# **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) @  $I_F = 10 \text{ mAdc}$
- 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<sub>J</sub> = 125°C unless otherwise noted)

Rating	Symbol	Value	Unit			
Reverse Voltage	V <sub>R</sub>	30	V			
Forward Power Dissipation @ T <sub>A</sub> = 25°C Derate above 25°C	P <sub>F</sub>	200 1.6	mW mW/°C			
Forward Current (DC)	IF	200 Max	mA			
Non-Repetitive Peak Forward Current t <sub>p</sub> < 10 msec	I <sub>FSM</sub>	600	mA			
Repetitive Peak Forward Current Pulse Wave = 1 sec, Duty Cycle = 66%	I <sub>FRM</sub>	300	mA			
Junction Temperature	TJ	-55 to 150	°C			
Storage Temperature Range	T <sub>stg</sub>	-55 to +150	°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.



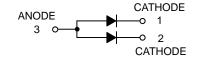
#### ON Semiconductor®

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# 30 VOLT SCHOTTKY BARRIER DETECTOR AND SWITCHING DIODES



SOT-323 CASE 419 STYLE 4



#### **MARKING DIAGRAM**



B7 = Device Code M = Date Code\* = Pb-Free Package

(Note: Microdot may be in either location)

#### **ORDERING INFORMATION**

Device	Package	Shipping <sup>†</sup>
BAT54AWT1G	SOT-323 (Pb-Free)	3,000/Tape & Reel
SBAT54AWT1G	SOT-323 (Pb-Free)	3,000/Tape & Reel

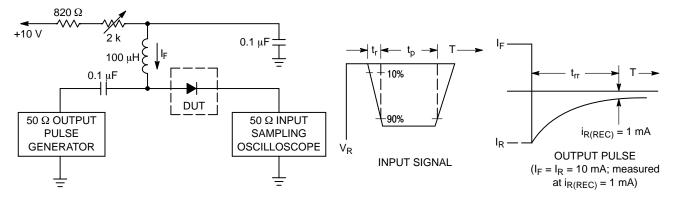
<sup>†</sup>For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

<sup>\*</sup>For additional information on our Pb–Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

<sup>\*</sup>Date Code orientation may vary depending upon manufacturing location.

#### **ELECTRICAL CHARACTERISTICS** (T<sub>A</sub> = 25°C unless otherwise noted) (EACH DIODE)

Characteristic	Symbol	Min	Тур	Max	Unit
Reverse Breakdown Voltage $(I_R = 10 \mu A)$	V <sub>(BR)R</sub>	30	-	-	V
Total Capacitance (V <sub>R</sub> = 1.0 V, f = 1.0 MHz)	C <sub>T</sub>	-	7.6	10	pF
Reverse Leakage (V <sub>R</sub> = 25 V)	I <sub>R</sub>	_	0.5	2.0	μAdc
Forward Voltage $(I_F = 0.1 \text{ mA})$ $(I_F = 1.0 \text{ mA})$ $(I_F = 10 \text{ mA})$ $(I_F = 30 \text{ mA})$ $(I_F = 100 \text{ mA})$	VF	- - - -	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 <sub>rr</sub>	_	_	5.0	ns



Notes: 1. A 2.0 k $\Omega$  variable resistor adjusted for a Forward Current (I<sub>F</sub>) of 10 mA.

- 2. Input pulse is adjusted so I<sub>R(peak)</sub> is equal to 10 mA.
- 3.  $t_p \gg t_{rr}$

Figure 1. Recovery Time Equivalent Test Circuit

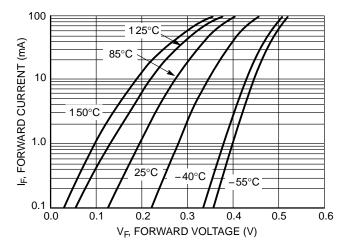


Figure 2. Forward Voltage

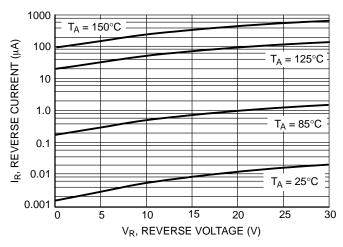


Figure 3. Leakage Current

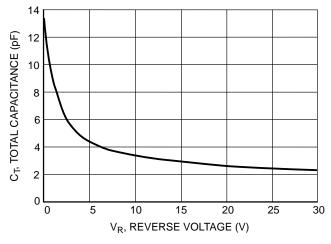
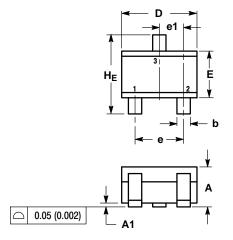
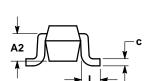


Figure 4. Total Capacitance

#### PACKAGE DIMENSIONS

SOT-323 (SC-70) CASE 419-04 ISSUE N



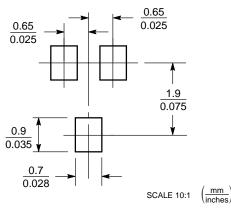


- DIMENSIONING AND TOLERANCING PER ANSI Y14.5M. 1982.
- CONTROLLING DIMENSION: INCH.

	MILLIMETERS			INCHES			
DIM	MIN	NOM	MAX	MIN	NOM	MAX	
Α	0.80	0.90	1.00	0.032	0.035	0.040	
A1	0.00	0.05	0.10	0.000	0.002	0.004	
A2	0.70 REF				0.028 REF		
b	0.30	0.35	0.40	0.012	0.014	0.016	
С	0.10	0.18	0.25	0.004	0.007	0.010	
D	1.80	2.10	2.20	0.071	0.083	0.087	
E	1.15	1.24	1.35	0.045	0.049	0.053	
е	1.20	1.30	1.40	0.047	0.051	0.055	
e1	0.65 BSC			0.026 BSC			
L	0.20	0.38	0.56	0.008	0.015	0.022	
HE	2.00	2.10	2.40	0.079	0.083	0.095	

STYLE 4: PIN 1. CATHODE 2. CATHODE

#### 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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