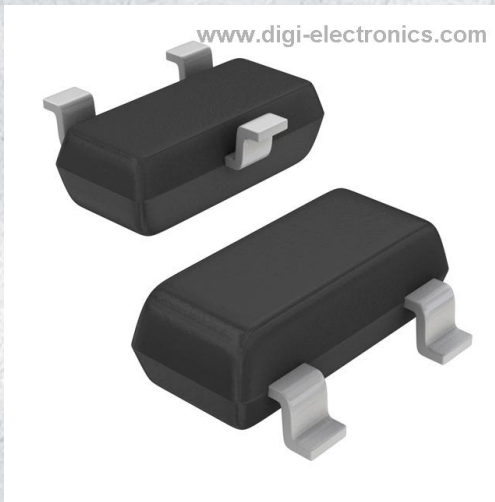


# BC818-40LT1G Datasheet



<https://www.DiGi-Electronics.com>

DiGi Electronics Part Number	BC818-40LT1G-DG
Manufacturer	<a href="#">onsemi</a>
Manufacturer Product Number	BC818-40LT1G
Description	TRANS NPN 25V 0.5A SOT23-3
Detailed Description	Bipolar (BJT) Transistor NPN 25 V 500 mA 100MHz 2 25 mW Surface Mount SOT-23-3 (TO-236)



Tel: +00 852-30501935

RFQ Email: [Info@DiGi-Electronics.com](mailto:Info@DiGi-Electronics.com)

DiGi is a global authorized distributor of electronic components.

## Purchase and inquiry

Manufacturer Product Number:

BC818-40LT1G

Series:

-

Transistor Type:

NPN

Voltage - Collector Emitter Breakdown (Max):

25 V

Current - Collector Cutoff (Max):

100nA (ICBO)

Power - Max:

225 mW

Operating Temperature:

-55°C ~ 150°C (TJ)

Package / Case:

TO-236-3, SC-59, SOT-23-3

Base Product Number:

BC818

Manufacturer:

onsemi

Product Status:

Active

Current - Collector (Ic) (Max):

500 mA

Vce Saturation (Max) @ Ib, Ic:

700mV @ 50mA, 500mA

DC Current Gain (hFE) (Min) @ Ic, Vce:

250 @ 100mA, 1V

Frequency - Transition:

100MHz

Mounting Type:

Surface Mount

Supplier Device Package:

SOT-23-3 (TO-236)

## Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.21.0075

Moisture Sensitivity Level (MSL):

1 (Unlimited)

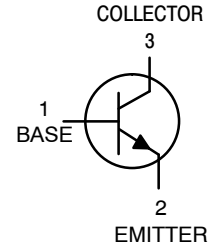
ECCN:

EAR99

# General Purpose Transistors

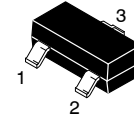
## NPN Silicon

### BC818-40L, NSVBC818-40L



#### Features

- NSV 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



SOT-23  
CASE 318  
STYLE 6

#### 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>

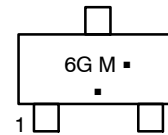
#### THERMAL CHARACTERISTICS

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.

#### MARKING DIAGRAM



6G = Specific Device Code  
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

Device	Package	Shipping <sup>†</sup>
BC818-40LT1G	SOT-23 (Pb-Free)	3000 / Tape & Reel
NSVBC818-40LT1G	SOT-23 (Pb-Free)	3000 / Tape & Reel

<sup>†</sup>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.

**BC818-40L, NSVBC818-40L****ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>					
Collector - Emitter Breakdown Voltage ( $I_C = 10\text{ mA}$ )	$V_{(BR)CEO}$	25	-	-	V
Collector - Emitter Breakdown Voltage ( $V_{EB} = 0, I_C = 10\ \mu\text{A}$ )	$V_{(BR)CES}$	30	-	-	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 $\mu\text{A}$

