# 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
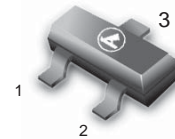- Low Forward Voltage — 0.35 Volts (Typ) @ $I_F$ = 10 mAdc

## BAT54LT1

**30 VOLTS SILICON HOT-CARRIER DETECTOR AND SWITCHING DIODES**



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

1 ○———▷|———○ 3
CATHODE     ANODE

### ORDERING INFORMATION

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

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

## DEVICE MARKING

BAT54LT1 = JV3

## MAXIMUM RATINGS ($T_J$ = 125°C unless otherwise noted)

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

## ELECTRICAL CHARACTERISTICS ($T_A$ = 25°C unless otherwise noted)

| Characteristic | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|
| Reverse Breakdown Voltage ($I_R$ = 10 µA) | $V_{(BR)R}$ | 30 | — | — | Volts |
| Total Capacitance ($V_R$ = 1.0 V, f = 1.0 MHz) | $C_T$ | — | 7.6 | 10 | pF |
| Reverse Leakage ($V_R$ = 25 V) | $I_R$ | — | 0.5 | 2.0 | µAdc |
| Forward Voltage ($I_F$ = 0.1 mAdc) | $V_F$ | — | 0.22 | 0.24 | Vdc |
| Forward Voltage ($I_F$ = 30 mAdc) | $V_F$ | — | 0.41 | 0.5 | Vdc |
| Forward Voltage ($I_F$ = 100 mAdc) | $V_F$ | — | 0.52 | 0.8 | Vdc |
| Reverse Recovery Time ($I_F$ = $I_R$ = 10 mAdc, $I_{R(REC)}$ = 1.0 mAdc, Figure 1) | $t_{rr}$ | — | — | 5.0 | ns |
| Forward Voltage ($I_F$ = 1.0 mAdc) | $V_F$ | — | 0.29 | 0.32 | Vdc |
| Forward Voltage ($I_F$ = 10 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 s) | $I_{FSM}$ | — | — | 600 | mAdc |

**BAT54LT1**



+10 V  820 Ω  2.0 k
100 µH  I_F
0.1µF
0.1 µF
D.U.T.
50 Ω OUTPUT PULSE GENERATOR
50 Ω INPUT SAMPLING OSCILLOSCOPE

t_r  t_p  t
10%
90%
V_R  INPUT SIGNAL

I_F
t_rr  t
i_R(REC) = 1.0 mA
I_R
OUTPUT PULSE
(I_F = I_R = 10 mA; MEASURED at i_R(REC) = 1.0 mA)
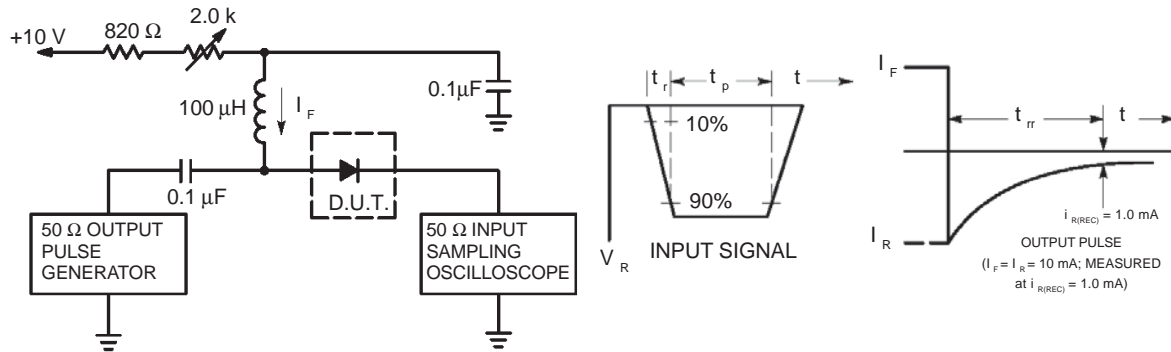
Notes: 1. A 2.0 kΩ variable resistor adjusted for a Forward Current (I_F) of 10mA.
2. Input pulse is adjusted so I_R(peak) is equal to 10mA.
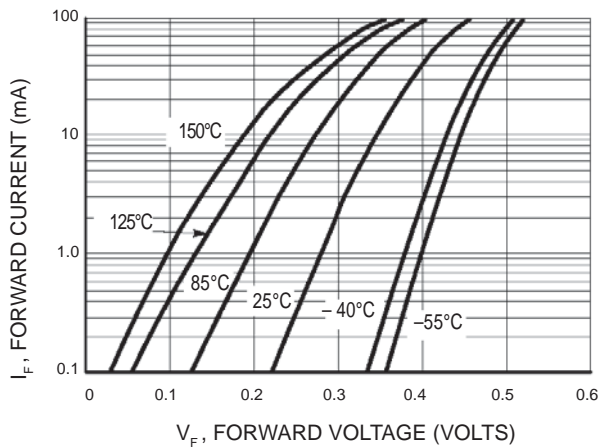3. t_p » t_rr

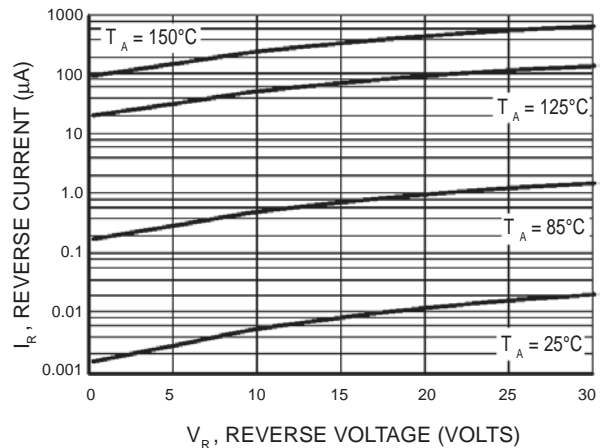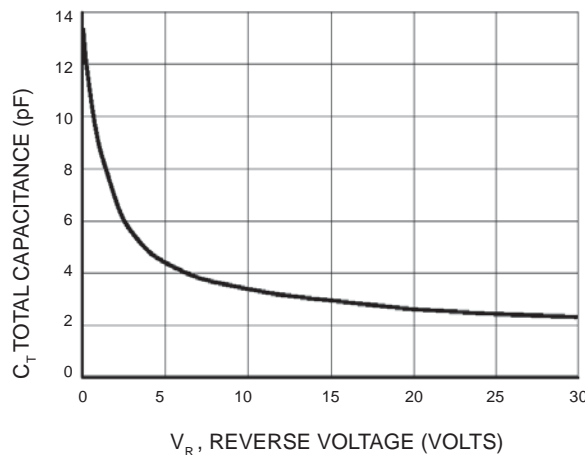**Figure 1. Recovery Time Equivalent Test Circuit**



**Figure 2. Forward Voltage**



**Figure 3. Leakage Current**



**Figure 4. Total Capacitance**