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Should be replaced with:

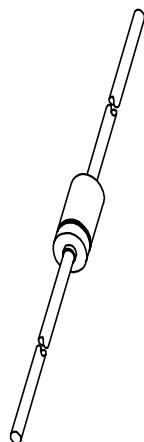
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If you have any questions related to the data sheet, please contact our nearest sales office via e-mail or telephone (details via salesaddresses@nexperia.com). Thank you for your cooperation and understanding,

Kind regards,

Team Nexperia

DATA SHEET



1N4531; 1N4532 High-speed diodes

Product data sheet
Supersedes data of April 1996

1996 Sep 03

High-speed diodes

1N4531; 1N4532

FEATURES

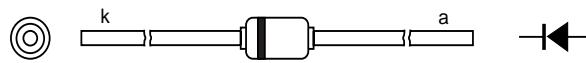
- Hermetically sealed leaded glass SOD68 (DO-34) package
- High switching speed: max. 4 ns
- Continuous reverse voltage: max. 75 V
- Repetitive peak reverse voltage: max. 75 V
- Repetitive peak forward current: max. 450 mA.

APPLICATIONS

- High-speed switching
- Protection diodes in reed relays.

DESCRIPTION

The 1N4531, 1N4532 are high-speed switching diodes fabricated in planar technology, and encapsulated in hermetically sealed leaded glass SOD68 (DO-34) packages.



The diodes are type branded.

Fig.1 Simplified outline (SOD68; DO-34) and symbol.

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{RRM}	repetitive peak reverse voltage		—	75	V
V_R	continuous reverse voltage		—	75	V
I_F	continuous forward current	see Fig.2	—	200	mA
I_{FRM}	repetitive peak forward current		—	450	mA
I_{FSM}	non-repetitive peak forward current	square wave; $T_j = 25^\circ\text{C}$ prior to surge; see Fig.4 $t = 1 \mu\text{s}$ $t = 1 \text{ ms}$ $t = 1 \text{ s}$	— — —	4 1 0.5	A
P_{tot}	total power dissipation	$T_{\text{amb}} = 25^\circ\text{C}$	—	500	mW
T_{stg}	storage temperature		—65	+200	°C
T_j	junction temperature		—	200	°C

High-speed diodes

1N4531; 1N4532

ELECTRICAL CHARACTERISTICS

 $T_j = 25^\circ\text{C}$; unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_F	forward voltage	$I_F = 10 \text{ mA}$; see Fig.3	–	1000	mV
I_R	reverse current IN4531	see Fig.5 $V_R = 20 \text{ V}$	–	25	nA
		$V_R = 20 \text{ V}; T_j = 150^\circ\text{C}$	–	50	μA
	IN4532	$V_R = 50 \text{ V}$	–	100	nA
		$V_R = 50 \text{ V}; T_j = 150^\circ\text{C}$	–	100	μA
C_d	diode capacitance IN4531 IN4532	$f = 1 \text{ MHz}; V_R = 0$; see Fig.6	–	4	pF
			–	2	pF
	reverse recovery time IN4531 IN4532	when switched from $I_F = 10 \text{ mA}$ to $I_R = 60 \text{ mA}; R_L = 100 \Omega$; measured at $I_R = 1 \text{ mA}$; see Fig.7	–	4	ns
	reverse recovery time IN4532	when switched from $I_F = 10 \text{ mA}$ to $I_R = 10 \text{ mA}; R_L = 100 \Omega$; measured at $I_R = 1 \text{ mA}$; see Fig.7	–	2	ns
			–	4	ns
V_{fr}	forward recovery voltage	when switched from $I_F = 100 \text{ mA}$; $t_r \leq 30 \text{ ns}$; see Fig.8	–	3	V

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th j\text{-tp}}$	thermal resistance from junction to tie-point	lead length 5 mm	120	K/W
$R_{th j\text{-a}}$	thermal resistance from junction to ambient	lead length 5 mm; note 1	350	K/W

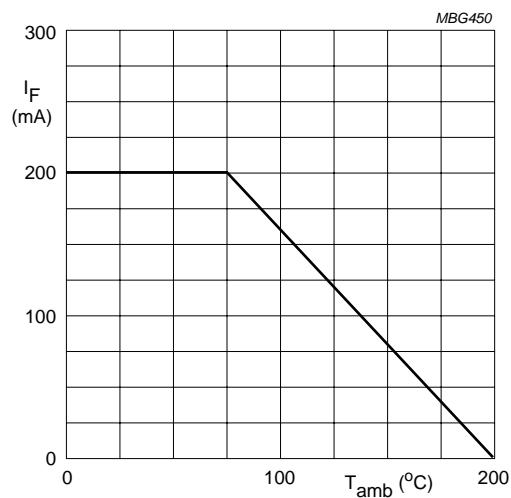
Note

1. Device mounted on a printed circuit-board without metallization pad.

High-speed diodes

1N4531; 1N4532

GRAPHICAL DATA



Lead length 5 mm.

