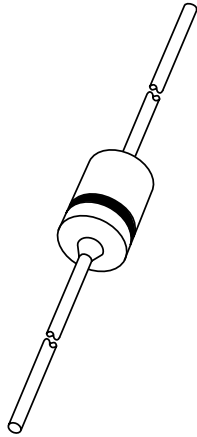


# DATA SHEET



## **1N4148; 1N4448** High-speed diodes

Product data sheet  
Supersedes data of 2002 Jan 23

2004 Aug 10

High-speed diodes

1N4148; 1N4448

FEATURES

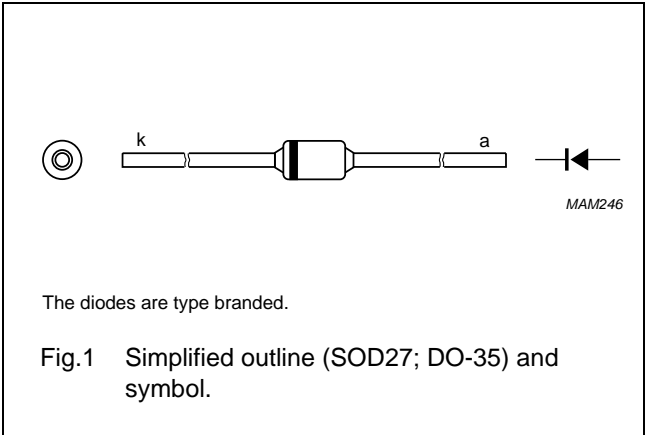
- Hermetically sealed leaded glass SOD27 (DO-35) package
- High switching speed: max. 4 ns
- General application
- Continuous reverse voltage: max. 100 V
- Repetitive peak reverse voltage: max. 100 V
- Repetitive peak forward current: max. 450 mA.

APPLICATIONS

- High-speed switching.

DESCRIPTION

The 1N4148 and 1N4448 are high-speed switching diodes fabricated in planar technology, and encapsulated in hermetically sealed leaded glass SOD27 (DO-35) packages.



MARKING

TYPE NUMBER	MARKING CODE
1N4148	1N4148PH or 4148PH
1N4448	1N4448

ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
1N4148	—	hermetically sealed glass package; axial leaded; 2 leads	SOD27
1N4448			

## High-speed diodes

1N4148; 1N4448

## LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{RRM}$	repetitive peak reverse voltage		–	100	V
$V_R$	continuous reverse voltage		–	100	V
$I_F$	continuous forward current	see Fig.2; note 1	–	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			
		$t = 1\text{ }\mu\text{s}$	–	4	A
		$t = 1\text{ ms}$	–	1	A
		$t = 1\text{ s}$	–	0.5	A
$P_{tot}$	total power dissipation	$T_{amb} = 25\text{ °C}$ ; note 1	–	500	mW
$T_{stg}$	storage temperature		–65	+200	°C
$T_j$	junction temperature		–	200	°C

## Note

1. Device mounted on an FR4 printed-circuit board; lead length 10 mm.

## ELECTRICAL CHARACTERISTICS

 $T_j = 25\text{ °C}$  unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_F$	forward voltage	see Fig.3			
	1N4148	$I_F = 10\text{ mA}$	–	1	V
	1N4448	$I_F = 5\text{ mA}$	0.62	0.72	V
$I_R$	reverse current	$V_R = 20\text{ V}$ ; see Fig.5		25	nA
		$V_R = 20\text{ V}$ ; $T_j = 150\text{ °C}$ ; see Fig.5	–	50	$\mu\text{A}$
$I_R$	reverse current; 1N4448	$V_R = 20\text{ V}$ ; $T_j = 100\text{ °C}$ ; see Fig.5	–	3	$\mu\text{A}$
$C_d$	diode capacitance	$f = 1\text{ MHz}$ ; $V_R = 0\text{ V}$ ; see Fig.6	–	4	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
$V_{fr}$	forward recovery voltage	when switched from $I_F = 50\text{ mA}$ ; $t_r = 20\text{ ns}$ ; see Fig.8	–	2.5	V

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th(j-tp)}$	thermal resistance from junction to tie-point	lead length 10 mm	240	K/W
$R_{th(j-a)}$	thermal resistance from junction to ambient	lead length 10 mm; note 1	350	K/W

