



**BC817-16  
 THRU  
 BC817-40**

**NPN Small  
 Signal Transistor  
 310mW**

**Features**

- Halogen free available upon request by adding suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Ideally Suited for Automatic Insertion
- 150 C Junction Temperature
- For Switching and AF Amplifier Applications
- Epitaxial Planar Die Construction

**Mechanical Data**

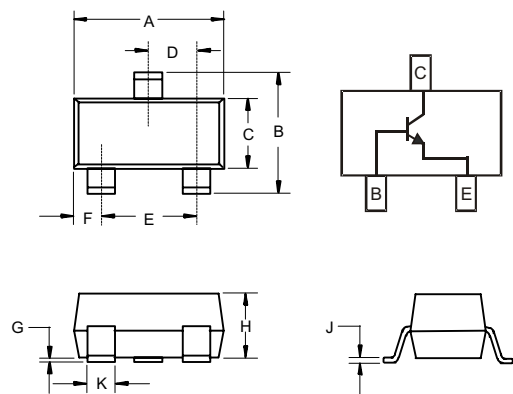
- Case: SOT-23, Molded Plastic
- Terminals: Solderable per MIL-STD-202, Method 208
- Polarity: See Diagram
- Weight: 0.008 grams ( approx.)
- Marking: BC817-16            6A  
                   BC817-25            6B  
                   BC817-40            6C

**Maximum Ratings @ 25°C Unless Otherwise Specified**

Charateristic	Symbol	Value	Unit
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
Peak Emitter Current	$I_{EM}$	1000	mA
Power Dissipation@ $T_s=50^\circ\text{C}$ (Note1)	$P_d$	300	mW
Operating & Storage Temperature	$T_j, T_{STG}$	-55~150	°C

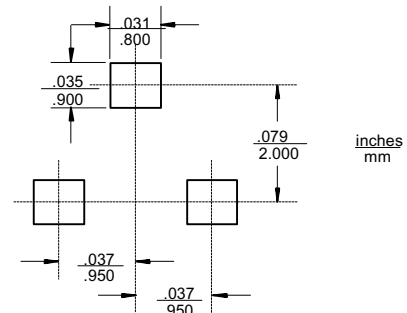
**Note:** 1. Device mounted on Ceramic Substrate 0.7mm X 2.5cm<sup>2</sup> area

**SOT-23**



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.110	.120	2.80	3.04	
B	.083	.104	2.10	2.64	
C	.047	.055	1.20	1.40	
D	.035	.041	.89	1.03	
E	.070	.081	1.78	2.05	
F	.018	.024	.45	.60	
G	.0005	.0039	.013	.100	
H	.035	.044	.89	1.12	
J	.003	.007	.085	.180	
K	.015	.020	.37	.51	

**Suggested Solder Pad Layout**



## Electrical Characteristics @25°C unless otherwise specified

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{CBO}$	$I_C = 10\mu A, I_E = 0$	50			V
Collector-emitter breakdown voltage	$V_{CEO}$	$I_C = 10mA, I_B = 0$	45			V
Emitter-base breakdown voltage	$V_{EBO}$	$I_E = 1\mu A, I_C = 0$	5			V
Collector cut-off current	$I_{CBO}$	$V_{CB} = 45V, I_E = 0$			0.1	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 4V, I_C = 0$			0.1	$\mu A$
DC current gain	$h_{FE(1)}$	$V_{CE} = 1V, I_C = 100mA$	100		600	
	$h_{FE(2)}$	$V_{CE} = 1V, I_C = 500mA$	40			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 500mA, I_B = 50mA$			0.7	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 500mA, I_B = 50mA$			1.2	V
Base-emitter voltage	$V_{BE}$	$V_{CE} = 1V, I_C = 500mA$			1.2	V
Collector capacitance	$C_{ob}$	$V_{CB} = 10V, f = 1MHz$		10		pF
Transition frequency	$f_T$	$V_{CE} = 5V, I_C = 10mA$ $f = 100MHz$	100			MHz

