

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

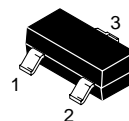
Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board (Note 1), $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	225	mW
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	1.8	$^\circ\text{C}/\text{W}$
Total Device Dissipation Alumina Substrate, (Note 2) $T_A = 25^\circ\text{C}$ Derate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



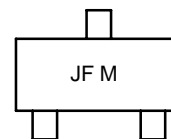
ON Semiconductor®

<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
OFF CHARACTERISTICS				
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	μAdc
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

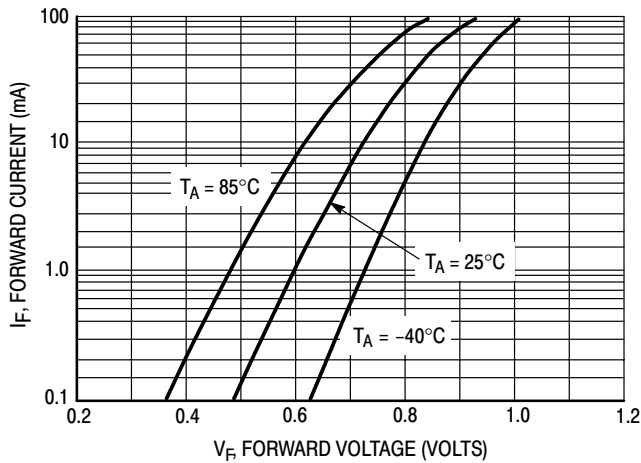


Figure 1. Forward Voltage

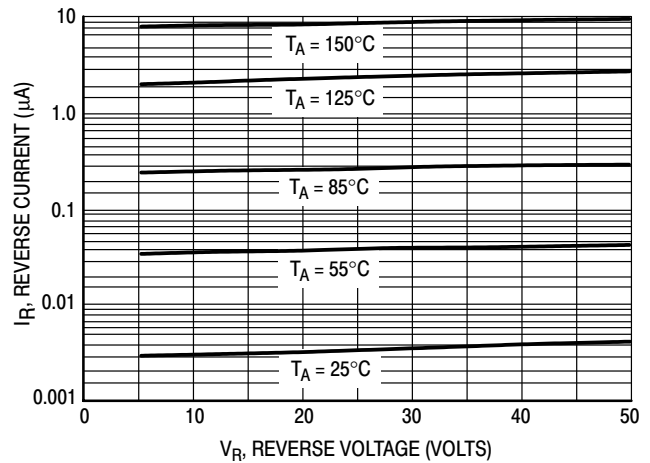


Figure 2. Leakage Current

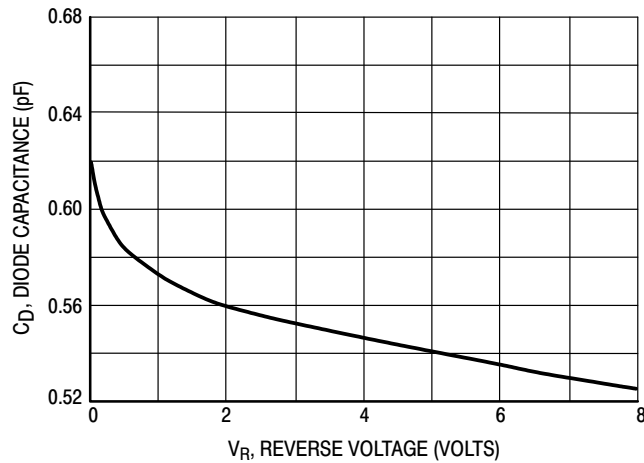
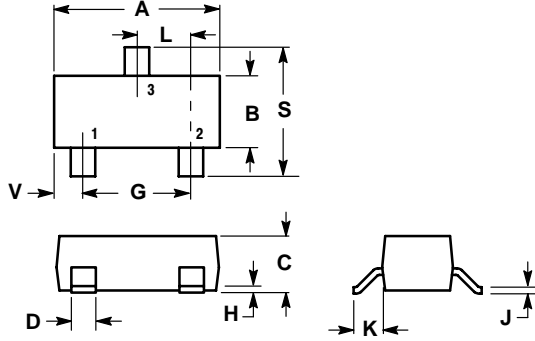


Figure 3. Capacitance

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PACKAGE DIMENSIONS

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



NOTES:

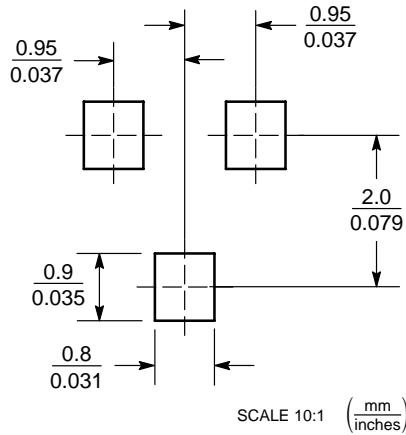
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. 318-03 AND -07 OBSOLETE, NEW STANDARD 318-08.

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.

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