



# Small Signal Fast Switching Diode



### FEATURES

- Silicon epitaxial planar diode
- Fast switching diode
- AEC-Q101 qualified
- Base P/N-E3 - RoHS-compliant, commercial grade
- Base P/N-HE3 - RoHS-compliant, AEC-Q101 qualified
- Material categorization:



RoHS COMPLIANT

For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

### 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

| PARTS TABLE |                                    |                       |              |               |
|-------------|------------------------------------|-----------------------|--------------|---------------|
| PART        | ORDERING CODE                      | INTERNAL CONSTRUCTION | TYPE MARKING | REMARKS       |
| 1N4151WS    | 1N4151WS-E3-08 or 1N4151WS-E3-18   | Single diode          | A5           | Tape and reel |
|             | 1N4151WS-HE3-08 or 1N4151WS-HE3-18 |                       |              |               |

| ABSOLUTE MAXIMUM RATINGS (T <sub>amb</sub> = 25 °C, unless otherwise specified)      |                                    |                    |       |      |
|--|------------------------------------|--------------------|-------|------|
| PARAMETER  | TEST CONDITION                     | SYMBOL             | VALUE | UNIT |
| Reverse voltage  |                                    | V <sub>R</sub>     | 50    | V    |
| Repetitive peak reverse voltage  |                                    | V <sub>RRM</sub>   | 75    | V    |
| Average rectified current half wave rectification with resistive load <sup>(1)</sup> | f ≥ 50 Hz                          | I <sub>F(AV)</sub> | 150   | mA   |
| Surge current  | t < 1 s and T <sub>j</sub> = 25 °C | I <sub>FSM</sub>   | 500   | mA   |
| Power dissipation <sup>(1)</sup>   |                                    | P <sub>tot</sub>   | 200   | mW   |

| THERMAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified) |                |                   |               |      |
|--|----------------|-------------------|---------------|------|
| PARAMETER  | TEST CONDITION | SYMBOL            | VALUE         | UNIT |
| Thermal resistance junction to ambient air <sup>(1)</sup>                      |                | R <sub>thJA</sub> | 650           | K/W  |
| Junction temperature   |                | T <sub>j</sub>    | 150           | °C   |
| Storage temperature range  |                | T <sub>stg</sub>  | - 65 to + 150 | °C   |
| Operating temperature range  |                | T <sub>op</sub>   | - 55 to + 150 | °C   |

#### Note

<sup>(1)</sup> Valid provided that electrodes are kept at ambient temperature.



| ELECTRICAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified) |  |                   |      |      |      |      |
|---|--|-------------------|------|------|------|------|
| PARAMETER   | TEST CONDITION   | SYMBOL            | MIN. | TYP. | MAX. | UNIT |
| Forward voltage   | I <sub>F</sub> = 50 mA   | V <sub>F</sub>    |      |      | 1    | V    |
| Leakage current   | V <sub>R</sub> = 50 V  | I <sub>R</sub>    |      |      | 50   | nA   |
|   | V <sub>R</sub> = 20 V, T <sub>j</sub> = 150 °C   | I <sub>R</sub>    |      |      | 50   | μA   |
| Reverse breakdown voltage   | I <sub>R</sub> = 5 μA (pulsed)   | V <sub>(BR)</sub> | 75   |      |      | V    |
| Capacitance   | V <sub>F</sub> = V <sub>R</sub> = 0 V  |                   |      |      | 2    | pF   |
| Reverse recovery time   | I <sub>F</sub> = 10 mA, I <sub>R</sub> = 10 mA<br>i <sub>R</sub> = 1 mA                        | t <sub>rr</sub>   |      |      | 4    | ns   |
|   | I <sub>F</sub> = 10 mA, i <sub>R</sub> = 1 mA,<br>V <sub>R</sub> = 6 V, R <sub>L</sub> = 100 Ω | t <sub>rr</sub>   |      |      | 2    | ns   |

