

BAT54SL

Dual Series 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.

Features

- Extremely Fast Switching Speed
- Low Forward Voltage – 0.35 V (Typ) @ $I_F = 10$ mA
- S Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Rating	Symbol	Value	Unit
Reverse Voltage	V_R	30	V
Forward Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_F	225 1.8	mW mW/ $^\circ\text{C}$
Forward Current (DC)	I_F	200 Max	mA
Non-Repetitive Peak Forward Current $t_p < 10$ msec Square pulse = 1 sec	I_{FSM}	600 1.0	mA A
Repetitive Peak Forward Current Pulse Wave = 1 sec, Duty Cycle = 66%	I_{FRM}	300	mA
Junction Temperature	T_J	-55 to 150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^\circ\text{C}$

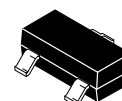
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.



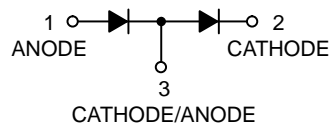
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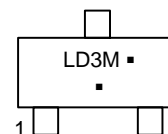
30 VOLT DUAL HOT-CARRIER DETECTOR AND SWITCHING DIODES



SOT-23
CASE 318
STYLE 11



MARKING DIAGRAM



LD3 = 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†
BAT54SLT1G	SOT-23 (Pb-Free)	3,000 / Tape & Reel
SBAT54SLT1G	SOT-23 (Pb-Free)	3,000 / Tape & Reel

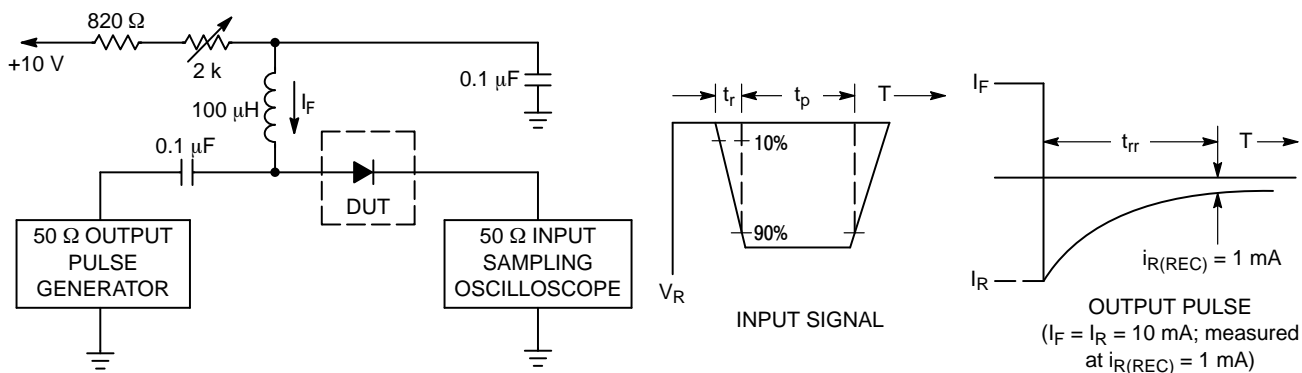
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

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

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage ($I_R = 10 \mu\text{A}$)	$V_{(BR)R}$	30	-	-	V
Total Capacitance ($V_R = 1.0 \text{ V}$, $f = 1.0 \text{ MHz}$)	C_T	-	7.6	10	pF
Reverse Leakage ($V_R = 25 \text{ V}$)	I_R	-	0.5	2.0	μA_{dc}
Forward Voltage ($I_F = 0.1 \text{ mA}$) ($I_F = 1.0 \text{ mA}$) ($I_F = 10 \text{ mA}$) ($I_F = 30 \text{ mA}$) ($I_F = 100 \text{ mA}$)	V_F	-	0.22 0.29 0.35 0.41 0.52	0.24 0.32 0.40 0.50 0.80	V
Reverse Recovery Time ($I_F = I_R = 10 \text{ mAdc}$, $I_{R(REC)} = 1.0 \text{ mAdc}$, Figure 1)	t_{rr}	-	-	5.0	ns

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.



