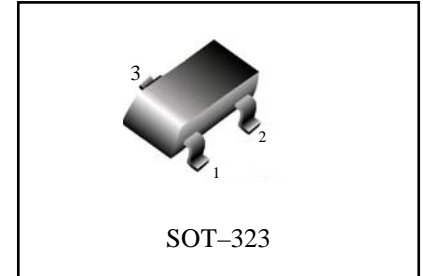


General Purpose Transistors

NPN Silicon

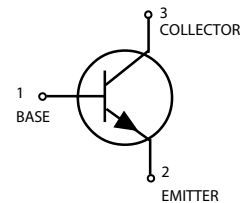
FEATURE

- Collector current capability $I_C = 500$ mA.
- Collector-emitter voltage $V_{CEO(max)} = 45$ V.
- General purpose switching and amplification.
- PNP complement: LBC807 Series.
- Pb-Free Package is available.



DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
BC817U-A	6A	3000/Tape&Reel
BC817U-B	6B	3000/Tape&Reel
BC817U-C	YM	3000/Tape&Reel



MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector–Emitter Voltage	V_{CEO}	45	V
Collector–Base Voltage	V_{CBO}	50	V
Emitter–Base Voltage	V_{EBO}	5.0	V
Collector Current — Continuous	I_C	500	mAdc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR– 5 Board, (1) $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	225 1.8	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Total Device Dissipation Alumina Substrate, (2) $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	300 2.4	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	417	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature	T_J, T_{stg}	–55 to +150	$^\circ\text{C}$

1. FR–5 = 1.0 x 0.75 x 0.062 in.
2. Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.



BC817U

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Collector–Emitter Breakdown Voltage (I _C = –10 mA)	V _{(BR)CEO}	45	—	—	V
Collector–Emitter Breakdown Voltage (V _{EB} = 0, I _C = –10 μA)	V _{(BR)CES}	50	—	—	V
Emitter–Base Breakdown Voltage (I _E = –1.0 μA)	V _{(BR)EBO}	5.0	—	—	V
Collector Cutoff Current (V _{CB} = 20 V) (V _{CB} = 20 V, T _A = 150°C)	I _{CBO}	— —	— —	100 5.0	nA μA

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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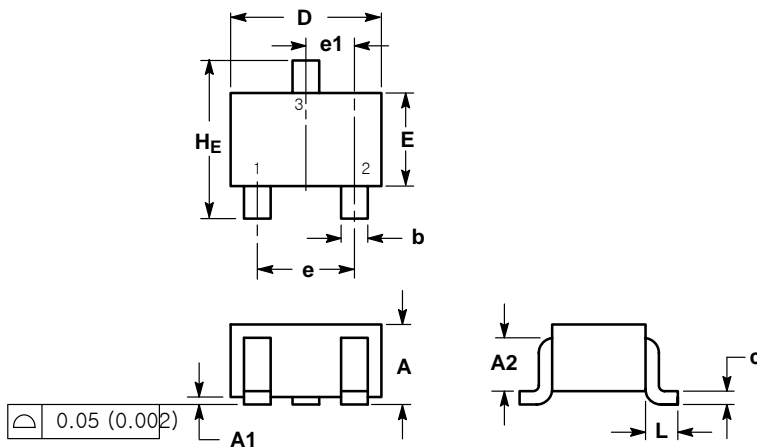
ON CHARACTERISTICS

DC Current Gain (I _C = 100 mA, V _{CE} = 1.0 V)	h _{FE}	100	—	250	
BC817–A		160	—	400	
BC817–B		250	—	600	
BC817–C		40	—	—	
(I _C = 500 mA, V _{CE} = 1.0 V)					
Collector–Emitter Saturation Voltage (I _C = 500 mA, I _B = 50 mA)	V _{CE(sat)}	—	—	0.7	V
Base–Emitter On Voltage (I _C = 500 mA, V _{CE} = 1.0 V)	V _{BE(on)}	—	—	1.2	V

SMALL–SIGNAL CHARACTERISTICS

Current–Gain — Bandwidth Product (I _C = 10 mA, V _{CE} = 5.0 V _{dc} , f = 100 MHz)	f _T	100	—	—	MHz
Output Capacitance (V _{CB} = 10 V, f = 1.0 MHz)	C _{obo}	—	10	—	pF

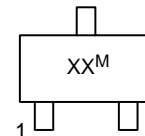
SC-70 (SOT-323)



NOTES:
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.80	0.90	1.00	0.032	0.035	0.040
A1	0.00	0.05	0.10	0.000	0.002	0.004
A2	0.7 REF			0.028 REF		
b	0.30	0.35	0.40	0.012	0.014	0.016
c	0.10	0.18	0.25	0.004	0.007	0.010
D	1.80	2.10	2.20	0.071	0.083	0.087
E	1.15	1.24	1.35	0.045	0.049	0.053
e	1.20	1.30	1.40	0.047	0.051	0.055
e1	0.65 BSC			0.026 BSC		
L	0.425 REF			0.017 REF		
He	2.00	2.10	2.40	0.079	0.083	0.095

GENERIC MARKING DIAGRAM



XX = Specific Device Code
 M = Date Code
 ■ = Pb-Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "■", may or may not be present.

