# BAS40L, SBAS40L

# Schottky Barrier Diodes

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

- 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 | $V_R$ | 40 | V |
| Forward Power Dissipation<br>@ $T_A$ = 25°C<br>Derate above 25°C | $P_F$ | <br>225<br>1.8 | <br>mW<br>mW/°C |
| Operating Junction and Storage Temperature Range | $T_J$, $T_{stg}$ | −55 to +150 | °C |
| Forward Continuous Current | $I_F$ | 120 | mA |
| Forward Surge Current<br>t ≤ 1 s<br>t ≤ 10 ms | $I_{FSM}$ | <br>200<br>600 | mA |
| Thermal Resistance (Note 1)<br>Junction−to−Ambient (Note 2) | $R_{\theta JA}$ | 508<br>311 | °C/W |

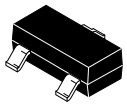
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

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

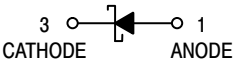
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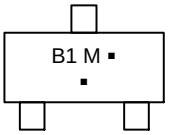
## 40 VOLTS
## SCHOTTKY BARRIER DIODES



**SOT−23 (TO−236)**
**CASE 318**
**STYLE 8**




### MARKING DIAGRAM




B1 = 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† |
|---|---|---|
| BAS40LT1G,<br>SBAS40LT1G | SOT−23<br>(Pb−Free) | 3,000 /<br>Tape & Reel |
| BAS40LT3G,<br>SBAS40LT3G | SOT−23<br>(Pb−Free) | 10,000 /<br>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.

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

| Characteristic | Symbol | Min | Max | Unit |
|---|---|---|---|---|
| Reverse Breakdown Voltage ($I_R$ = 10 μA) | $V_{(BR)R}$ | 40 | – | V |
| Total Capacitance ($V_R$ = 1.0 V, f = 1.0 MHz) | $C_T$ | – | 5.0 | pF |
| Reverse Leakage ($V_R$ = 25 V) | $I_R$ | – | 1.0 | μAdc |
| Forward Voltage ($I_F$ = 1.0 mAdc) | $V_F$ | – | 380 | mVdc |
| Forward Voltage ($I_F$ = 10 mAdc) | $V_F$ | – | 500 | mVdc |
| Forward Voltage ($I_F$ = 40 mAdc) | $V_F$ | – | 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

