

# BC808-25LT1G, BC808-40LT1G

## General Purpose Transistors

### PNP Silicon

#### Features

- S Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

#### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector – Emitter Voltage	$V_{CEO}$	-25	V
Collector – Base Voltage	$V_{CBO}$	-30	V
Emitter – Base Voltage	$V_{EBO}$	-5.0	V
Collector Current – Continuous	$I_C$	-500	mA <sub>dc</sub>

#### 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	$^\circ\text{C}$

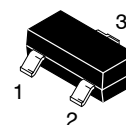
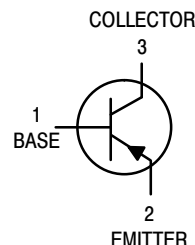
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

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.



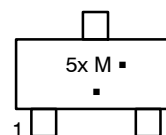
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SOT-23  
CASE 318  
STYLE 6

#### MARKING DIAGRAM



- 5x = Device Code
- x = F or G
- 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.

# BC808-25LT1G, BC808-40LT1G

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

Characteristic	Symbol	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>					
Collector – Emitter Breakdown Voltage (I <sub>C</sub> = -10 mA)	V <sub>(BR)CEO</sub>	-25	-	-	V
Collector – Emitter Breakdown Voltage (V <sub>EB</sub> = 0, I <sub>C</sub> = -10 μA)	V <sub>(BR)CES</sub>	-30	-	-	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
<b>ON CHARACTERISTICS</b>					
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)	h <sub>FE</sub>  BC808-25LT1G BC808-40LT1G	160 250 40	- - -	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
<b>SMALL-SIGNAL CHARACTERISTICS</b>					
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	-	pF

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

## ORDERING INFORMATION

Device	Specific Marking	Package	Shipping†
BC808-25LT1G	5F	SOT-23 (Pb-Free)	3000 / Tape & Reel
SBC808-25LT1G			
BC808-40LT1G	5G	SOT-23 (Pb-Free)	3000 / 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.

