

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

MAXIMUM RATINGS

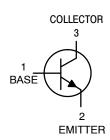
Rating	Symbol	Value	Unit
Collector - Emitter Voltage	V_{CEO}	25	V
Collector - Base Voltage	V_{CBO}	30	V
Emitter – Base Voltage	V_{EBO}	5.0	V
Collector Current - Continuous	Ic	500	mAdc

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
·			

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. $FR-5 = 1.0 \times 0.75 \times 0.062$ in.
- 2. Alumina = $0.4 \times 0.3 \times 0.024$ in 99.5% alumina.





SOT-23 CASE 318 STYLE 6

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 [†]
BC818-40LT1G	SOT-23 (Pb-Free)	3000 / Tape & Reel
NSVBC818-40LT1G	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.

BC818-40L, NSVBC818-40L

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

Characteristic	Symbol	Min	Тур	Max	Unit
OFF CHARACTERISTICS					
Collector – Emitter Breakdown Voltage (I _C = 10 mA)	V _{(BR)CEO}	25	_	-	V
Collector – Emitter Breakdown Voltage (V _{EB} = 0, I _C = 10 μA)	V _{(BR)CES}	30	-	-	V
Emitter – Base Breakdown Voltage $(I_E = 1.0 \mu A)$	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 $(I_C = 100 \text{ mA}, V_{CE} = 1.0 \text{ V})$ $(I_C = 500 \text{ mA}, V_{CE} = 1.0 \text{ V})$	h _{FE}	250 40	- -	600 -	_
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, V _{CE} = 1.0 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 V, f = 1.0 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.

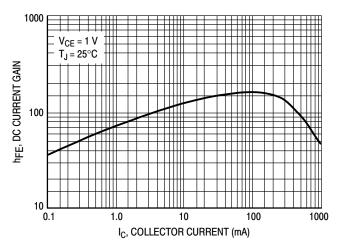


Figure 1. DC Current Gain

BC818-40L, NSVBC818-40L

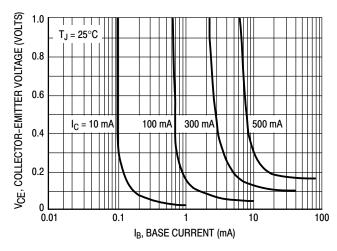


Figure 2. Saturation Region

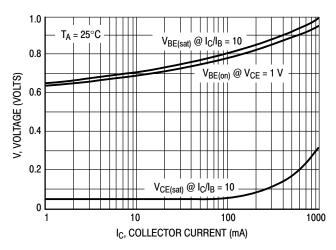


Figure 3. "On" Voltages

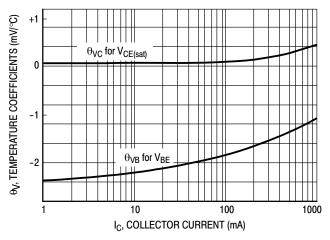


Figure 4. Temperature Coefficients

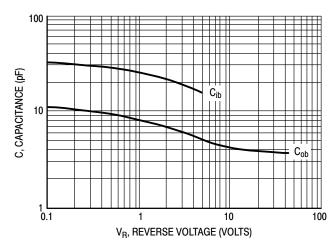


Figure 5. Capacitances

MILLIMETERS

MIN

0.89

0.01

0.37

0.08

2.80

1.20

1.78

0.30

0.35

2.10

O°

NOM

1.00

0.06

0.44

0.14

2.90

1.30

1.90

0.43

0.54

2.40





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

DATE 14 AUG 2024

MAX

1.11

0.10

0.50

0.20

3.04

1.40

2.04

0.55

0.69

2.64

10°





DETAIL "A" Scale 3:1







NOTES:

DIM

Α

Α1

b

С

D

Ε

е L

L1

HE

Τ

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

GENERIC MARKING DIAGRAM*



XXX = Specific Device Code

= Date Code

= Pb-Free Package

RECOMMENDED MOUNTING FOOTPRINT

* 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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^{*}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.

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 9: PIN 1. ANODE 2. ANODE 3. CATHODE	STYLE 10: PIN 1. DRAIN 2. SOURCE 3. GATE	2. CATHODE 2.	2: STYLE 13: CATHODE PIN 1. SOURCE CATHODE 2. DRAIN ANODE 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	2. ANODE 2.	3: STYLE 19: NO CONNECTION PIN 1. CATHODE CATHODE 2. ANODE 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 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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