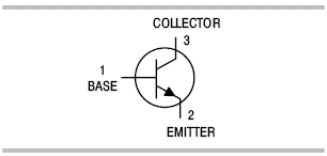
BC817-16/-25/-40W

SOT-23 Bipolar Transistor(NPN)

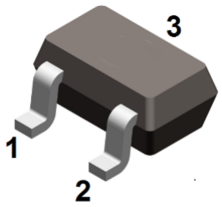
Features

- Epitaxial planar die construction
- Complimentary to BC807W
- High collector current
- High current gain
- Low collector-emitter saturation voltage



Mechanical Data

- Case: SOT-323
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Tin-plated; solderability per MIL-STD-202, Method 208



SOT-323

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
BC817-16W	SOT-323	3000 pcs / Tape & Reel	6A
BC817-25W	SOT-323	3000 pcs / Tape & Reel	6B
BC817-40W	SOT-323	3000 pcs / Tape & Reel	6C

Maximum Ratings (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector-Base Breakdown Voltage	V_{CBO}	50	V
Collector-Emitter Breakdown Voltage	V_{CEO}	45	V
Emitter-Base Breakdown Voltage	V_{EBO}	5	V
Continuous Collector Current	I_C	0.5	A
Peak Collector Current	I_{CM}	1	A
Base Current	I_B	0.1	A
Peak Base Current	I_{BM}	0.2	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation	P_D	250	mW
Thermal Resistance Junction-to-Air *1	$R_{\theta JA}$	396	°C/W
Thermal Resistance Junction-to-Case *1	$R_{\theta JC}$	197	°C/W
Thermal Resistance Junction-to-Lead *1	$R_{\theta JL}$	218	°C/W
Operating junction Temperature	T_J	-65 ~ +150	°C
Storage Temperature Range	T_{STG}	-65 ~ +150	°C

Note 1: The data tested by surface mounted on a 15mm * 15mm * 1mm FR4-epoxy P.C.B

Electrical Characteristics (@ T_A = 25°C unless otherwise specified)

Parameter		Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage		$V_{(BR)CBO}$	I_C = 10μA, I_E = 0	50	-	-	V
Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	I_C = 10mA, I_B = 0	45	-	-	V
Emitter-Base Breakdown Voltage		$V_{(BR)EBO}$	I_E = 10μA, I_C = 0	5	-	-	V
Collector Cut-off Current		I_{CBO}	V_{CB} = 25V, I_E = 0	-	-	100	nA
Emitter Cut-off Current		I_{EBO}	V_{EB} = 5V, I_C = 0	-	-	100	nA
DC Current Gain	BC817-16W	h_{FE}	V_{CE} = 1V, I_C = 100mA	100	-	250	-
	BC817-25W			160	-	400	-
	BC817-40W			250	-	600	-
	BC817-16W		V_{CE} = 1V, I_C = 300mA	60	-	-	-
	BC817-25W			100	-	-	-
	BC817-40W			170	-	-	-
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
Transition Frequency		f_T	I_C = 50mA, V_{CE} = 5V, f=100MHZ	-	170	-	MHz
Collector Output Capacitance		C_{OBO}	V_{CB} = 10V, I_E = 0, f = 1MHZ	-	6	-	pF

Ratings and Characteristics Curves (@ T_A = 25°C unless otherwise specified)

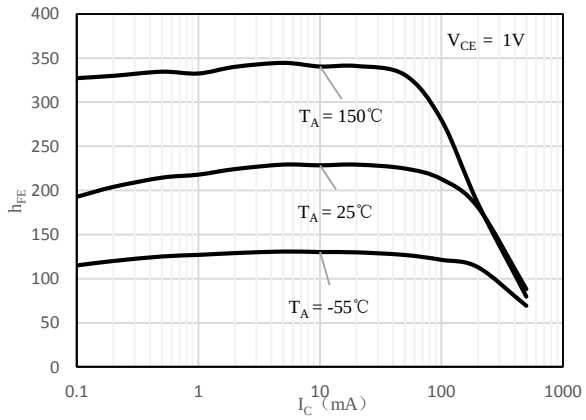


Fig 1 h_{FE} vs. I_C (BC817-16W)

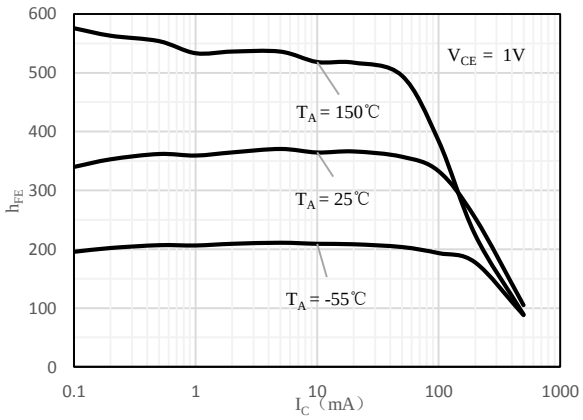


Fig 2 h_{FE} vs. I_C (BC817-25W)

