

# BAT54AWT1

Preferred Device

## 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 V (Typ) @  $I_F = 10$  mAdc
- Pb-Free Packages are Available

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

| Rating   | Symbol    | Value           | Unit                       |
|--|-----------|-----------------|----------------------------|
| Reverse Voltage  | $V_R$     | 30              | V                          |
| Forward Power Dissipation<br>@ $T_A = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$ | $P_F$     | 200<br>1.6      | mW<br>mW/ $^\circ\text{C}$ |
| Forward Current (DC)   | $I_F$     | 200 Max         | mA                         |
| Junction Temperature   | $T_J$     | $-55$ to $125$  | $^\circ\text{C}$           |
| Storage Temperature Range  | $T_{stg}$ | $-55$ to $+150$ | $^\circ\text{C}$           |

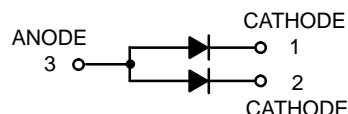
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.



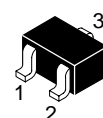
**ON Semiconductor®**

<http://onsemi.com>

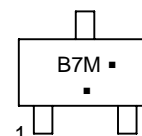
## 30 VOLT SCHOTTKY BARRIER DETECTOR AND SWITCHING DIODES



### MARKING DIAGRAM



**SOT-323  
CASE 419**



B7 = 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†          |
|------------|----------------------|--------------------|
| BAT54AWT1  | SOT-323              | 3000/Tape & Reel   |
| BAT54AWT1G | SOT-323<br>(Pb-Free) | 3000/Tape & Reel   |
| BAT54AWT3  | SOT-323              | 10,000/Tape & Reel |
| BAT54AWT3G | SOT-323<br>(Pb-Free) | 10,000/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.

**Preferred** devices are recommended choices for future use and best overall value.

# BAT54AWT1

## 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                  |
| Total Capacitance<br>( $V_R = 1.0\ \text{V}$ , $f = 1.0\ \text{MHz}$ )                                       | $C_T$       | –   | 7.6  | 10   | pF                 |
| Reverse Leakage<br>( $V_R = 25\ \text{V}$ )  | $I_R$       | –   | 0.5  | 2.0  | $\mu\text{A}_{dc}$ |
| Forward Voltage<br>( $I_F = 0.1\ \text{mA}_{dc}$ )   | $V_F$       | –   | 0.22 | 0.24 | V <sub>dc</sub>    |
| Forward Voltage<br>( $I_F = 30\ \text{mA}_{dc}$ )  | $V_F$       | –   | 0.41 | 0.5  | V <sub>dc</sub>    |
| Forward Voltage<br>( $I_F = 100\ \text{mA}_{dc}$ )   | $V_F$       | –   | 0.52 | 0.8  | V <sub>dc</sub>    |
| Reverse Recovery Time<br>( $I_F = I_R = 10\ \text{mA}_{dc}$ , $I_{R(REC)} = 1.0\ \text{mA}_{dc}$ , Figure 1) | $t_{rr}$    | –   | –    | 5.0  | ns                 |
| Forward Voltage<br>( $I_F = 1.0\ \text{mA}_{dc}$ )   | $V_F$       | –   | 0.29 | 0.32 | V <sub>dc</sub>    |
| Forward Voltage<br>( $I_F = 10\ \text{mA}_{dc}$ )  | $V_F$       | –   | 0.35 | 0.40 | V <sub>dc</sub>    |
| Forward Current (DC)   | $I_F$       | –   | –    | 200  | $\text{mA}_{dc}$   |
| Repetitive Peak Forward Current  | $I_{FRM}$   | –   | –    | 300  | $\text{mA}_{dc}$   |
| Non–Repetitive Peak Forward Current<br>( $t < 1.0\ \text{s}$ )   | $I_{FSM}$   | –   | –    | 600  | $\text{mA}_{dc}$   |

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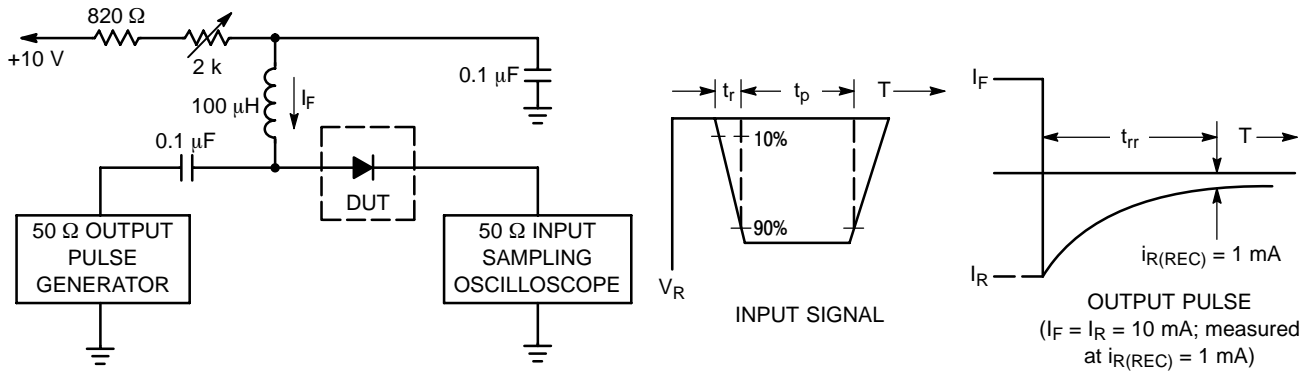