# BC808-25LT1G, BC808-40LT1G

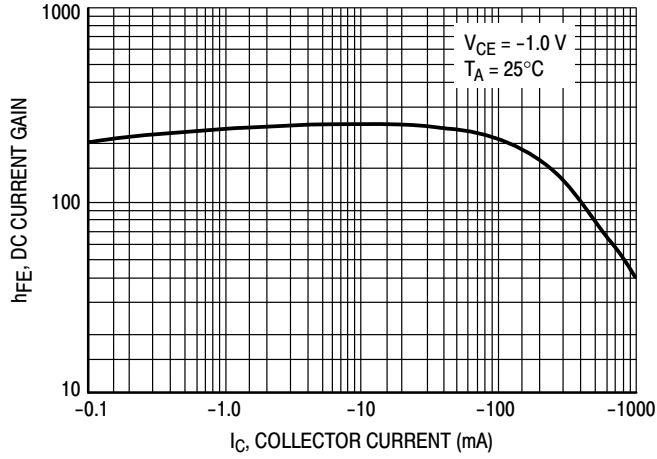


Figure 1. DC Current Gain

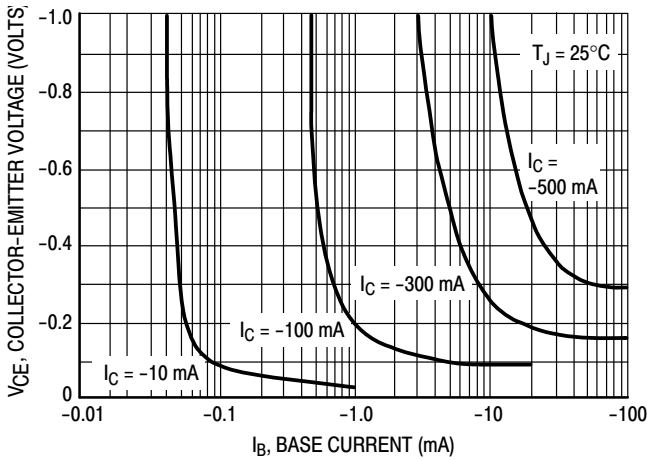


Figure 2. Saturation Region

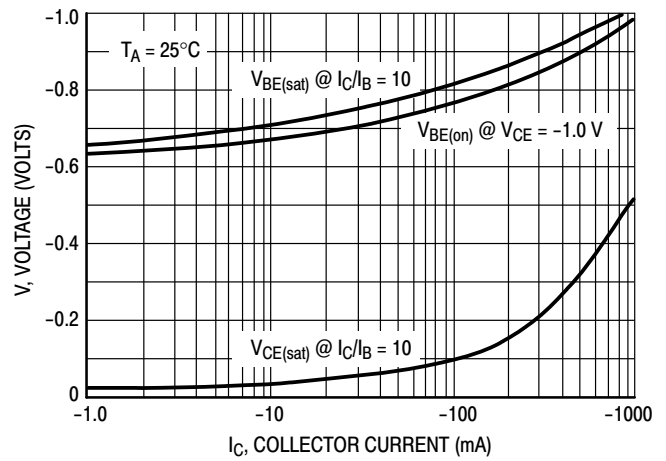


Figure 3. "On" Voltages

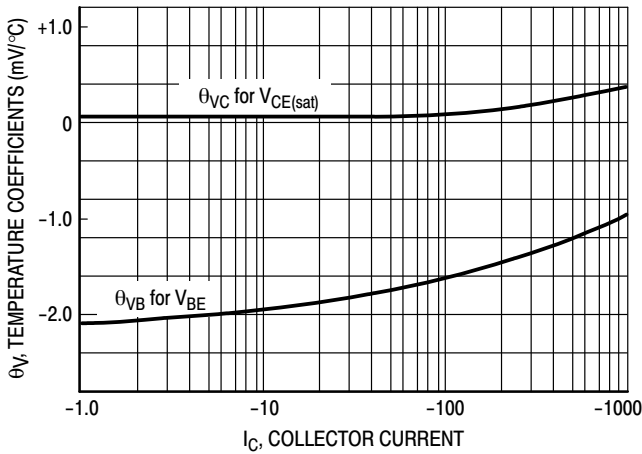


Figure 4. Temperature Coefficients

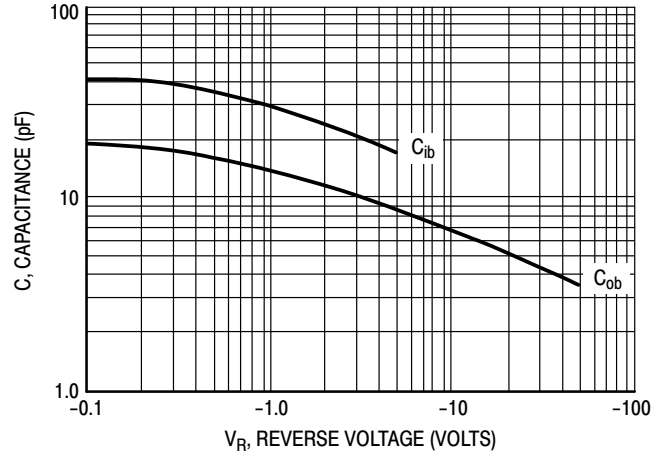
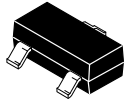


Figure 5. Capacitances

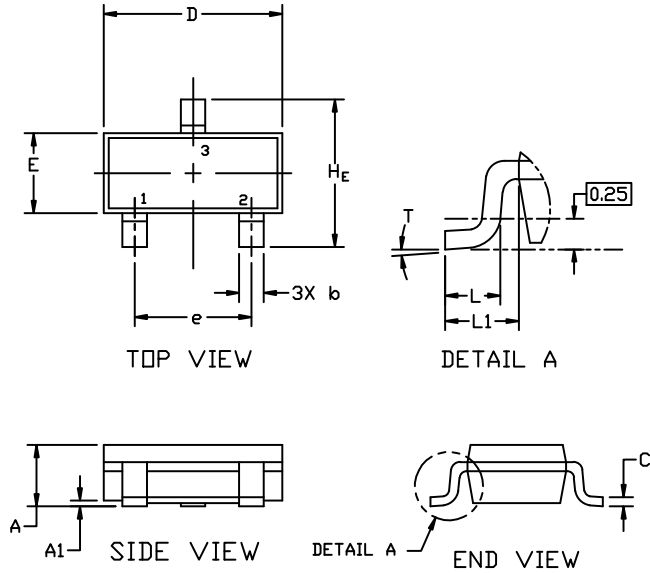
# MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS



