

BAV19WS, BAV20WS, BAV21WS

Vishay Semiconductors

Small Signal Switching Diodes, High Voltage



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

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 <u>www.vishay.com/doc?99912</u>

| 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) | | | I _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 | А | |
| Power dissipation | | | P _{tot} | 200 | mW | |

Note

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

| THERMAL CHARACTERISTICS (T _{amb} = 25 °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 | | T _j | 150 | °C | | |
| Storage temperature range | | T _{stg} | -65 to +150 | °C | | |
| Operating temperature range | | T _{op} | -55 to +150 | °C | | |

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 | $I_F = 200 \text{ mA}$ | | V_{F} | | | 1.25 | V |
| | V _R = 100 V | BAV19WS | I _R | | | 100 | nA |
| | V _R = 100 V, T _J = 100 °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 V, T _J = 100 °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 | | C _D | | | 1.5 | рF |
| 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 (T_{amb} = 25 °C, unless otherwise specified)

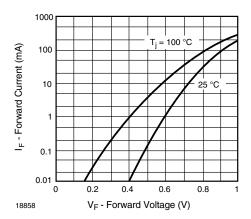


Fig. 1 - Forward Current vs. Forward Voltage

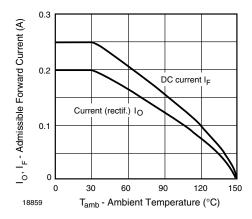


Fig. 2 - Admissible Forward Current vs. Ambient Temperature

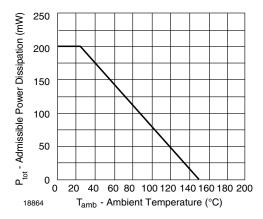


Fig. 3 - Admissible Power Dissipation vs. Ambient Temperature

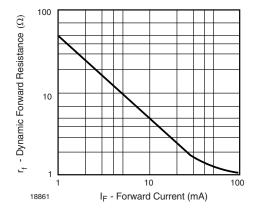
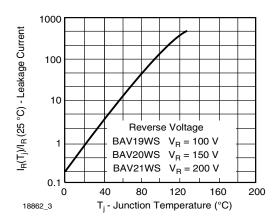
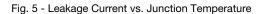


Fig. 4 - Dynamic Forward Resistance vs. Forward Current

Vishay Semiconductors





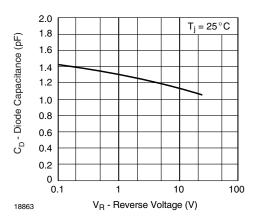
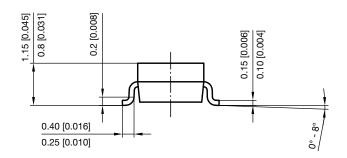
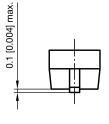
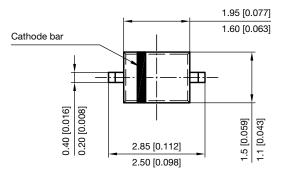


Fig. 6 - Capacitance vs. Reverse Voltage

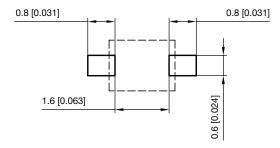
PACKAGE DIMENSIONS in millimeters (inches): SOD-323







Footprint recommendation:



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



Legal Disclaimer Notice

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.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

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.