

# BC807-16LT1, BC807-25LT1, BC807-40LT1

## General Purpose Transistors

### PNP Silicon

#### Features

- Pb-Free Packages are Available

#### 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

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

#### THERMAL CHARACTERISTICS

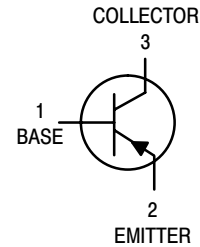
Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board, (Note 1) $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	225 1.8	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Total Device Dissipation Alumina Substrate,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

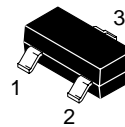


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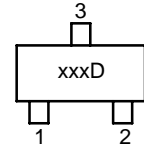
<http://onsemi.com>



#### MARKING DIAGRAM



SOT-23  
CASE 318  
STYLE 6



xxx = 5A (BC807-16LT1)  
5B1 (BC807-25LT1)  
5C (BC807-40LT1)  
D = Date Code

#### ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 2 of this data sheet.

# BC807-16LT1, BC807-25LT1, BC807-40LT1

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
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### OFF CHARACTERISTICS

Collector–Emitter Breakdown Voltage (I <sub>C</sub> = -10 mA)	V <sub>(BR)CEO</sub>	-45	-	-	V
Collector–Emitter Breakdown Voltage (V <sub>EB</sub> = 0, I <sub>C</sub> = -10 μA)	V <sub>(BR)CES</sub>	-50	-	-	V
Emitter–Base Breakdown Voltage (I <sub>E</sub> = -1.0 μA)	V <sub>(BR)EBO</sub>	-5.0	-	-	V
Collector Cutoff Current (V <sub>CB</sub> = -20 V) (V <sub>CB</sub> = -20 V, T <sub>J</sub> = 150°C)	I <sub>CBO</sub>	-	-	-100 -5.0	nA μA

### ON CHARACTERISTICS

DC Current Gain (I <sub>C</sub> = -100 mA, V <sub>CE</sub> = -1.0 V)  (I <sub>C</sub> = -500 mA, V <sub>CE</sub> = -1.0 V)	BC807-16 BC807-25 BC807-40	h <sub>FE</sub>	100 160 250 40	- - - -	250 400 600 -	-
Collector–Emitter Saturation Voltage (I <sub>C</sub> = -500 mA, I <sub>B</sub> = -50 mA)		V <sub>CE(sat)</sub>	-	-	-0.7	V
Base–Emitter On Voltage (I <sub>C</sub> = -500 mA, I <sub>B</sub> = -1.0 V)		V <sub>BE(on)</sub>	-	-	-1.2	V

### SMALL-SIGNAL CHARACTERISTICS

Current–Gain – Bandwidth Product (I <sub>C</sub> = -10 mA, V <sub>CE</sub> = -5.0 Vdc, f = 100 MHz)		f <sub>T</sub>	100	-	-	MHz
Output Capacitance (V <sub>CB</sub> = -10 V, f = 1.0 MHz)		C <sub>obo</sub>	-	10	-0.7	pF

### DEVICE ORDERING INFORMATION

Device	Package	Shipping†
BC807-16LT1	SOT-23	3,000 Tape & Reel
BC807-16LT3	SOT-23	10,000 Tape & Reel
BC807-25LT1	SOT-23	3,000 Tape & Reel
BC807-25LT1G	SOT-23 (Pb-Free)	
BC807-25LT3	SOT-23	10,000 Tape & Reel
BC807-40LT1	SOT-23	3,000 Tape & Reel
BC807-40LT1G	SOT-23 (Pb-Free)	
BC807-40LT3	SOT-23	10,000 Tape & Reel
BC807-40LT3G	SOT-23 (Pb-Free)	

†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.

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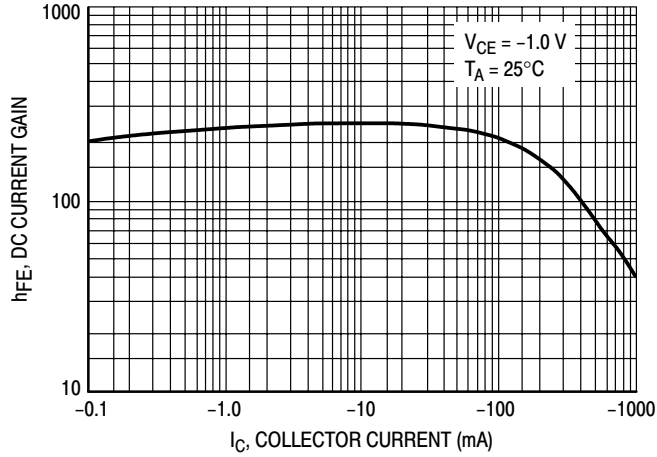