**SOT-23 (TO-236)**  
CASE 318  
ISSUE AT

DATE 01 MAR 2023

SCALE 4:1



**NOTES:**

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M,1994.
2. CONTROLLING DIMENSION: MILLIMETERS
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF THE BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

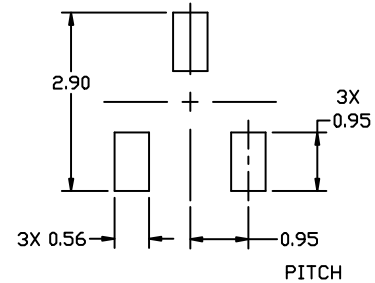
DIM	MILLIMETERS			INCHES		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	0.89	1.00	1.11	0.035	0.039	0.044
A1	0.01	0.06	0.10	0.000	0.002	0.004
b	0.37	0.44	0.50	0.015	0.017	0.020
c	0.08	0.14	0.20	0.003	0.006	0.008
D	2.80	2.90	3.04	0.110	0.114	0.120
E	1.20	1.30	1.40	0.047	0.051	0.055
e	1.78	1.90	2.04	0.070	0.075	0.080
L	0.30	0.43	0.55	0.012	0.017	0.022
L1	0.35	0.54	0.69	0.014	0.021	0.027
H <sub>E</sub>	2.10	2.40	2.64	0.083	0.094	0.104
T	0°	---	10°	0°	---	10°

**GENERIC MARKING DIAGRAM\***



- XXX = 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. Some products may not follow the Generic Marking.



**RECOMMENDED MOUNTING 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.

**STYLES ON PAGE 2**

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**MECHANICAL CASE OUTLINE**  
**PACKAGE DIMENSIONS**



**SOT-23 (TO-236)**  
**CASE 318**  
**ISSUE AT**

DATE 01 MAR 2023

STYLE 1 THRU 5:  
 CANCELLED

STYLE 6:  
 PIN 1. BASE  
 2. EMITTER  
 3. COLLECTOR

STYLE 7:  
 PIN 1. EMITTER  
 2. BASE  
 3. COLLECTOR

STYLE 8:  
 PIN 1. ANODE  
 2. NO CONNECTION  
 3. CATHODE

STYLE 9:  
 PIN 1. ANODE  
 2. ANODE  
 3. CATHODE

STYLE 10:  
 PIN 1. DRAIN  
 2. SOURCE  
 3. GATE

STYLE 11:  
 PIN 1. ANODE  
 2. CATHODE  
 3. CATHODE-ANODE

STYLE 12:  
 PIN 1. CATHODE  
 2. CATHODE  
 3. ANODE

STYLE 13:  
 PIN 1. SOURCE  
 2. DRAIN  
 3. GATE

STYLE 14:  
 PIN 1. CATHODE  
 2. GATE  
 3. ANODE

STYLE 15:  
 PIN 1. GATE  
 2. CATHODE  
 3. ANODE

STYLE 16:  
 PIN 1. ANODE  
 2. CATHODE  
 3. CATHODE

STYLE 17:  
 PIN 1. NO CONNECTION  
 2. ANODE  
 3. CATHODE

STYLE 18:  
 PIN 1. NO CONNECTION  
 2. CATHODE  
 3. ANODE

STYLE 19:  
 PIN 1. CATHODE  
 2. ANODE  
 3. CATHODE-ANODE

STYLE 20:  
 PIN 1. CATHODE  
 2. ANODE  
 3. GATE

STYLE 21:  
 PIN 1. GATE  
 2. SOURCE  
 3. DRAIN

STYLE 22:  
 PIN 1. RETURN  
 2. OUTPUT  
 3. INPUT

STYLE 23:  
 PIN 1. ANODE  
 2. ANODE  
 3. CATHODE

STYLE 24:  
 PIN 1. GATE  
 2. DRAIN  
 3. SOURCE

STYLE 25:  
 PIN 1. ANODE  
 2. CATHODE  
 3. GATE

STYLE 26:  
 PIN 1. CATHODE  
 2. ANODE  
 3. NO CONNECTION

STYLE 27:  
 PIN 1. CATHODE  
 2. CATHODE  
 3. CATHODE

STYLE 28:  
 PIN 1. ANODE  
 2. ANODE  
 3. ANODE

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