

# High Voltage Switching Diode

## HIGH VOLTAGE SWITCHING DIODE

### BAS20H

#### Features

- 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

Rating	Symbol	Value	Unit
Continuous Reverse Voltage	$V_R$	200	Vdc
Repetitive Peak Reverse Voltage	$V_{RRM}$	200	Vdc
Continuous Forward Current	$I_F$	200	mAdc
Peak Forward Surge Current	$I_{FM(surge)}$	625	mAdc
Repetitive Peak Forward Current (Pulse Wave = 1 sec, Duty Cycle = 66%)	$I_{FRM}$	500	mA
Non-Repetitive Peak Forward Current (Square Wave, $T_J = 25^\circ\text{C}$ prior to surge)	$I_{FSM}$		A
$t = 1 \mu\text{s}$		5.0	
$t = 1 \text{ms}$		2.0	
$t = 1 \text{s}$		0.5	

#### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board* $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	200 1.57	mW mW/ $^\circ\text{C}$
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	635	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature Range	$T_J, T_{stg}$	-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.

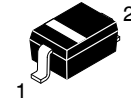
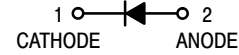
\*FR-5 Minimum Pad

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

Characteristic	Symbol	Min	Max	Unit
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#### OFF CHARACTERISTICS

Reverse Voltage Leakage Current ( $V_R = 200 \text{Vdc}$ ) ( $V_R = 200 \text{Vdc}, T_J = 150^\circ\text{C}$ )	$I_R$	-	1.0 100	$\mu\text{Adc}$
Reverse Breakdown Voltage ( $I_{BR} = 100 \mu\text{Adc}$ )	$V_{(BR)}$	250	-	Vdc
Forward Voltage ( $I_F = 100 \text{mAdc}$ ) ( $I_F = 200 \text{mAdc}$ )	$V_F$	-	1000 1250	mV
Diode Capacitance ( $V_R = 0, f = 1.0 \text{MHz}$ )	$C_D$	-	5.0	pF
Reverse Recovery Time ( $I_F = I_R = 30 \text{mAdc}, R_L = 100 \Omega$ )	$t_{rr}$	-	50	ns



SOD-323  
CASE 477  
STYLE 1

#### MARKING DIAGRAM



JR = Specific Device Code

M = Date Code\*

▪ = Pb-Free Package

(Note: Microdot may be in either location)

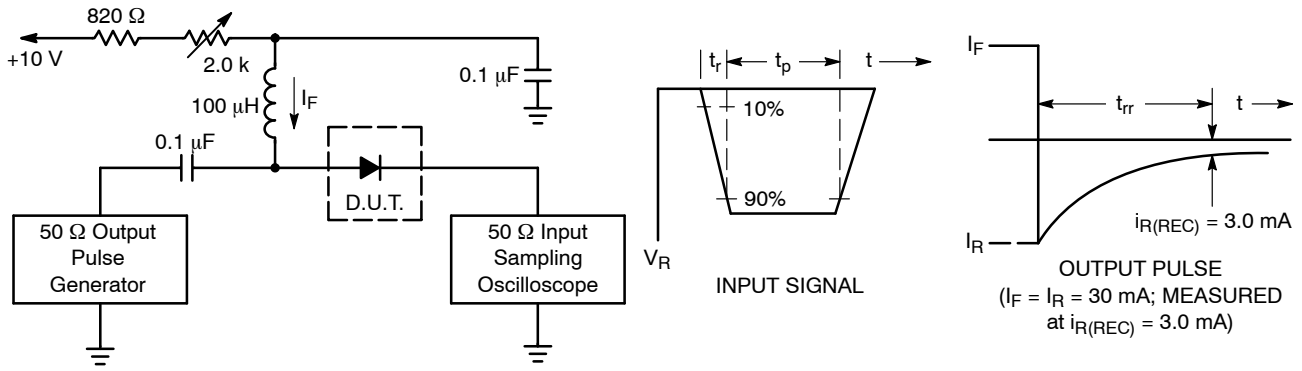
\*Date Code orientation may vary depending upon manufacturing location.

