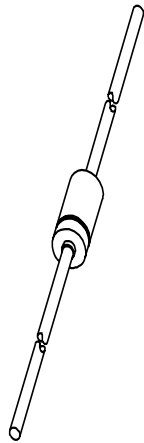


DATA SHEET



1N4531; 1N4532 High-speed diodes

Product data sheet
Supersedes data of April 1996

1996 Sep 03

High-speed diodes

1N4531; 1N4532

FEATURES

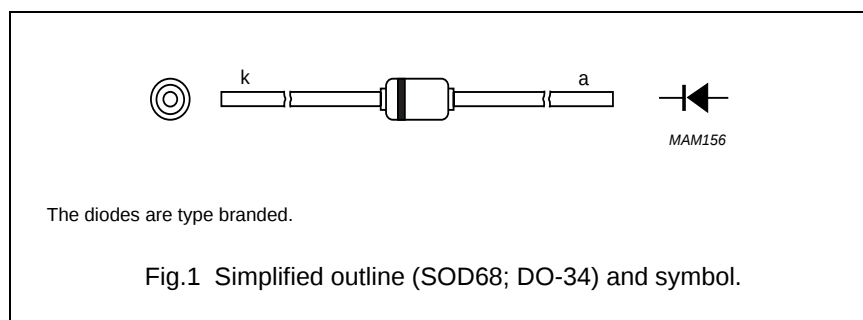
- Hermetically sealed leaded glass SOD68 (DO-34) package
- High switching speed: max. 4 ns
- Continuous reverse voltage: max. 75 V
- Repetitive peak reverse voltage: max. 75 V
- Repetitive peak forward current: max. 450 mA.

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.



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; $T_j = 25\text{ °C}$ prior to surge; see Fig.4 $t = 1\text{ }\mu\text{s}$ $t = 1\text{ ms}$ $t = 1\text{ s}$	— — —	4 1 0.5	A A A
P_{tot}	total power dissipation	$T_{amb} = 25\text{ °C}$	—	500	mW
T_{stg}	storage temperature		−65	+200	°C
T_j	junction temperature		—	200	°C

High-speed diodes

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ELECTRICAL CHARACTERISTICS $T_j = 25\text{ }^{\circ}\text{C}$; 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	see Fig.5			
	IN4531	$V_R = 20\text{ V}$	—	25	nA
		$V_R = 20\text{ V}$; $T_j = 150\text{ }^{\circ}\text{C}$	—	50	μA
	IN4532	$V_R = 50\text{ V}$	—	100	nA
		$V_R = 50\text{ V}$; $T_j = 150\text{ }^{\circ}\text{C}$	—	100	μA
C_d	diode capacitance	$f = 1\text{ MHz}$; $V_R = 0$; see Fig.6			
	IN4531		—	4	pF
	IN4532		—	2	pF
t_{rr}	reverse recovery time	when switched from $I_F = 10\text{ mA}$ to $I_R = 60\text{ mA}$; $R_L = 100\text{ }\Omega$; measured at $I_R = 1\text{ mA}$; see Fig.7	—	4	ns
	IN4531		—	2	ns
	IN4532				
	reverse recovery time	when switched from $I_F = 10\text{ mA}$ to $I_R = 10\text{ mA}$; $R_L = 100\text{ }\Omega$; measured at $I_R = 1\text{ mA}$; see Fig.7	—	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
$R_{th\ j-tp}$	thermal resistance from junction to tie-point	lead length 5 mm	120	K/W
$R_{th\ j-a}$	thermal resistance from junction to ambient	lead length 5 mm; note 1	350	K/W

