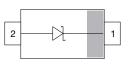


# **Small Signal Schottky Diode**





## LINKS TO ADDITIONAL RESOURCES



## MECHANICAL DATA

Case: SOD-323

Weight: approx. 4 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

- These diodes feature very low turn-on voltage and fast switching. These devices are protected by a PN junction guard ring against excessive voltage, such as electrostatic discharges
- AUTOMOTIVE GRADE Available Pb-free RoHS

COMPLIANT

- For general purpose applications
- AEC-Q101 qualified available
- Molding compound meets UL 94 V-0
  flammability rating
- Moisture Sensitivity Level (MSL) 1
- Base P/N-E3 RoHS-compliant, commercial grade
- Base P/N-HE3\_A RoHS-compliant, AEC-Q101 qualified
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

| PARTS TABLE |                  |                       |                 |                          |                         |                           |  |
|-------------|------------------|-----------------------|-----------------|--------------------------|-------------------------|---------------------------|--|
| PART        | ORDERING CODE    | AEC-Q101<br>QUALIFIED | TYPE<br>MARKING | CIRCUIT<br>CONFIGURATION | TAPED UNITS<br>PER REEL | MINIMUM ORDER<br>QUANTITY |  |
| BAT42WS     | BAT42WS-E3-08    | No                    |                 |                          | 3000                    | 15 000                    |  |
|             | BAT42WS-HE3_A-08 | Yes                   | L1              | Single                   | (8 mm tape on 7" reel)  | 13 000                    |  |
|             | BAT42WS-E3-18    | No                    |                 | Single                   | 10 000                  | 10 000                    |  |
|             | BAT42WS-HE3_A-18 | Yes                   |                 |                          | (8 mm tape on 13" reel) | 10 000                    |  |
| BAT43WS     | BAT43WS-E3-08    | No                    |                 |                          | 3000                    | 15 000                    |  |
|             | BAT43WS-HE3_A-08 | Yes                   | L6              | Single                   | (8 mm tape on 7" reel)  | 10 000                    |  |
|             | BAT43WS-E3-18    | No                    |                 | Single                   | 10 000                  |                           |  |
|             | BAT43WS-HE3_A-18 | Yes                   |                 |                          | (8 mm tape on 13" reel) | 10 000                    |  |

| PACKAGE             |      |   |                                |                              |  |  |
|---------------------|------|---|--------------------------------|------------------------------|--|--|
| PACKAGE NAME WEIGHT |      | MOLDING COMPOUND<br>FLAMMABILITY RATING | MOISTURE SENSITIVITY<br>LEVEL  | SOLDERING CONDITIONS         |  |  |
| SOD-323             | 4 mg | UL 94 V-0                               | MSL 1<br>(according J-STD-020) | Peak temperature max. 260 °C |  |  |

| ABSOLUTE MAXIMUM RATINGS (T <sub>amb</sub> = 25 °C, unless otherwise specified) |                            |                  |       |      |  |  |
|---|----------------------------|------------------|-------|------|--|--|
| PARAMETER   | TEST CONDITION             | SYMBOL           | VALUE | UNIT |  |  |
| Repetitive peak reverse voltage   |                            | V <sub>RRM</sub> | 30    | V    |  |  |
| Forward continuous current <sup>(1)</sup>                                       |                            | I <sub>F</sub>   | 200   | mA   |  |  |
| Repetitive peak forward current <sup>(1)</sup>                                  |                            | I <sub>FRM</sub> | 500   | mA   |  |  |
| Surge forward current <sup>(1)</sup>  | Duty cycle $t_p / T < 0.5$ | I <sub>FSM</sub> | 4     | А    |  |  |
| Power dissipation <sup>(1)</sup>  |                            | P <sub>tot</sub> | 150   | mW   |  |  |

Note

(1) Infinite heatsink

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1

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| <b>THERMAL CHARACTERISTICS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified) |                   |                   |             |      |  |  |
|---|-------------------|-------------------|-------------|------|--|--|
| PARAMETER   | TEST CONDITION    | SYMBOL            | VALUE       | UNIT |  |  |
| Thermal resistance junction lead  | Infinite heatsink | R <sub>thJL</sub> | 650         | K/W  |  |  |
| Maximum junction temperature  |                   | Тj                | 125         | °C   |  |  |
| Storage temperature range   |                   | T <sub>stg</sub>  | -65 to +150 | °C   |  |  |
| Operating temperature range   |                   | T <sub>op</sub>   | -55 to +125 | °C   |  |  |

