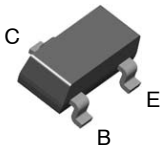
NPN Low-Saturation Transistor

NSVFSB560ALT1G



SOT−23/SUPERSOT™ −23
CASE 527AG

Description

This device is designed with high−current gain and low−saturation voltage with collector currents up to 2 A continuous.

Features

- NSV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC−Q101 Qualified and PPAP Capable
- This is a Pb−Free Device

ABSOLUTE MAXIMUM RATINGS

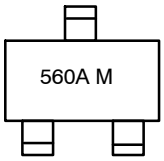
(T_A = 25°C unless otherwise noted) (Note 1, Note 2)

Symbol	Parameter	Value	Unit
V_{CEO}	Collector−Emitter Voltage	60	V
V_{CBO}	Collector−Base Voltage	80	V
V_{EBO}	Emitter−Base Voltage	5	V
I_C	Collector Current − Continuous	2	A
T_J, T_{STG}	Operating and Storage Junction Temperature Range	−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. These ratings are based on a maximum junction temperature of 150°C.
2. These are steady−state limits. **onsemi** should be consulted on applications involving pulsed or low−duty−cycle operations.

MARKING DIAGRAM



560A = Specific Device Code
M = Date Code

ORDERING INFORMATION

Device	Package	Shipping†
NSVFSB560ALT1G	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 Specification Brochure, BRD8011/D.

THERMAL CHARACTERISTICS (T_A = 25°C unless otherwise noted) (Note 3)

Symbol	Parameter	Max	Unit
P_D	Total Device Dissipation	500	mW
	Derate Above 25°C	4	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction−to−Ambient	250	°C/W

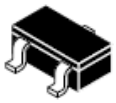
3. PCB size: FR−4, 76 mm × 114 mm × 1.57 mm (3.0 inch × 4.5 inch × 0.062 inch) with minimum land pattern size.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted) (Note 4)

Symbol	Parameter	Test Conditions	Min	Max	Unit
BV_{CEO}	Collector−Emitter Breakdown Voltage	I_C = 10 mA, I_B = 0	60	–	V
BV_{CBO}	Collector−Base Breakdown Voltage	I_C = 100 μA, I_E = 0	80	–	V
BV_{EBO}	Emitter−Base Breakdown Voltage	I_E = 100 μA, I_C = 0	5	–	V
I_{CBO}	Collector Cut−Off Current	V_{CB} = 30 V, I_E = 0	–	100	nA
		V_{CB} = 30 V, I_E = 0, T_A = 100°C	–	10	μA
I_{EBO}	Emitter Cut−Off Current	V_{EB} = 4 V, I_C = 0	–	100	nA
h_{FE}	DC Current Gain (Note 4)	I_C = 100 mA, V_{CE} = 2 V	70	–	
		I_C = 500 mA, V_{CE} = 2 V	250	550	
		I_C = 1 A, V_{CE} = 2 V	80	–	
		I_C = 2 A, V_{CE} = 2 V	40	–	
V_{CE}(sat)	Collector−Emitter Saturation Voltage (Note 4)	I_C = 1 A, I_B = 100 mA	–	300	mV
		I_C = 2 A, I_B = 200 mA	–	300	
V_{BE}(sat)	Base−Emitter Saturation Voltage (Note 4)	I_C = 1 A, I_B = 100 mA	–	1.25	V
V_{BE}(on)	Base−Emitter On Voltage (Note 4)	I_C = 1 A, V_{CE} = 2 V	–	1	V
C_{obo}	Output Capacitance	V_{CB} = 10 V, I_E = 0, f = 1.0 MHz	–	30	pF
f_T	Transition Frequency	I_C = 100 mA, V_{CE} = 5 V, f = 100 MHz	75		MHz

