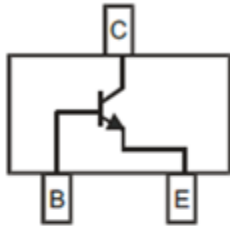


NPN General Purpose Amplifier



SOT-23

Features

- Epoxy meets UL-94 V-0 flammability rating and halogen free
- Moisture Sensitivity Level 1
- Part no. with suffix "Q" means AEC-Q101 qualified

Mechanical Data

- **Case:** SOT-23
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:**

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

■ Maximum Ratings (Ta=25°C unless otherwise noted)

Item	Symbol	Unit	Value
Collector-Emitter Voltage	V_{CE0}	V	45
Collector-Base Voltage	V_{CBO}	V	50
Emitter-Base Voltage	V_{EBO}	V	5
Collector Current -Continuous	I_C	mA	500
Total Device Dissipation (*)	P_D	mW	300
Thermal Resistance Junction to Ambient (*)	R_{thJA}	K/W	417
Junction Temperature	T_j	°C	-55 to +150
Storage Temperature	T_{STG}	°C	-55 to +150

(*) Device mounted on FR-4 PCB 1.0 x 1.0 x 0.06 inch.



BC817-16Q THRU BC817-40Q

RoHS
COMPLIANT

■ Off Characteristics (Ta=25°C unless otherwise noted)

Item	Symbol	Unit	Conditions	Min	Max
Collector-emitter breakdown voltage	V_{CEO}	V	$I_C = 10\text{mA}, I_B = 0$	45	-
Collector-base breakdown voltage	V_{CBO}	V	$I_C = 10\mu\text{A}, I_E = 0$	50	-
Emitter-base breakdown voltage	V_{EBO}	V	$I_E = 1.0\mu\text{A}, I_C = 0$	5.0	-
Emitter cut-off current	I_{EBO}	μA	$V_{EB} = 4.0\text{Vdc}, I_C = 0$	-	0.1
Collector cut-off current	I_{CBO}	μA	$V_{CB} = 45\text{Vdc}, I_E = 0$	-	0.1

■ On Characteristics (Ta=25°C unless otherwise noted)

Item	Symbol	Unit	Conditions	Min	Max
DC Current Gain	BC817-16Q	h_{FE}	$I_C = 100\text{mA}, V_{CE} = 1.0\text{Vdc}$	100	250
	BC817-25Q			160	400
	BC817-40Q			250	600
DC Current Gain	h_{FE}	-	$I_C = 500\text{mA}, V_{CE} = 1.0\text{Vdc}$	40	-
Collector-emitter Saturation Voltage	$V_{CE(sat)}$	V	$I_C = 500\text{mA}, I_B = 50\text{mA}$	-	0.7
Base-emitter Saturation Voltage	$V_{BE(sat)}$	V	$I_C = 500\text{mA}, I_B = 50\text{mA}$	-	1.2

■ Small-signal Characteristics (Ta=25°C unless otherwise noted)

Item	Symbol	Unit	Conditions	Min	Max
Current Gain-bandwidth Product	f_T	MHz	$I_C = 10\text{mA}, V_{ce} = 5.0\text{Vdc}, f = 100\text{MHz}$	100	-

■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
BC817-16Q THRU BC817-40Q	F2	Approximate 0.01	3000	30000	120000	7" reel



■ Characteristics (Typical)

