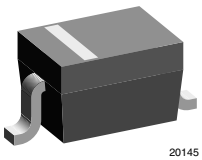
Small Signal Fast Switching Diode

Features

- Silicon Epitaxial Planar Diode
- Fast switching diode
- This diode is also available in other case styles including the DO35 case with the type designation 1N4151, and the MiniMELF case with the type designation LL4151.
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



Mechanical Data

Case: SOD323 Plastic case
Weight: approx. 5.0 mg
Packaging Codes/Options:
GS18/10 k per 13" reel (8 mm tape), 10 k/box
GS08/3 k per 7" reel (8 mm tape), 15 k/box

Parts Table

Part	Ordering code	Marking	Remarks
1N4151WS-V	1N4151WS-V-GS18 or 1N4151WS-V-GS08	A5	Tape and Reel

Absolute Maximum Ratings

T_{amb} = 25 °C, unless otherwise specified

Parameter	Test condition	Symbol	Value	Unit
Reverse voltage		V_R	50	V
Peak reverse voltage		V_{RM}	75	V
Average rectified current half wave rectification with resistive load	T_{amb} = 25 °C and f ≥ 50 Hz	$I_{F(AV)}$	150[1)]	mA
Surge current	t < 1 s and T_j = 25 °C	I_{FSM}	500	mA
Power dissipation	T_{amb} = 25 °C	P_{tot}	410[1)]	mW

[1)] Valid provided that electrodes 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}	450[1)]	°C/W
Junction temperature		T_j	150	°C
Storage temperature range		T_S	- 65 to + 150	°C

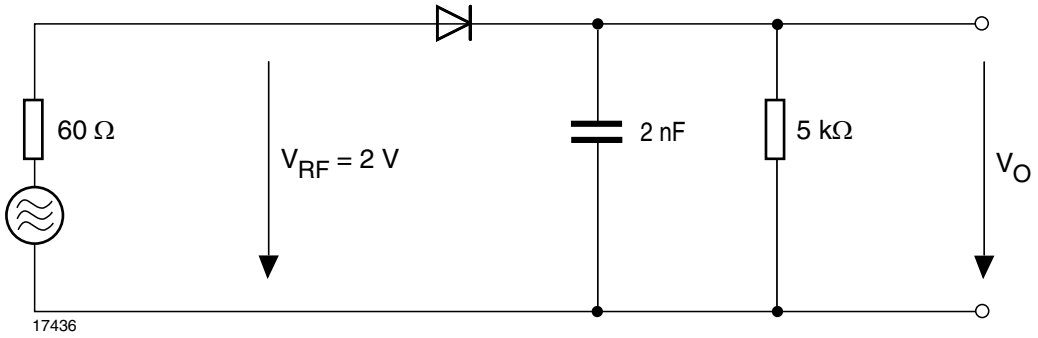
1) Valid provided that electrodes are kept at ambient temperature.

Electrical Characteristics

T_{amb} = 25 °C, unless otherwise specified

Parameter	Test condition	Symbol	Min	Typ.	Max	Unit
Forward voltage	I_F = 50 mA	V_F			1.0	V
Leakage current	V_R = 50 V	I_R			50	nA
	V_R = 20 V, T_j = 150 °C	I_R			50	µA
Reverse breakdown voltage	I_R = 5 µA (pulsed)	$V_{(BR)R}$	75			V
Capacitance	$V_F = V_R$ = 0 V				2	pF
Reverse recovery time	I_F = 10 mA to I_R = 10 mA to I_R = 1 mA	t_{rr}			4	ns
	I_F = 10 mA to I_R = 1 mA, V_R = 6 V, R_L = 100 Ω	t_{rr}			2	ns
Rectification efficiency	f = 100 MHz, V_{RF} = 2 V	ηv	0.45			