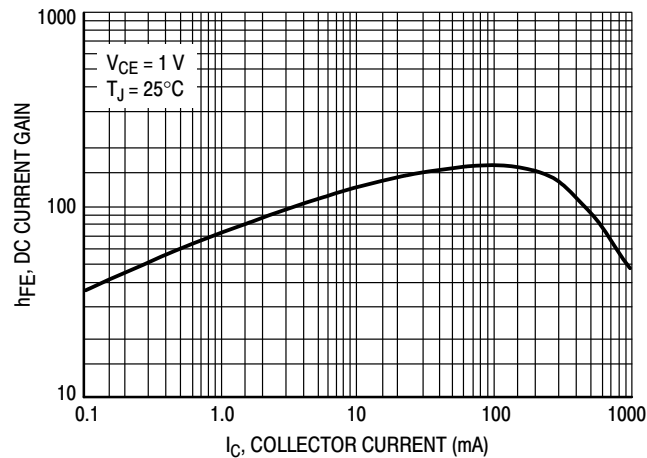
**ON CHARACTERISTICS**

DC Current Gain ( $I_C = 100\text{ mA}, V_{CE} = 1.0\text{ V}$ ) ( $I_C = 500\text{ mA}, V_{CE} = 1.0\text{ V}$ )	$h_{FE}$	250 40	- -	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

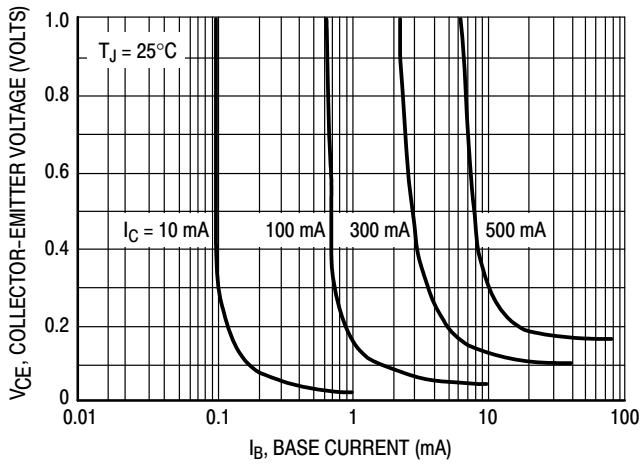
**SMALL-SIGNAL CHARACTERISTICS**

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

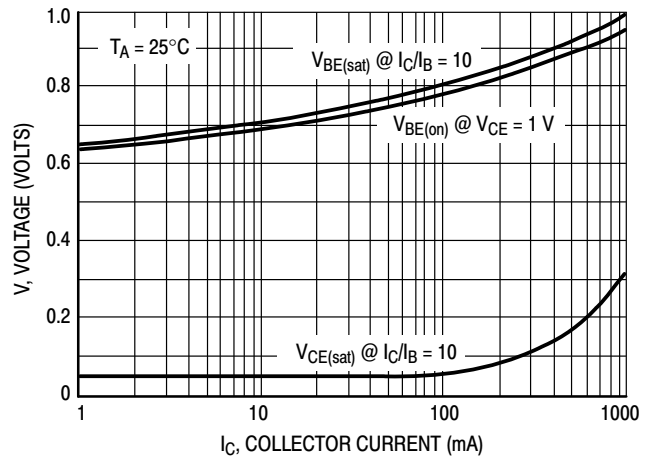
Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

