

NPN Low-Saturation Transistor

NSVFSB560ALT1G

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

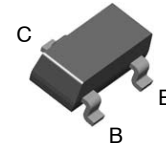
ABSOLUTE MAXIMUM RATINGS

($T_A = 25^\circ\text{C}$ 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	$^\circ\text{C}$

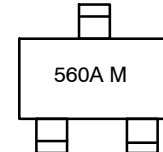
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. 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.



SOT-23/SUPERSOT™ -23
CASE 527AG

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](#).

NSVFSB560ALT1G

THERMAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted) (Note 3)

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

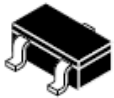
3. PCB size: FR-4, 76 mm $\times$ 114 mm $\times$ 1.57 mm (3.0 inch $\times$ 4.5 inch $\times$ 0.062 inch) with minimum land pattern size.

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted) (Note 4)

Symbol	Parameter	Test Conditions	Min	Max	Unit
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_C = 10\text{ mA}$, $I_B = 0$	60	–	V
BV_{CBO}	Collector-Base Breakdown Voltage	$I_C = 100\text{ }\mu\text{A}$, $I_E = 0$	80	–	V
BV_{EBO}	Emitter-Base Breakdown Voltage	$I_E = 100\text{ }\mu\text{A}$, $I_C = 0$	5	–	V
I_{CBO}	Collector Cut-Off Current	$V_{CB} = 30\text{ V}$, $I_E = 0$	–	100	nA
		$V_{CB} = 30\text{ V}$, $I_E = 0$, $T_A = 100^\circ\text{C}$	–	10	μA
I_{EBO}	Emitter Cut-Off Current	$V_{EB} = 4\text{ V}$, $I_C = 0$	–	100	nA
h_{FE}	DC Current Gain (Note 4)	$I_C = 100\text{ mA}$, $V_{CE} = 2\text{ V}$	70	–	
		$I_C = 500\text{ mA}$, $V_{CE} = 2\text{ V}$	250	550	
		$I_C = 1\text{ A}$, $V_{CE} = 2\text{ V}$	80	–	
		$I_C = 2\text{ A}$, $V_{CE} = 2\text{ V}$	40	–	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage (Note 4)	$I_C = 1\text{ A}$, $I_B = 100\text{ mA}$	–	300	mV
		$I_C = 2\text{ A}$, $I_B = 200\text{ mA}$	–	300	
$V_{BE(sat)}$	Base-Emitter Saturation Voltage (Note 4)	$I_C = 1\text{ A}$, $I_B = 100\text{ mA}$	–	1.25	V
$V_{BE(on)}$	Base-Emitter On Voltage (Note 4)	$I_C = 1\text{ A}$, $V_{CE} = 2\text{ V}$	–	1	V
C_{obo}	Output Capacitance	$V_{CB} = 10\text{ V}$, $I_E = 0$, $f = 1.0\text{ MHz}$	–	30	pF
f_T	Transition Frequency	$I_C = 100\text{ mA}$, $V_{CE} = 5\text{ V}$, $f = 100\text{ MHz}$	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 $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2.0\%$.

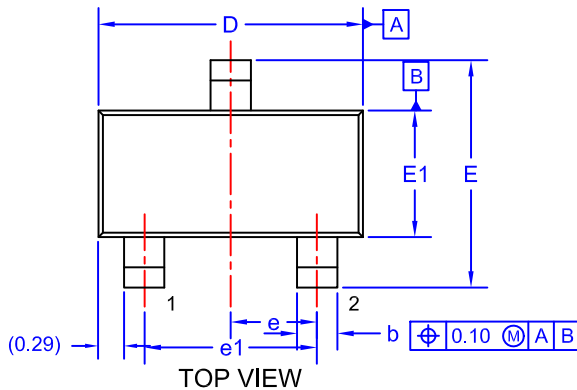


SOT-23/SUPERSOT™ –23, 3 LEAD, 1.4x2.9

CASE 527AG

ISSUE A

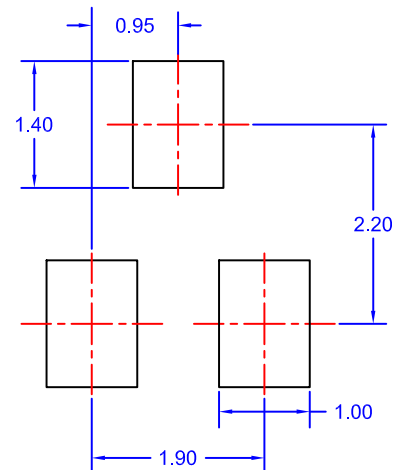
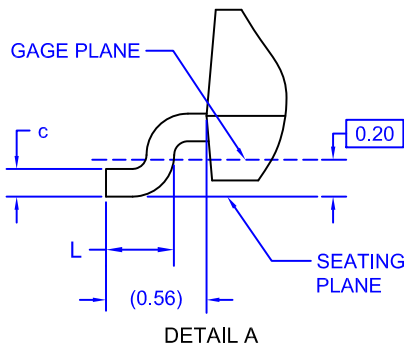
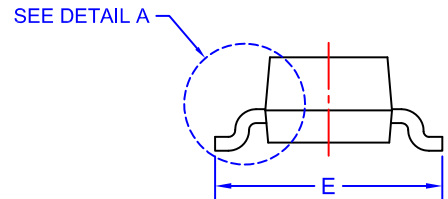
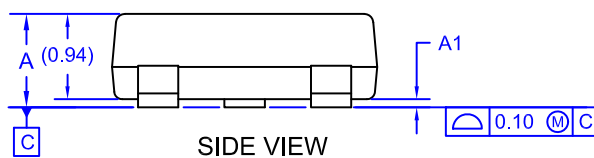
DATE 09 DEC 2019



NOTES: UNLESS OTHERWISE SPECIFIED

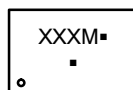
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2009.
2. ALL DIMENSIONS ARE IN MILLIMETERS.
3. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR EXTRUSIONS.

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



*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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