Fig.2 Maximum permissible continuous forward current as a function of ambient temperature.

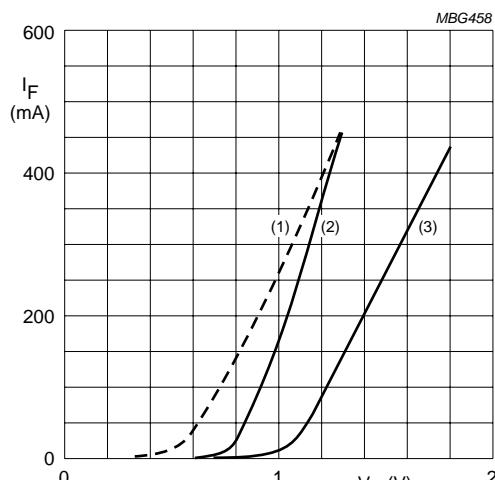
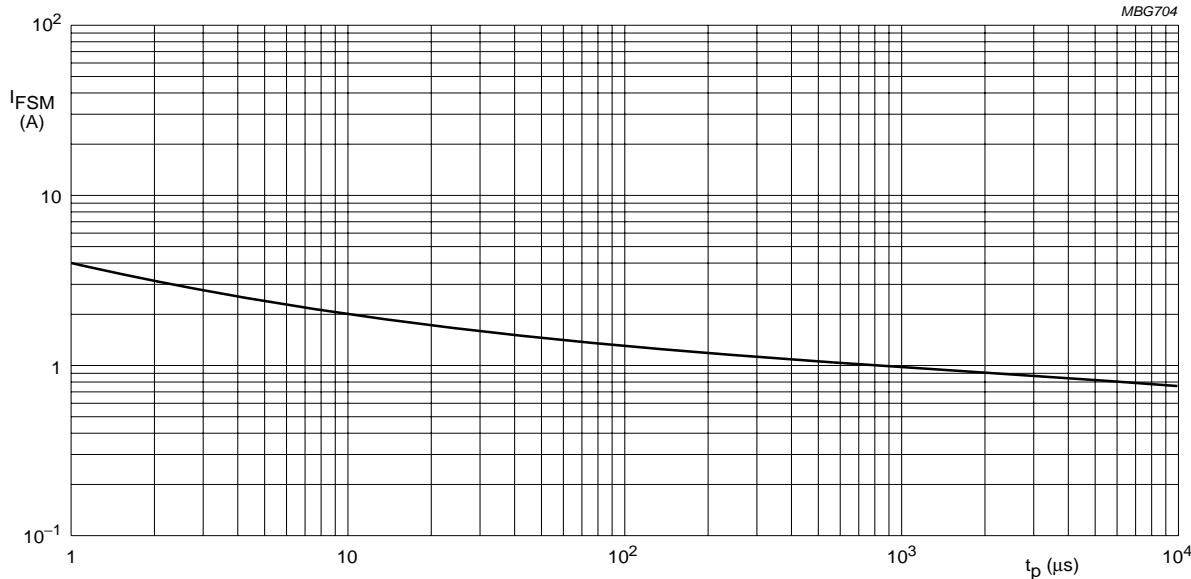


Fig.3 Forward current as a function of forward voltage.

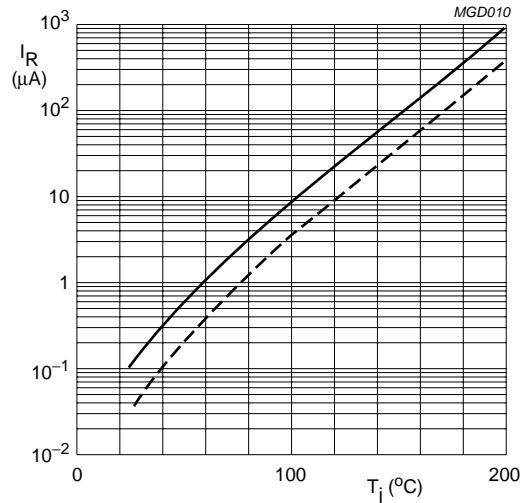


Based on square wave currents.
 $T_j = 25$ $^{\circ}$ C prior to surge.

Fig.4 Maximum permissible non-repetitive peak forward current as a function of pulse duration.

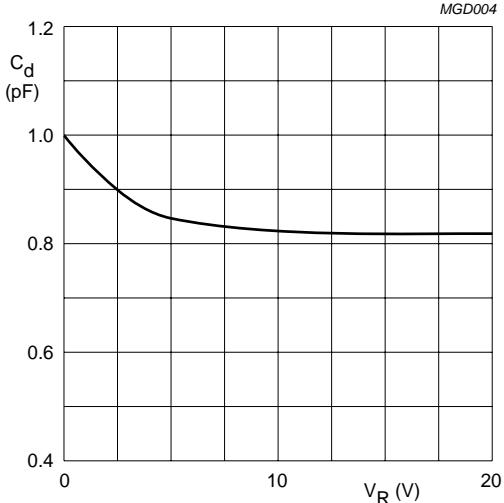
High-speed diodes

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$V_R = 50 \text{ V}$
Solid line; maximum values.
Dotted line; typical values.

