

## Features

- Fast Switching Speed
- Surface Mount Package Ideally Suited for Automated Insertion
- For General Purpose Switching Applications
- High Conductance
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## Mechanical Data

- Case: SOD323
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: Cathode Band, See Page 2
- Terminals: Matte Tin Finish annealed over Alloy 42 leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.004 grams (approximate)

SOD323



Top View

## Ordering Information (Note 4)

Part Number	Qualification	Case	Packaging
BAV19WS-7-F	AEC-Q101	SOD323	3000/Tape & Reel
BAV20WS-7-F	AEC-Q101	SOD323	3000/Tape & Reel
BAV21WS-7-F	AEC-Q101	SOD323	3000/Tape & Reel
BAV21WSQ-7-F	Automotive	SOD323	3000/Tape & Reel

Notes:

1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



XX = Product Type Marking Code

BAV19WS Marking: T2 or T3

BAV20WS Marking: T2 or T3

BAV21WS Marking: T3

Maximum Ratings (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	BAV19WS	BAV20WS	BAV21WS	Unit
Repetitive Peak Reverse Voltage	$V_{RRM}$	120	200	250	V
Working Peak Reverse Voltage DC Blocking Voltage	$V_{RWM}$ $V_R$	100	150	200	V
RMS Reverse Voltage	$V_{R(\text{RMS})}$	71	106	141	V
Forward Continuous Current (Note 5)	$I_{FM}$		250		mA
Average Rectified Output Current (Note 5)	$I_O$		200		mA
Non-Repetitive Peak Forward Surge Current @ $t = 1.0\mu\text{s}$ @ $t = 100\mu\text{s}$ @ $t = 10\text{ms}$	$I_{FSM}$		9.0 3.0 1.7		A
Repetitive Peak Forward Surge Current	$I_{FRM}$		625		mA

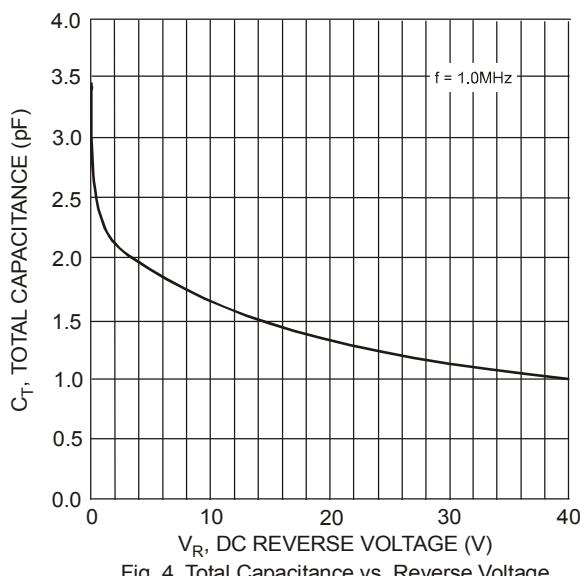
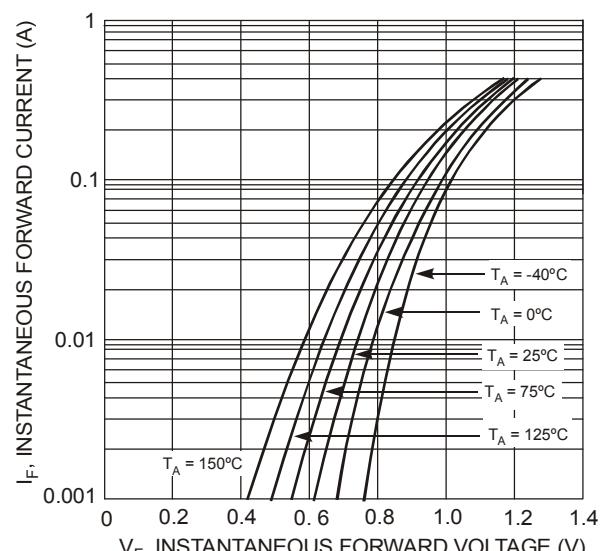
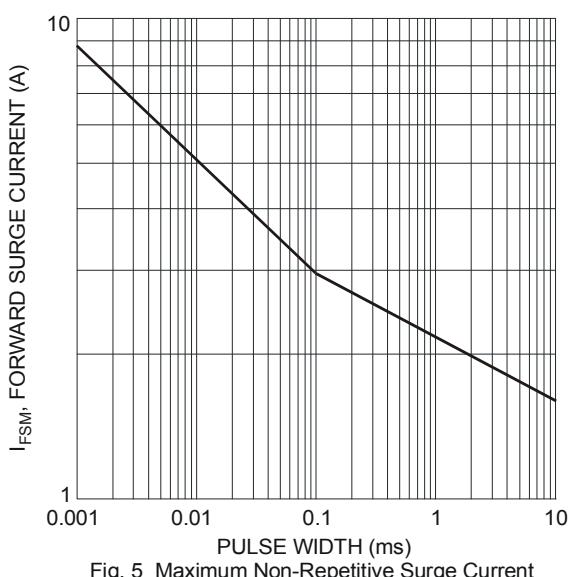
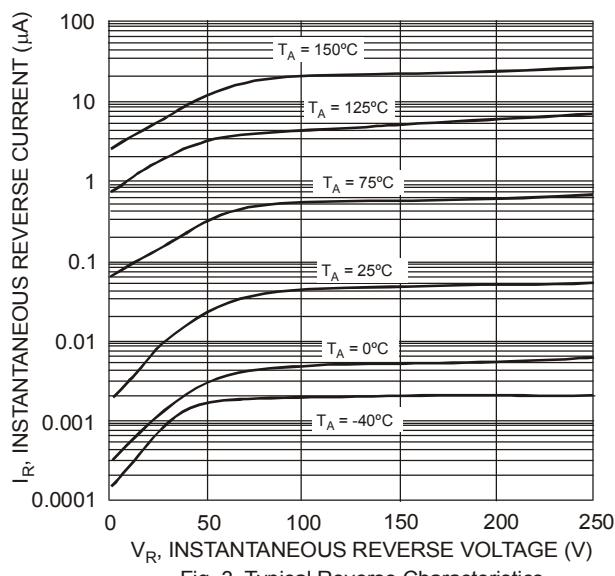
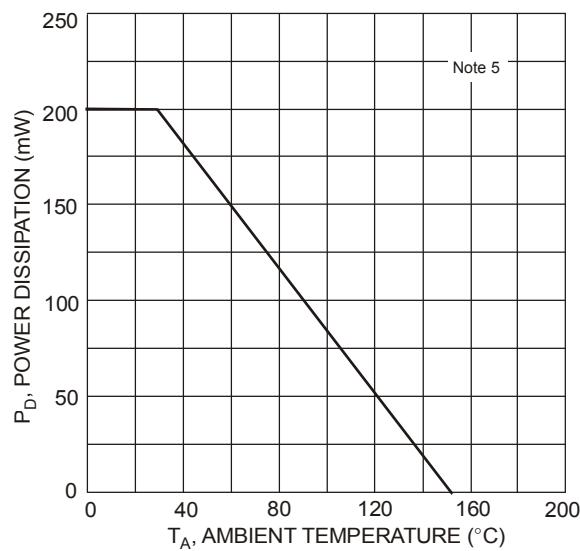
## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation	$P_D$	200	mW
Thermal Resistance Junction to Ambient Air (Note 5)	$R_{\theta JA}$	625	°C/W
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to +150	°C

