

# Dual Series Schottky Barrier Diodes

## BAT54SW

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

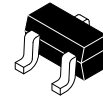
- Extremely Fast Switching Speed
- Low Forward Voltage – 0.35 Volts (Typ) @  $I_F = 10 \text{ mAdc}$
- NSV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

### MAXIMUM RATINGS ( $T_J = 125^\circ\text{C}$ unless otherwise noted)

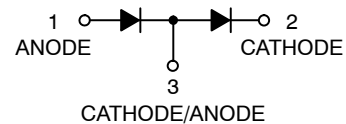
| Rating                                                                                   | Symbol    | Value                 | Unit                       |
|------------------------------------------------------------------------------------------|-----------|-----------------------|----------------------------|
| Reverse Voltage                                                                          | $V_R$     | 30                    | V                          |
| Total Power Dissipation<br>@ $T_A = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$ | $P_D$     | 200<br>2.0            | mW<br>mW/ $^\circ\text{C}$ |
| Forward Current (DC)                                                                     | $I_F$     | 200                   | mA                         |
| Non-Repetitive Peak Forward Current<br>$t_p < 10 \text{ msec}$                           | $I_{FSM}$ | 600                   | mA                         |
| Repetitive Peak Forward Current<br>Pulse Wave = 1 sec,<br>Duty Cycle = 66%               | $I_{FRM}$ | 300                   | mA                         |
| Junction Temperature                                                                     | $T_J$     | -55 to 125            | $^\circ\text{C}$           |
| Storage Temperature Range                                                                | $T_{stg}$ | -55 to +150           | $^\circ\text{C}$           |
| Electrostatic Discharge                                                                  | ESD       | HM < 8000<br>MM < 400 | V<br>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.

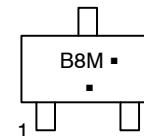
## 30 VOLT DUAL SERIES SCHOTTKY BARRIER DIODES



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 <sup>†</sup>  |
|---------------|----------------------|------------------------|
| BAT54SWT1G    | SOT-323<br>(Pb-Free) | 3,000 /<br>Tape & Reel |
| NSVBAT54SWT1G | SOT-323<br>(Pb-Free) | 3,000 /<br>Tape & Reel |

<sup>†</sup>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 ( $T_A = 25^\circ\text{C}$ unless otherwise noted) (EACH DIODE)

| Characteristic                                                                                                                                                      | Symbol      | Min                   | Typ                                  | Max                                | Unit          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------------------|--------------------------------------|------------------------------------|---------------|
| Reverse Breakdown Voltage<br>( $I_R = 10\ \mu\text{A}$ )                                                                                                            | $V_{(BR)R}$ | 30                    | –                                    | –                                  | V             |
| Reverse Leakage<br>( $V_R = 25\ \text{V}$ )                                                                                                                         | $I_R$       | –                     | 0.2                                  | 2.0                                | $\mu\text{A}$ |
| Forward Voltage<br>( $I_F = 0.1\ \text{mA}$ )<br>( $I_F = 1.0\ \text{mA}$ )<br>( $I_F = 10\ \text{mA}$ )<br>( $I_F = 30\ \text{mA}$ )<br>( $I_F = 100\ \text{mA}$ ) | $V_F$       | –<br>–<br>–<br>–<br>– | 0.22<br>0.29<br>0.35<br>0.41<br>0.52 | 0.24<br>0.32<br>0.40<br>0.5<br>0.8 | V             |
| Total Capacitance<br>( $V_R = 1.0\ \text{V}$ , $f = 1.0\ \text{MHz}$ )                                                                                              | $C_T$       | –                     | 7.6                                  | 10                                 | pF            |
| Reverse Recovery Time<br>( $I_F = I_R = 10\ \text{mAdc}$ , $I_{R(\text{REC})} = 1.0\ \text{mAdc}$ , 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.