Rectification Efficiency Measurement Circuit



Typical Characteristics

T_{amb} = 25 °C, unless otherwise specified

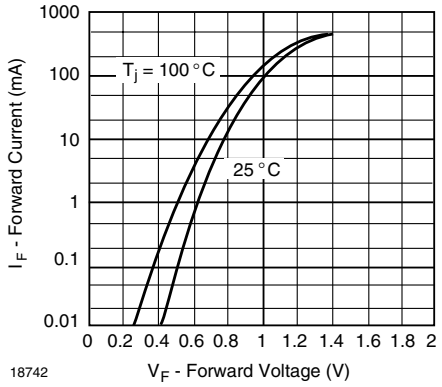


Figure 1. Forward Current vs. Forward Voltage

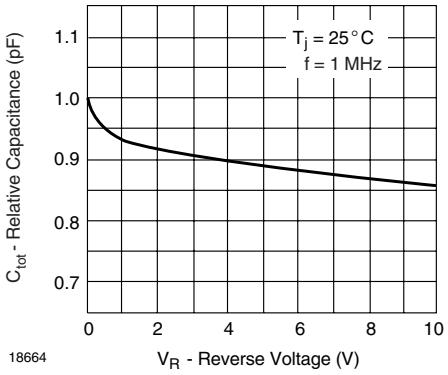


Figure 4. Relative Capacitance vs. Reverse Voltage

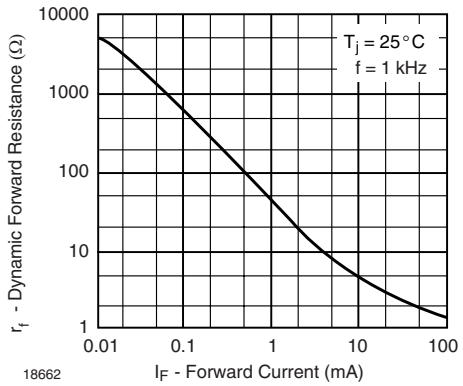


Figure 2. Dynamic Forward Resistance vs. Forward Current

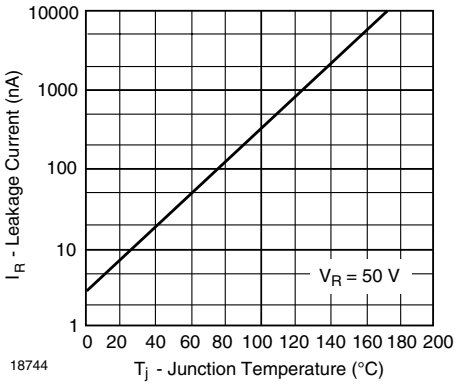


Figure 5. Leakage Current vs. Junction Temperature

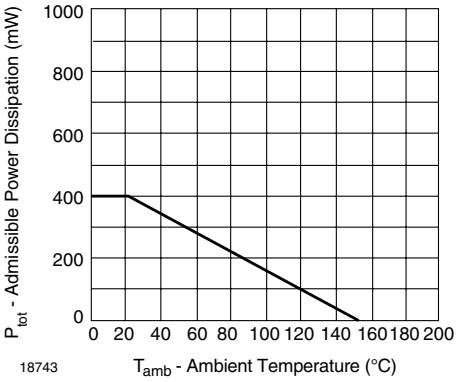


Figure 3. Admissible Power Dissipation vs. Ambient Temperature

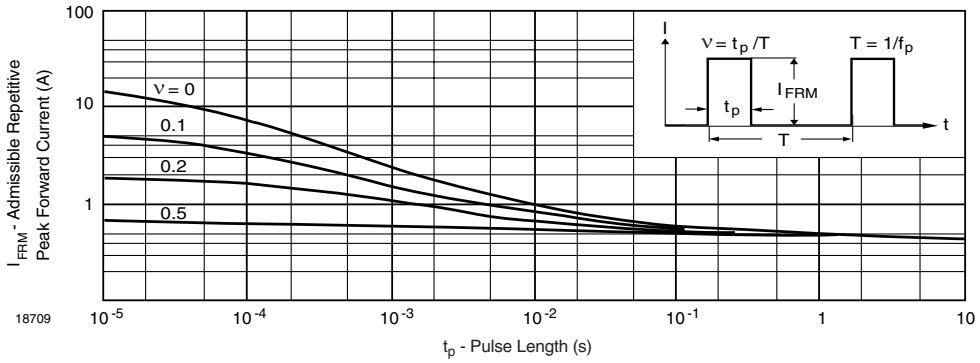
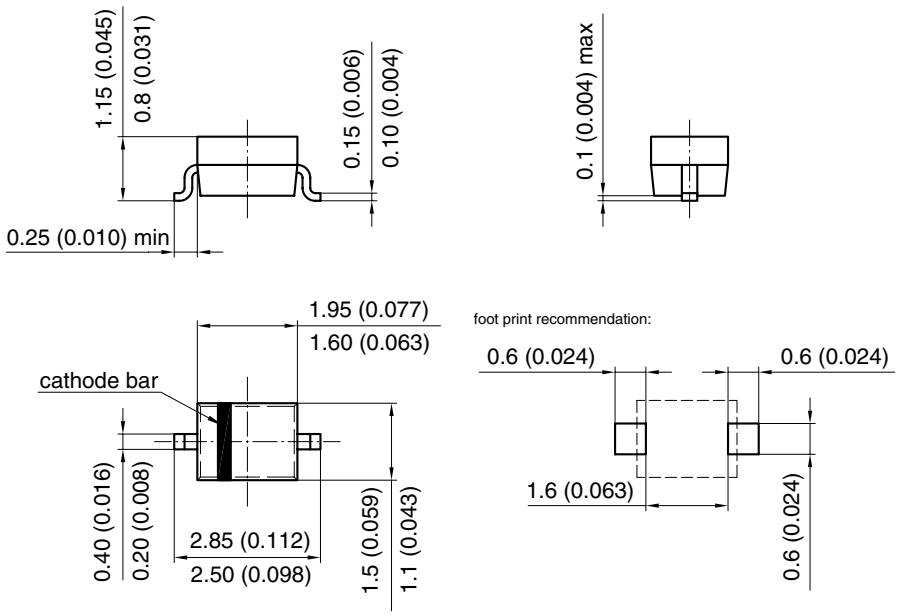


Figure 6. Admissible Repetitive Peak Forward Current vs. Pulse Duration

Package Dimensions in mm (Inches): SOD323



Document no.: S8-V-3910.02-001 (4)
Rev. 03 - Date: 08.November 2004

17443

Ozone Depleting Substances Policy Statement

It is the policy of Vishay Semiconductor GmbH to

1. Meet all present and future national and international statutory requirements.
2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

Vishay Semiconductor GmbH has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

Vishay Semiconductor GmbH can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

Vishay Semiconductor GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany

Disclaimer

All product specifications and data are subject to change without notice.

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 herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay’s terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

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.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.