| <b>ELECTRICAL CHARACTERISTICS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified) |   |         |                   |      |      |      |      |
|--|---|---------|-------------------|------|------|------|------|
| PARAMETER  | TEST CONDITION  | PART    | SYMBOL            | MIN. | TYP. | MAX. | UNIT |
| Reverse breakdown voltage $I_R = 100 \ \mu A \ (pulsed)$                                 |   |         | V <sub>(BR)</sub> | 30   |      |      | V    |
| Leakage current (1)  | V <sub>R</sub> = 25 V   |         | I <sub>R</sub>    |      |      | 0.5  | μA   |
| Leakage current  | V <sub>R</sub> = 25 V, T <sub>j</sub> = 100 °C                                      |         | I <sub>R</sub>    |      |      | 100  | μA   |
|  | I <sub>F</sub> = 200 mA   |         | V <sub>F</sub>    |      |      | 1000 | mV   |
|  | I <sub>F</sub> = 10 mA  | BAT42WS | V <sub>F</sub>    |      |      | 400  | mV   |
| Forward voltage <sup>(1)</sup>   | I <sub>F</sub> = 50 mA  | BAT42WS | V <sub>F</sub>    |      |      | 650  | mV   |
|  | I <sub>F</sub> = 2 mA   | BAT43WS | V <sub>F</sub>    | 260  |      | 330  | mV   |
|  | l <sub>F</sub> = 15 mA  | BAT43WS | V <sub>F</sub>    |      |      | 450  | mV   |
| Diode capacitance  | V <sub>R</sub> = 1 V, f = 1 MHz   |         | CD                |      | 7    |      | pF   |
| Reverse recovery time  | $I_F = 10 \text{ mA}, I_R = 10 \text{ mA}, \\ i_R = 1 \text{ mA}, R_L = 100 \Omega$ |         | t <sub>rr</sub>   |      |      | 5    | ns   |

Note (1) Pulse test;  $t_p \le 300 \ \mu s$ , duty cycle  $t_p/T < 0.02$ 





### TYPICAL CHARACTERISTICS (T<sub>amb</sub> = 25 °C, unless otherwise specified)

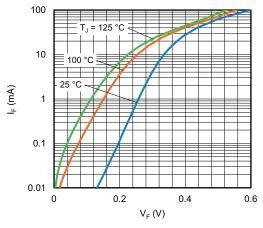


Fig. 1 - Typical Forward Current vs. Forward Voltage

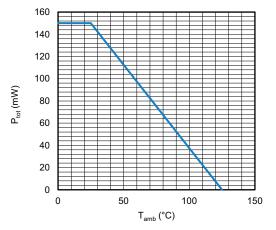


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

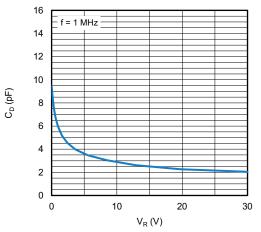


Fig. 3 - Typical Capacitance vs. Reverse Voltage

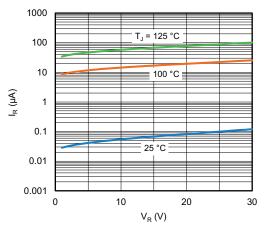
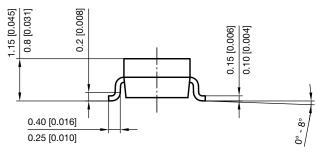
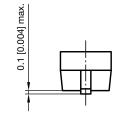


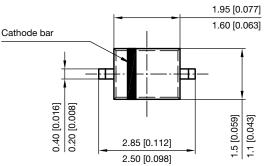
Fig. 4 - Typical Reverse Leakage Current vs. Reverse Voltage



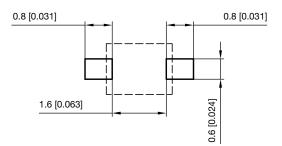
#### PACKAGE DIMENSIONS in millimeters (inches) SOD-323







Footprint recommendation:



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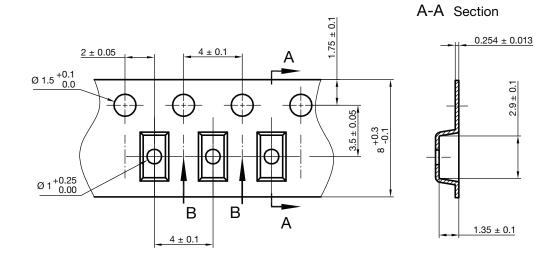
Rev. 1.1, 12-May-2025 **4** Document Number: 86464 For technical questions within your region: <u>DiodesAmericas@vishay.com</u>, <u>DiodesAsia@vishay.com</u>, <u>DiodesEurope@vishay.com</u> THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT <u>www.vishay.com/doc?91000</u>



BAT42WS, BAT43WS

**Vishay Semiconductors** 

### **CARRIER TAPE SOD-323**

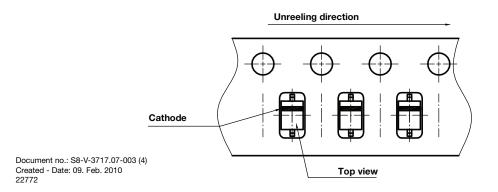


**B-B** Section



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### **ORIENTATION IN CARRIER TAPE SOD-323**





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1