Fig.5 Reverse current as a function of junction temperature.



$f = 1 \text{ MHz}; T_j = 25 \text{ }^{\circ}\text{C}$.

Fig.6 Diode capacitance as a function of reverse voltage; typical values.

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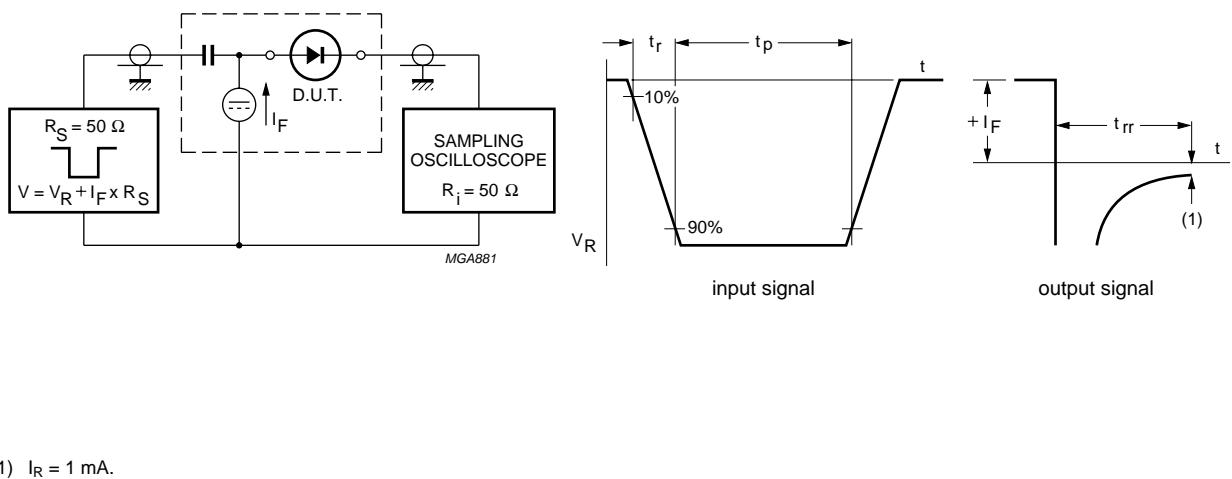


Fig.7 Reverse recovery voltage test circuit and waveforms.

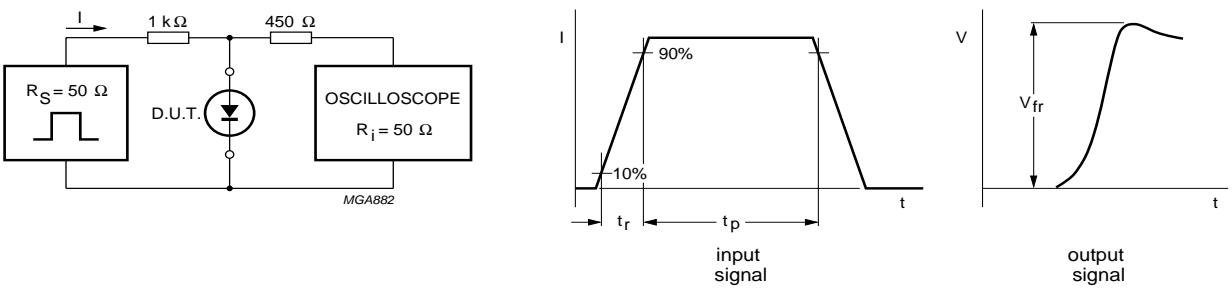
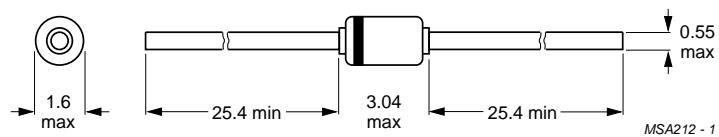


Fig.8 Forward recovery voltage test circuit and waveforms.

High-speed diodes

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PACKAGE OUTLINE



Dimensions in mm.

Fig.9 SOD68 (DO-34).

High-speed diodes

1N4531; 1N4532**DATA SHEET STATUS**

DOCUMENT STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾	DEFINITION
Objective data sheet	Development	This document contains data from the objective specification for product development.
Preliminary data sheet	Qualification	This document contains data from the preliminary specification.
Product data sheet	Production	This document contains the product specification.

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NXP Semiconductors

Customer notification

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Contact information

For additional information please visit: <http://www.nxp.com>

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