### CLASSIFICATION OF $h_{FE(1)}$

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

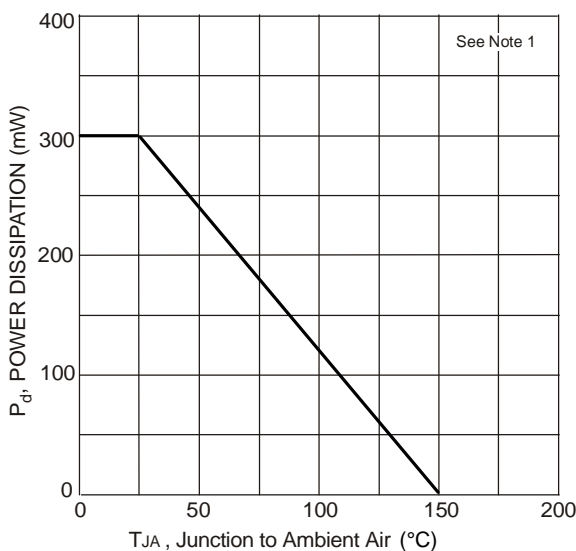


Fig. 1, Power Derating Curve

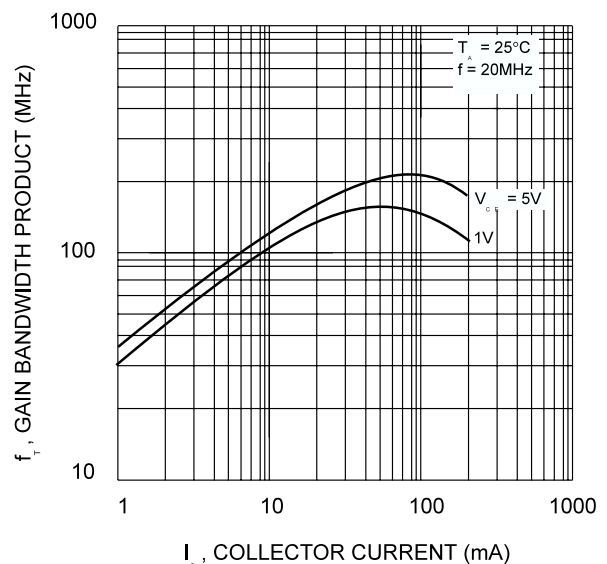
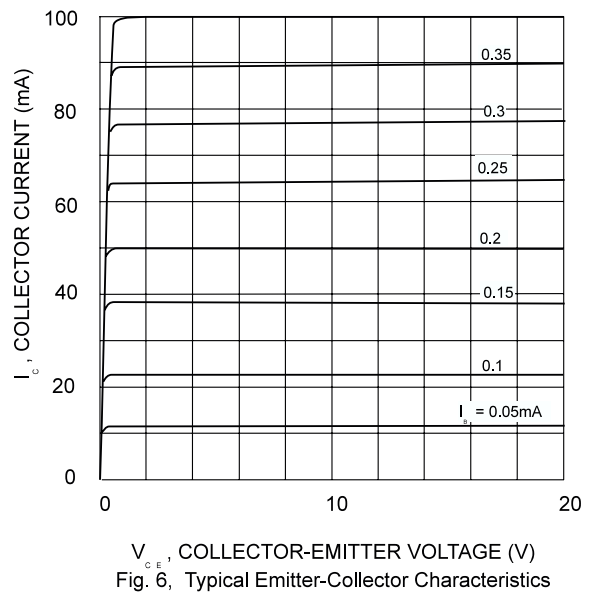
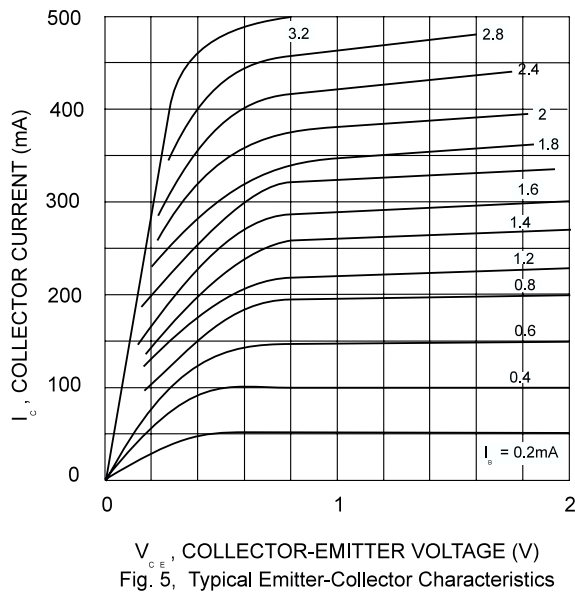
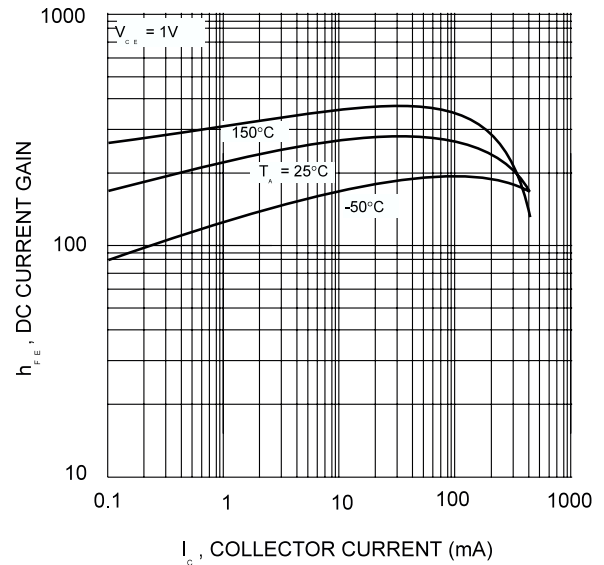
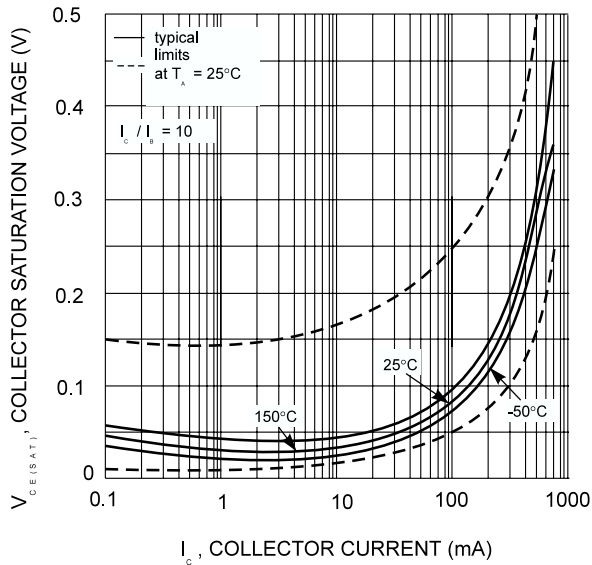


Fig. 2, Gain-Bandwidth Product vs Collector Current





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### Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel; 3Kpcs/Reel

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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