

# BAV20WS-7-F Datasheet



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DiGi Electronics Part Number	BAV20WS-7-F-DG
Manufacturer	<a href="#">Diodes Incorporated</a>
Manufacturer Product Number	BAV20WS-7-F
Description	DIODE GEN PURP 150V 200MA SOD323
Detailed Description	Diode 150 V 200mA Surface Mount SOD-323

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## Purchase and inquiry

Manufacturer Product Number:

BAV20WS-7-F

Series:

-

Technology:

Standard

Current - Average Rectified (Io):

200mA

Speed:

Small Signal  $\leq$  200mA (Io), Any Speed

Current - Reverse Leakage @ Vr:

100 nA @ 150 V

Mounting Type:

Surface Mount

Supplier Device Package:

SOD-323

Base Product Number:

BAV20

Manufacturer:

Diodes Incorporated

Product Status:

Active

Voltage - DC Reverse (Vr) (Max):

150 V

Voltage - Forward (Vf) (Max) @ If:

1.25 V @ 200 mA

Reverse Recovery Time (trr):

50 ns

Capacitance @ Vr, F:

5pF @ 0V, 1MHz

Package / Case:

SC-76, SOD-323

Operating Temperature - Junction:

-65°C ~ 150°C

## Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.10.0070

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99


**BAV19WS - BAV21WS**
**SURFACE MOUNT HIGH VOLTAGE FAST SWITCHING DIODE**
**Features**

- Fast Switching Speed
- Surface Mount Package Ideally Suited for Automated Insertion
- For General Purpose Switching Applications
- High Reverse Breakdown Voltage
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e.: parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at <https://www.diodes.com/products/automotive/automotive-products/>.**
- **This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability. <https://www.diodes.com/quality/product-definitions/>**

**Mechanical Data**

- Package: SOD323
- Package 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. Solderable per MIL-STD-202, Method 208 @3
- Weight: 0.004 grams (Approximate)

**SOD323**


Top View



Device Schematic

**Ordering Information** (Note 4)

Orderable Part Number	Package	Packing	
		Quantity	Carrier
BAV19WS-7-F	SOD323	3,000	Tape & Reel
BAV20WS-7-F	SOD323	3,000	Tape & Reel
BAV21WS-7-F	SOD323	3,000	Tape & Reel
BAV21WS-13-F	SOD323	10,000	Tape & Reel
BAV21WSQ-7-F	SOD323	3,000	Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
  2. See <https://www.diodes.com/quality/lead-free/> 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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

**Marking Information**


XX = Product Type Marking Code  
 BAV19WS Marking: T3  
 BAV20WS Marking: 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	$V_{RWM}$	100	150	200	V
DC Blocking Voltage	$V_R$				
RMS Reverse Voltage	$V_{R(RMS)}$	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	$I_{FSM}$	@ $t = 1.0\mu\text{s}$	9.0		A
		@ $t = 100\mu\text{s}$	3.0		
		@ $t = 10\text{ms}$	1.7		
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	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

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

Characteristic	Symbol	Min	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 6)	$V_{(BR)R}$	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 $\mu\text{A}$	$T_J = +25^\circ\text{C}$ $T_J = +100^\circ\text{C}$
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:
- Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper pad layout.
  - Short duration pulse test used to minimize self-heating effect.



