

# BAL99LT1

## Switching Diode

### Features

- Pb-Free Package is Available

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Continuous Reverse Voltage	$V_R$	70	Vdc
Peak Forward Current	$I_F$	100	mAdc

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.

### THERMAL CHARACTERISTICS

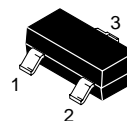
Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board (Note 1), $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	225	mW
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	1.8	$^\circ\text{C}/\text{W}$
Total Device Dissipation Alumina Substrate, (Note 2) $T_A = 25^\circ\text{C}$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

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



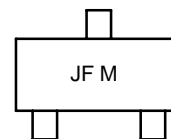
ON Semiconductor®

<http://onsemi.com>



SOT-23  
CASE 318  
STYLE 18

### MARKING DIAGRAM



JF      Specific Device Code  
M      = Date Code

### ORDERING INFORMATION

Device	Package	Shipping†
BAL99LT1	SOT-23	3000 / Tape & Reel
BAL99LT1G	SOT-23 (Pb-Free)	3000 / 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.

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

Characteristic	Symbol	Min	Max	Unit
<b>OFF CHARACTERISTICS</b>				
Reverse Voltage Leakage Current ( $V_R = 70\text{ Vdc}$ ) ( $V_R = 25\text{ Vdc}$ , $T_J = 150^\circ\text{C}$ ) ( $V_R = 70\text{ Vdc}$ , $T_J = 150^\circ\text{C}$ )	$I_R$	–	2.5 30 50	$\mu\text{Adc}$
Reverse Breakdown Voltage, ( $I_R = 100\ \mu\text{Adc}$ )	$V_{(BR)}$	70	–	Vdc
Forward Voltage, ( $I_F = 1.0\ \text{mA}$ ) ( $I_F = 10\ \text{mA}$ ) ( $I_F = 50\ \text{mA}$ ) ( $I_F = 150\ \text{mA}$ )	$V_F$	–	715 855 1000 1250	mV
Recovery Current, ( $I_F = 10\ \text{mA}$ , $V_R = 5.0\ \text{Vdc}$ , $R_L = 500\ \Omega$ )	$Q_S$	–	45	pC
Diode Capacitance, ( $V_R = 0$ , $f = 1.0\ \text{MHz}$ )	$C_D$	–	1.5	pF
Reverse Recovery Time, ( $I_F = I_R = 10\ \text{mA}$ , $R_L = 100\ \Omega$ , measured at $I_R = 1.0\ \text{mA}$ )	$t_{rr}$	–	6.0	ns
Forward Recovery Voltage, ( $I_F = 10\ \text{mA}$ , $t_r = 20\ \text{ns}$ )	$V_{FR}$	–	1.75	Vdc

## TYPICAL CHARACTERISTICS

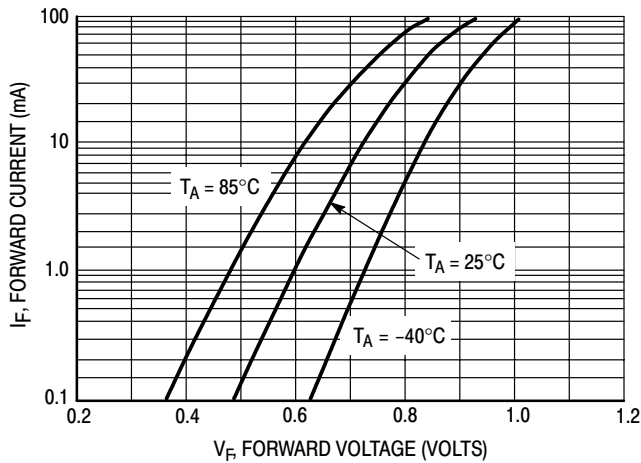


Figure 1. Forward Voltage

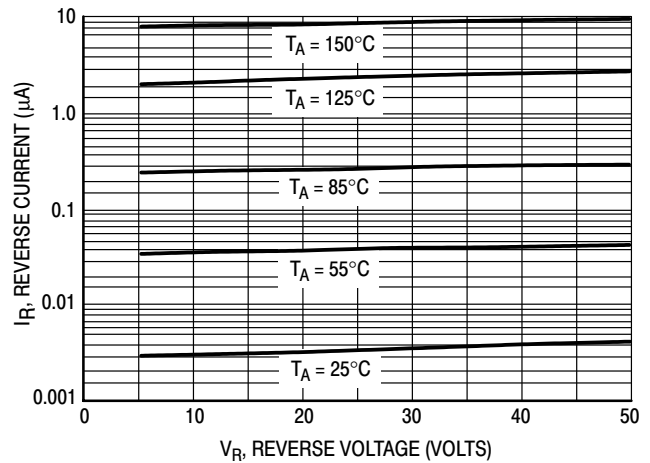


Figure 2. Leakage Current

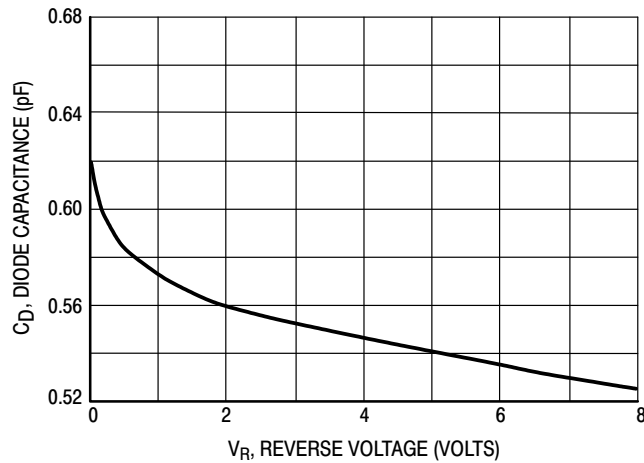
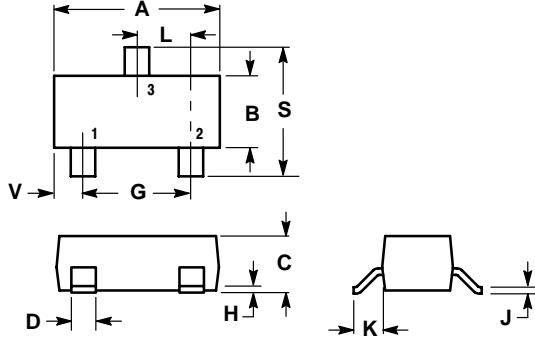


Figure 3. Capacitance

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## PACKAGE DIMENSIONS

SOT-23 (TO-236)  
CASE 318-08  
ISSUE AH



**NOTES:**

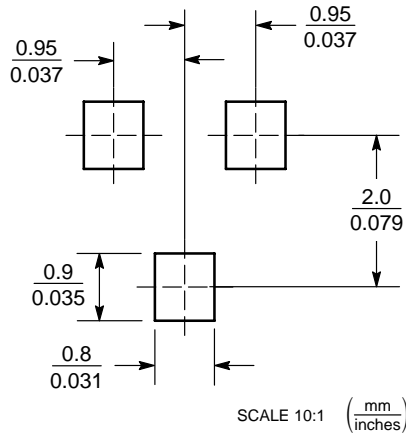
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. 318-03 AND -07 OBSOLETE, NEW STANDARD 318-08.

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

**STYLE 18:**

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

### 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.

# BAL99LT1

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