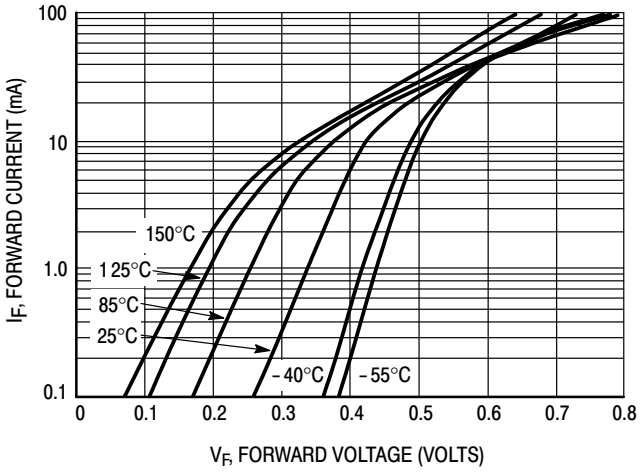



**Figure 1. Typical Forward Voltage**

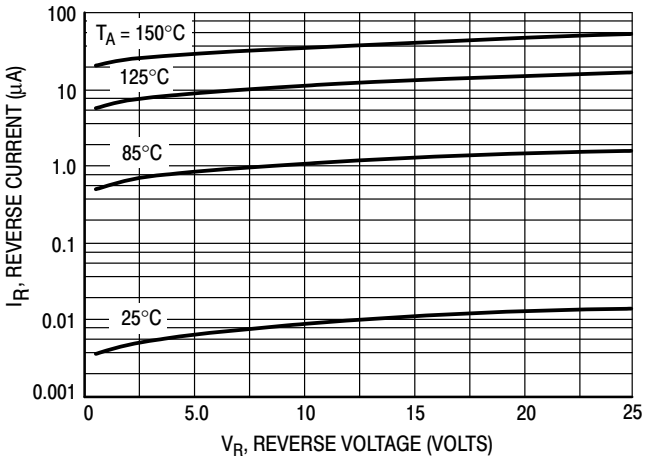



**Figure 2. Reverse Current versus Reverse Voltage**

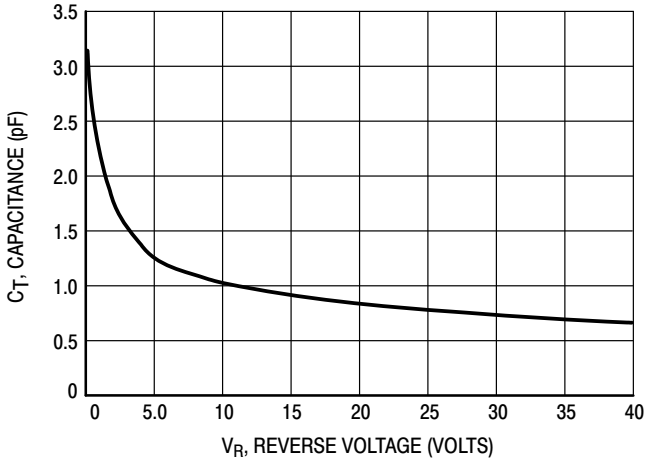
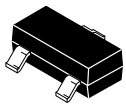



**Figure 3. Typical Capacitance**

# MECHANICAL CASE OUTLINE
## PACKAGE DIMENSIONS

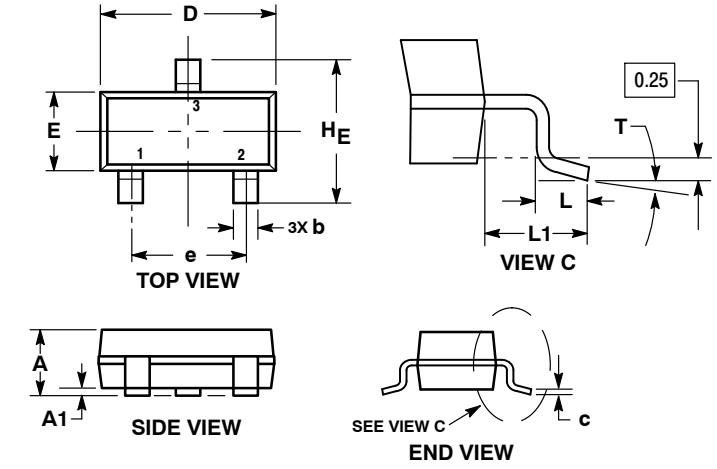
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**SOT−23 (TO−236)**
CASE 318−08
ISSUE AS

DATE 30 JAN 2018

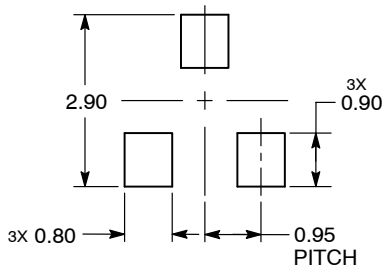
SCALE 4:1




NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: 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.

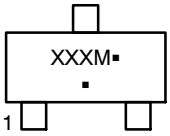
| | MILLIMETERS | | | INCHES | | |
|---|---|---|---|---|---|---|
| DIM | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 0.89 | 1.00 | 1.11 | 0.035 | 0.039 | 0.044 |
| A1 | 0.01 | 0.06 | 0.10 | 0.000 | 0.002 | 0.004 |
| b | 0.37 | 0.44 | 0.50 | 0.015 | 0.017 | 0.020 |
| c | 0.08 | 0.14 | 0.20 | 0.003 | 0.006 | 0.008 |
| D | 2.80 | 2.90 | 3.04 | 0.110 | 0.114 | 0.120 |
| E | 1.20 | 1.30 | 1.40 | 0.047 | 0.051 | 0.055 |
| e | 1.78 | 1.90 | 2.04 | 0.070 | 0.075 | 0.080 |
| L | 0.30 | 0.43 | 0.55 | 0.012 | 0.017 | 0.022 |
| L1 | 0.35 | 0.54 | 0.69 | 0.014 | 0.021 | 0.027 |
| $H_E$ | 2.10 | 2.40 | 2.64 | 0.083 | 0.094 | 0.104 |
| T | 0° | −−− | 10° | 0° | −−− | 10° |

### RECOMMENDED SOLDERING FOOTPRINT




DIMENSIONS: MILLIMETERS

### 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.

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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|---|---|---|
| DESCRIPTION: | SOT−23 (TO−236) | PAGE 1 OF 1 |

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