**BAV19WS - BAV21WS**

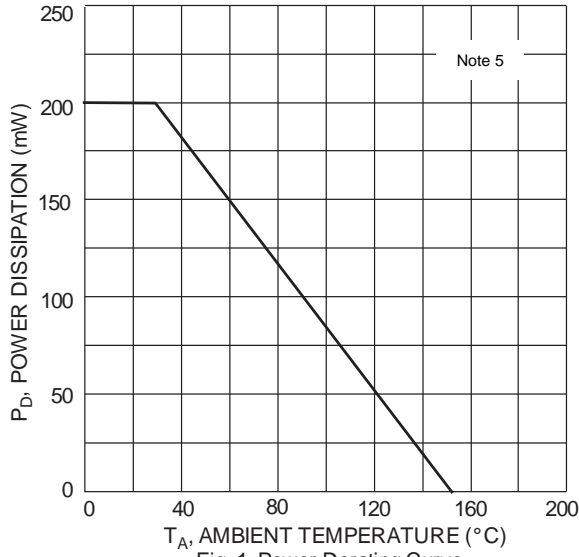


Fig. 1 Power Derating Curve

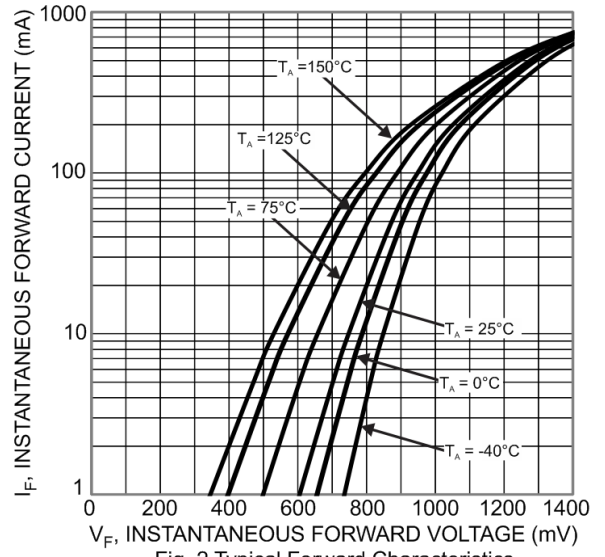


Fig. 2 Typical Forward Characteristics

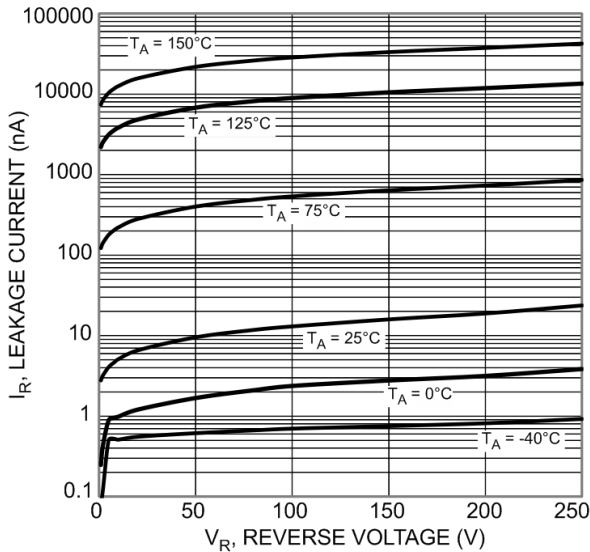


Fig. 3 Typical Reverse Characteristics

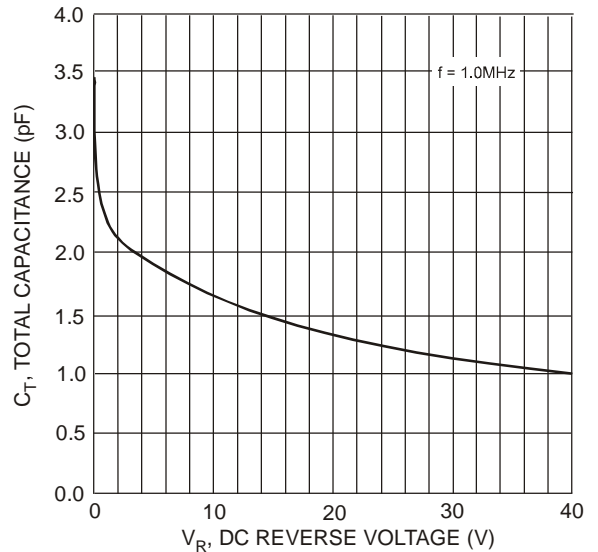


Fig. 4 Total Capacitance vs. Reverse Voltage

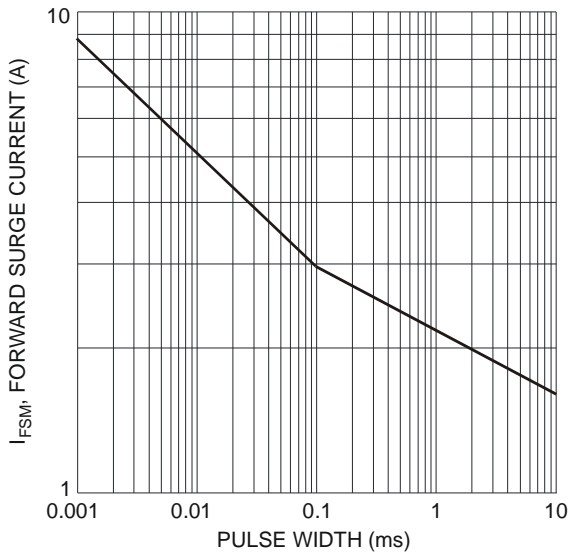
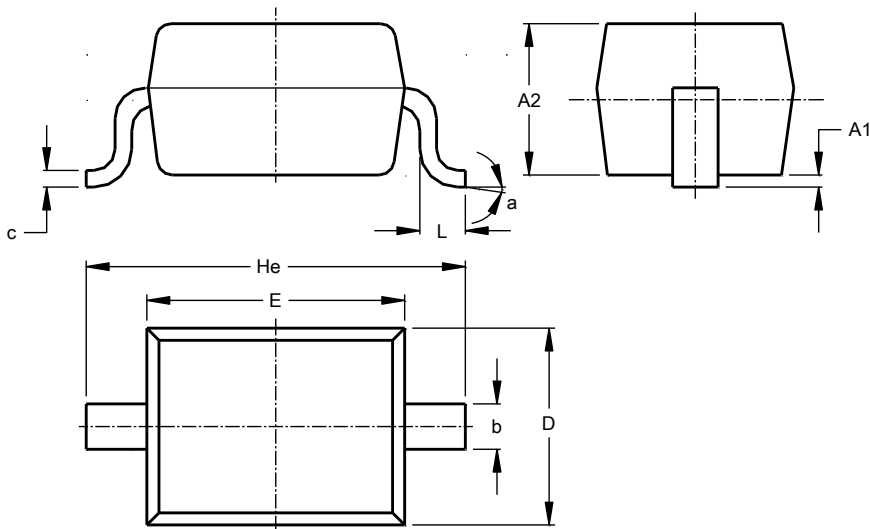


Fig. 5 Maximum Non-Repetitive Surge Current

## Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOD323

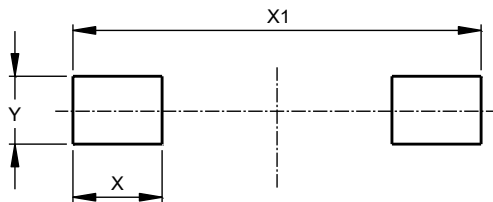


SOD323			
Dim	Min	Max	Typ
A1	--	0.10	0.05
A2	1.00	1.10	1.05
b	0.25	0.35	0.30
c	0.10	0.15	0.11
D	1.20	1.40	1.30
E	1.60	1.80	1.70
He	2.30	2.70	2.50
L	0.20	0.40	0.30
a	0°	8°	—
All Dimensions in mm			

## Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOD323



Dimensions	Value (in mm)
X	0.590
X1	2.700
Y	0.450

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