

Schottky Barrier Diodes

BAT54H

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 – 0.35 V (Typ) @ $I_F = 10 \text{ mAdc}$
- Device Marking: JV
- 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 ($T_J = 125^\circ\text{C}$ unless otherwise noted)

| Rating | Symbol | Value | Unit |
|-----------------|--------|-------|------|
| Reverse Voltage | V_R | 30 | 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 |
|--|-----------------|---------------|----------------------------|
| Total Device Dissipation FR-5 Board, (Note 1) $T_A = 25^\circ\text{C}$ Derate above 25°C | P_D | 200 1.6 | mW mW/ $^\circ\text{C}$ |
| Forward Current (DC) | I_F | 200 Max | mA |
| Non-Repetitive Peak Forward Current, $t_p < 10 \text{ msec}$ | I_{FSM} | 600 | mA |
| Repetitive Peak Forward Current Pulse Wave = 1 sec, Duty Cycle = 66% | I_{FRM} | 300 | mA |
| Thermal Resistance Junction-to-Ambient | $R_{\theta JA}$ | 635 | $^\circ\text{C}/\text{W}$ |
| Junction and Storage Temperature Range | T_J, T_{stg} | -55 to 150 | $^\circ\text{C}$ |

1. FR-4 Minimum Pad

*For additional information on our Pb-Free strategy and soldering details, please download the **onsemi** Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

30 VOLT SILICON HOT-CARRIER DETECTOR AND SWITCHING DIODES



**SOD-323
CASE 477
STYLE 1**



MARKING DIAGRAM



JV = Device Code
 M = Date Code
 ■ = Pb-Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

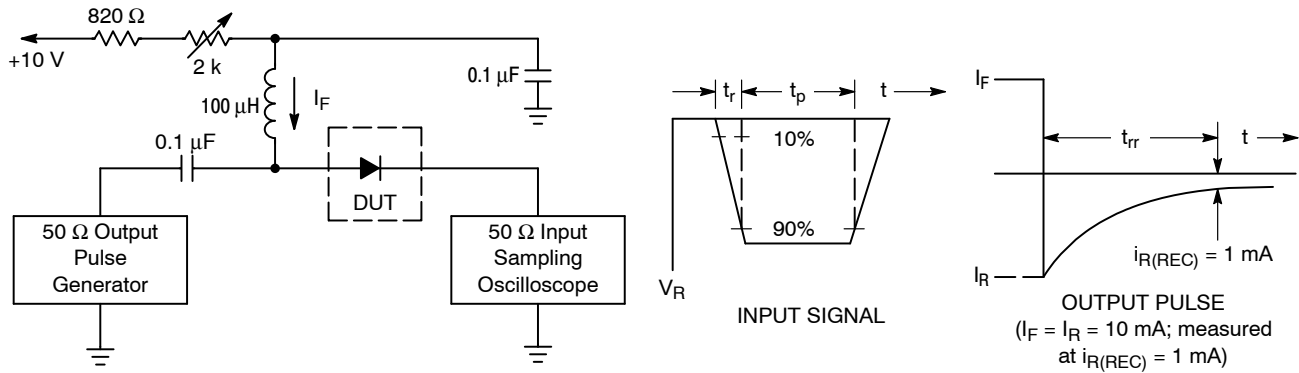
| Device | Package | Shipping [†] |
|--------------|----------------------|------------------------|
| BAT54HT1G | SOD-323 (Pb-Free) | 3,000 / Tape & Reel |
| NSVBAT54HT1G | SOD-323 (Pb-Free) | 3,000 / Tape & Reel |

[†]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.

BAT54H

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

| Characteristic | Symbol | Min | Typ | Max | Unit |
|---|-------------|-----------------------|--------------------------------------|--------------------------------------|--------------------|
| Reverse Breakdown Voltage ($I_R = 10 \mu\text{A}$) | $V_{(BR)R}$ | 30 | - | - | V |
| Total Capacitance ($V_R = 1.0 \text{ V}$, $f = 1.0 \text{ MHz}$) | C_T | - | 7.6 | 10 | pF |
| Reverse Leakage ($V_R = 25 \text{ V}$) | I_R | - | 0.2 | 2.0 | μA_{dc} |
| Forward Voltage ($I_F = 0.1 \text{ mA}$) ($I_F = 1.0 \text{ mA}$) ($I_F = 10 \text{ mA}$) ($I_F = 30 \text{ mA}$) ($I_F = 100 \text{ mA}$) | V_F | - - - - - | 0.22 0.29 0.35 0.41 0.52 | 0.24 0.32 0.40 0.50 0.80 | V |
| Reverse Recovery Time ($I_F = I_R = 10 \text{ mA}_{dc}$, $I_{R(REC)} = 1.0 \text{ mA}_{dc}$) Figure 1 | t_{rr} | - | - | 5.0 | ns |



- Notes: 1. A 2.0 kΩ variable resistor adjusted for a Forward Current (I_F) of 10 mA.
 2. Input pulse is adjusted so $I_{R(\text{peak})}$ is equal to 10 mA.
 3. $t_p \gg t_{rr}$