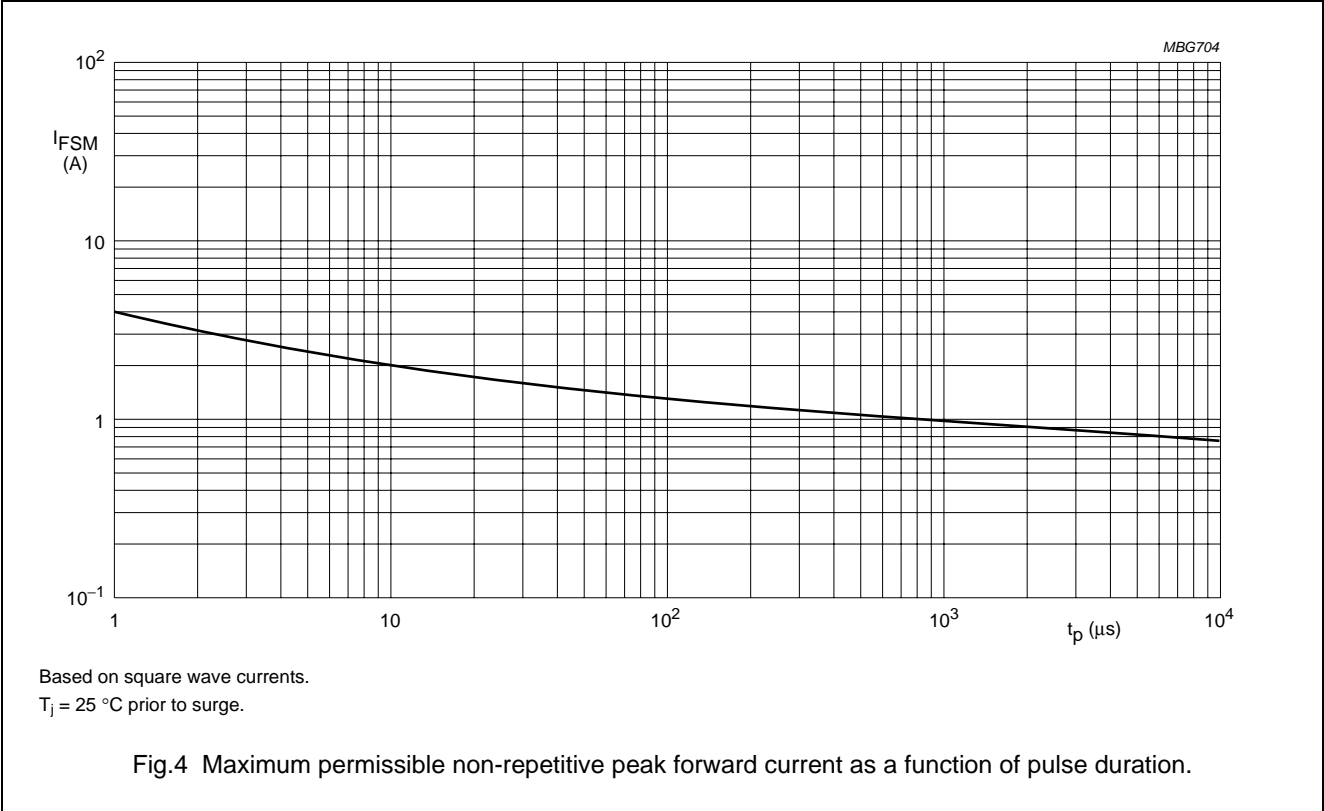
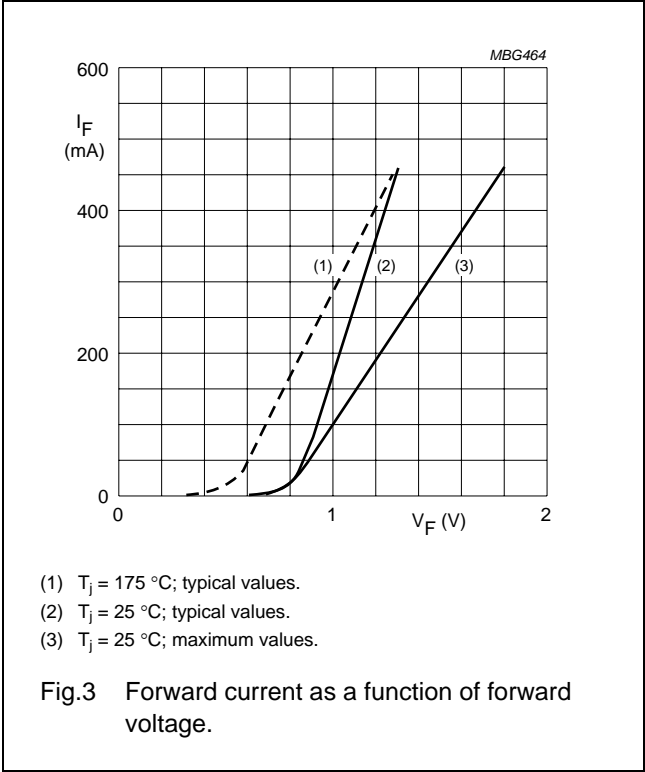
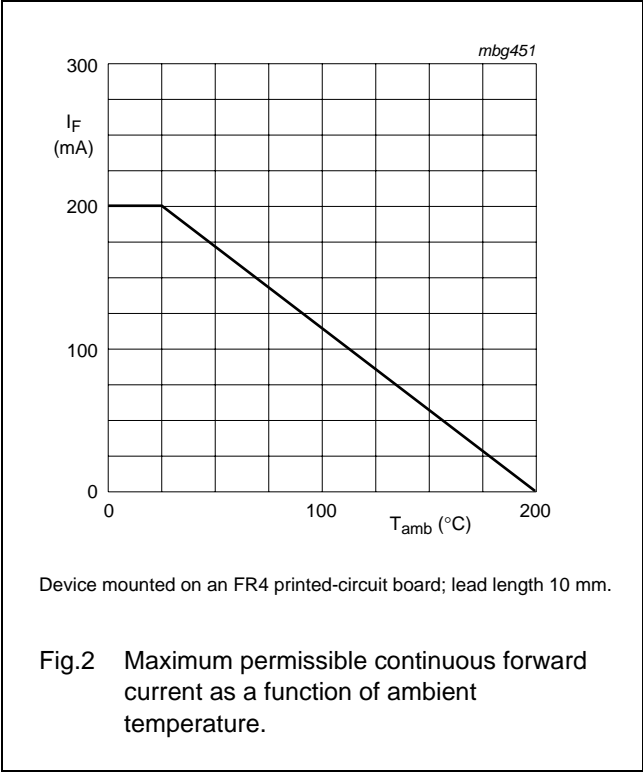
## Note

