# 1N4151WS



**Vishay Semiconductors** 

# **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: For definitions of compliance please <u>www.vishay.com/doc?99912</u>



RoHS

COMPLIANT

see

### **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 CONSTRU		TYPE MARKING	REMARKS	
1N4151WS	1N4151WS-E3-08 or 1N4151WS-E3-18	Sinale diode A5		Tape and reel	
	1N4151WS-HE3-08 or 1N4151WS-HE3-18	Single diode	CA	rape and reel	

<b>ABSOLUTE MAXIMUM RATINGS</b> (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	$t < 1 \text{ s and } T_j = 25 \text{ °C}$	I <sub>FSM</sub>	500	mA	
Power dissipation <sup>(1)</sup>		P <sub>tot</sub>	200	mW	

<b>THERMAL CHARACTERISTICS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified)					
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT	
Thermal resistance junction to ambient air (1)		R <sub>thJA</sub>	650	K/W	
Junction temperature		Тj	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.

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<b>ELECTRICAL CHARACTERISTICS</b> (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
Laakaga auwont	V <sub>R</sub> = 50 V	I <sub>R</sub>			50	nA
Leakage current	$V_{R} = 20 \text{ V}, \text{ T}_{j} = 150 ^{\circ}\text{C}$	I <sub>R</sub>			50	μA
Reverse breakdown voltage	$I_{R} = 5 \ \mu A$ (pulsed)	V <sub>(BR)</sub>	75			V
Capacitance	$V_F = V_R = 0 V$				2	pF
Poveree recovery time	$I_F = 10 \text{ mA}, I_R = 10 \text{ mA}$ $i_R = 1 \text{ mA}$	t <sub>rr</sub>			4	ns
Reverse recovery time	$I_{\rm F} = 10 \text{ mA}, i_{\rm R} = 1 \text{ mA}, \\ V_{\rm R} = 6 \text{ V}, \text{ R}_{\rm L} = 100 \ \Omega$	t <sub>rr</sub>			2	ns

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

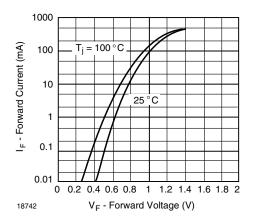


Fig. 1 - Forward Current vs. Forward Voltage

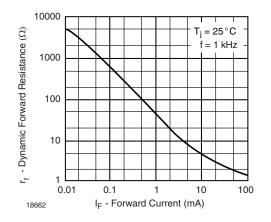


Fig. 2 - Dynamic Forward Resistance vs. Forward Current

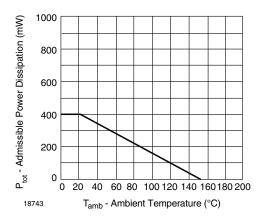


Fig. 3 - Admissible Power Dissipation vs. Ambient Temperature

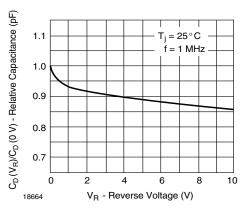


Fig. 4 - Relative Capacitance vs. Reverse Voltage

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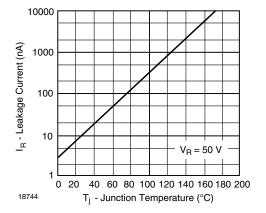


Fig. 5 - Leakage Current vs. Junction Temperature

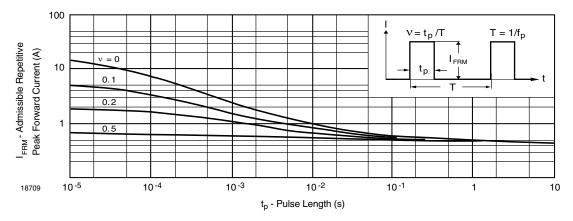
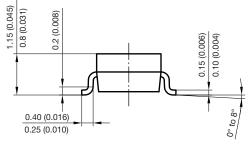


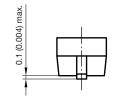
Fig. 6 - Admissible Repetitive Peak Forward Current vs. Pulse Duration

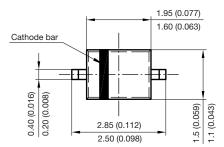


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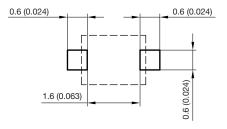
### PACKAGE DIMENSIONS in millimeters (inches): SOD-323







Foot print recommendation:



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Rev. 1.5, 14-May-13 **4** Document Number: 85847 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.vishay.com/doc?91000



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