

## Features

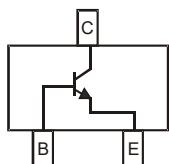
- Halogen free available upon request by adding suffix "-HF"
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

## Maximum Ratings

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 417 °C/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@ $T_s=50^\circ\text{C}$ (Note1)	$P_C$	300	mW

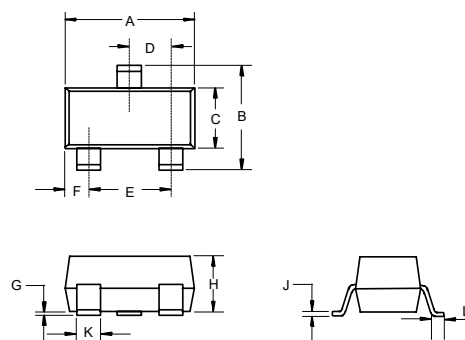
## Internal Structure



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

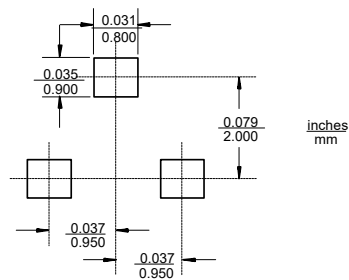
## NPN Small Signal Transistor 300mW

## SOT-23



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	$I_C=10\mu A, I_E=0$
Collector-Emitter Breakdown Voltage <sup>(Note2)</sup>	$V_{(BR)CEO}$	45			V	$I_C=10mA, I_B=0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5			V	$I_E=1\mu A, I_C=0$
Collector Cutoff Current	$I_{CBO}$			0.1	$\mu A$	$V_{CB}=45V, I_E=0$
Emitter-Base Cutoff Current	$I_{EBO}$			0.1	$\mu A$	$V_{EB}=4V, I_C=0$
DC Current Gain <sup>(Note2)</sup>	$h_{FE1}$	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	$V_{CE}=1V, I_C=500mA$
Collector capacitance	$C_{ob}$		10		pF	$V_{CB}=10V, f=1MHz,$
Transition Frequency	$f_T$	100			MHz	$V_{CE}=5V, I_C=10mA, f=100MHz$

Note:

1. Device mounted on Ceramic Substrate 0.7mm X 2.5cm<sup>2</sup> area
2. Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2.0\%$