Fig. 1 - Static Characteristic

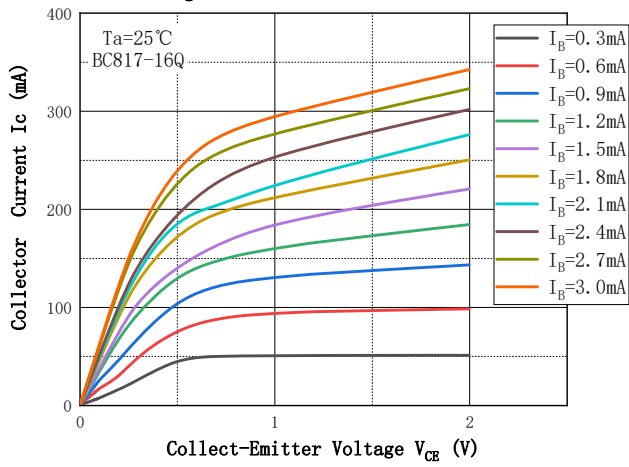


Fig. 2 - DC Current Gian

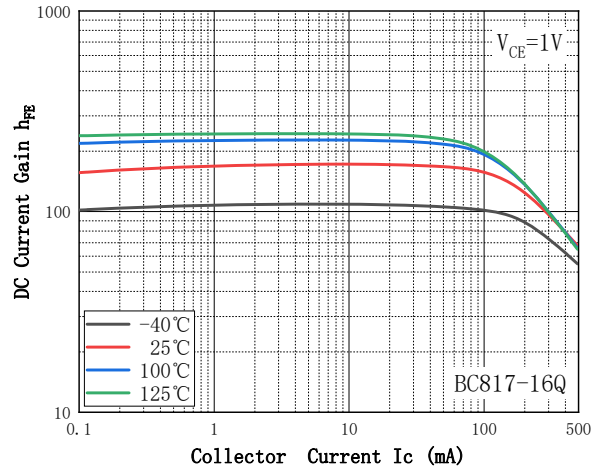


Fig. 3 - Static Characteristic

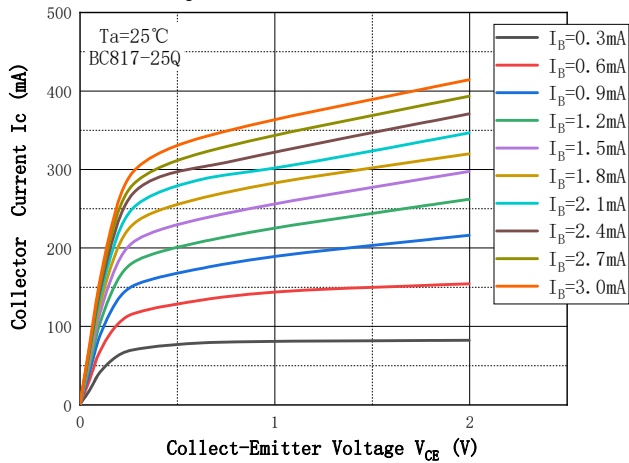


Fig. 4 - DC Current Gian

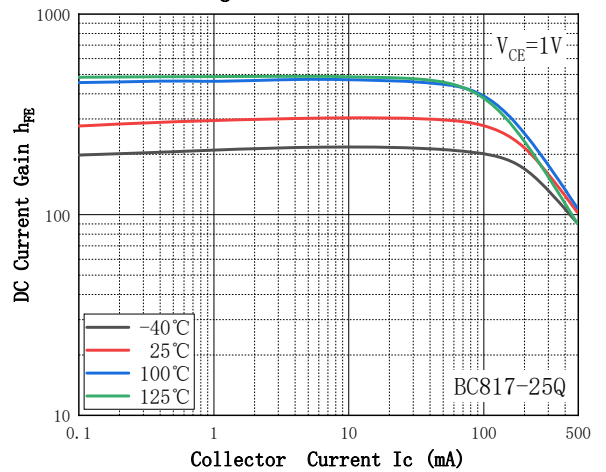


Fig. 5 - Static Characteristic

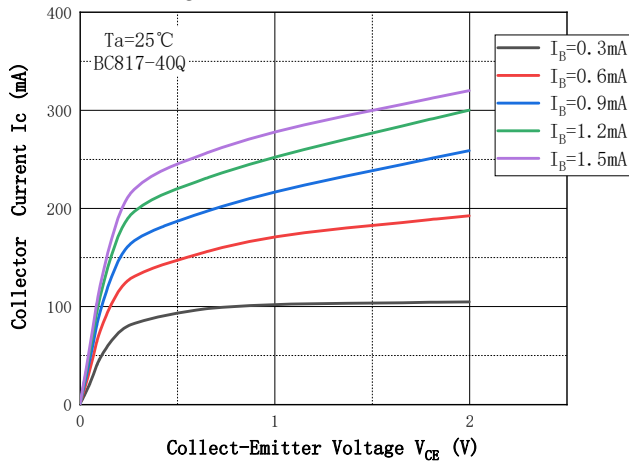


Fig. 6 - DC Current Gian

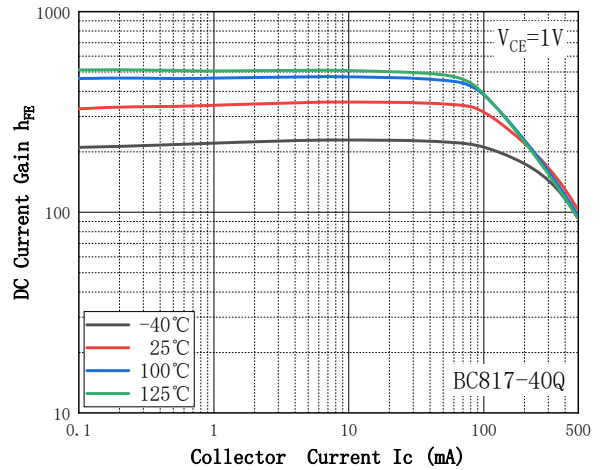




Fig. 7 - Collect-Emitter Saturation Voltage

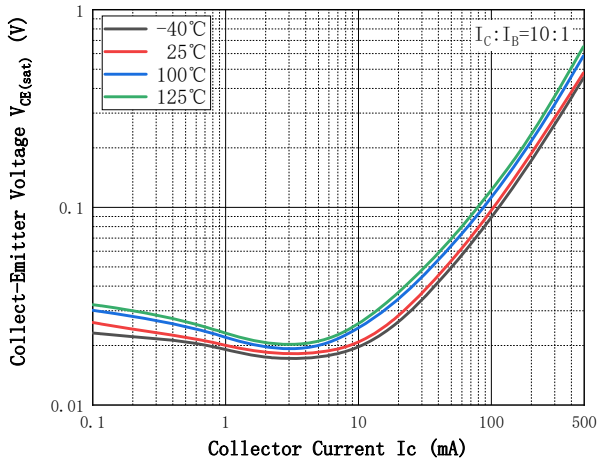


Fig. 8 - Base-Emitter Voltage

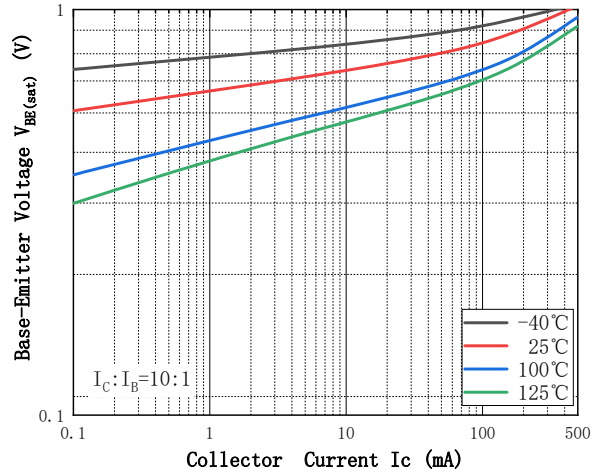


