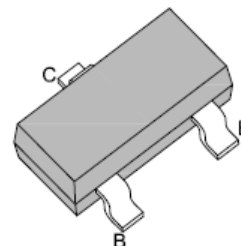


SMD General Purpose Transistor (NPN)

Features

- NPN Silicon Epitaxial Planar Transistor for Switching and Amplifier Applications
- RoHS compliance



Mechanical Data

Case:	SOT-23, Plastic Package
Terminals:	Solderable per MIL-STD-202G, Method 208
Weight:	0.008 gram

SOT-23



Marking Information

	BC817-16	BC17-25	BC817-40
Marking Code	6A	6B	6C

Maximum Ratings ($T_{Ambient}=25^{\circ}C$ unless noted otherwise)

Symbol	Description	Value	Unit	Conditions
V_{CEO}	Collector-Emitter Voltage	45	V	
V_{CB0}	Collector-Base Voltage	50	V	
V_{EBO}	Emitter-Base Voltage	5.0	V	
I_C	Collector Current	500	mA	
P_D	Total Device Power Dissipation	225	mW	T _A =25 °C
		1.8	mW/°C	Derate above 25 °C
R_{θJA}	Thermal Resistance, Junction to Ambient (Note 1)	556	°C /W	
P_D	Total Device Power Dissipation, Alumina Substrate	300	mW	T _A =25 °C
		2.4	mW/°C	Derate above 25 °C
R_{θJA}	Thermal Resistance, Junction to Ambient (Note 2)	417	°C /W	
T_J, T_{STG}	Junction and Storage, Temperature Range	-55 to +150	°C	

Note: 1. FR-5 Board=25.4 x 19.05 x 1.58 mm (1.0 x 0.75 x 0.062 inches.)

2. Alumina Substrate=10.16 x 7.62 x 0.61 mm (0.4 x 0.3 x 0.024 inches.) 99.5% alumina.

SMD General Purpose Transistor (NPN)

BC817-16/BC817-25/BC817-40

Electrical Characteristics ($T_{Ambient}=25^{\circ}\text{C}$ unless noted otherwise)

Off Characteristics

Symbol	Description	Min.	Max.	Unit	Conditions
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	45	-	V	$I_C=10\text{mA}$, $I_B=0$
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	50	-	V	$I_C=10\mu\text{A}$, $V_{EB}=0$
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	5.0	-	V	$I_E=1\mu\text{A}$, $I_C=0$
I_{CBO}	Collector Cut-off Current	-	100	nA	$V_{CB}=20\text{V}$
		-	5	mA	$V_{CB}=20\text{V}$, $T_A=150^{\circ}\text{C}$

On Characteristics

Symbol	Description		Min.	Max.	Unit	Conditions
h_{FE}	D.C. Current Gain	BC817-16	100	250	-	$V_{CE}=1\text{V}$, $I_C=100\text{mA}$
			40	-		$V_{CE}=1\text{V}$, $I_C=500\text{mA}$
		BC817-25	160	400		$V_{CE}=1\text{V}$, $I_C=100\text{mA}$
			40	-		$V_{CE}=1\text{V}$, $I_C=500\text{mA}$
		BC817-40	250	600		$V_{CE}=1\text{V}$, $I_C=100\text{mA}$
			40	-		$V_{CE}=1\text{V}$, $I_C=500\text{mA}$
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage		-	0.7	V	$I_C=500\text{mA}$, $I_B=50\text{mA}$
$V_{BE(on)}$	Base-Emitter On Voltage		-	1.2	V	$I_C=500\text{mA}$, $V_{CE}=1\text{V}$

Small-signal Characteristics

Symbol	Description	Min.	Typ.	Unit	Conditions
f_T	Current Gain-Bandwidth Product	100	-	MHz	$V_{CE}=5\text{V}$, $I_C=10\text{mA}$, $f=100\text{MHz}$
C_{OBO}	Output Capacitance	-	10	pF	$V_{CB}=10\text{V}$, $f=1.0\text{MHz}$

SMD General Purpose Transistor (NPN)

