BAT54ALT1G

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

MAXIMUM RATINGS (T_J = 125°C unless otherwise noted)

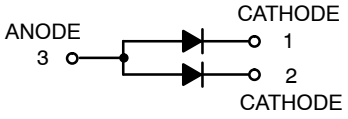
Rating	Symbol	Value	Unit
Reverse Voltage	V_R	30	V
Forward Power Dissipation @ T_A = 25°C Derate above 25°C	P_F	 225 1.8	 mW mW/°C
Forward Current (DC)	I_F	200 Max	mA
Non−Repetitive Peak Forward Current t_p < 10 msec	I_{FSM}	600	mA
Repetitive Peak Forward Current Pulse Wave = 1 sec, Duty Cycle = 66%	I_{FRM}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

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

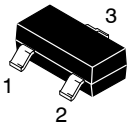
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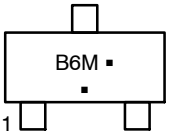
30 VOLT SCHOTTKY BARRIER DETECTOR AND SWITCHING DIODES



MARKING DIAGRAM



SOT−23
CASE 318
STYLE 12



B6 = 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

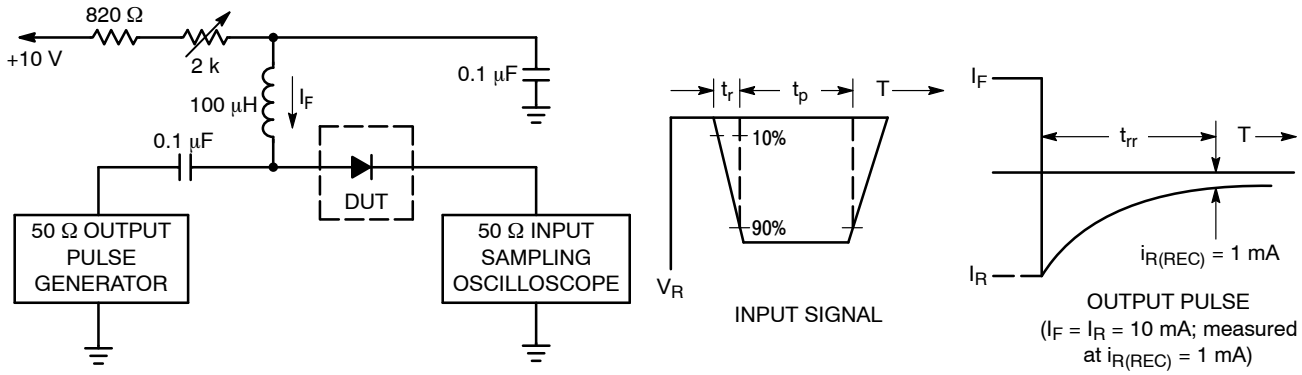
Device	Package	Shipping†
BAT54ALT1G	SOT−23 (Pb−Free)	3000/Tape & Reel
BAT54ALT3G	SOT−23 (Pb−Free)	10,000/Tape & Reel

†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°C unless otherwise noted) (EACH DIODE)

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage (I_R = 10 μA)	$V_{(BR)R}$	30	–	–	V
Total Capacitance (V_R = 1.0 V, f = 1.0 MHz)	C_T	–	7.6	10	pF
Reverse Leakage (V_R = 25 V)	I_R	–	0.5	2.0	μAdc
Forward Voltage (I_F = 0.1 mAdc)	V_F	–	0.22	0.24	Vdc
Forward Voltage (I_F = 30 mAdc)	V_F	–	0.41	0.5	Vdc
Forward Voltage (I_F = 100 mAdc)	V_F	–	0.52	0.8	Vdc
Reverse Recovery Time (I_F = I_R = 10 mAdc, $I_{R(REC)}$ = 1.0 mAdc, Figure 1)	t_{rr}	–	–	5.0	ns
Forward Voltage (I_F = 1.0 mAdc)	V_F	–	0.29	0.32	Vdc
Forward Voltage (I_F = 10 mAdc)	V_F	–	0.35	0.40	Vdc