Figure 1. Recovery Time Equivalent Test Circuit

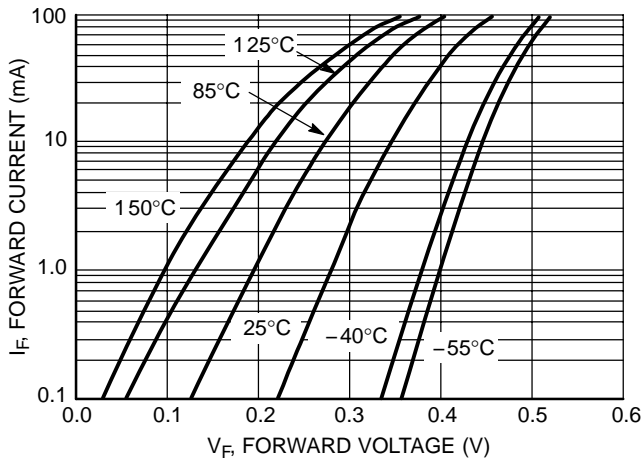


Figure 2. Forward Voltage

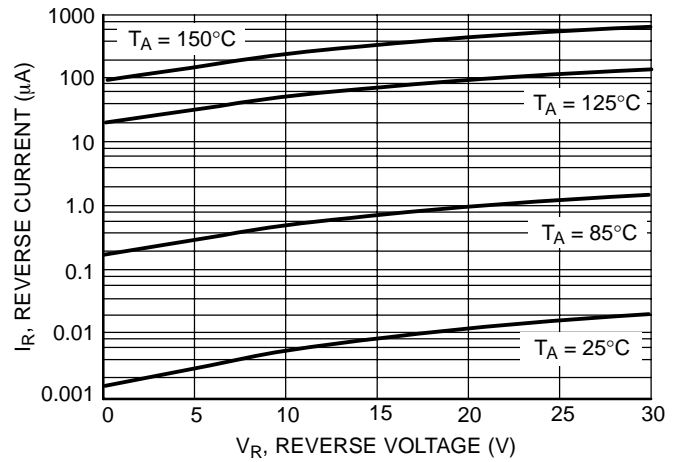


Figure 3. Leakage Current

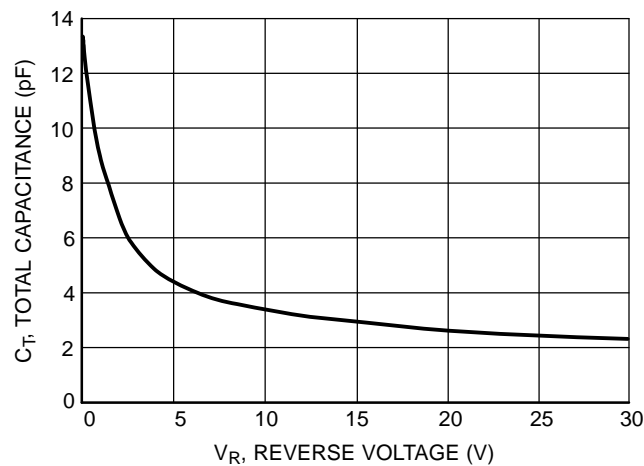
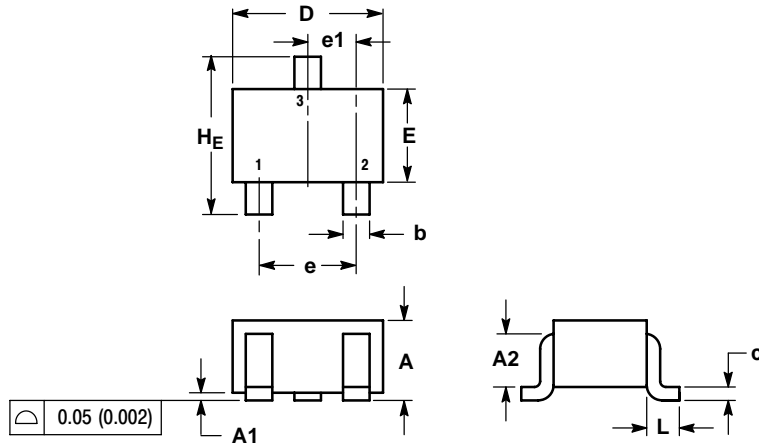


Figure 4. Total Capacitance

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## PACKAGE DIMENSIONS

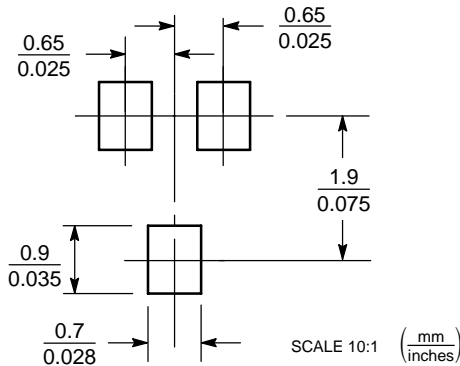
SOT-323 (SC-70)  
CASE 419-04  
ISSUE M




NOTES:  
1. DIMENSIONING AND TOLERANCING PER ANSI 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  | 0.7 REF     |      |      | 0.028 REF |       |       |
| 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        | 2.10 | 2.20 | 0.071     | 0.083 | 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   | 0.425 REF   |      |      | 0.017 REF |       |       |
| H   | 2.00        | 2.10 | 2.40 | 0.079     | 0.083 | 0.095 |

### 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.

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