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

High-speed diodes

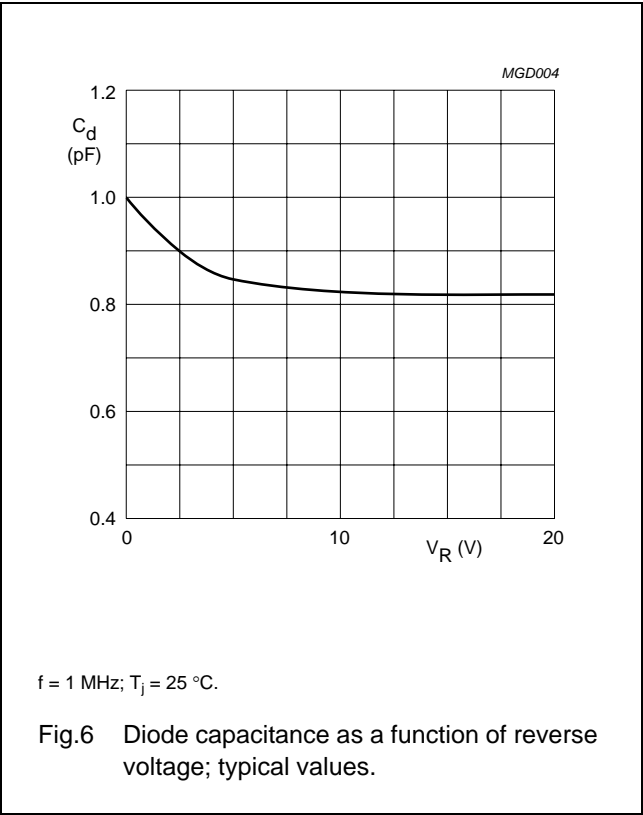
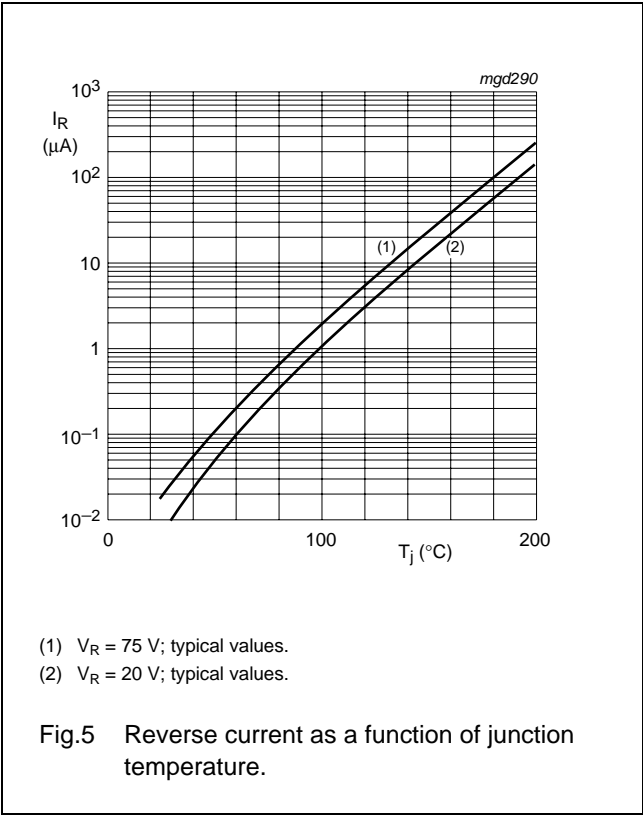
1N4148; 1N4448

