

BC817-16LT1 BC817-25LT1 BC817-40LT1

General Purpose Transistors

NPN Silicon



ON Semiconductor®

<http://onsemi.com>

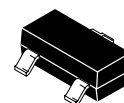
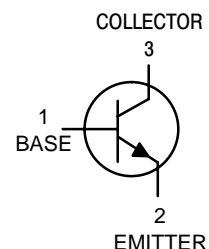
MAXIMUM RATINGS

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

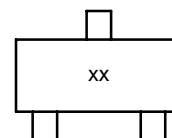
Characteristic	Symbol	Max	Unit
Total Device Dissipation FR–5 Board, (Note 1) $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	225 1.8	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction–to–Ambient	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Total Device Dissipation Alumina Substrate, (Note 2) $T_A =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

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



**SOT-23
CASE 318-08
STYLE 6**

MARKING DIAGRAM



xx = Specific Device Code
BC816–16LT1 = 6A
BC817–25LT1 = 6B
BC817–40LT1 = 6C

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 4 of this data sheet.

BC817-16LT1 BC817-25LT1 BC817-40LT1

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

Characteristic	Symbol	Min	Typ	Max	Unit
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 ($V_{CB} = 20\text{ V}$) ($V_{CB} = 20\text{ V}, T_A = 150^\circ\text{C}$)	I_{CBO}	-	-	100 5.0	nA μA
ON CHARACTERISTICS					
DC Current Gain ($I_C = 100\text{ mA}, V_{CE} = 1.0\text{ V}$) BC817-16 BC817-25 BC817-40 ($I_C = 500\text{ mA}, V_{CE} = 1.0\text{ V}$)	h_{FE}	100 160 250 40	- - - -	250 400 600 -	-
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 ($I_C = 10\text{ mA}, V_{CE} = 5.0\text{ Vdc}, f = 100\text{ MHz}$)	f_T	100	-	-	MHz
Output Capacitance ($V_{CB} = 10\text{ V}, f = 1.0\text{ MHz}$)	C_{obo}	-	10	-	pF

