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

General Purpose Transistors

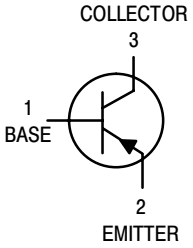
PNP Silicon

ON Semiconductor®

http://onsemi.com

Features

- Pb−Free Packages are Available



MAXIMUM RATINGS

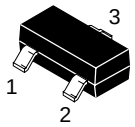
Rating	Symbol	Value	Unit
Collector − Emitter Voltage	V_{CEO}	−45	V
Collector − Base Voltage	V_{CBO}	−50	V
Emitter − Base Voltage	V_{EBO}	−5.0	V
Collector Current − Continuous	I_C	−500	mAdc

THERMAL CHARACTERISTICS

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

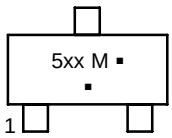
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur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

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.



SOT−23
CASE 318
STYLE 6

MARKING DIAGRAM



5xx = Device Code
xx = A1, B1, or C
M = Date Code*
▪ = Pb−Free Package

(Note: Microdot may be in either location)

*Date Code orientation and/or overbar may vary depending upon manufacturing location.

ORDERING INFORMATION

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

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

Characteristic		Symbol	Min	Typ	Max	Unit
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		I_{CBO}				
(V_{CB} = −20 V)			−	−	−100	nA
(V_{CB} = −20 V, T_J = 150°C)			−	−	−5.0	μA
ON CHARACTERISTICS						
DC Current Gain		h_{FE}				−
(I_C = −100 mA, V_{CE} = −1.0 V)	BC807−16		100	−	250	
	BC807−25		160	−	400	
	BC807−40		250	−	600	
(I_C = −500 mA, V_{CE} = −1.0 V)			40	−	−	
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, I_B = −1.0 V)		$V_{BE(on)}$	−	−	−1.2	V
SMALL−SIGNAL CHARACTERISTICS						
Current−Gain − Bandwidth Product (I_C = −10 mA, V_{CE} = −5.0 Vdc, f = 100 MHz)		f_T	100	−	−	MHz
Output Capacitance (V_{CB} = −10 V, f = 1.0 MHz)		C_{obo}	−	10	−0.7	pF

ORDERING INFORMATION

Device	Specific Marking	Package	Shipping†
BC807−16LT1	5A1	SOT−23	3000/Tape & Reel
BC807−16LT1G		SOT−23 (Pb−Free)	3000/Tape & Reel
BC807−16LT3		SOT−23	10,000/Tape & Reel
BC807−16LT3G		SOT−23 (Pb−Free)	10,000/Tape & Reel
BC807−25LT1	5B1	SOT−23	3000/Tape & Reel
BC807−25LT1G		SOT−23 (Pb−Free)	3000/Tape & Reel
BC807−25LT3		SOT−23	10,000/Tape & Reel
BC807−25LT3G		SOT−23 (Pb−Free)	10,000/Tape & Reel
BC807−40LT1	5C	SOT−23	3000/Tape & Reel
BC807−40LT1G		SOT−23 (Pb−Free)	3000/Tape & Reel
BC807−40LT3		SOT−23	10,000/Tape & Reel
BC807−40LT3G		SOT−23 (Pb−Free)	10,000/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.