GRAPHICAL DATA



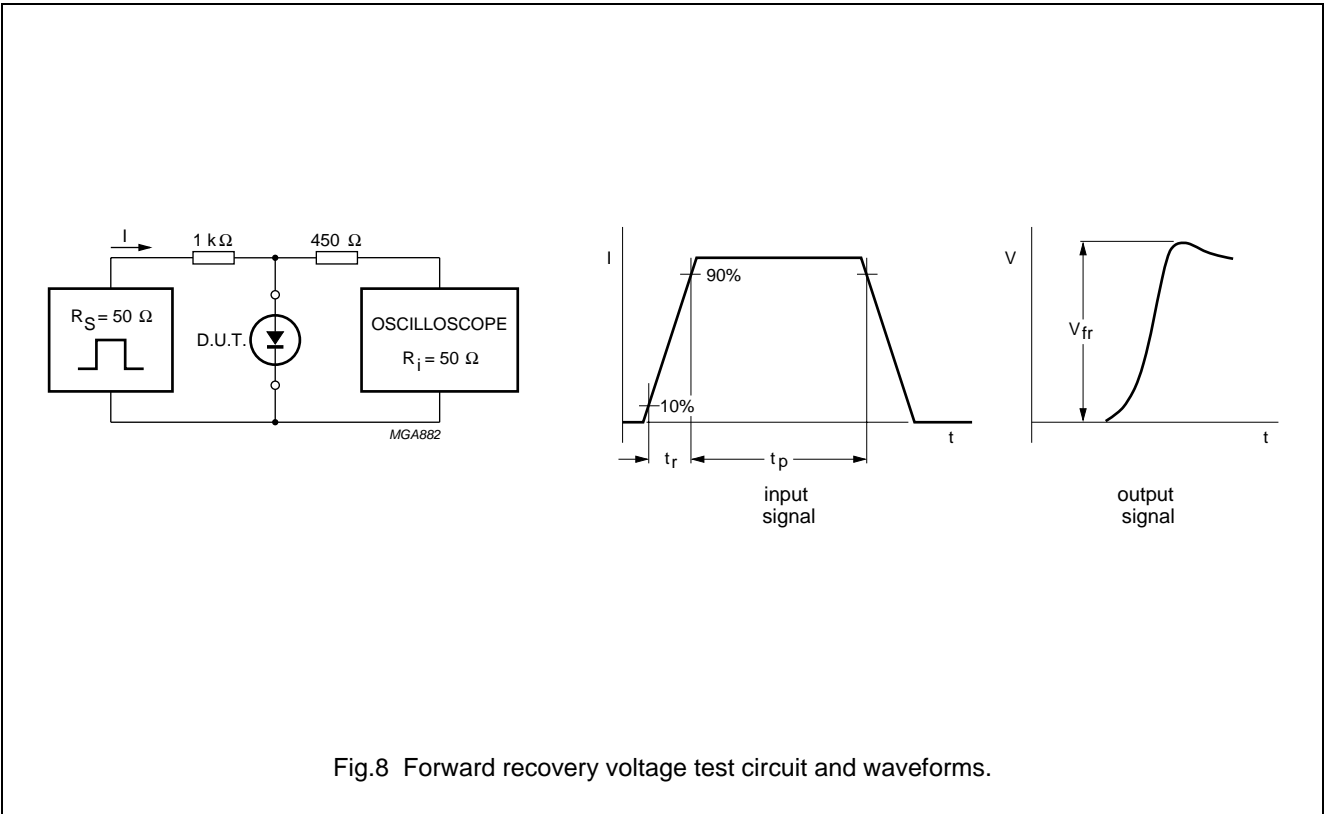
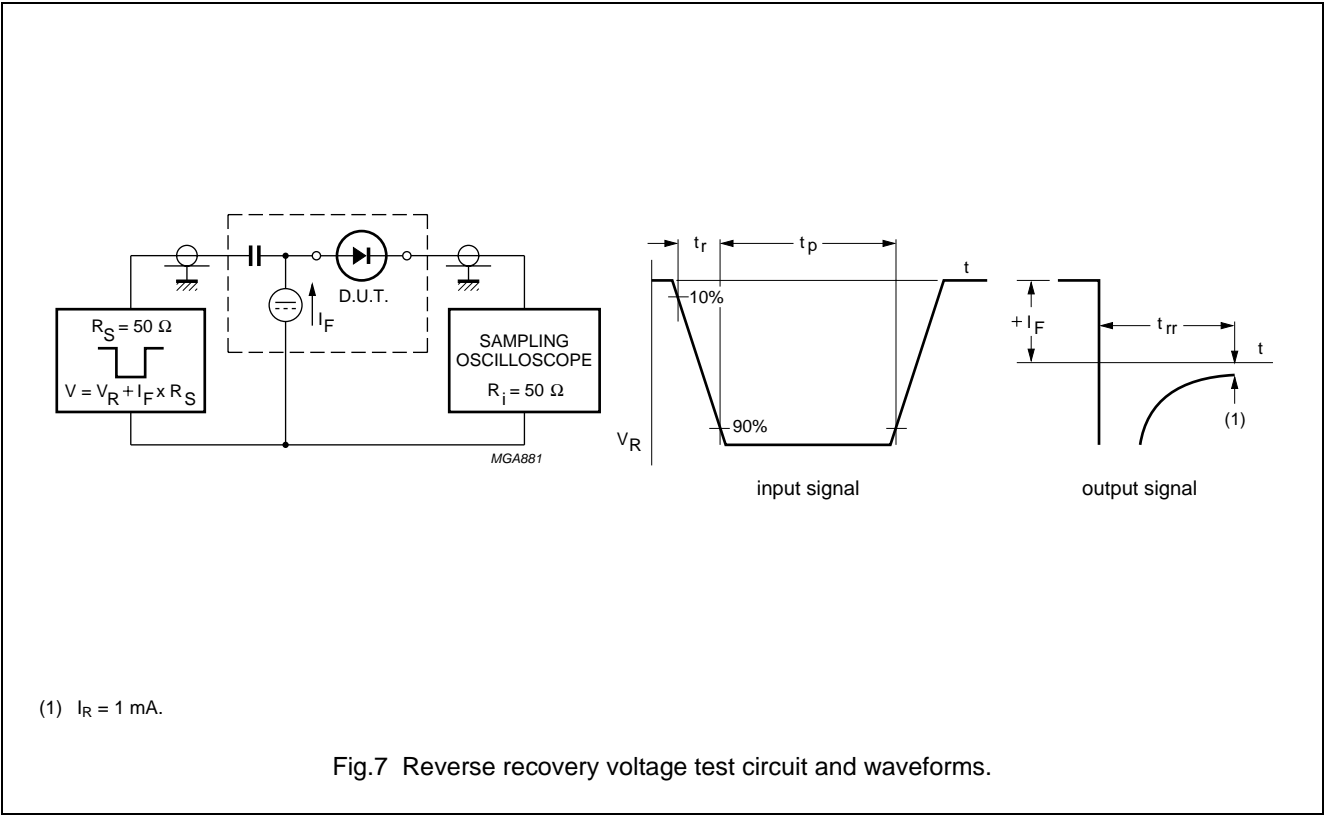
High-speed diodes

1N4148; 1N4448



High-speed diodes

1N4148; 1N4448



High-speed diodes

1N4148; 1N4448

PACKAGE OUTLINE

Hermetically sealed glass package; axial leaded; 2 leads

SOD27

Top view: circle with diameter D.

Side view: length L, marking band (1) with width G1, length L, and lead thickness b.

End view: circle with diameter D.

DIMENSIONS (mm are the original dimensions)

UNIT	b max.	D max.	G <sub>1</sub> max.	L min.
mm	0.56	1.85	4.25	25.4

012 mm

scale

Note

1. The marking band indicates the cathode.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOD27	A24	DO-35	SC-40			97-06-09- 05-12-22

## High-speed diodes

1N4148; 1N4448

## DATA SHEET STATUS

DOCUMENT STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	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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For additional information please visit: **<http://www.nxp.com>**

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