BAV19WS, BAV20WS, BAV21WS

Vishay Semiconductors

RoHS

COMPLIANT

Small Signal Switching Diodes, High Voltage

FEATURES

- Silicon epitaxial planar diodes
- For general purpose
- AEC-Q101 qualified available
- Base P/N-E3 RoHS-compliant, commercial grade
- Base P/N-HE3 RoHS-compliant, AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

PARTS TABLE						
PART	TYPE DIFFERENTIATION	ORDERING CODE	TYPE MARKING	CIRCUIT CONFIGURATION	REMARKS	
BAV19WS	V _R = 100 V	BAV19WS-E3-08 or BAV19WS-E3-18 BAV19WS-HE3-08 or BAV19WS-HE3-18	A8	Single	Tape and reel	
BAV20WS	V _R = 150 V	BAV20WS-E3-08 or BAV20WS-E3-18 BAV20WS-HE3-08 or BAV20WS-HE3-18	A9	Single	Tape and reel	
BAV21WS	V _R = 200 V	BAV21WS-E3-08 or BAV21WS-E3-18 BAV21WS-HE3-08 or BAV21WS-HE3-18	AA	Single	Tape and reel	

ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT	
		BAV19WS	V _R	100	V	
Continuous reverse voltage		BAV20WS	V _R	150	V	
		BAV21WS	V _R	200	V	
		BAV19WS	V _{RRM}	120	V	
Repetitive peak reverse voltage		BAV20WS	V _{RRM}	200	V	
		BAV21WS	V _{RRM}	250	V	
Forward continuous current ⁽¹⁾			l _F	250	mA	
Rectified current (average) half wave rectification with resistive load ⁽¹⁾			I _{F(AV)}	200	mA	
Repetitive peak forward current ⁽¹⁾	f ≥ 50 Hz, θ = 180°		I _{FRM}	625	mA	
Surge forward current	t < 1 s, T _J = 25 °C		I _{FSM}	1	A	
Power dissipation			P _{tot}	200	mW	

Note

⁽¹⁾ Valid provided that leads are kept at ambient temperature

THERMAL CHARACTERISTICS ($T_{amb} = 25 \text{ °C}$, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT		
Thermal resistance junction to ambient air		R _{thJA}	625	K/W		
Thermal resistance junction to lead		R _{thJL}	450	K/W		
Junction temperature		Tj	150	°C		
Storage temperature range		T _{stg}	-65 to +150	°C		
Operating temperature range		T _{op}	-55 to +150	°C		

Rev. 2.2, 12-Jul-17

1

Document Number: 85726

For technical questions within your region: DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishav.com/doc?91000





www.vishay.com

DESIGN SUPPORT TOOLS click logo to get started



MECHANICAL DATA

Case: SOD-323 Weight: approx. 4.3 mg Packaging codes / options:

18/10K per 13" reel (8 mm tape), 10K/box 08/3K per 7" reel (8 mm tape), 15K/box

www.vishay.com

Vishay Semiconductors

ELECTRICAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I _F = 100 mA		V _F			1	V
Forward voltage	I _F = 200 mA		V _F			1.25	V
	V _R = 100 V	BAV19WS	I _R			100	nA
	$V_{R} = 100 \text{ V}, \text{ T}_{J} = 100 ^{\circ}\text{C}$	BAV19WS	I _R			15	μA
Reverse leakage current	V _R = 150 V	BAV20WS	I _R			100	nA
neverse leakage current	V _R = 150 V, T _J = 100 °C	BAV20WS	I _R			15	μA
	V _R = 200 V	BAV21WS	I _R			100	nA
	$V_{R} = 200 \text{ V}, \text{ T}_{J} = 100 ^{\circ}\text{C}$	BAV21WS	I _R			15	μA
Dynamic forward resistance	I _F = 10 mA		r _f		5		Ω
Diode capacitance	V _R = 0, f = 1 MHz		CD			1.5	pF
Reverse recovery time	$I_{F} = 30 \text{ mA}, I_{R} = 30 \text{ mA}, \\ i_{R} = 3 \text{ mA}, R_{L} = 100 \Omega$		t _{rr}			50	ns

TYPICAL CHARACTERISTICS (Tamb = 25 °C, unless otherwise specified)

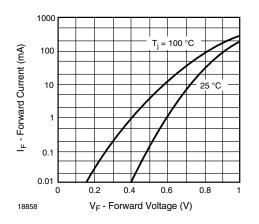


Fig. 1 - Forward Current vs. Forward Voltage

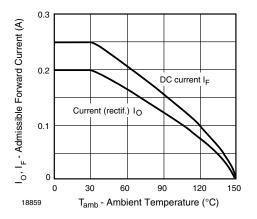


Fig. 2 - Admissible Forward Current vs. Ambient Temperature

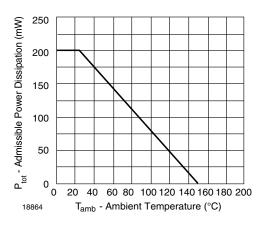


Fig. 3 - Admissible Power Dissipation vs. Ambient Temperature

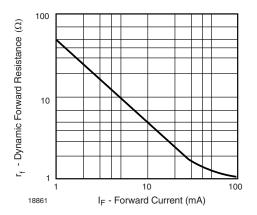


Fig. 4 - Dynamic Forward Resistance vs. Forward Current

Rev. 2.2, 12-Jul-17

2

Document Number: 85726

For technical questions within your region: <u>DiodesAmericas@vishay.com</u>, <u>DiodesAsia@vishay.com</u>, <u>DiodesEurope@vishay.com</u> THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT <u>www.vishay.com/doc?91000</u>



BAV19WS, BAV20WS, BAV21WS

Vishay Semiconductors

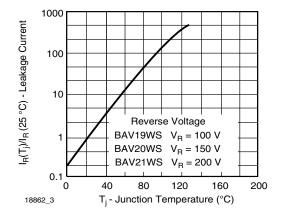


Fig. 5 - Leakage Current vs. Junction Temperature

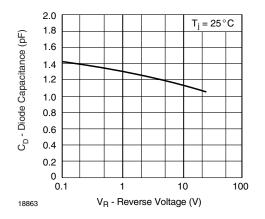
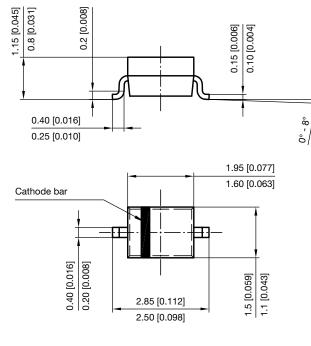


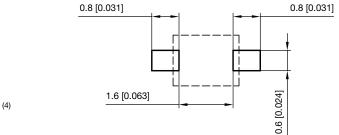
Fig. 6 - Capacitance vs. Reverse Voltage

0.1 [0.004] max.

PACKAGE DIMENSIONS in millimeters (inches): SOD-323



Footprint recommendation:



Document no.: S8-V-3910.02-001 (4) Created - Date: 24.August.2004 Rev. 6 - Date: 23.Sept.2016 17443

Rev. 2.2, 12-Jul-17

3

Document Number: 85726

For technical questions within your region: <u>DiodesAmericas@vishay.com</u>, <u>DiodesAsia@vishay.com</u>, <u>DiodesEurope@vishay.com</u> THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT <u>www.vishay.com/doc?91000</u>



Vishay

Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.