

BAS21HT1G, NSVBAS21HT1G, NSVBAS21HT3G

High Voltage Switching Diode

Features

- NSV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These are Pb-Free Devices

MAXIMUM RATINGS

Symbol	Rating	Value	Unit
V_R	Continuous Reverse Voltage	250	Vdc
V_{RRM}	Repetitive Peak Reverse Voltage	250	Vdc
I_F	Peak Forward Current	200	mAdc
$I_{FM(surge)}$	Peak Forward Surge Current	625	mAdc
I_{FRM}	Repetitive Peak Forward Current	500	mA
I_{FSM}	Non-Repetitive Peak Forward Current (Square Wave, $T_J = 25^\circ\text{C}$ prior to surge)		A
	$t = 1 \mu\text{s}$	9.0	
	$t = 10 \mu\text{s}$	6.0	
	$t = 1 \text{ ms}$	2.0	
	$t = 1 \text{ s}$	0.5	

THERMAL CHARACTERISTICS

Symbol	Characteristic	Max	Unit
P_D	Total Device Dissipation FR-5 Board, (Note 1) $T_A = 25^\circ\text{C}$ Derate above 25°C	200 1.57	mW mW/ $^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	635	$^\circ\text{C}/\text{W}$
T_J, T_{stg}	Junction and Storage Temperature Range	-55 to +150	$^\circ\text{C}$

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.

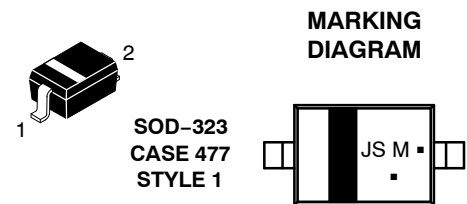
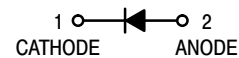
1. FR-5 Minimum Pad



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HIGH VOLTAGE SWITCHING DIODE



JS = 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

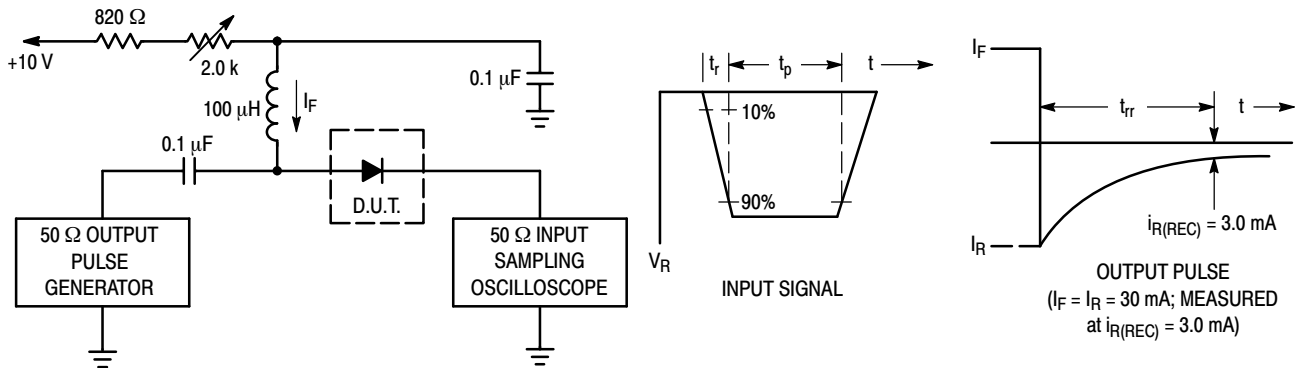
Device	Package	Shipping†
BAS21HT1G	SOD-323 (Pb-Free)	3000 / Tape & Reel
NSVBAS21HT1G	SOD-323 (Pb-Free)	3000 / Tape & Reel
NSVBAS21HT3G	SOD-323 (Pb-Free)	10000 / Tape & Reel

†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 ($V_R = 200\text{ Vdc}$) ($V_R = 200\text{ Vdc}$, $T_J = 150^\circ\text{C}$)	I_R	–	0.1 100	μA dc
Reverse Breakdown Voltage ($I_{BR} = 100\ \mu\text{A}$)	$V_{(BR)}$	250	–	Vdc
Forward Voltage ($I_F = 100\ \text{mA}$) ($I_F = 200\ \text{mA}$)	V_F	–	1000 1250	mV
Diode Capacitance ($V_R = 0$, $f = 1.0\ \text{MHz}$)	C_D	–	5.0	pF
Reverse Recovery Time ($I_F = I_R = 30\ \text{mA}$, $R_L = 100\ \Omega$)	t_{rr}	–	50	ns



- Notes:
1. A 2.0 k Ω variable resistor adjusted for a Forward Current (I_F) of 30 mA.
 2. Input pulse is adjusted so $I_{R(\text{peak})}$ is equal to 30 mA.
 3. $t_p \gg t_{rr}$

