

General Purpose Transistors

NPN Silicon

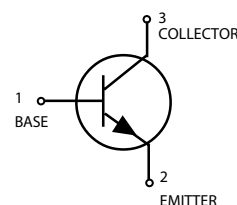
FEATURE

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

DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
LBC817-16LT1	6A	3000/Tape&Reel
LBC817-16LT1G	6A (Pb-Free)	3000/Tape&Reel
LBC817-25LT1	6B	3000/Tape&Reel
LBC817-25LT1G	6B (Pb-Free)	3000/Tape&Reel
LBC817-40LT1	6C	3000/Tape&Reel
LBC817-40LT1G	6C (Pb-Free)	3000/Tape&Reel

LBC817-16LT1
LBC817-25LT1
LBC817-40LT1



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	mA _{dc}

THERMAL CHARACTERISTICS

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

LBC817 Series

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Collector–Emitter Breakdown Voltage ($I_{C= -10\text{ mA}}$)	$V_{(BR)CEO}$	45	—	—	V
Collector–Emitter Breakdown Voltage ($V_{EB} = 0, I_C = -10\ \mu\text{A}$)	$V_{(BR)CES}$	50	—	—	V
Emitter–Base Breakdown Voltage ($I_E = -1.0\ \mu\text{A}$)	$V_{(BR)EBO}$	5.0	—	—	V
Collector Cutoff Current ($V_{CB} = 20\text{ V}$)	I_{CBO}	—	—	100	nA
($V_{CB} = 20\text{ V}, T_A = 150^\circ\text{C}$)		—	—	5.0	μA

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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ON CHARACTERISTICS

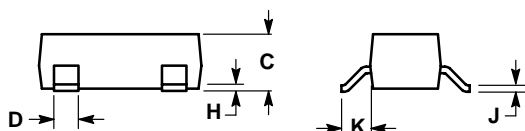
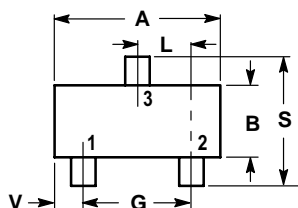
DC Current Gain ($I_{C= 100\text{ mA}, V_{CE} = 1.0\text{ V}}$)	h_{FE}				
LBC817–16		100	—	250	
LBC817–25		160	—	400	
LBC817–40		250	—	600	
($I_C = 500\text{ mA}, V_{CE} = 1.0\text{ V}$)		40	—	—	
Collector–Emitter Saturation Voltage ($I_C = 500\text{ mA}, I_B = 50\text{ mA}$)	$V_{CE(sat)}$	—	—	0.7	V
Base–Emitter On Voltage ($I_C = 500\text{ mA}, V_{CE} = 1.0\text{ V}$)	$V_{BE(on)}$	—	—	1.2	V

SMALL–SIGNAL CHARACTERISTICS

Current–Gain — Bandwidth Product ($I_C = 10\text{ mA}, V_{CE} = 5.0\text{ V}_{dc}, f = 100\text{ MHz}$)	f_T	100	—	—	MHz
Output Capacitance ($V_{CB} = 10\text{ V}, f = 1.0\text{ MHz}$)	C_{obo}	—	10	—	pF

LBC817 Series

SOT-23



NOTES:

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

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60

