

# High-Speed Switching Diode

## Features

- Pb-Free Package May be Available. The G-Suffix Denotes a Pb-Free Lead Finish

## MAXIMUM RATINGS

| Rating                     | Symbol          | Value | Unit |
|----------------------------|-----------------|-------|------|
| Reverse Voltage            | $V_R$           | 100   | Vdc  |
| Forward Current            | $I_F$           | 200   | mAdc |
| Peak Forward Surge Current | $I_{FM(surge)}$ | 500   | mAdc |

## THERMAL CHARACTERISTICS

| Characteristic   | Symbol          | Max         | Unit                 |
|--|-----------------|-------------|----------------------|
| Total Device Dissipation<br>FR-5 Board (Note 1.)<br>$T_A = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$        | $P_D$           | 225         | mW                   |
|  |                 | 1.8         | mW/ $^\circ\text{C}$ |
| Thermal Resistance,<br>Junction to Ambient   | $R_{\theta JA}$ | 556         | $^\circ\text{C/W}$   |
| Total Device Dissipation<br>Alumina Substrate (Note 2.)<br>$T_A = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$ | $P_D$           | 300         | mW                   |
|  |                 | 2.4         | mW/ $^\circ\text{C}$ |
| Thermal Resistance,<br>Junction to Ambient   | $R_{\theta JA}$ | 417         | $^\circ\text{C/W}$   |
| Junction and Storage<br>Temperature Range  | $T_J, T_{stg}$  | -55 to +150 | $^\circ\text{C}$     |

## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

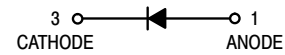
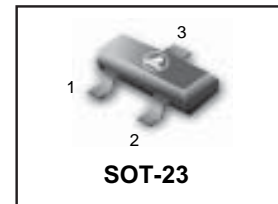
| Characteristic | Symbol | Min | Max | Unit |
|----------------|--------|-----|-----|------|
|----------------|--------|-----|-----|------|

## OFF CHARACTERISTICS

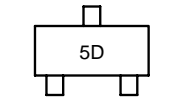
|   |            |     |           |                         |
|---|------------|-----|-----------|-------------------------|
| Reverse Breakdown Voltage<br>( $I_R = 100 \mu\text{Adc}$ )                                | $V_{(BR)}$ | 100 | -         | Vdc                     |
| Reverse Voltage Leakage Current<br>( $V_R = 20 \text{Vdc}$ )<br>( $V_R = 75 \text{Vdc}$ ) | $I_R$      | -   | 25<br>5.0 | nAdc<br>$\mu\text{Adc}$ |
| Diode Capacitance<br>( $V_R = 0, f = 1.0 \text{MHz}$ )                                    | $C_T$      | -   | 4.0       | pF                      |
| Forward Voltage<br>( $I_F = 10 \text{mAdc}$ )   | $V_F$      | -   | 1.0       | Vdc                     |
| Reverse Recovery Time<br>( $I_F = I_R = 10 \text{mAdc}$ ) (Figure 1)                      | $t_{rr}$   | -   | 4.0       | ns                      |

- FR-5 =  $1.0 \times 0.75 \times 0.062$  in.
- Alumina =  $0.4 \times 0.3 \times 0.024$  in. 99.5% alumina.