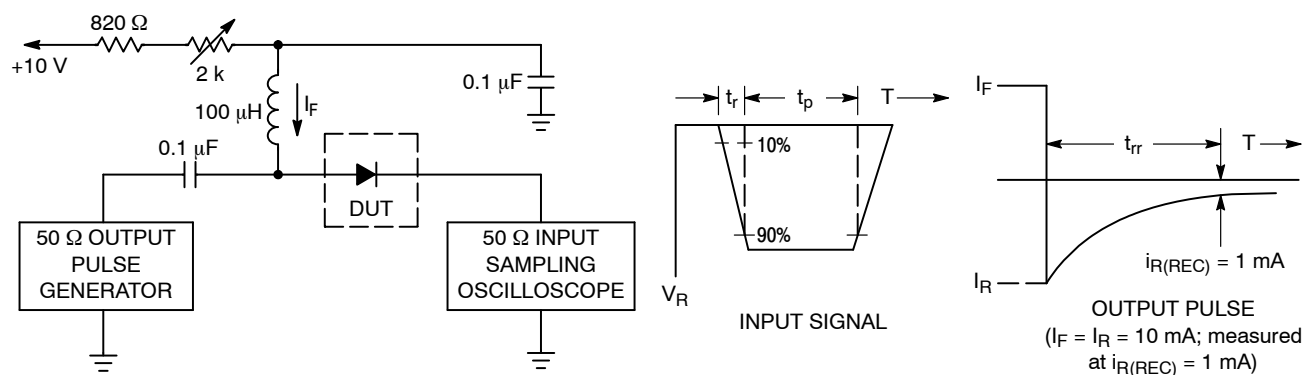


Figure 1. Recovery Time Equivalent Test Circuit

# BAT54SW

## TYPICAL CHARACTERISTICS

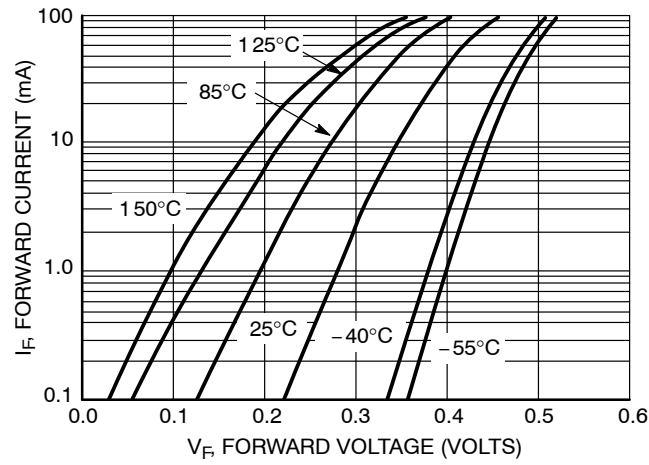


Figure 2. Forward Voltage

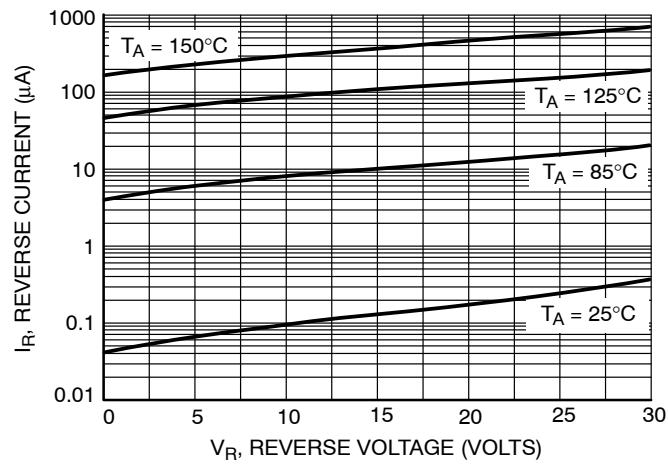


Figure 3. Leakage Current

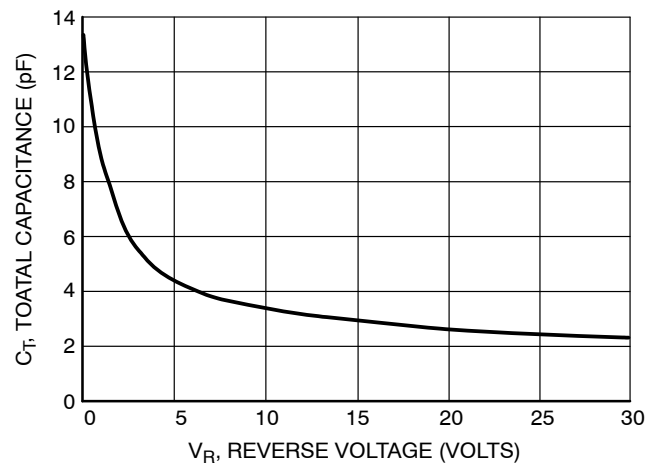


Figure 4. Total Capacitance



SCALE 4:1

**SC-70 (SOT-323)**  
**CASE 419**  
**ISSUE R**

DATE 11 OCT 2022



NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH

| DIM            | MILLIMETERS |      |      | INCHES    |       |       |
|----------------|-------------|------|------|-----------|-------|-------|
|                | MIN.        | NOM. | MAX. | MIN.      | NOM.  | MAX.  |
| A              | 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 BSC |       |       |
| b              | 0.30        | 0.35 | 0.40 | 0.012     | 0.014 | 0.016 |
| c              | 0.10        | 0.18 | 0.25 | 0.004     | 0.007 | 0.010 |
| D              | 1.80        | 2.00 | 2.20 | 0.071     | 0.080 | 0.087 |
| E              | 1.15        | 1.24 | 1.35 | 0.045     | 0.049 | 0.053 |
| e              | 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 |
| H <sub>E</sub> | 2.00        | 2.10 | 2.40 | 0.079     | 0.083 | 0.095 |

**GENERIC  
MARKING DIAGRAM**



XX = 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. Some products may not follow the Generic Marking.



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

**SOLDERING FOOTPRINT**

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  
3. COLLECTOR

STYLE 7:  
PIN 1. BASE  
2. EMITTER  
3. COLLECTOR

STYLE 8:  
PIN 1. GATE  
2. SOURCE  
3. DRAIN

STYLE 9:  
PIN 1. ANODE  
2. CATHODE  
3. CATHODE-ANODE

STYLE 10:  
PIN 1. CATHODE  
2. ANODE  
3. ANODE-CATHODE

STYLE 11:  
PIN 1. CATHODE  
2. CATHODE  
3. CATHODE

|                         |                        |                                                                                                                                                                                  |
|-------------------------|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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