Figure 1. Recovery Time Equivalent Test Circuit

BAT54H

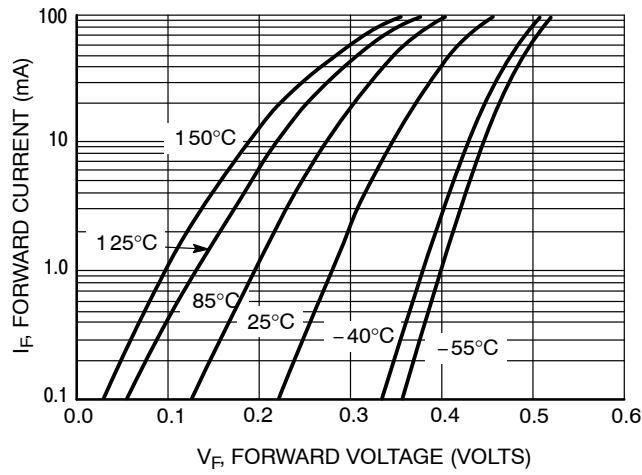


Figure 2. Forward Voltage

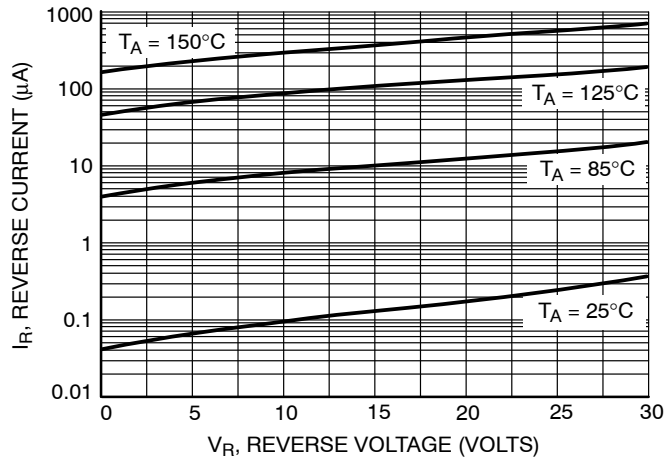


Figure 3. Leakage Current

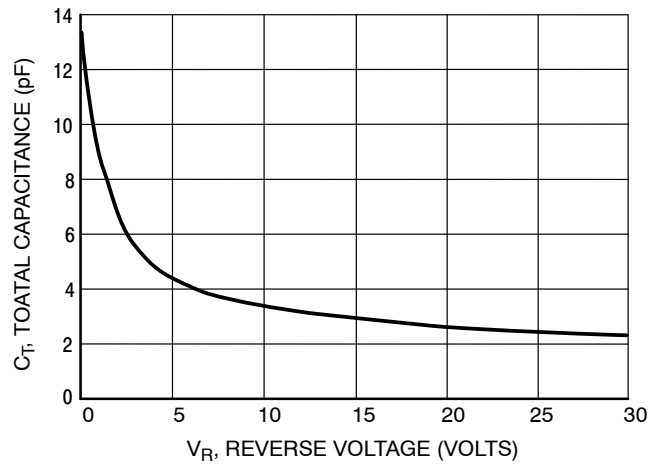
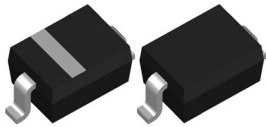
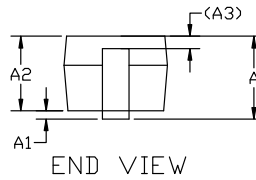
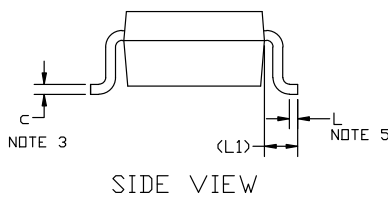
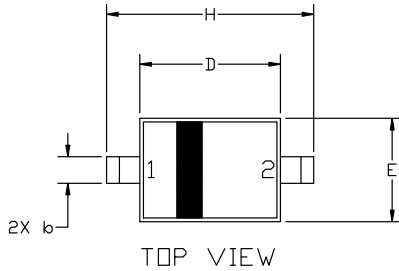


Figure 4. Total Capacitance



SOD-323 1.70x1.25x0.85
CASE 477
ISSUE K

DATE 11 MAR 2024



RECOMMENDED MOUNTING FOOTPRINT

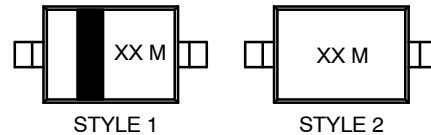
*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference manual, SOLDERRM/D.

NOTES:

1. DIMENSIONING AND TOLERANCING AS PER ASME Y14.5M, 2018.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. LEAD THICKNESS SPECIFIED PER L/F DRAWING WITH SOLDER PLATING.
4. DIMENSIONS A AND B DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.
5. DIMENSION L IS MEASURE FROM END OF RADIUS.

| DIM | MILLIMETERS | | |
|-----|-------------|------|------|
| | MIN. | NOM. | MAX. |
| A | 0.80 | 0.90 | 1.00 |
| A1 | 0.00 | 0.05 | 0.10 |
| A2 | 0.75 | 0.85 | 0.95 |
| A3 | 0.15 (REF) | | |
| b | 0.25 | 0.32 | 0.4 |
| c | 0.09 | 0.12 | 0.18 |
| D | 1.60 | 1.70 | 1.80 |
| E | 1.15 | 1.25 | 1.35 |
| H | 2.30 | 2.50 | 2.70 |
| L | 0.08 | --- | --- |
| L1 | 0.40 (REF) | | |

GENERIC MARKING DIAGRAM*



XX = Specific Device Code
M = Date Code

*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.

STYLE 1: PIN 1. CATHODE (POLARITY BAND)
2. ANODE

STYLE 2: NO POLARITY

| | | |
|------------------|------------------------|--|
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| DESCRIPTION: | SOD-323 1.70x1.25x0.85 | PAGE 1 OF 1 |

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