## LMBD914LT1



## MARKING DIAGRAM

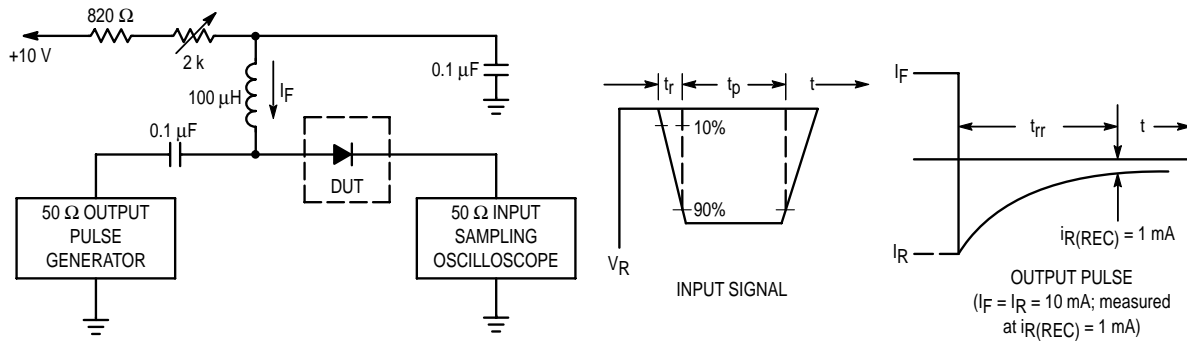


5D = Device Code

## ORDERING INFORMATION

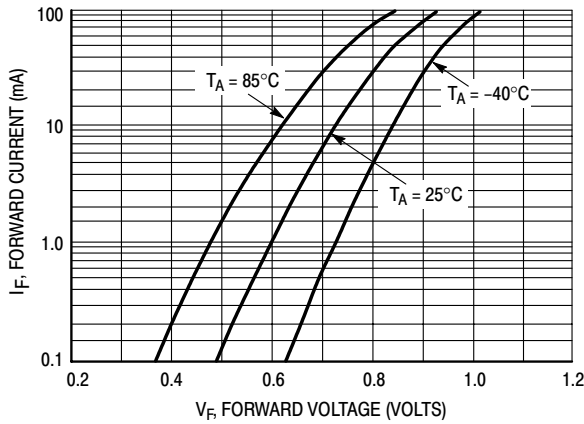
| Device      | Package             | Shipping†        |
|-------------|---------------------|------------------|
| LMBD914LT1  | SOT-23              | 3000/Tape & Reel |
| LMBD914LT1G | SOT-23<br>(Pb-Free) | 3000/Tape & Reel |

**LMBD914LT1**

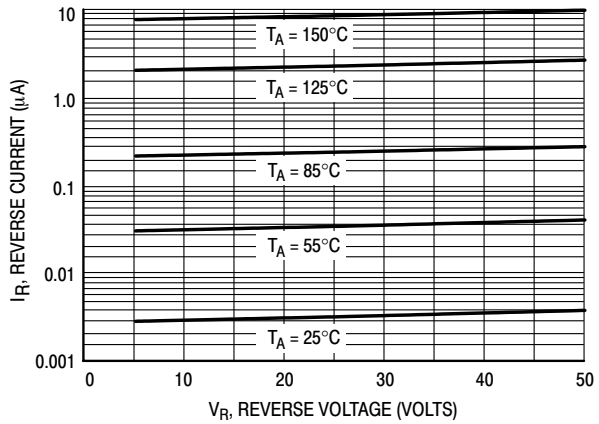


- Notes: 1. A 2.0 kΩ variable resistor adjusted for a Forward Current ( $I_F$ ) of 10 mA.
- 2. Input pulse is adjusted so  $I_{R(\text{peak})}$  is equal to 10 mA.
- 3.  $t_p \gg t_{rr}$

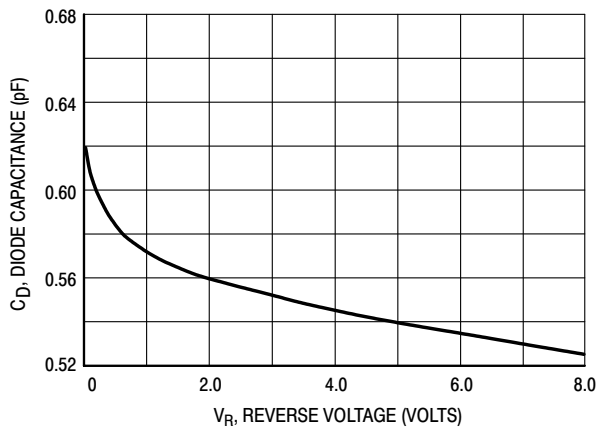
**Figure 1. Recovery Time Equivalent Test Circuit**



**Figure 2. Forward Voltage**



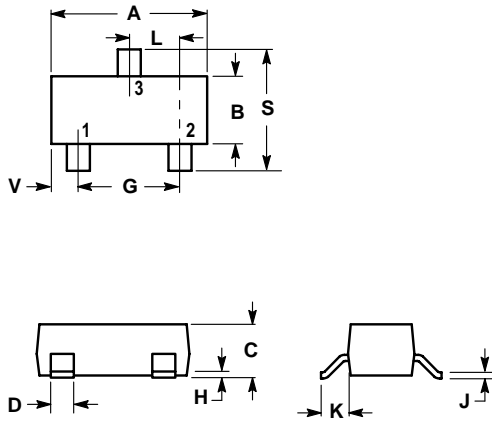
**Figure 3. Leakage Current**



**Figure 4. Capacitance**

**LMBD914LT1**

**SOT-23**



NOTES:

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

| DIM | INCHES |        | MILLIMETERS |       |
|-----|--------|--------|-------------|-------|
|     | MIN    | MAX    | MIN         | MAX   |
| A   | 0.1102 | 0.1197 | 2.80        | 3.04  |
| B   | 0.0472 | 0.0551 | 1.20        | 1.40  |
| C   | 0.0350 | 0.0440 | 0.89        | 1.11  |
| D   | 0.0150 | 0.0200 | 0.37        | 0.50  |
| G   | 0.0701 | 0.0807 | 1.78        | 2.04  |
| H   | 0.0005 | 0.0040 | 0.013       | 0.100 |
| J   | 0.0034 | 0.0070 | 0.085       | 0.177 |
| K   | 0.0140 | 0.0285 | 0.35        | 0.69  |
| L   | 0.0350 | 0.0401 | 0.89        | 1.02  |
| S   | 0.0830 | 0.1039 | 2.10        | 2.64  |
| V   | 0.0177 | 0.0236 | 0.45        | 0.60  |

- PIN 1. ANODE  
 2. NO CONNECTION  
 3. CATHODE