Figure 1. DC Current Gain

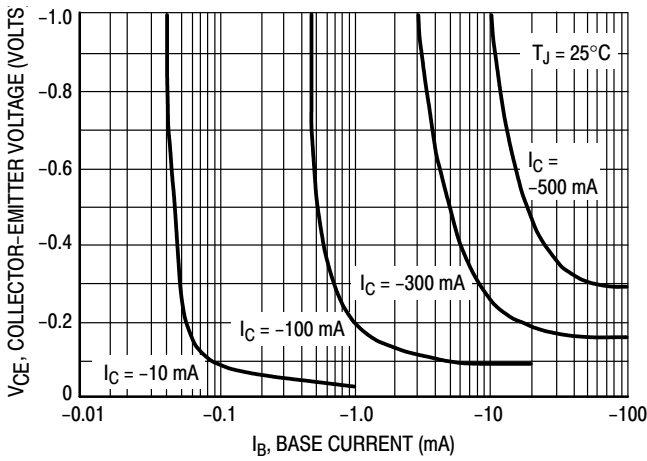


Figure 2. Saturation Region

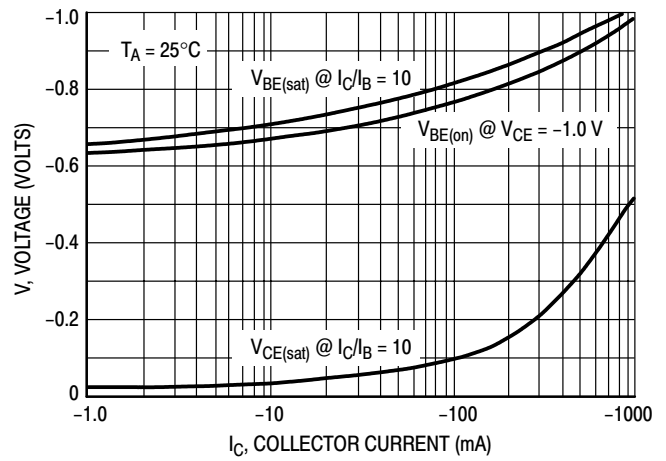


Figure 3. "On" Voltages

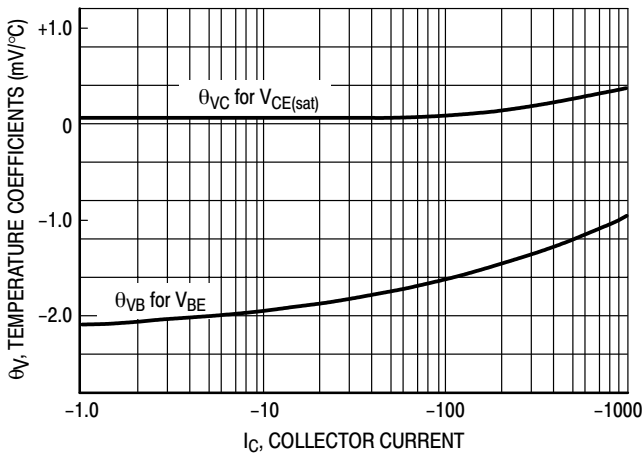


Figure 4. Temperature Coefficients

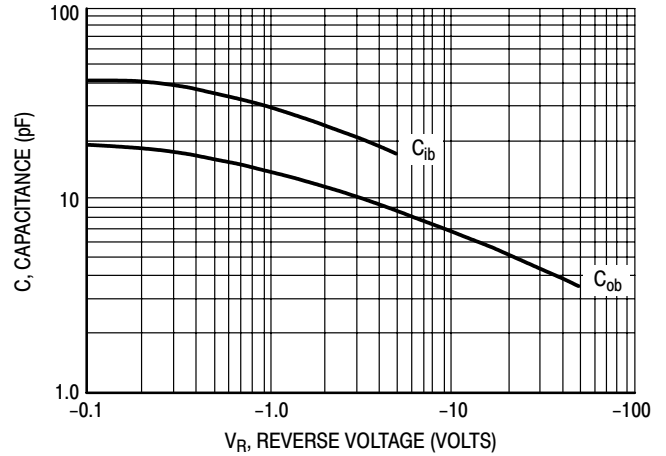
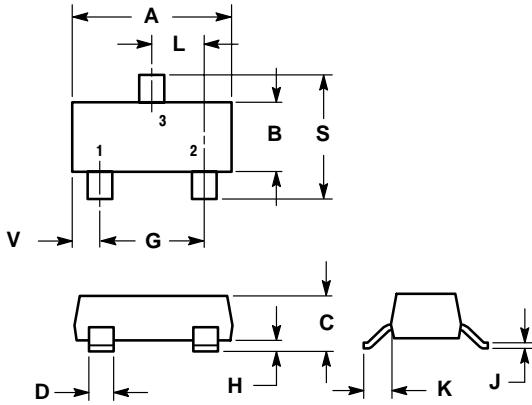


Figure 5. Capacitances

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## PACKAGE DIMENSIONS

### SOT-23 (TO-236) CASE 318-09 ISSUE AI



#### NOTES:

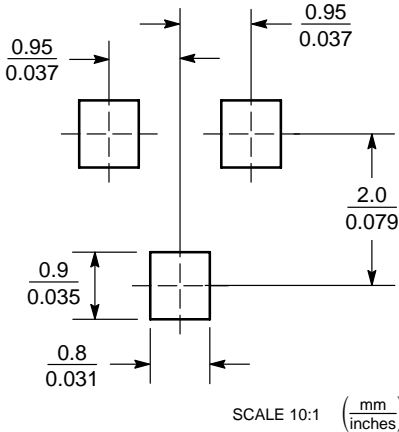
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. 318-01, -02, AND -06 OBSOLETE, NEW STANDARD 318-09.

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	0.0385	0.0498	0.99	1.26
D	0.0140	0.0200	0.36	0.50
G	0.0670	0.0826	1.70	2.10
H	0.0040	0.0098	0.10	0.25
J	0.0034	0.0070	0.085	0.177
K	0.0180	0.0236	0.45	0.60
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.0984	2.10	2.50
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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