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

Figure 1. Recovery Time Equivalent Test Circuit

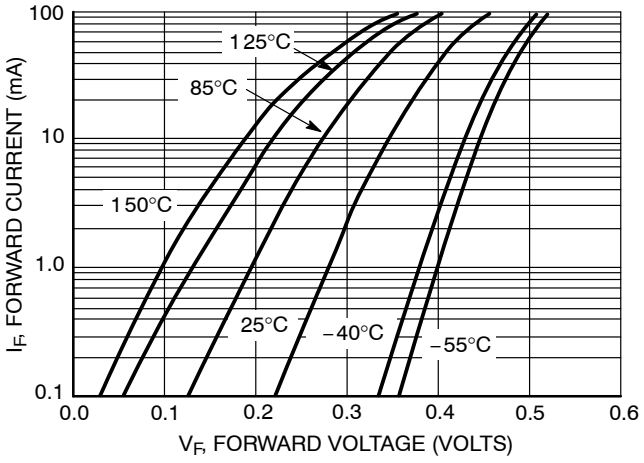


Figure 2. Forward Voltage

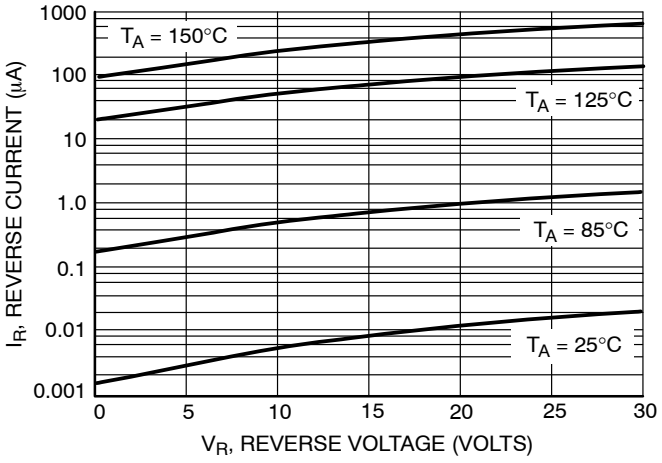


Figure 3. Leakage Current

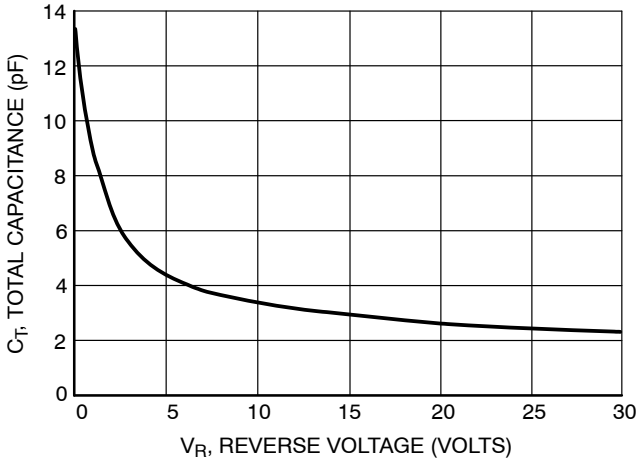
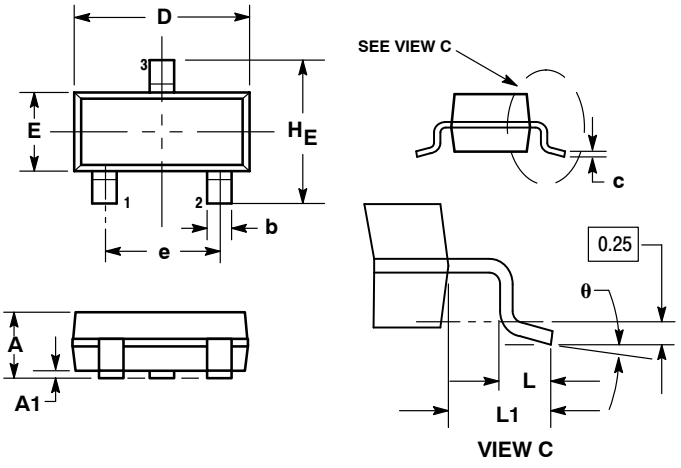


Figure 4. Total Capacitance

BAT54ALT1G

PACKAGE DIMENSIONS

SOT−23 (TO−236)
CASE 318−08
ISSUE AP

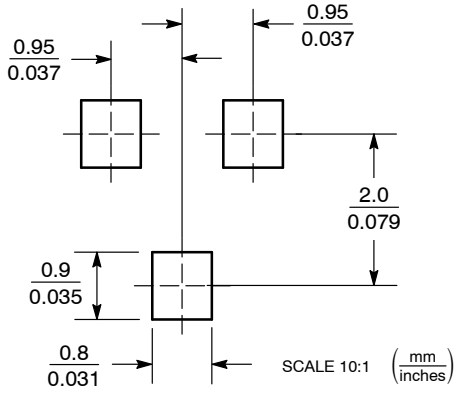


NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1.00	1.11	0.035	0.040	0.044
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.37	0.44	0.50	0.015	0.018	0.020
c	0.09	0.13	0.18	0.003	0.005	0.007
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	0.081
L	0.10	0.20	0.30	0.004	0.008	0.012
L1	0.35	0.54	0.69	0.014	0.021	0.029
H_E	2.10	2.40	2.64	0.083	0.094	0.104
θ	0°	−−−	10°	0°	−−−	10°

STYLE 12:
PIN 1. CATHODE
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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