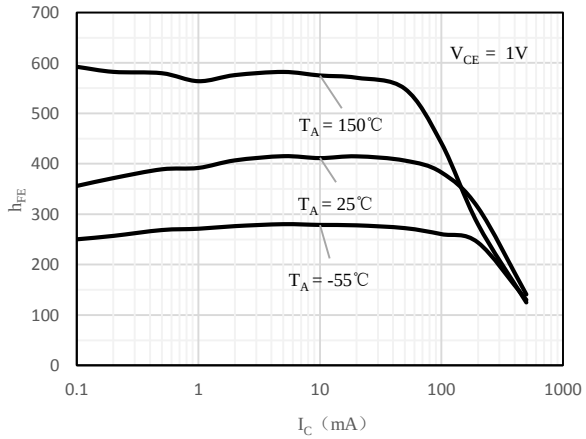


Fig 3 h_{FE} vs. I_C (BC817-40W)

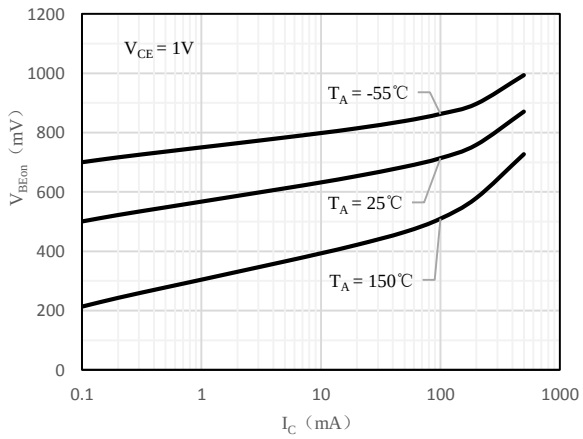


Fig 4 $V_{BE(ON)}$ vs. I_C

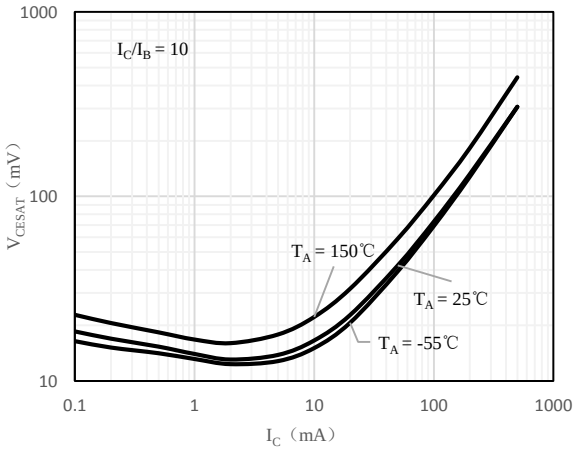


Fig 5 $V_{CE(sat)}$ vs. I_C

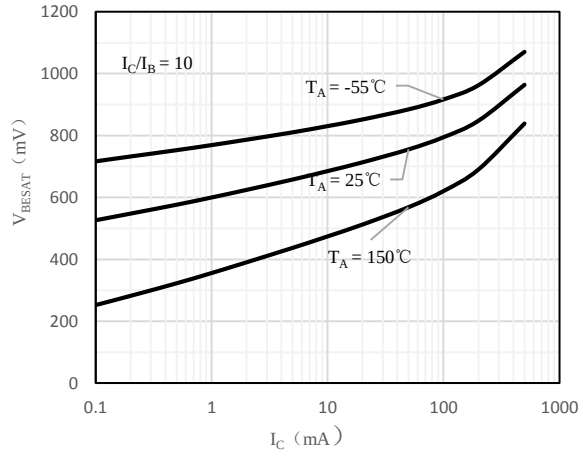
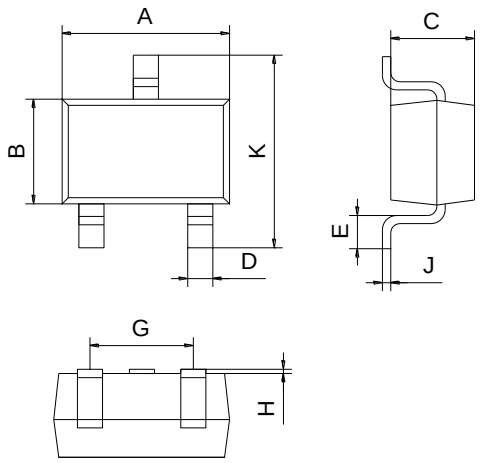


Fig 6 $V_{BE(sat)}$ vs. I_C

BC817-16/-25/-40W

SOT-23 Bipolar Transistor(NPN)

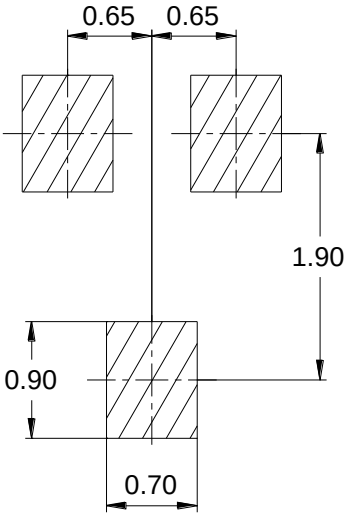
Package Outline Dimensions (Unit: mm)



SOT-323		
Dimension	**Min.**	**Max.**
A	2.00	2.20
B	1.15	1.35
C	0.90	1.10
D	0.15	0.35
E	0.25	0.40
G	1.20	1.40
H	0.02	0.10
J	0.05	0.15
K	2.20	2.40

Mounting Pad Layout (Unit: mm)

SOT-323



Package	Reel	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)
SOT-23	3000pcs	7inch	45,000pcs	203×203×195	180,000pcs	438×438×220