 Electrical Characteristics (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

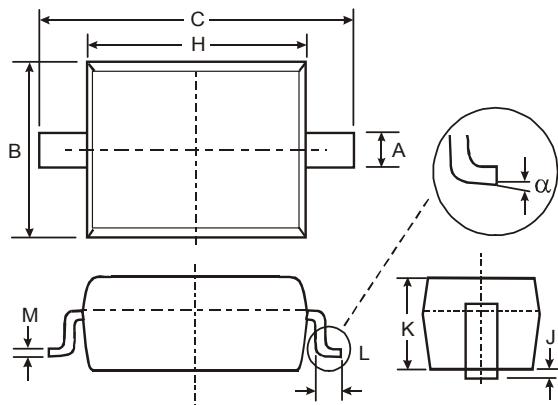
Characteristic	Symbol	Min	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 6) BAV19WS BAV20WS BAV21WS	$V_{(BR)R}$	120 200 250	—	V	$I_R = 100\mu\text{A}$
Forward Voltage	$V_F$	—	1.0 1.25	V	$I_F = 100\text{mA}$ $I_F = 200\text{mA}$
Peak Reverse Current @ Rated DC Blocking Voltage (Note 6)	$I_R$	—	100 15	nA μA	$T_J = +25^\circ\text{C}$ $T_J = +100^\circ\text{C}$
Total Capacitance	$C_T$	—	5.0	pF	$V_R = 0, f = 1.0\text{MHz}$
Reverse Recovery Time	$t_{rr}$	—	50	ns	$I_F = I_R = 30\text{mA}$ , $I_{rr} = 0.1 \times I_R, R_L = 100\Omega$

Notes: 5. Part mounted on FR-4 PC board with recommended pad layout, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.  
6. Short duration pulse test used to minimize self-heating effect.



## Package Outline Dimensions

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.

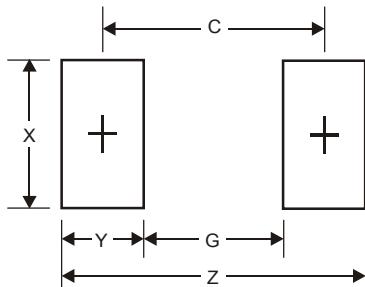


SOD323		
Dim	Min	Max
<b>A</b>	0.25	0.35
<b>B</b>	1.20	1.40
<b>C</b>	2.30	2.70
<b>H</b>	1.60	1.80
<b>J</b>	0.00	0.10
<b>K</b>	1.0	1.1
<b>L</b>	0.20	0.40
<b>M</b>	0.10	0.15
<b>α</b>	0°	8°

All Dimensions in mm

## Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



Dimensions	Value (in mm)
<b>Z</b>	3.75
<b>G</b>	1.05
<b>X</b>	0.65
<b>Y</b>	1.35
<b>C</b>	2.40

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