Figure 1. Recovery Time Equivalent Test Circuit

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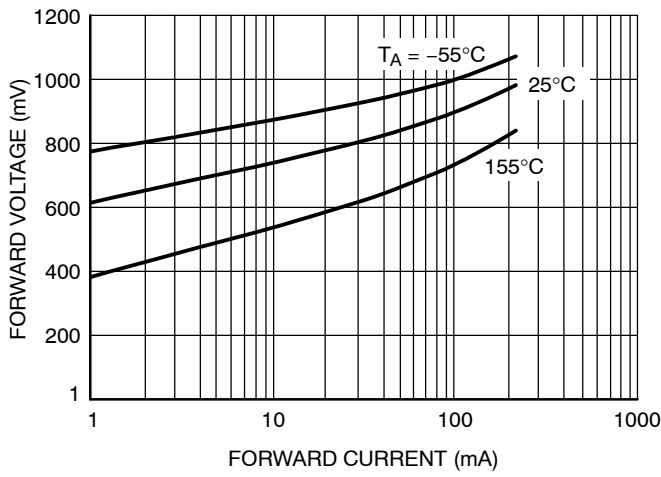


Figure 2. Forward Voltage

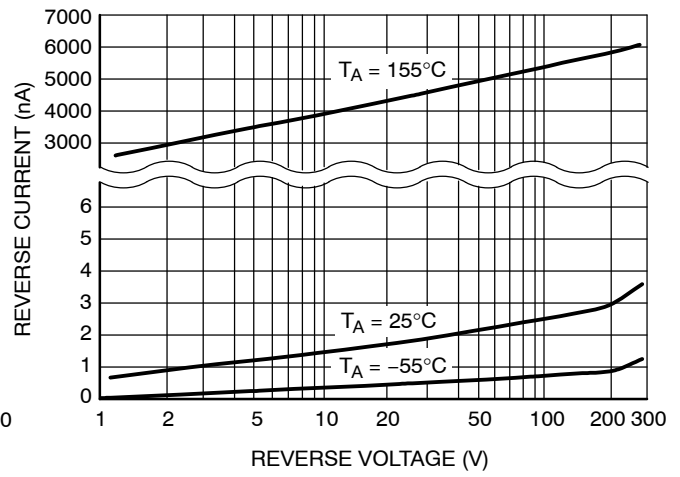


Figure 3. Reverse Leakage

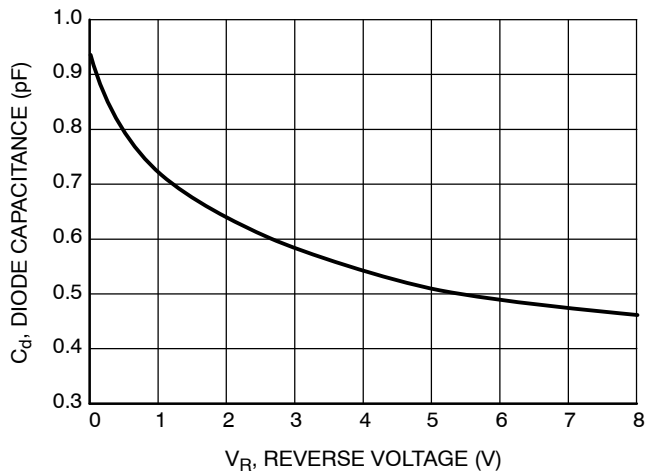


Figure 4. Diode Capacitance

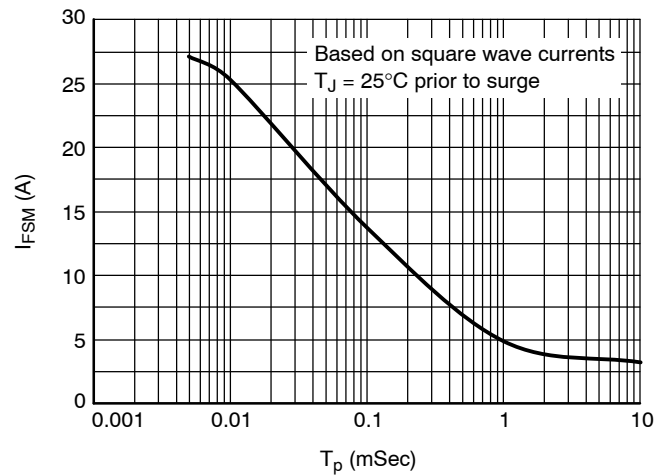
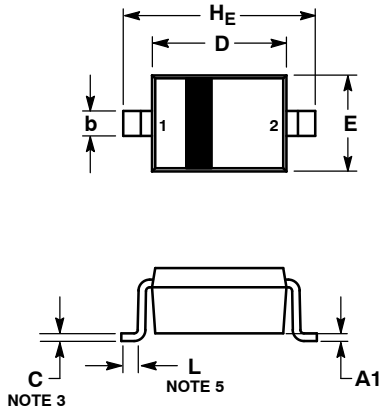


Figure 5. Maximum Non-repetitive Peak Forward Current as a Function of Pulse Duration, Typical Values

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PACKAGE DIMENSIONS

SOD-323
CASE 477-02
ISSUE G

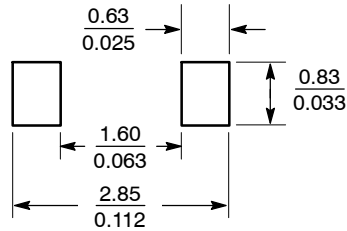


- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: MILLIMETERS.
 3. LEAD THICKNESS SPECIFIED PER L/F DRAWING WITH SOLDER PLATING.
 4. DIMENSIONS A AND B DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.
 5. DIMENSION L IS MEASURED FROM END OF RADIUS.


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

STYLE 1:
PIN 1. CATHODE
2. 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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