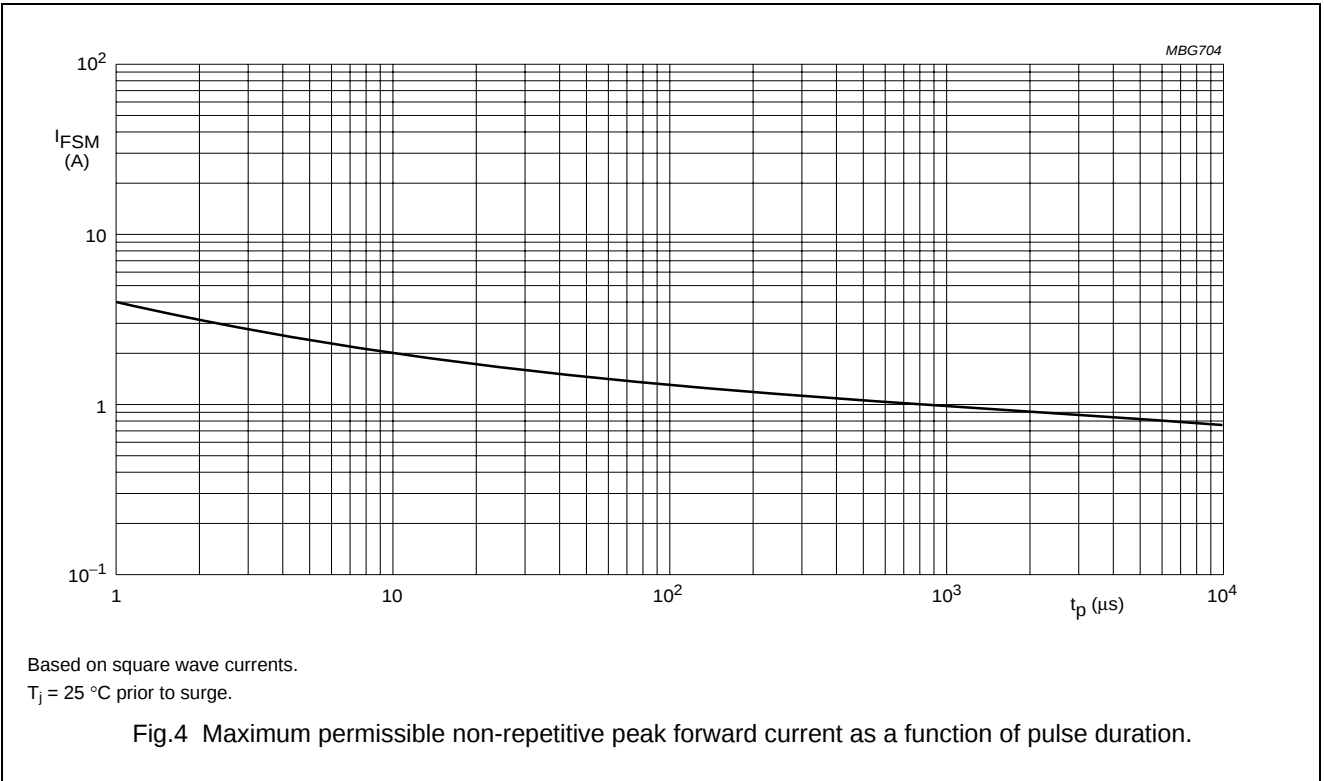
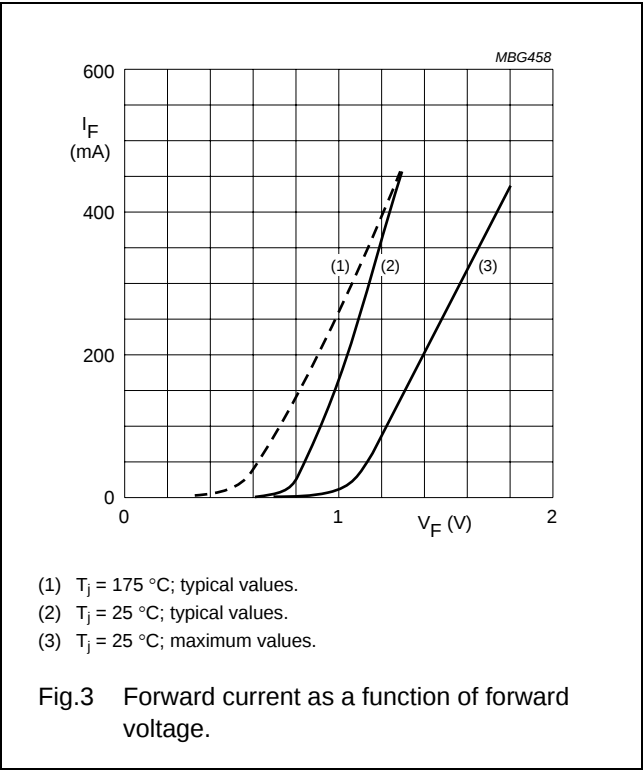