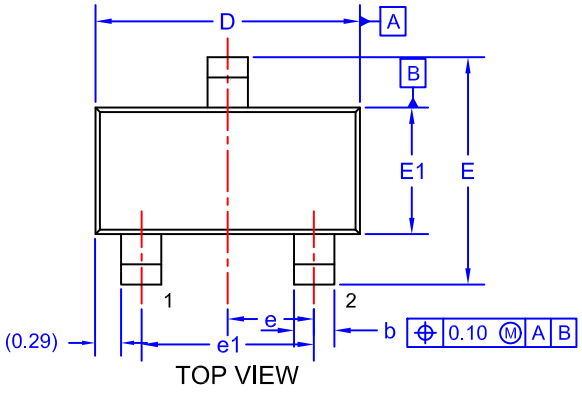
Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

4. Pulse test: pulse width ≤ 300 μs, duty cycle ≤ 2.0%.



SOT−23/SUPERSOT™ −23, 3 LEAD, 1.4x2.9
CASE 527AG
ISSUE A

DATE 09 DEC 2019

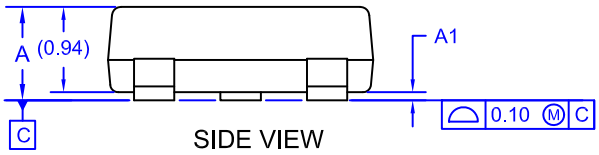


TOP VIEW

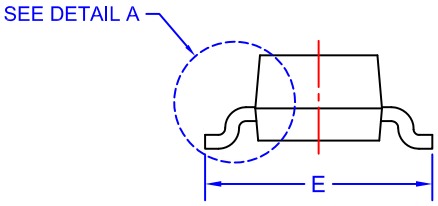
NOTES: UNLESS OTHERWISE SPECIFIED

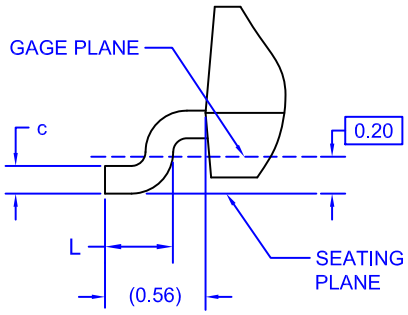
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2009.
2. ALL DIMENSIONS ARE IN MILLIMETERS.
3. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR EXTRUSIONS.

DIM	MIN.	NOM.	MAX.
A	0.85	0.95	1.12
A1	0.00	0.05	0.10
b	0.370	0.435	0.508
c	0.085	0.150	0.180
D	2.80	2.92	3.04
E	2.31	2.51	2.71
E1	1.20	1.40	1.52
e	0.95 BSC		
e1	1.90 BSC		
L	0.33	0.38	0.43

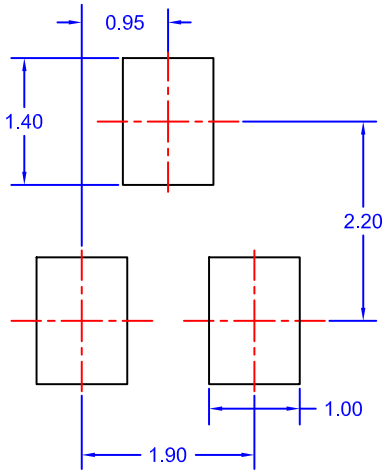


SIDE VIEW





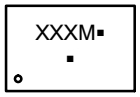
DETAIL A



LAND PATTERN RECOMMENDATION*

*FOR ADDITIONAL INFORMATION ON OUR Pb-FREE STRATEGY AND SOLDERING DETAILS, PLEASE DOWNLOAD THE ON SEMICONDUCTOR SOLDERING AND MOUNTING TECHNIQUES REFERENCE MANUAL, SOLDERRM/D.

GENERIC MARKING DIAGRAM*



XXX = Specific Device Code
M = Month Code
▪ = Pb−Free Package

(Note: Microdot may be in either location)

*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.

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DESCRIPTION:	**SOT−23/SUPERSOT−23, 3 LEAD, 1.4X2.9**	**PAGE 1 OF 1**

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