Features

- Halogen Free. “Green” Device (Note 1)
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

NPN Small Signal Transistor 300mW

Maximum Ratings

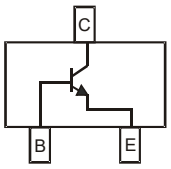
- Operating Junction Temperature Range: -55℃ to +150℃
- Storage Temperature Range: -55℃ to +150℃
- Thermal Resistance: 417 ℃/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	50	V
Collector-Emitter Voltage	V_{CEO}	45	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	500	mA
Peak Collector Current	I_{CM}	1000	mA
Power Dissipation@Ts=50℃(Note2)	P_C	300	mW

Note: 1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

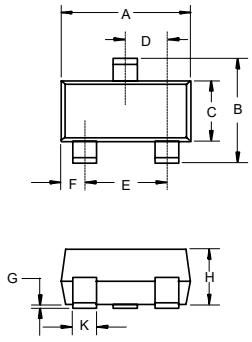
2. Device mounted on Ceramic Substrate 0.7mm X 2.5cm² area

Internal Structure



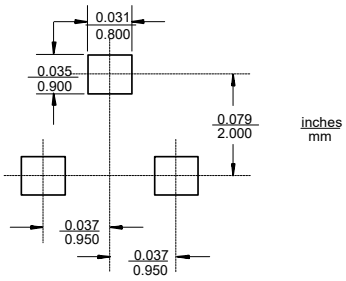
Marking:
BC817-16: 6A
BC817-25: 6B
BC817-40: 6C

SOT-23



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.110	0.120	2.80	3.04	
B	0.083	0.104	2.10	2.64	
C	0.047	0.055	1.20	1.40	
D	0.034	0.041	0.85	1.05	
E	0.067	0.083	1.70	2.10	
F	0.018	0.024	0.45	0.60	
G	0.0004	0.006	0.01	0.15	
H	0.035	0.043	0.90	1.10	
J	0.003	0.007	0.08	0.18	
K	0.014	0.020	0.35	0.51	
L	0.007	0.020	0.20	0.50	

Suggested Solder Pad Layout



Electrical Characteristics @ 25°C Unless Otherwise Specified

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	50			V	I_C=10μA, I_E=0
Collector-Emitter Breakdown Voltage(Note3)	$V_{(BR)CEO}$	45			V	I_C=10mA, I_B=0
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5			V	I_E=1μA, I_C=0
Collector Cutoff Current	I_{CBO}			0.1	μA	V_{CB}=45V, I_E=0
Emitter-Base Cutoff Current	I_{EBO}			0.1	μA	V_{EB}=4V, I_C=0
DC Current Gain(Note3)	h_{FE1}	100		600		V_{CE}=1V, I_C=100mA
	h_{FE2}	40				V_{CE}=1V, I_C=500mA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.7	V	I_C=500mA, I_B=50mA
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			1.2	V	I_C=500mA, I_B=50mA
Base-Emitter Voltage	V_{BE}			1.2	V	V_{CE}=1V, I_C=500mA
Collecter capactiance	C_{ob}		10		pF	V_{CB}=10V, f=1MHz,
Transition Frequency	f_T	100			MHz	V_{CE}=5V, I_C=10mA, f=100MHz

Note: 3. Pulse Width ≤ 300μs, Duty Cycle≤2.0%

CLASSIFICATION OF h_{FE} (1)

