BAT54SW

Dual Series 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

- Extremely Fast Switching Speed
- Low Forward Voltage 0.35 Volts (Typ) @ $I_F = 10 \text{ mAdc}$
- 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°C unless otherwise noted)

| Rating | Symbol | Value | Unit |
|--|------------------|-----------------------|-------------|
| Reverse Voltage | V _R | 30 | V |
| Total Power Dissipation @ T _A = 25°C Derate above 25°C | P _D | 200 1.6 | mW mW/°C |
| Forward Current (DC) | IF | 200 | mA |
| Non-Repetitive Peak Forward Current t _p < 10 msec | I _{FSM} | 600 | mA |
| Repetitive Peak Forward Current Pulse Wave = 1 sec, Duty Cycle = 66% | I _{FRM} | 300 | mA |
| Junction Temperature | TJ | -55 to 125 | °C |
| Storage Temperature Range | T _{stg} | -55 to +150 | °C |
| Electrostatic Discharge | ESD | HM < 8000 MM < 400 | 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.



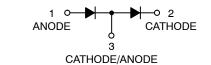
ON Semiconductor®

www.onsemi.com

30 VOLT DUAL SERIES SCHOTTKY BARRIER DIODES



SOT-323 CASE 419 STYLE 9



MARKING DIAGRAM



B8 = Device Code

M = Date Code*

= Pb-Free Package

(Note: Microdot may be in either location)

*Date Code orientation may vary depending upon manufacturing location.

ORDERING INFORMATION

| Device | Package | Shipping [†] |
|---------------|----------------------|------------------------|
| BAT54SWT1G | SOT-323 (Pb-Free) | 3,000 / Tape & Reel |
| NSVBAT54SWT1G | SOT-323 (Pb-Free) | 3,000 / Tape & Reel |

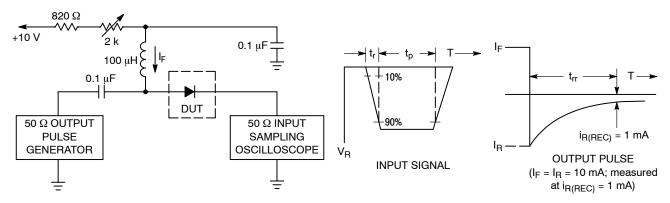
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

BAT54SW

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted) (EACH DIODE)

| Characteristic | Symbol | Min | Тур | Max | Unit |
|---|--------------------|------------------|--------------------------------------|------------------------------------|------|
| Reverse Breakdown Voltage (I _R = 10 μA) | V _{(BR)R} | 30 | - | - | V |
| Reverse Leakage (V _R = 25 V) | I _R | - | 0.5 | 2.0 | μΑ |
| Forward Voltage (I _F = 0.1 mA) (I _F = 1.0 mA) (I _F = 10 mA) (I _F = 30 mA) (I _F = 100 mA) | V _F | - - - - | 0.22 0.29 0.35 0.41 0.52 | 0.24 0.32 0.40 0.5 0.8 | V |
| Total Capacitance (V _R = 1.0 V, f = 1.0 MHz) | C _T | - | 7.6 | 10 | pF |
| Reverse Recovery Time $(I_F = I_R = 10 \text{ mAdc}, I_{R(REC)} = 1.0 \text{ mAdc}, Figure 1)$ | t _{rr} | - | - | 5.0 | ns |

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.



Notes: 1. A 2.0 k Ω variable resistor adjusted for a Forward Current (I_F) of 10 mA.

- 2. Input pulse is adjusted so I_{R(peak)} is equal to 10 mA.
- 3. t_p » t_{ri}

Figure 1. Recovery Time Equivalent Test Circuit

BAT54SW

TYPICAL CHARACTERISTICS

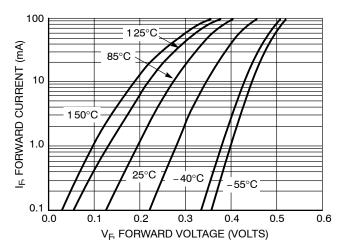


Figure 2. Forward Voltage

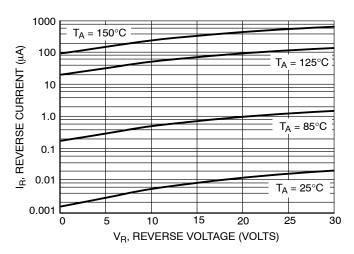


Figure 3. Leakage Current

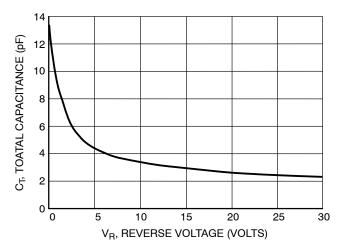


Figure 4. Total Capacitance



SC-70 (SOT-323) CASE 419-04 ISSUE N

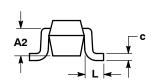
DATE 11 NOV 2008



- DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 CONTROLLING DIMENSION: INCH.

| | MILLIMETERS | | | INCHES | | |
|-----|-------------|------|------|-----------|-------|-------|
| DIM | MIN | NOM | MAX | MIN | NOM | MAX |
| Α | 0.80 | 0.90 | 1.00 | 0.032 | 0.035 | 0.040 |
| A1 | 0.00 | 0.05 | 0.10 | 0.000 | 0.002 | 0.004 |
| A2 | 0.70 REF | | | 0.028 REF | | |
| b | 0.30 | 0.35 | 0.40 | 0.012 | 0.014 | 0.016 |
| С | 0.10 | 0.18 | 0.25 | 0.004 | 0.007 | 0.010 |
| D | 1.80 | 2.10 | 2.20 | 0.071 | 0.083 | 0.087 |
| E | 1.15 | 1.24 | 1.35 | 0.045 | 0.049 | 0.053 |
| е | 1.20 | 1.30 | 1.40 | 0.047 | 0.051 | 0.055 |
| e1 | 0.65 BSC | | | 0.026 BSC | | |
| L | 0.20 | 0.38 | 0.56 | 0.008 | 0.015 | 0.022 |
| He | 2 00 | 2 10 | 2.40 | 0.070 | 0.083 | 0.005 |

0.05 (0.002)



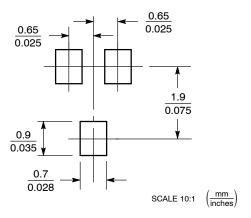
GENERIC MARKING DIAGRAM



XX = Specific Device Code Μ = 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.

SOLDERING 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.

| STYLE 1: CANCELLED | STYLE 2: PIN 1. ANODE 2. N.C. 3. CATHODE | STYLE 3: PIN 1. BASE 2. EMITTER 3. COLLECTOR | STYLE 4: PIN 1. CATHODE 2. CATHODE 3. ANODE | STYLE 5: PIN 1. ANODE 2. ANODE 3. CATHODE | |
|---------------------------------------|---|---|--|--|-------------------------------------|
| STYLE 6: PIN 1. EMITTER 2. BASE | STYLE 7: PIN 1. BASE 2. EMITTER | STYLE 8: PIN 1. GATE 2. SOURCE | STYLE 9: PIN 1. ANODE 2. CATHODE | STYLE 10: PIN 1. CATHODE 2. ANODE | STYLE 11: PIN 1. CATHODE 2. CATHODE |
| COLLECTOR | COLLECTOR | 3. DRAIN | CATHODE-ANODE | 3. ANODE-CATHODE | CATHOD |

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|------------------|-----------------|--|-------------|--|--|
| DESCRIPTION: | SC-70 (SOT-323) | | PAGE 1 OF 1 | | |

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