**Figure 1. DC Current Gain**

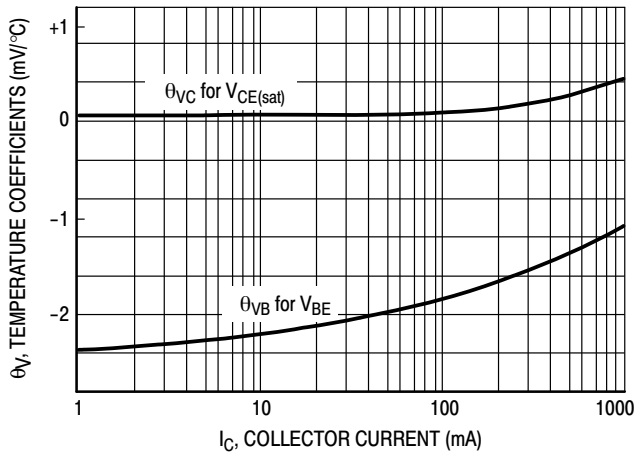
**BC818-40L, NSVBC818-40L**



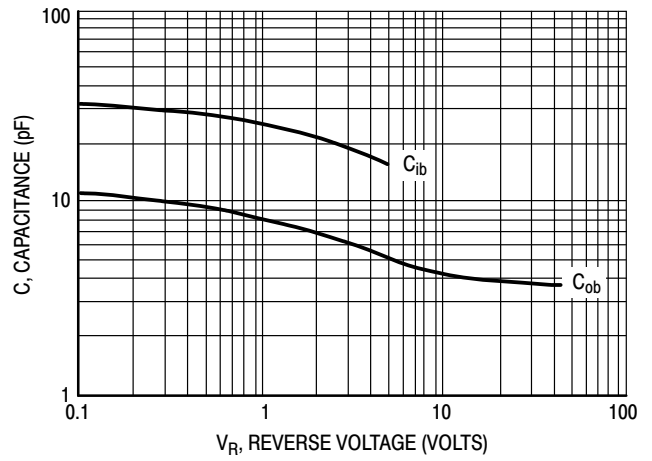
**Figure 2. Saturation Region**



**Figure 3. "On" Voltages**



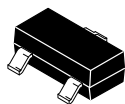
**Figure 4. Temperature Coefficients**



**Figure 5. Capacitances**



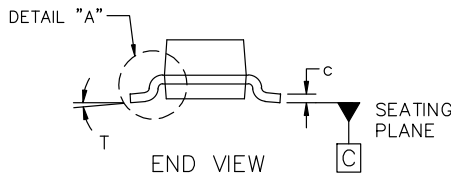
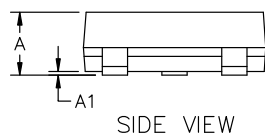
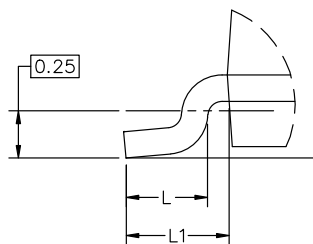
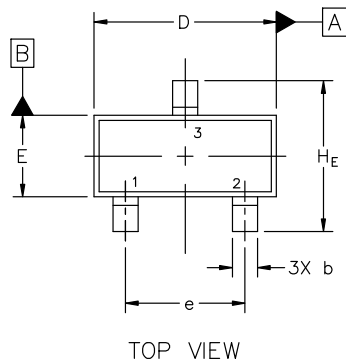
**MECHANICAL CASE OUTLINE  
PACKAGE DIMENSIONS**



SCALE 4:1

**SOT-23 (TO-236) 2.90x1.30x1.00 1.90P**  
CASE 318  
ISSUE AU

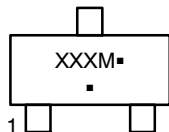
DATE 14 AUG 2024



MILLIMETERS			
DIM	MIN	NOM	MAX
A	0.89	1.00	1.11
A1	0.01	0.06	0.10
b	0.37	0.44	0.50
c	0.08	0.14	0.20
D	2.80	2.90	3.04
E	1.20	1.30	1.40
e	1.78	1.90	2.04
L	0.30	0.43	0.55
L1	0.35	0.54	0.69
HE	2.10	2.40	2.64
T	0°	---	10°

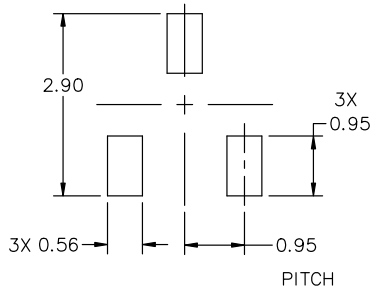
- NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
  2. CONTROLLING DIMENSIONS: MILLIMETERS.
  3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF THE BASE MATERIAL.
  4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

**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.



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

**STYLES ON PAGE 2**

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<b>DESCRIPTION:</b>	<b>SOT-23 (TO-236) 2.90x1.30x1.00 1.90P</b>	<b>PAGE 1 OF 2</b>

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**SOT-23 (TO-236) 2.90x1.30x1.00 1.90P**  
**CASE 318**  
**ISSUE AU**

DATE 14 AUG 2024

- 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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