Rank	BC817-16	BC817-25	BC817-40
Range	100-250	160-400	250-600

Curve Characteristics

Fig. 1 - Static Characteristics

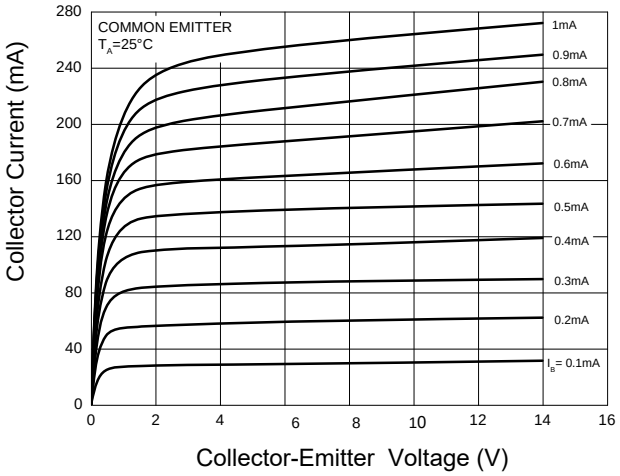


Fig. 2 - DC Current Gain Characteristics

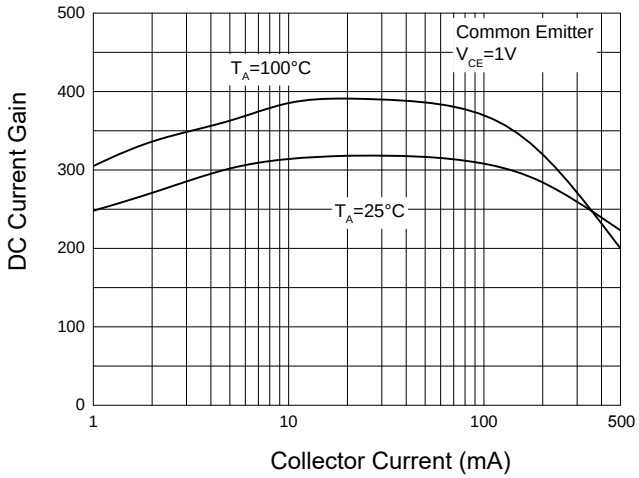


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

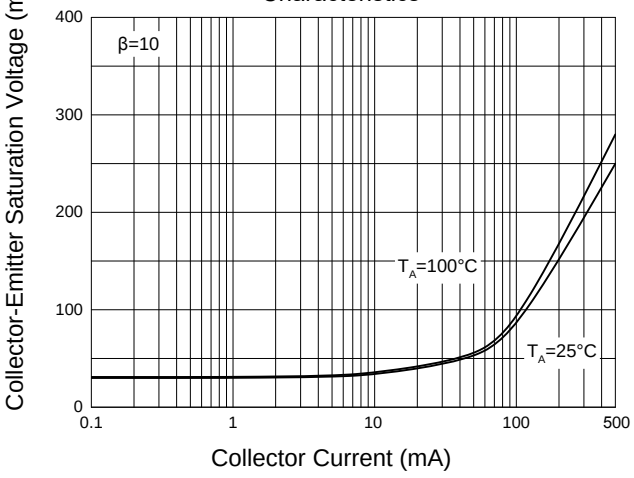


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

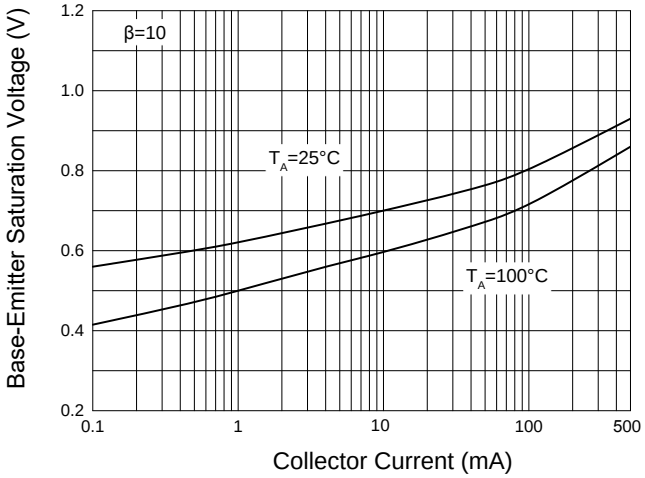


Fig. 5 - Base-Emitter Voltage Characteristics

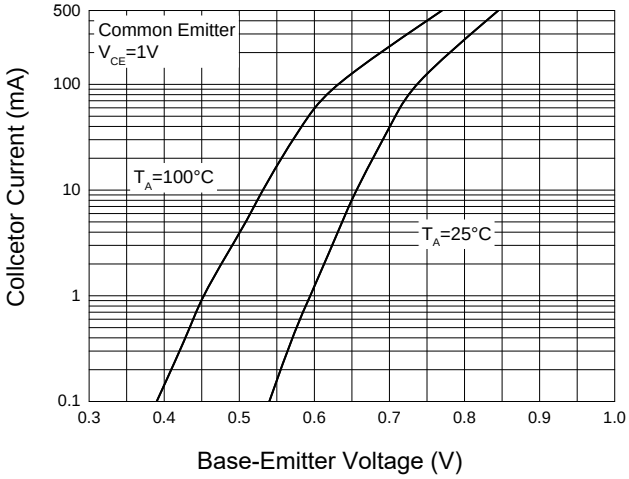


Fig. 6 - Power Derating Curve