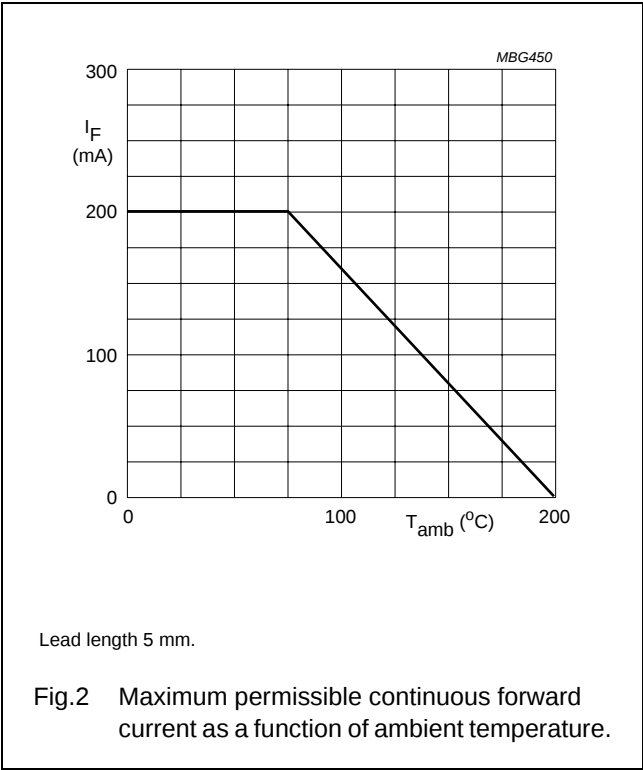
Note

