

# BAL99LT1G

## Switching Diode

### Features

- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

### MAXIMUM RATINGS

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

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

### THERMAL CHARACTERISTICS

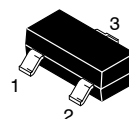
Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board (Note 1), $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	225	mW
		1.8	mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	556	$^\circ\text{C/W}$
Total Device Dissipation Alumina Substrate, (Note 2) $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	300	mW
		2.4	mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	417	$^\circ\text{C/W}$
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.



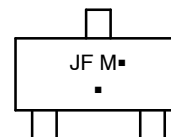
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**SOT-23  
CASE 318  
STYLE 18**

### MARKING DIAGRAM



JF Specific Device Code  
M = Date Code\*

■ = Pb-Free Package

(Note: Microdot may be in either location)

\*Date Code orientation and/or overbar may vary depending upon manufacturing location.

### ORDERING INFORMATION

Device	Package	Shipping <sup>†</sup>
BAL99LT1G	SOT-23 (Pb-Free)	3000 / Tape & Reel

<sup>†</sup>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.

# BAL99LT1G

## 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	$\mu\text{A}$   $\text{dc}$
Reverse Breakdown Voltage, ( $I_R = 100\text{ }\mu\text{A}$ )	$V_{(BR)}$	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, ( $I_F = 10\text{ mA}$ , $V_R = 5.0\text{ Vdc}$ , $R_L = 500\text{ }\Omega$ )	$Q_S$	–	45	pC
Diode Capacitance, ( $V_R = 0$ , $f = 1.0\text{ MHz}$ )	$C_D$	–	1.5	pF
Reverse Recovery Time, ( $I_F = I_R = 10\text{ mA}$ , $R_L = 100\text{ }\Omega$ , 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

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

# BAL99LT1G

## TYPICAL CHARACTERISTICS

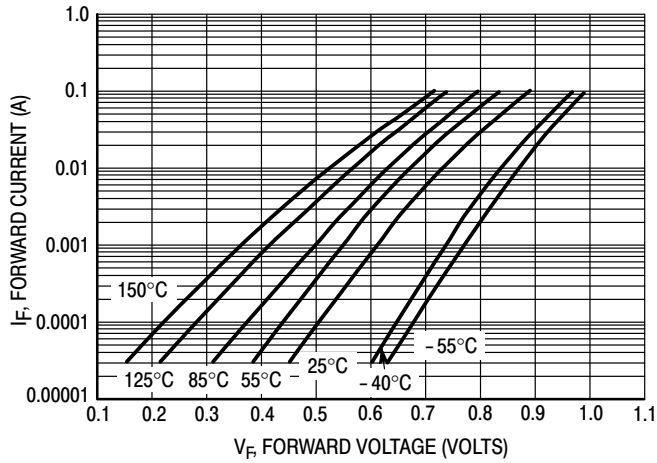


Figure 1. Forward Voltage

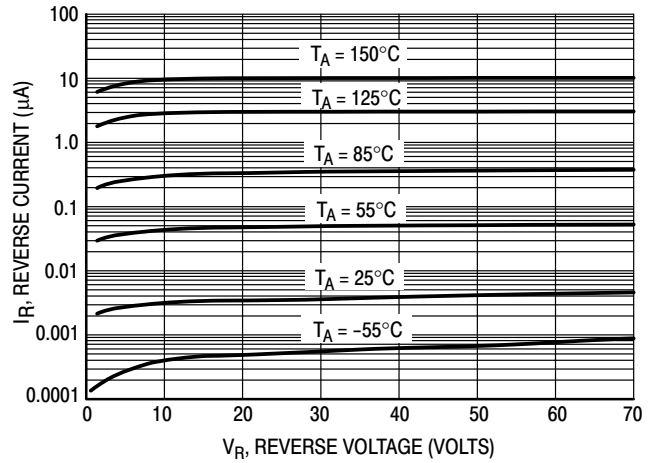


Figure 2. Leakage Current

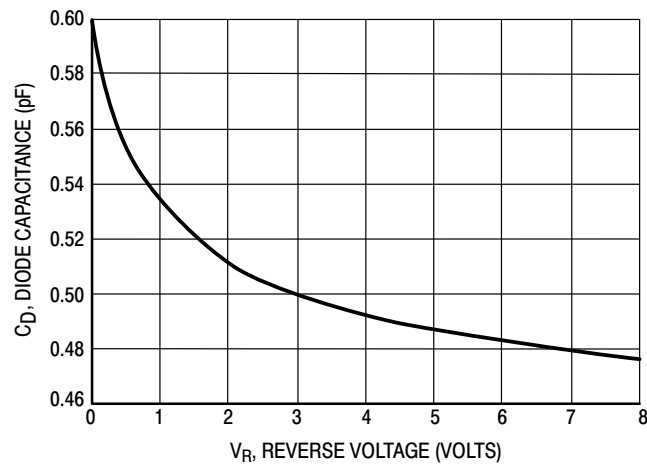
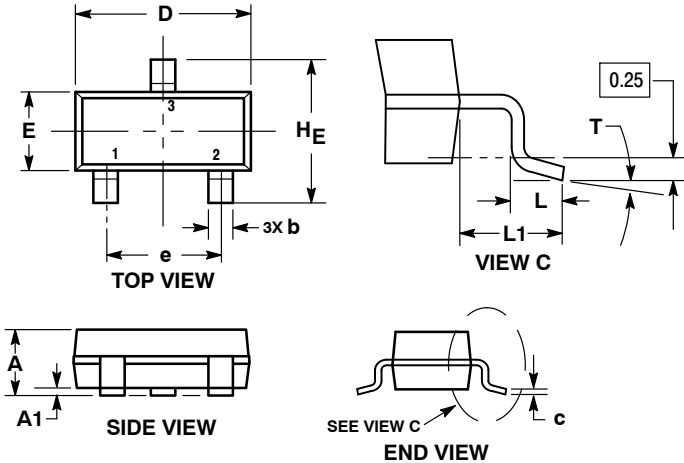


Figure 3. Capacitance

# BAL99LT1G

## PACKAGE DIMENSIONS

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

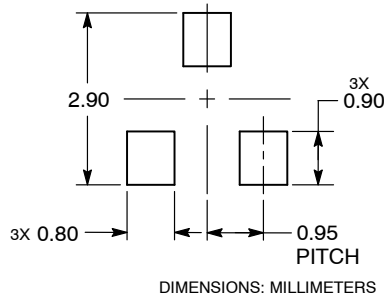


- NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
  2. CONTROLLING DIMENSION: MILLIMETERS.
  3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF THE BASE MATERIAL.
  4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1.00	1.11	0.035	0.039	0.044
A1	0.01	0.06	0.10	0.000	0.002	0.004
b	0.37	0.44	0.50	0.015	0.017	0.020
c	0.08	0.14	0.20	0.003	0.006	0.008
D	2.80	2.90	3.04	0.110	0.114	0.120
E	1.20	1.30	1.40	0.047	0.051	0.055
e	1.78	1.90	2.04	0.070	0.075	0.080
L	0.30	0.43	0.55	0.012	0.017	0.022
L1	0.35	0.54	0.69	0.014	0.021	0.027
HE	2.10	2.40	2.64	0.083	0.094	0.104
T	0°	---	10°	0°	---	10°

STYLE 18:  
PIN 1. NO CONNECTION  
2. CATHODE  
3. ANODE

## RECOMMENDED 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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