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

Figure 1. Recovery Time Equivalent Test Circuit

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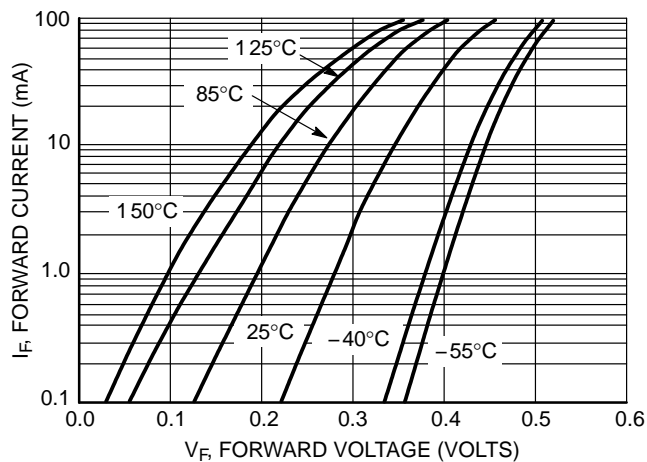


Figure 2. Forward Voltage

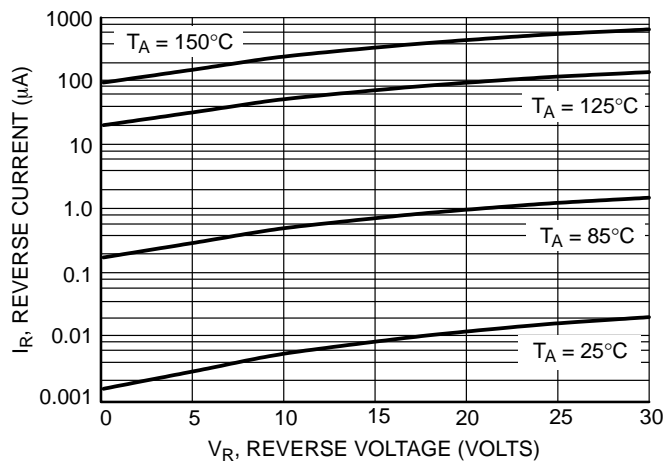


Figure 3. Leakage Current

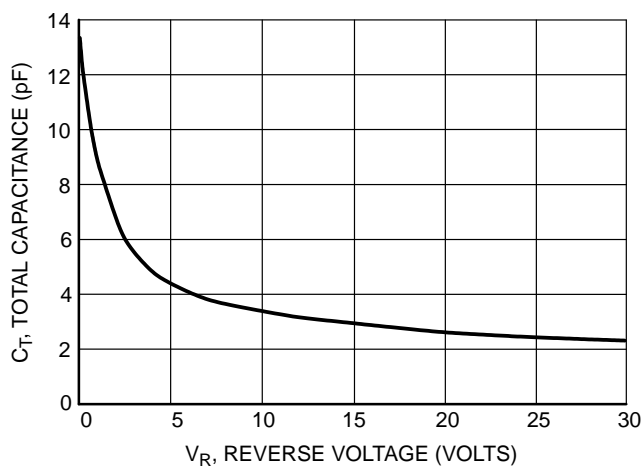
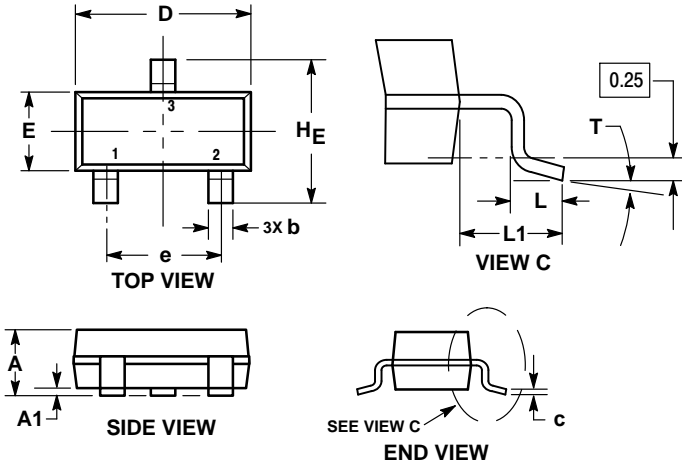


Figure 4. Total Capacitance

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PACKAGE DIMENSIONS

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



NOTES:

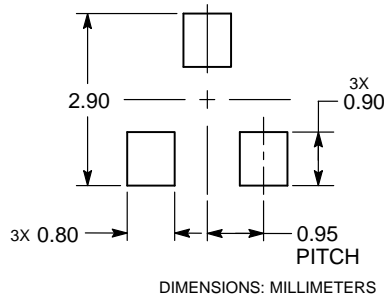
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF THE BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

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 11:

1. ANODE
2. CATHODE
3. CATHODE-ANODE

RECOMMENDED SOLDERING FOOTPRINT



DIMENSIONS: MILLIMETERS

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