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

High-speed diodes

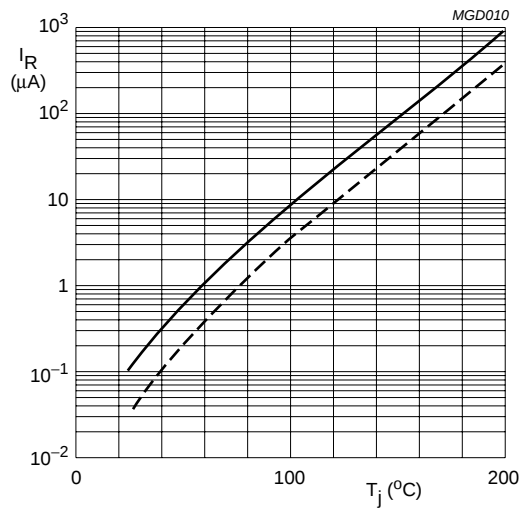
1N4531; 1N4532

GRAPHICAL DATA



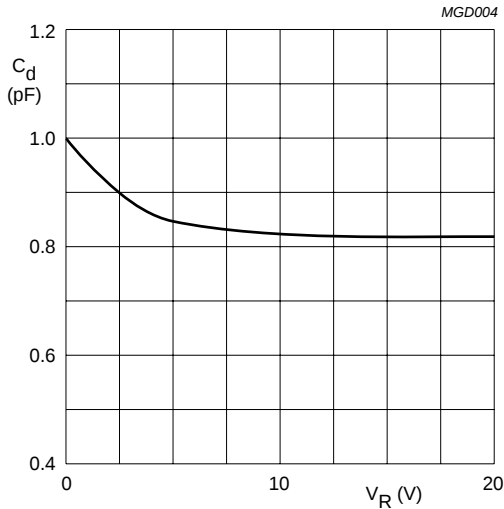
High-speed diodes

1N4531; 1N4532



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

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

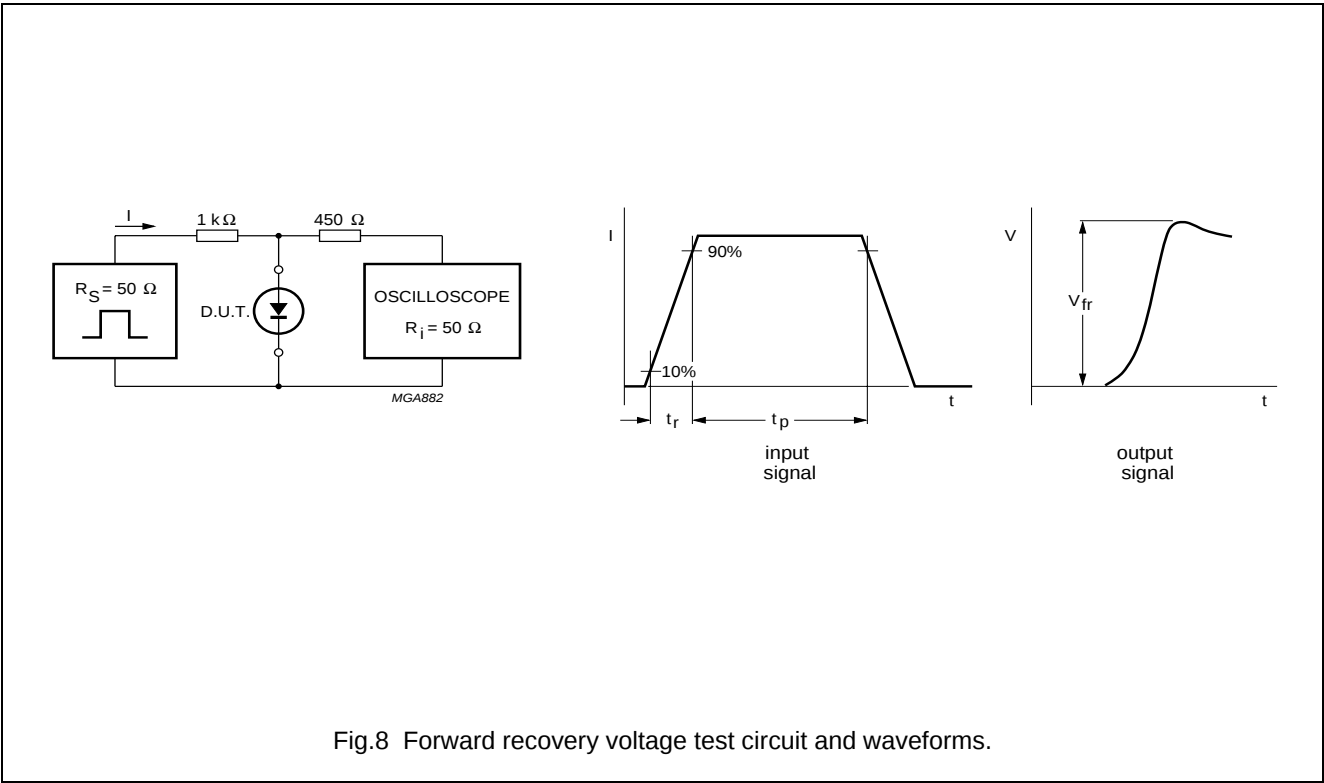
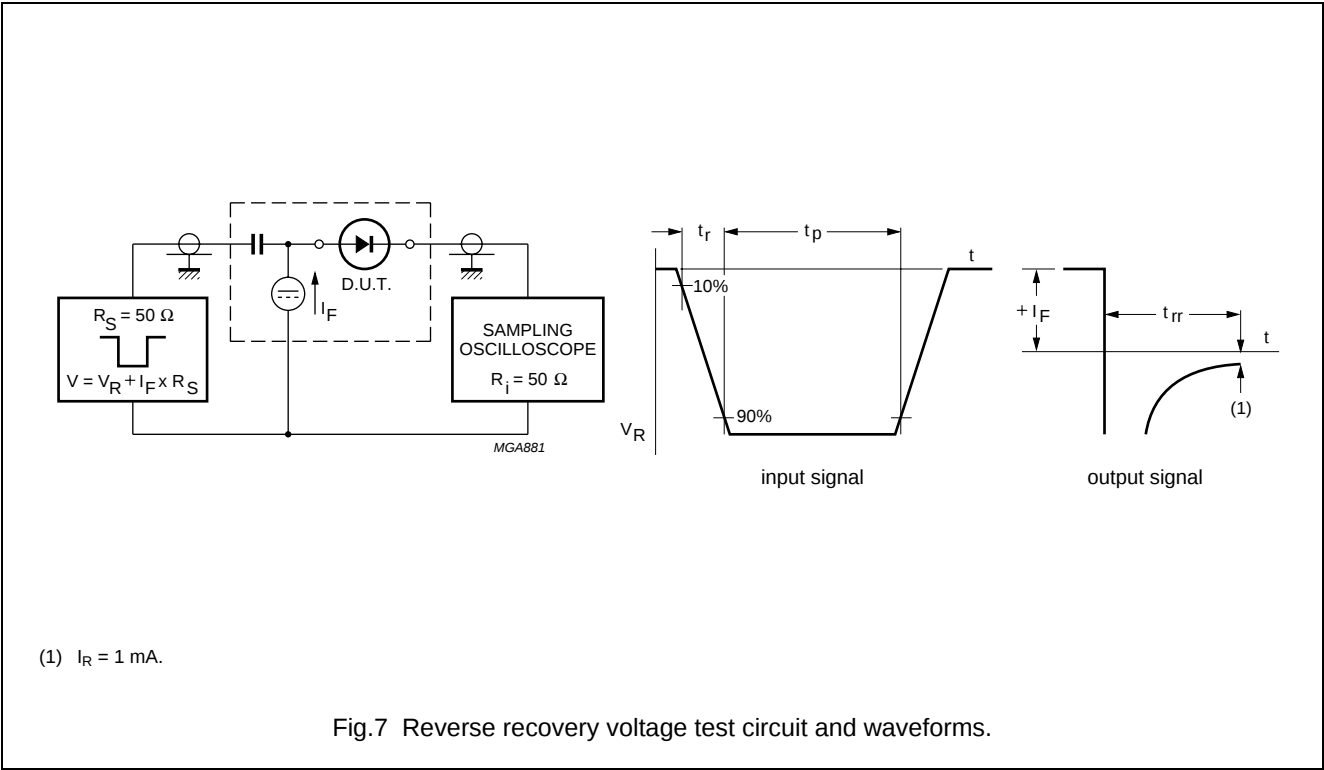


$f = 1\text{ MHz}$; $T_j = 25\text{ }^{\circ}C$.

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

High-speed diodes

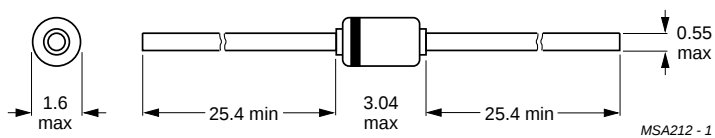
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High-speed diodes

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PACKAGE OUTLINE



Dimensions in mm.

Fig.9 SOD68 (DO-34).

High-speed diodes

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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.

Notes

1. Please consult the most recently issued document before initiating or completing a design.
2. The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL <http://www.nxp.com>.

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Customer notification

This data sheet was changed to reflect the new company name NXP Semiconductors. No changes were made to the content, except for the legal definitions and disclaimers.

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Printed in The Netherlands

Date of release: 1996 Sep 03

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