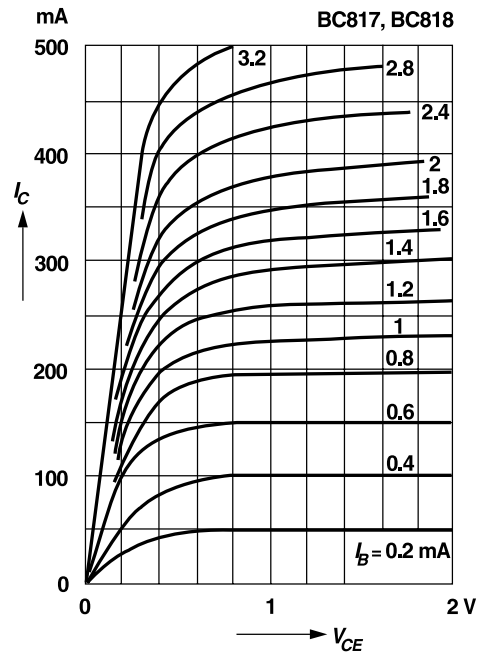
DC current gain
versus collector current



Base saturation voltage
versus collector current

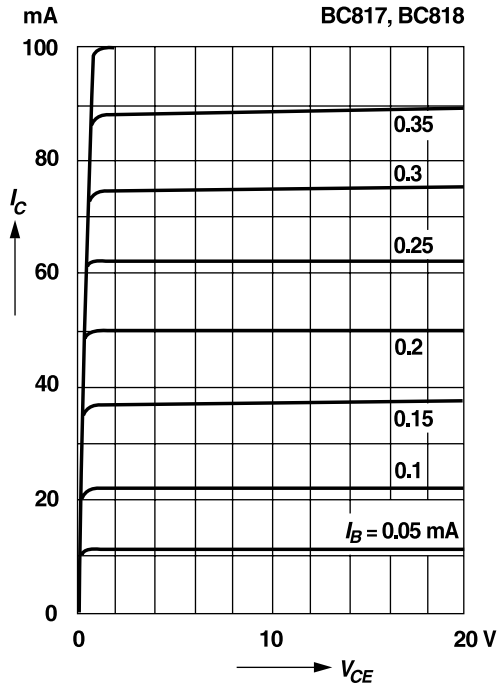


Common emitter
collector characteristics



RATINGS AND CHARACTERISTIC CURVES BC817, BC818

Common emitter
collector characteristics



Common emitter
collector characteristics