BC817-16/BC817-25/BC817-40

Typical Characteristics Curves

Fig.1- DC Current Gain

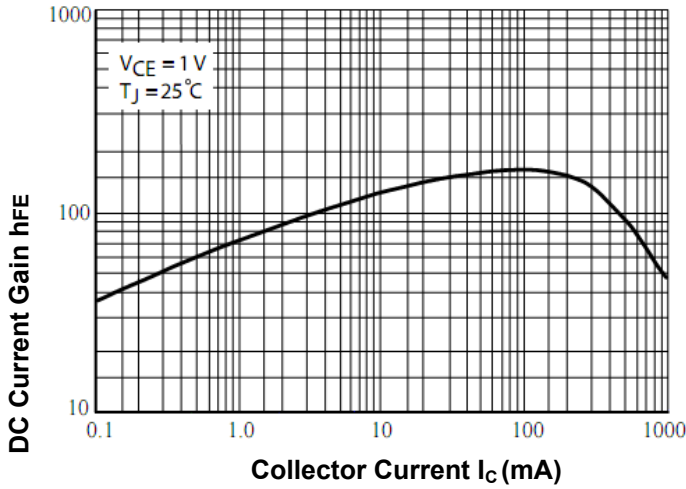


Fig.2- Saturation Region

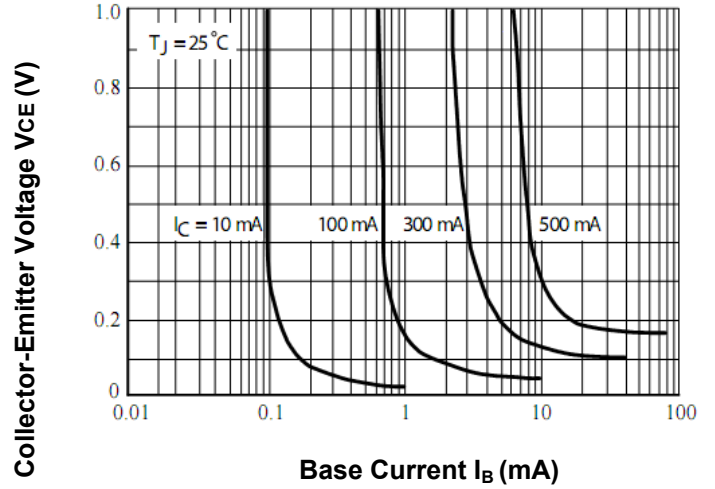


Fig.3- "On" Voltage

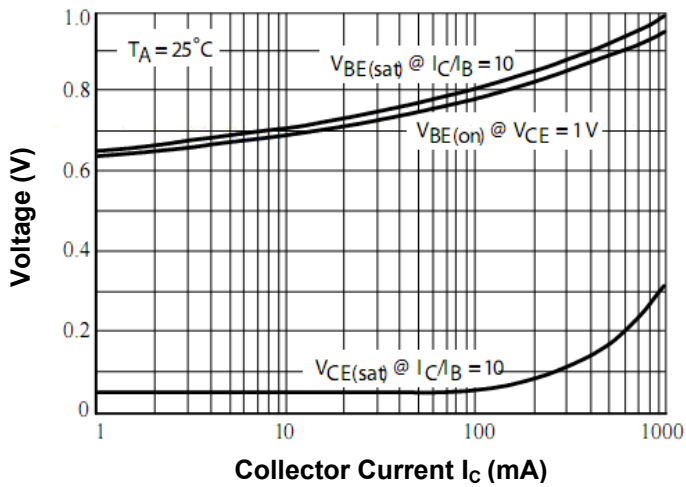


Fig.4- Temperature Coefficients

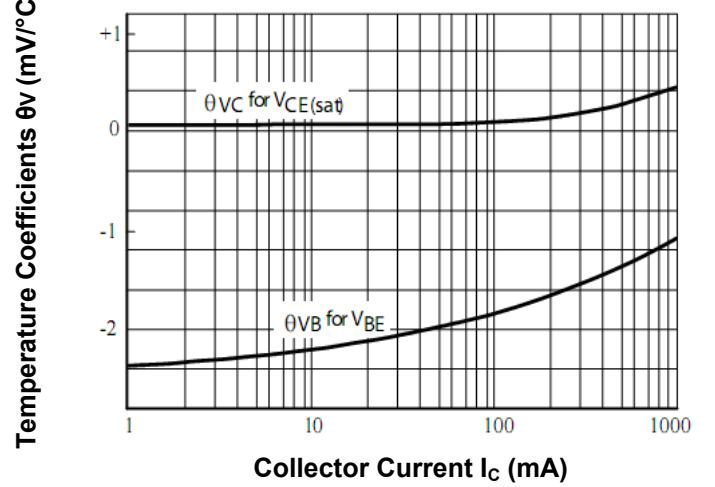
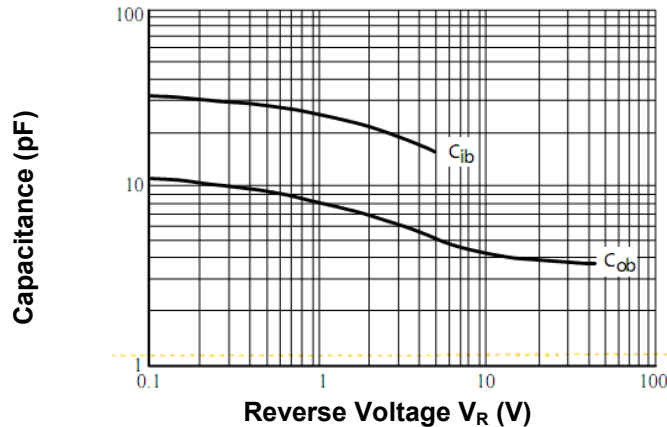


Fig.5- Capacitance

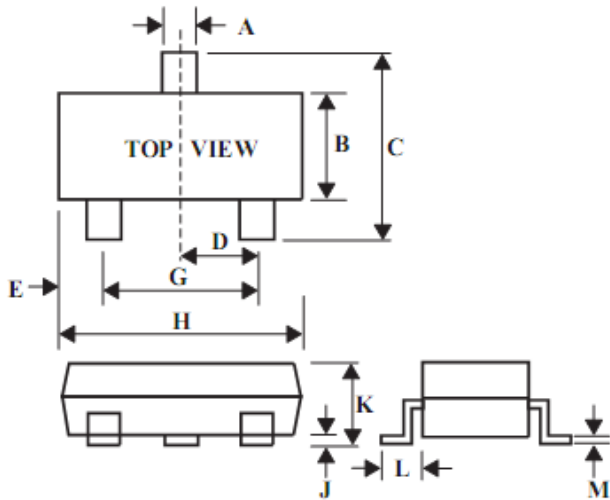


SMD General Purpose Transistor (NPN)

BC817-16/BC817-25/BC817-40

Dimensions in mm

SOT-23



SOT-23		
Dim	Min	Max
A	0.35	0.51
B	1.19	1.40
C	2.10	3.00
D	0.85	1.05
E	0.46	1.00
G	1.70	2.10
H	2.70	3.10
J	0.01	0.13
K	0.89	1.10
L	0.30	0.61
M	0.076	0.25

SMD General Purpose Transistor (NPN)

BC817-16/BC817-25/BC817-40

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