Fig. 9 - Base-Emitter On Voltage

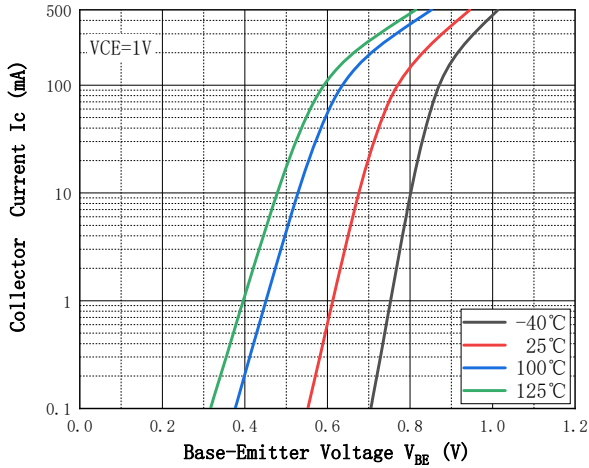


Fig. 10 - $C_{ob}/C_{ib}-V_{CE}/V_{BE}$

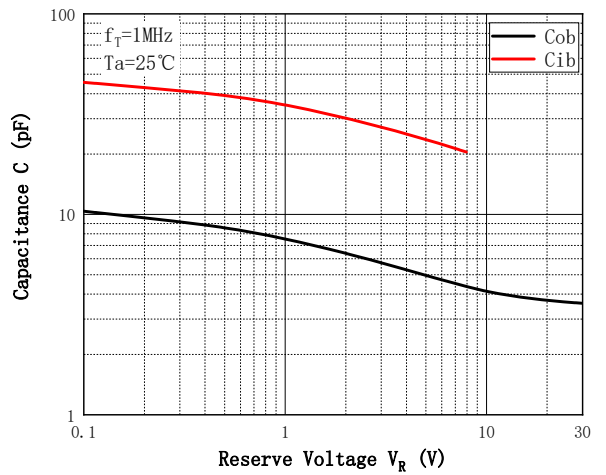
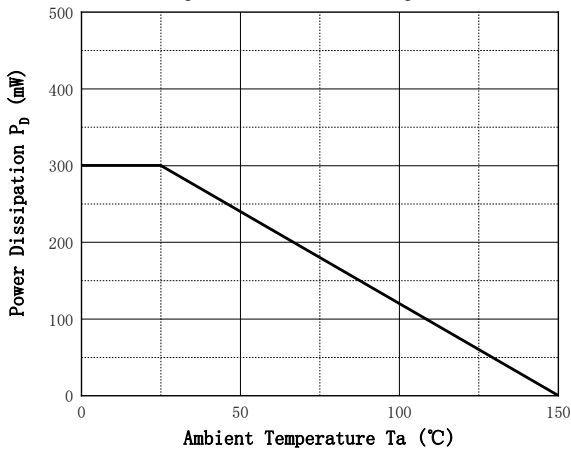
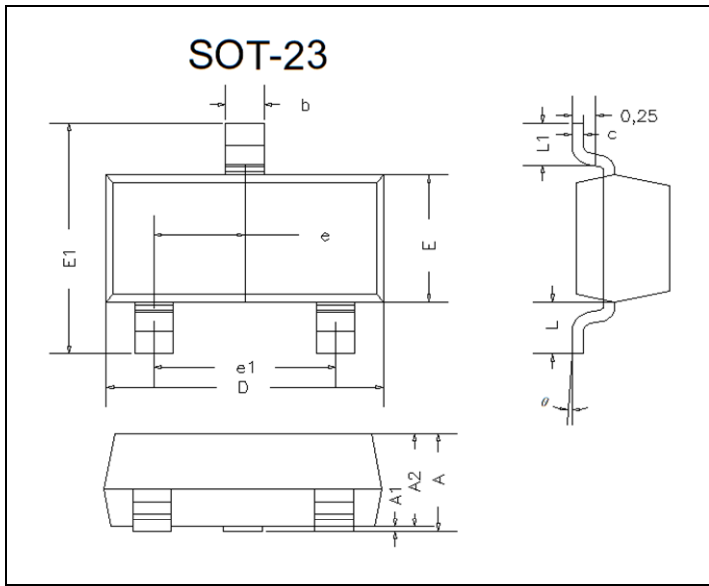


Fig. 11 - Power Derating Curve

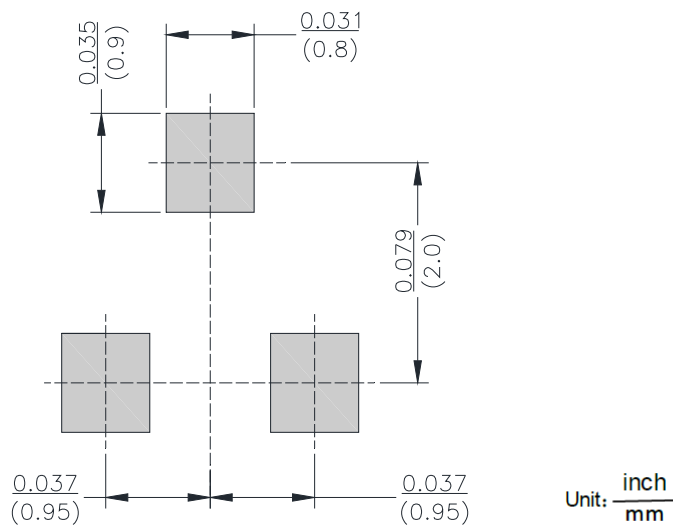


■ SOT-23 Package Outline Dimensions



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.035	0.045	0.90	1.15	
A1	0.000	0.004	0.00	0.10	
A2	0.035	0.041	0.90	1.05	
b	0.012	0.020	0.30	0.50	
c	0.004	0.008	0.10	0.20	
D	0.110	0.118	2.80	3.00	
E	0.047	0.055	1.20	1.40	
E1	0.089	0.100	2.25	2.55	
e	0.370TYP		0.95TYP		
e1	0.071	0.079	1.80	2.00	
L	0.220REF		0.55REF		
L1	0.012	0.020	0.30	0.50	
θ	0°	8°	0°	8°	

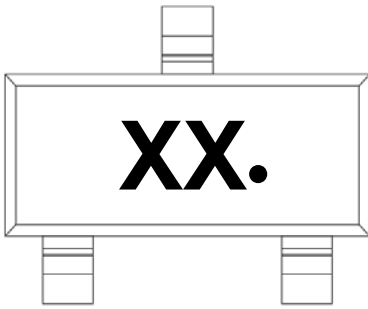
■ SOT-23 Suggested Pad Layout



NOTE:
1. PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
2. THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.



■ Marking Information



Note:

1. All marking is at middle of the product body
2. All marking is in laser marking
3. XX is Marking Code determined by specific model
4. Body color: Black



Disclaimer

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