### 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

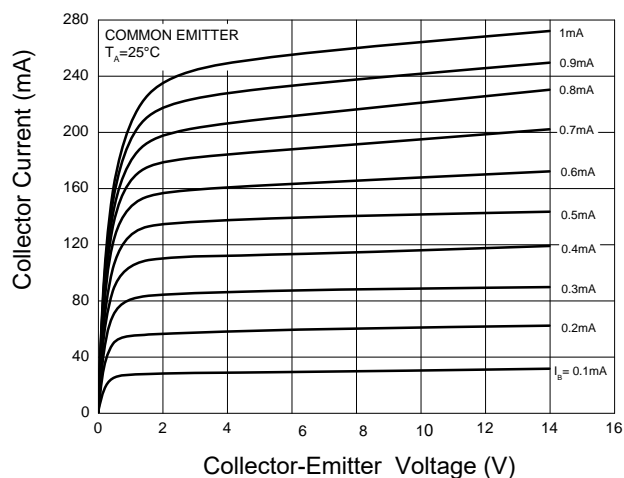


Fig. 2 - DC Current Gain Characteristics

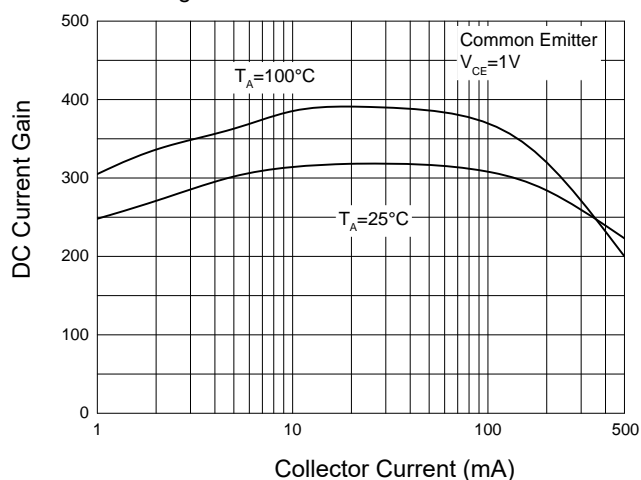


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

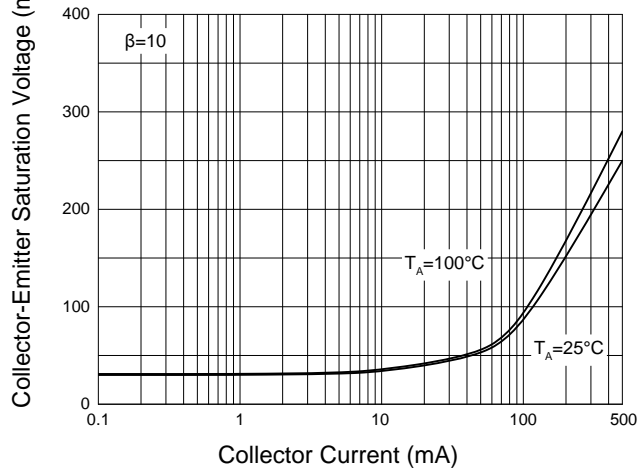


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

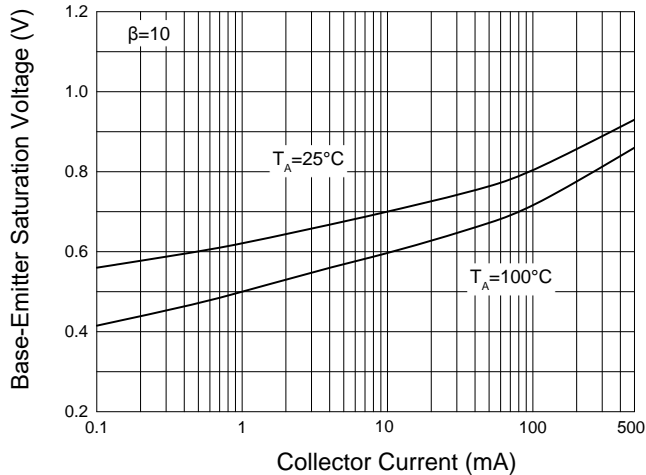


Fig. 5 - Base-Emitter Voltage Characteristics

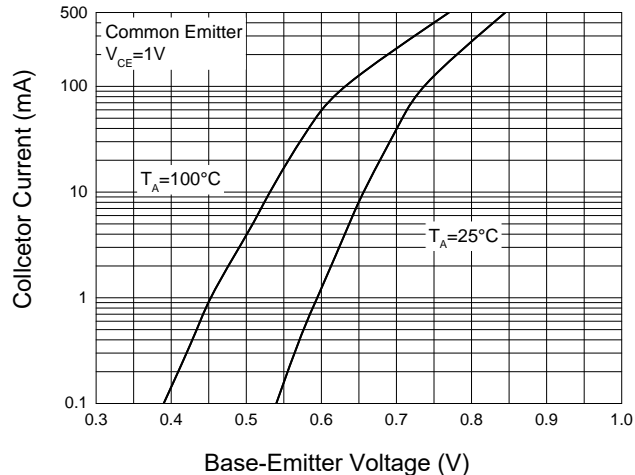
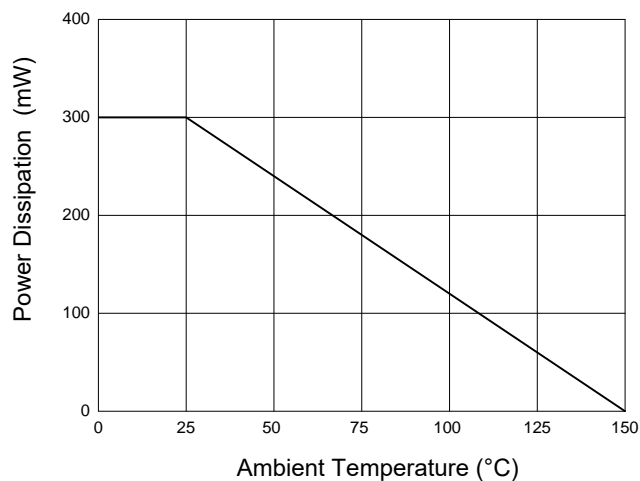


Fig. 6 - Power Derating Curve



## 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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