#### ORDERING INFORMATION

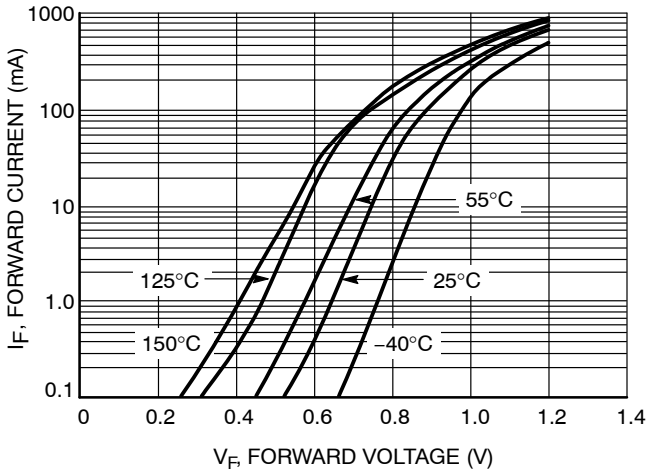
Device	Package	Shipping†
BAS20HT1G	SOD-323 (Pb-Free)	3000 / Tape & Reel
SBAS20HT1G	SOD-323 (Pb-Free)	3000 / Tape & Reel

†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](#).

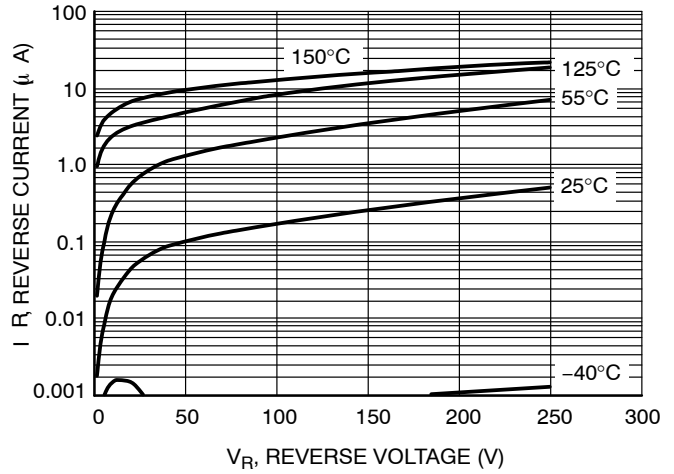
# BAS20H



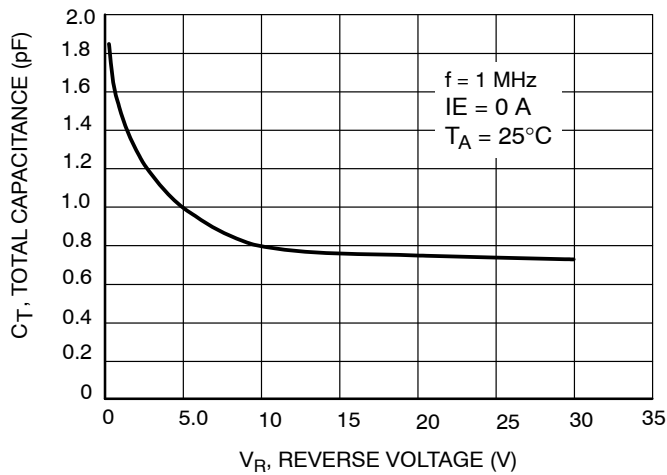
**Figure 1. Recovery Time Equivalent Test Circuit**



**Figure 2. Forward Current**



**Figure 3. Leakage Current**



**Figure 4. Total Capacitance**

# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS

ON Semiconductor®



**SOD-323**  
CASE 477-02  
ISSUE H

DATE 13 MAR 2007



SCALE 4:1



**NOTES:**

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. LEAD THICKNESS SPECIFIED PER L/F DRAWING WITH SOLDER PLATING.
4. DIMENSIONS A AND B DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.
5. DIMENSION L IS MEASURED FROM END OF RADIUS.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.80	0.90	1.00	0.031	0.035	0.040
A1	0.00	0.05	0.10	0.000	0.002	0.004
A3	0.15 REF			0.006 REF		
b	0.25	0.32	0.4	0.010	0.012	0.016
C	0.089	0.12	0.177	0.003	0.005	0.007
D	1.60	1.70	1.80	0.062	0.066	0.070
E	1.15	1.25	1.35	0.045	0.049	0.053
L	0.08			0.003		
HE	2.30	2.50	2.70	0.090	0.098	0.105

**GENERIC MARKING DIAGRAM\***



XX = Specific Device Code  
M = Date Code

\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present.

**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.

STYLE 1:  
PIN 1. CATHODE (POLARITY BAND)  
2. ANODE

STYLE 2:  
NO POLARITY

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