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

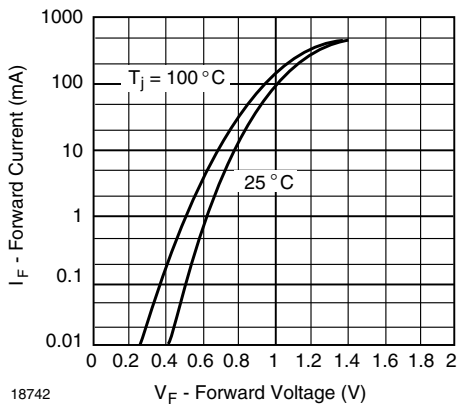


Fig. 1 - Forward Current vs. Forward Voltage

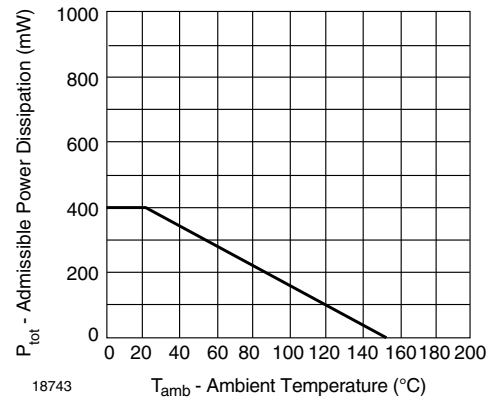


Fig. 3 - Admissible Power Dissipation vs. Ambient Temperature

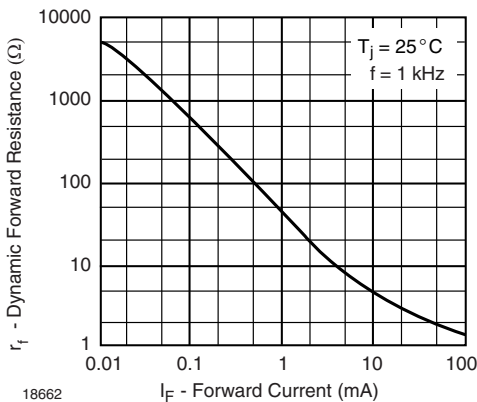


Fig. 2 - Dynamic Forward Resistance vs. Forward Current

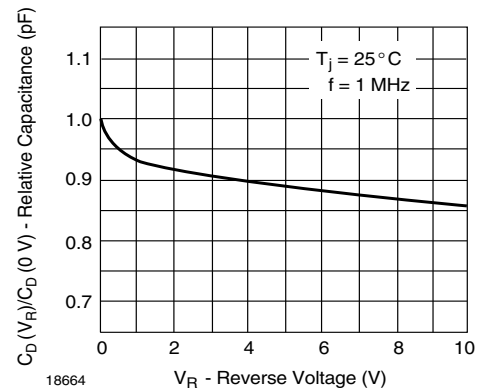


Fig. 4 - Relative Capacitance vs. Reverse Voltage



Fig. 5 - Leakage Current vs. Junction Temperature

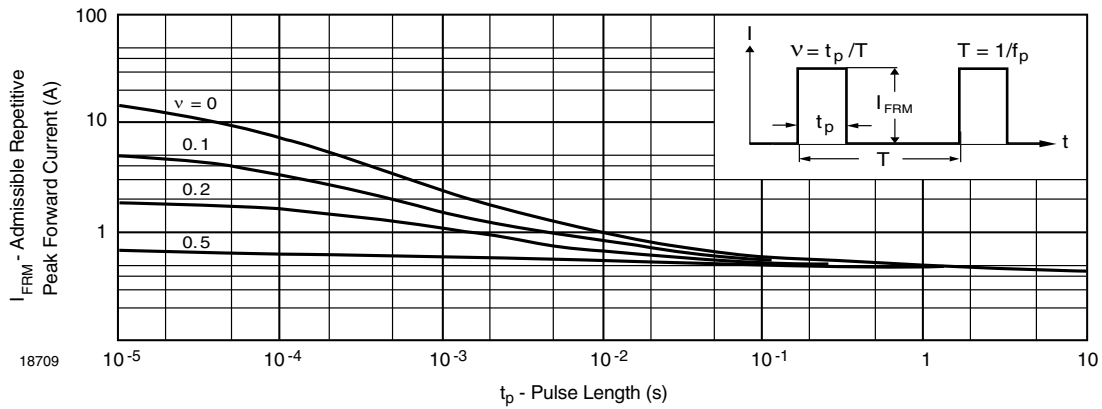
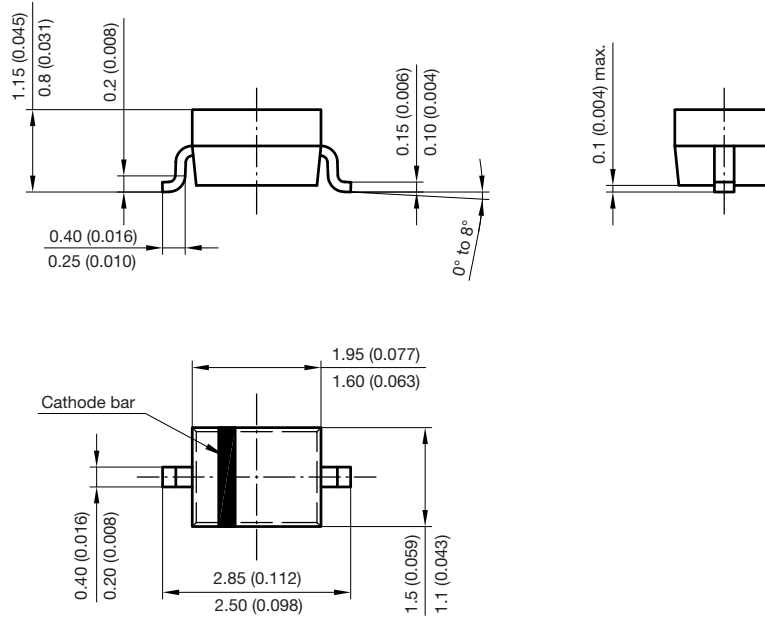


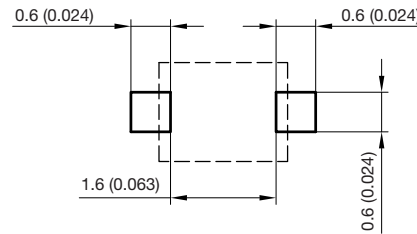
Fig. 6 - Admissible Repetitive Peak Forward Current vs. Pulse Duration



PACKAGE DIMENSIONS in millimeters (inches): SOD-323



Foot print recommendation:



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 17443



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