

# Common Anode Schottky Barrier Diodes

# BAS40-06LT1G, SBAS40-06LT1G

These Schottky barrier diodes are designed for high speed switching applications, circuit protection, and voltage clamping. Extremely low forward voltage reduces conduction loss. Miniature surface mount package is excellent for hand held and portable applications where space is limited.

#### **Features**

- Extremely Fast Switching Speed
- Low Forward Voltage
- 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
Reverse Voltage	V <sub>R</sub>	40	V

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.

## THERMAL CHARACTERISTICS

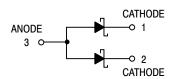
Characteristic	Symbol	Max	Unit
Forward Power Dissipation @ T <sub>A</sub> = 25°C Derate above 25°C	P <sub>F</sub>	225 1.8	mW mW/°C
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 to +150	°C
Forward Continuous Current	I <sub>FM</sub>	120	mA
	I <sub>FSM</sub>	200 600	mA
Thermal Resistance (Note 1) Junction-to-Ambient (Note 2)	$R_{\theta JA}$	508 311	°C/W

- 1. FR-4 @ minimum pad.
- 2. FR-4 @ 1.0 x 1.0 in pad.

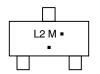
## 40 VOLTS SCHOTTKY BARRIER DIODE



SOT-23 (TO-236) CASE 318 STYLE 12



## **MARKING DIAGRAM**



L2 = 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>
BAS40-06LT1G	SOT-23 (Pb-Free)	3,000 / Tape & Reel
SBAS40-06LT1G	SOT-23 (Pb-Free)	3,000 / 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.

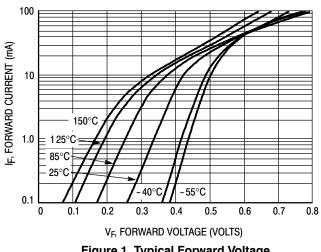
## BAS40-06LT1G, SBAS40-06LT1G

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

Characteristic	Symbol	Min	Max	Unit
Reverse Breakdown Voltage $(I_R = 10 \mu A)$	V <sub>(BR)R</sub>	40	-	V
Total Capacitance (V <sub>R</sub> = 1.0 V, f = 1.0 MHz)	C <sub>T</sub>	-	5.0	pF
Reverse Leakage (V <sub>R</sub> = 25 V)	I <sub>R</sub>	-	1.0	μAdc
Forward Voltage (I <sub>F</sub> = 1.0 mAdc)	V <sub>F</sub>	-	380	mVdc
Forward Voltage (I <sub>F</sub> = 10 mAdc)	V <sub>F</sub>	-	500	mVdc
Forward Voltage (I <sub>F</sub> = 40 mAdc)	V <sub>F</sub>	-	1.0	Vdc

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.

## **TYPICAL CHARACTERISTICS**



T<sub>A</sub> = 150°C I<sub>R</sub>, REVERSE CURRENT (μA) 125°C 10 85°C 1.0 0.1 25°C 0.01 0.001 5.0 10 15 25 V<sub>R</sub>, REVERSE VOLTAGE (VOLTS)

Figure 1. Typical Forward Voltage

Figure 2. Reverse Current versus Reverse Voltage

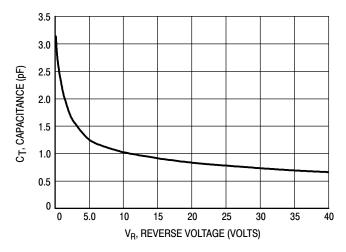


Figure 3. Typical Capacitance

**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**

DOCUMENT NUMBER:	98ASB42226B	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.		
DESCRIPTION:	DESCRIPTION: SOT-23 (TO-236) 2.90x1.30x1.00 1.90P		PAGE 1 OF 2	

onsemi and Onsemi are trademarks of Semiconductor Components Industries, LLC dba onsemi or its subsidiaries in the United States and/or other countries, onsemi reserves the right to make changes without further notice to any products herein. onsemi makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does onsemi assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. onsemi does not convey any license under its patent rights nor the rights of others.

<sup>\*</sup>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			

DOCUMENT NUMBER:	98ASB42226B Electronic versions are uncontrolled except when accessed directly from the Document Repository Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.		
DESCRIPTION:	SOT-23 (TO-236) 2.90x1.30x1.00 1.90P		PAGE 2 OF 2

onsemi and ONSEMI are trademarks of Semiconductor Components Industries, LLC dba onsemi or its subsidiaries in the United States and/or other countries. onsemi reserves the right to make changes without further notice to any products herein. onsemi makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does onsemi assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. onsemi does not convey any license under its patent rights nor the rights of others.

onsemi, Onsemi, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "onsemi" or its affiliates and/or subsidiaries in the United States and/or other countries. onsemi owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of onsemi's product/patent coverage may be accessed at <a href="www.onsemi.com/site/pdf/Patent-Marking.pdf">www.onsemi.com/site/pdf/Patent-Marking.pdf</a>. Onsemi reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and onsemi makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does onsemi assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using onsemi products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by onsemi. "Typical" parameters which may be provided in onsemi data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. onsemi does not convey any license under any of its intellectual property rights nor the rights of others. onsemi products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA class 3 medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase

#### ADDITIONAL INFORMATION

**TECHNICAL PUBLICATIONS:** 

 $\textbf{Technical Library:} \ \underline{www.onsemi.com/design/resources/technical-documentation}$ 

onsemi Website: www.onsemi.com

ONLINE SUPPORT: www.onsemi.com/support

For additional information, please contact your local Sales Representative at

www.onsemi.com/support/sales