

# 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.

- Extremely Fast Switching Speed
- Low Forward Voltage — 0.35 Volts (Typ) @  $I_F = 10 \text{ mAdc}$

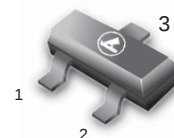
## ORDERING INFORMATION

| Device   | Package | Shipping         |
|----------|---------|------------------|
| BAT54LT1 | SOT-23  | 3000/Tape & Reel |

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

## BAT54LT1

30 VOLTS SILICON HOT-CARRIER  
DETECTOR AND SWITCHING  
DIODES



CASE 318, STYLE 8  
SOT-23 (TO-236AB)



## DEVICE MARKING

BAT54LT1 = JV3

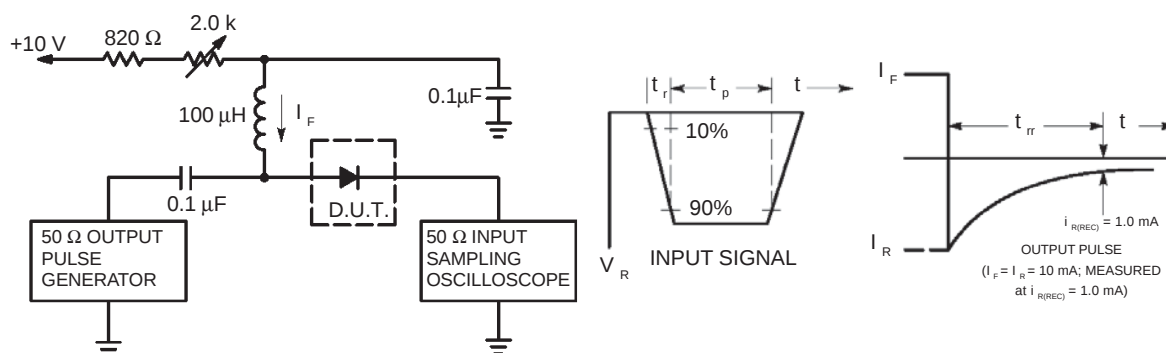
## MAXIMUM RATINGS ( $T_J = 125^\circ\text{C}$ unless otherwise noted)

| Rating                                                  | Symbol    | Max         | Unit                 |
|---------------------------------------------------------|-----------|-------------|----------------------|
| Reverse Voltage                                         | $V_R$     | 30          | Volts                |
| Forward Power Dissipation<br>@ $T_A = 25^\circ\text{C}$ | $P_F$     | 200         | mW                   |
| Derate above $25^\circ\text{C}$                         |           | 2.0         | mW/ $^\circ\text{C}$ |
| Forward Current(DC)                                     | $I_F$     | 200Max      | mA                   |
| Junction Temperature                                    | $T_J$     | 125Max      | $^\circ\text{C}$     |
| Storage Temperature Range                               | $T_{stg}$ | -55 to +150 | $^\circ\text{C}$     |

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

## BAT54LT1



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

Figure 1. Recovery Time Equivalent Test Circuit

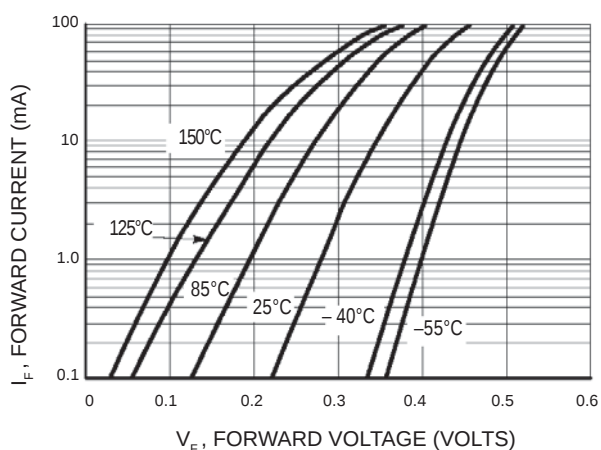


Figure 2. Forward Voltage

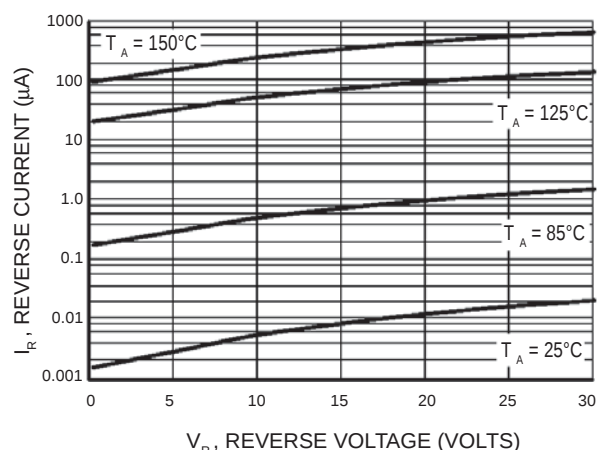


Figure 3. Leakage Current

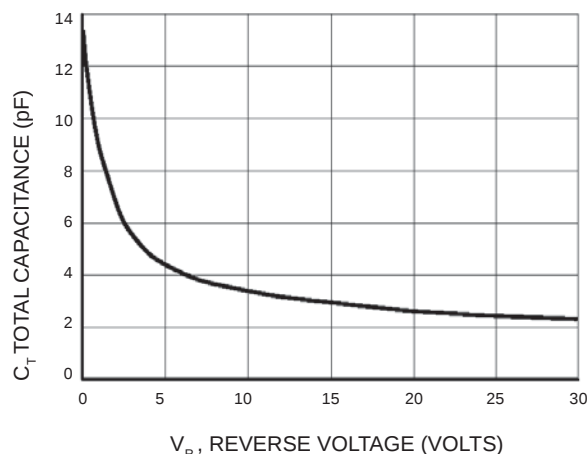


Figure 4. Total Capacitance