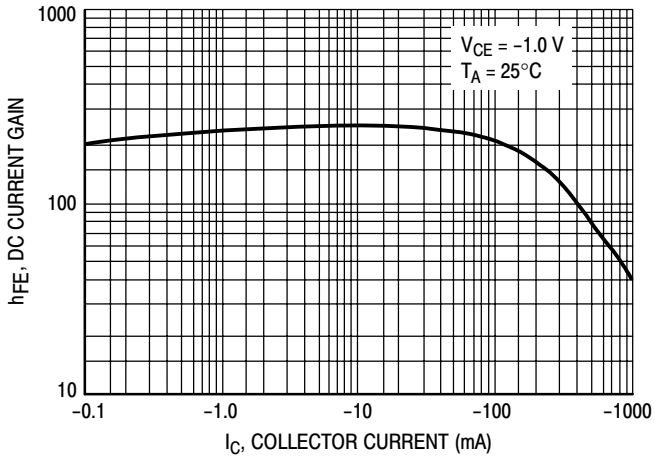


Figure 1. DC Current Gain

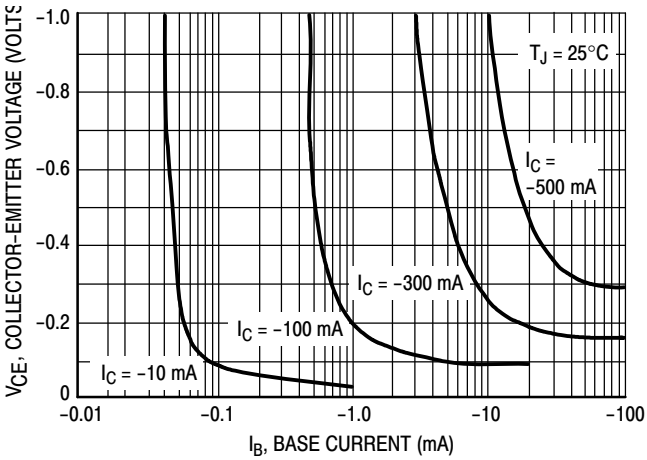


Figure 2. Saturation Region

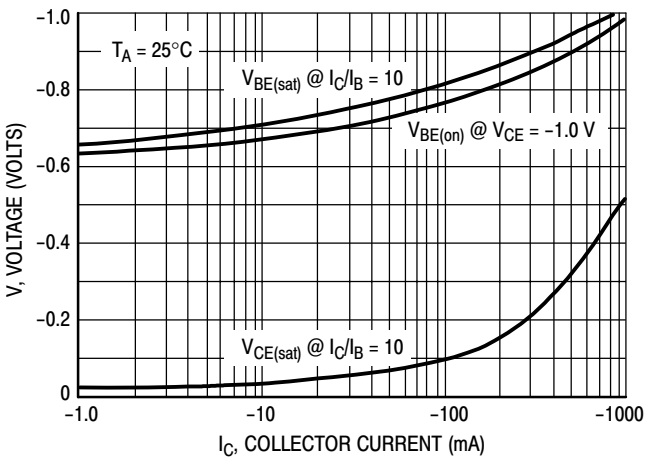


Figure 3. “On” Voltages

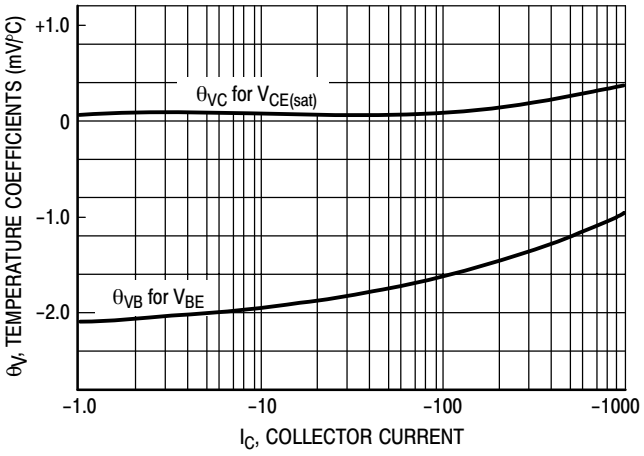


Figure 4. Temperature Coefficients

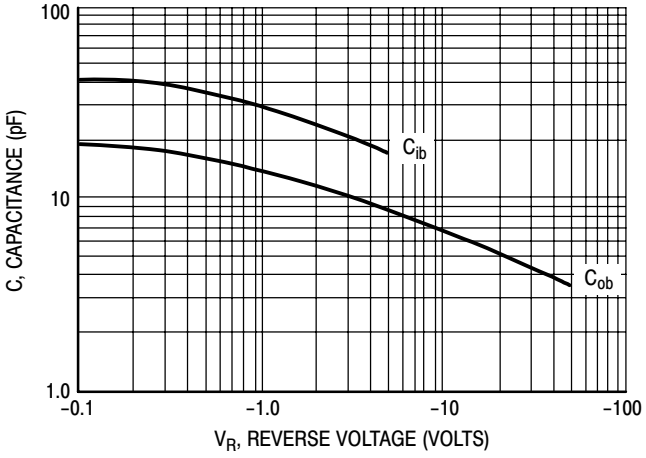
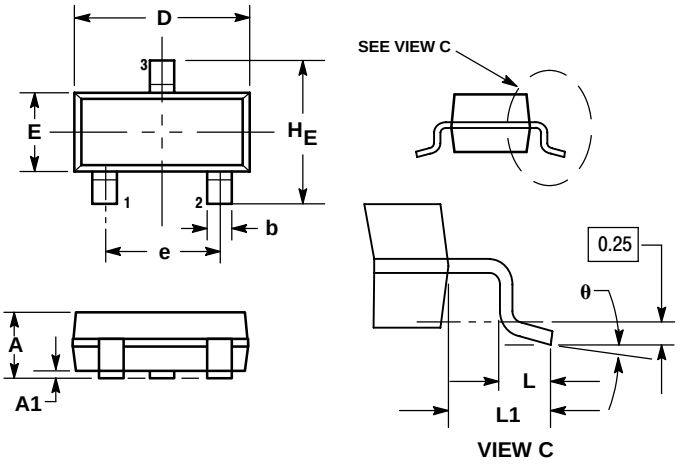


Figure 5. Capacitances

PACKAGE DIMENSIONS

SOT−23 (TO−236)
CASE 318−08
ISSUE AN

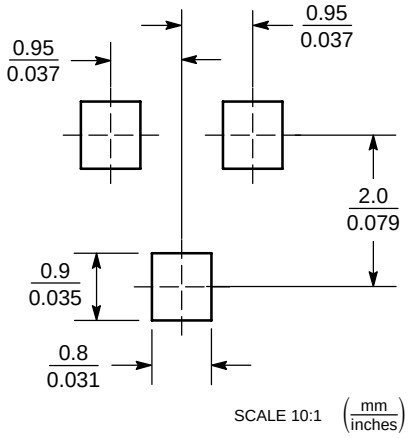


NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. 318−01 THRU −07 AND −09 OBSOLETE, NEW STANDARD 318−08.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1.00	1.11	0.035	0.040	0.044
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.37	0.44	0.50	0.015	0.018	0.020
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.90	3.04	0.110	0.114	0.120
E	1.20	1.30	1.40	0.047	0.051	0.055
e	1.78	1.90	2.04	0.070	0.075	0.081
L	0.10	0.20	0.30	0.004	0.008	0.012
L1	0.35	0.54	0.69	0.014	0.021	0.029
H_E	2.10	2.40	2.64	0.083	0.094	0.104

STYLE 6:
PIN 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.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 61312, Phoenix, Arizona 85082−1312 USA
Phone: 480−829−7710 or 800−344−3860 Toll Free USA/Canada
Fax: 480−829−7709 or 800−344−3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

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Japan: ON Semiconductor, Japan Customer Focus Center
2−9−1 Kamimeguro, Meguro−ku, Tokyo, Japan 153−0051
Phone: 81−3−5773−3850

ON Semiconductor Website: http://onsemi.com

Order Literature: http://www.onsemi.com/litorder

For additional information, please contact your local Sales Representative.

BC807−16LT1/D