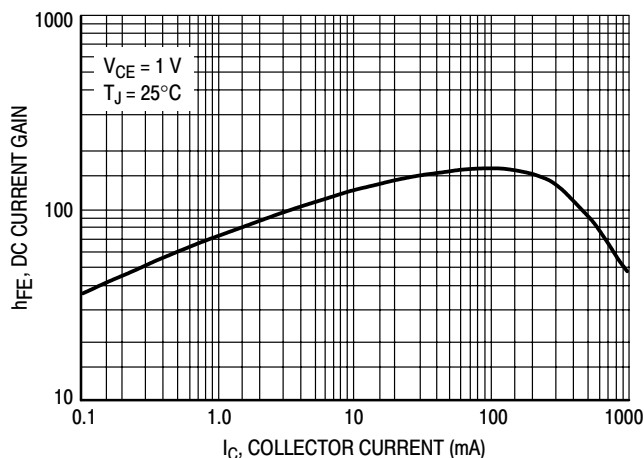


Figure 1. DC Current Gain

BC817-16LT1 BC817-25LT1 BC817-40LT1

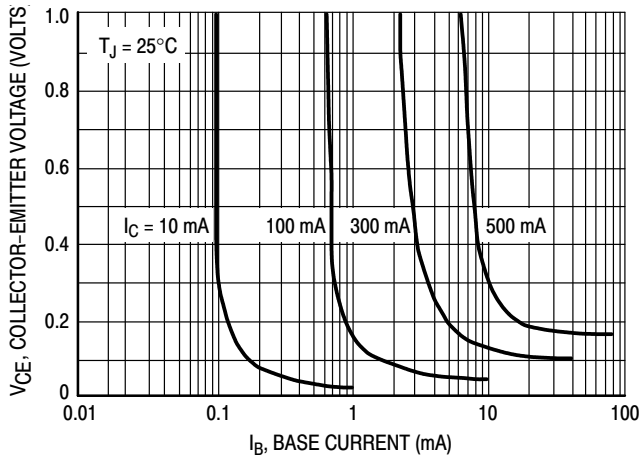


Figure 2. Saturation Region

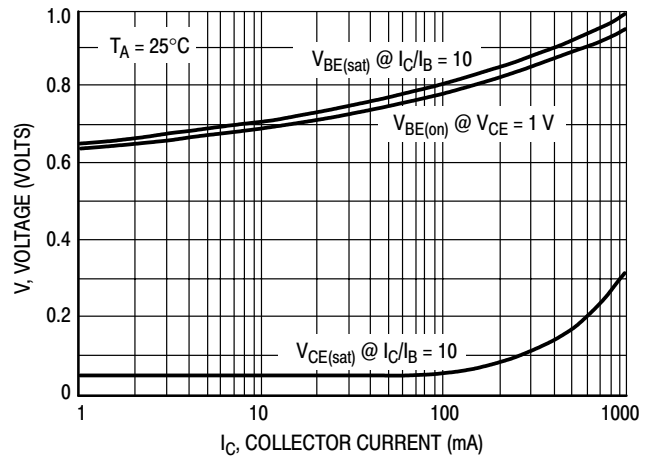


Figure 3. "On" Voltages

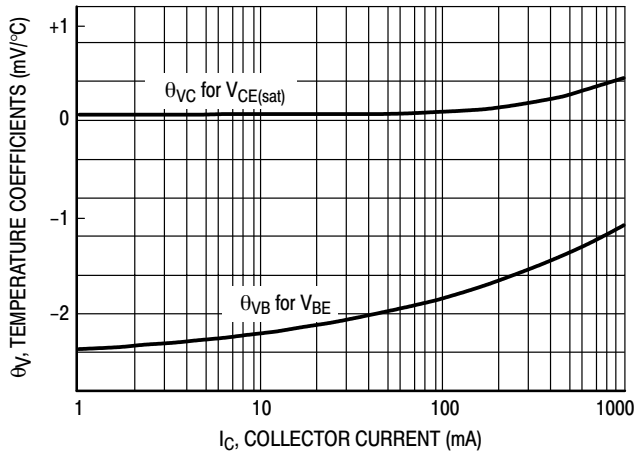


Figure 4. Temperature Coefficients

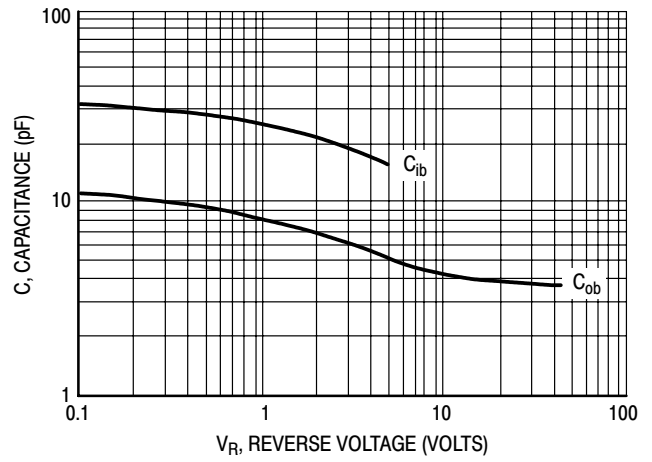


Figure 5. Capacitances

BC817-16LT1 BC817-25LT1 BC817-40LT1

ORDERING INFORMATION

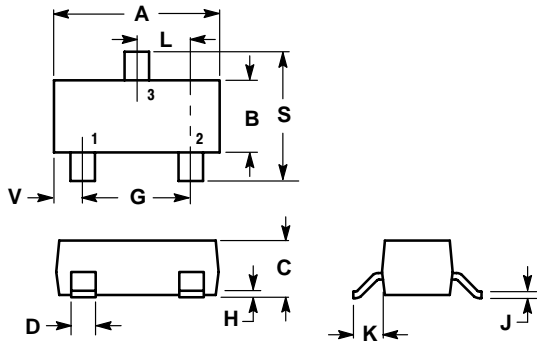
Device	Package	Shipping†
BC817-16LT1	SOT-23	3000 / Tape & Reel
BC817-16LT1G	SOT-23 (Pb-Free)	3000 / Tape & Reel
BC817-16LT3	SOT-23	10000 / Tape & Reel
BC817-25LT1	SOT-23	3000 / Tape & Reel
BC817-25LT1G	SOT-23 (Pb-Free)	3000 / Tape & Reel
BC817-25LT3	SOT-23	10000 / Tape & Reel
BC817-25LT3G	SOT-23 (Pb-Free)	10000 / Tape & Reel
BC817-40LT1	SOT-23	3000 / Tape & Reel
BC817-40LT1G	SOT-23 (Pb-Free)	3000 / Tape & Reel
BC817-40LT3	SOT-23	10000 / Tape & Reel
SBC817-40LT1	SOT-23	3000 / Tape & Reel
SBC817-40LT3	SOT-23	10000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

BC817-16LT1 BC817-25LT1 BC817-40LT1

PACKAGE DIMENSIONS

SOT-23 (TO-236)
CASE 318-08
ISSUE AH



NOTES:

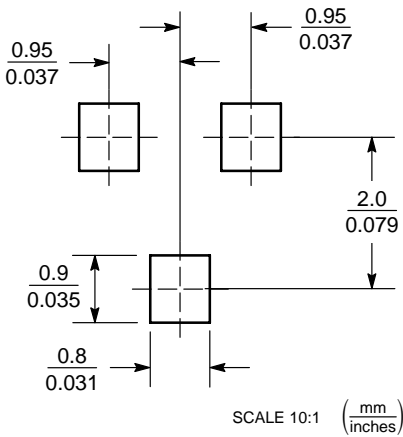
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. 318-03 AND -07 OBSOLETE, NEW STANDARD 318-08.

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

STYLE 6:

1. BASE
2. EMITTER
3. COLLECTOR

SOLDERING FOOTPRINT*



*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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