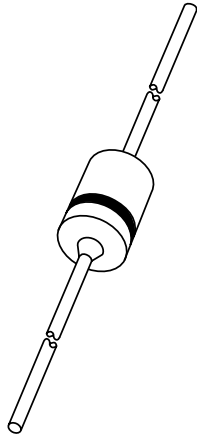


DATA SHEET



1N4148; 1N4448 High-speed diodes

Product data sheet
Supersedes data of 2002 Jan 23

2004 Aug 10

High-speed diodes

1N4148; 1N4448

FEATURES

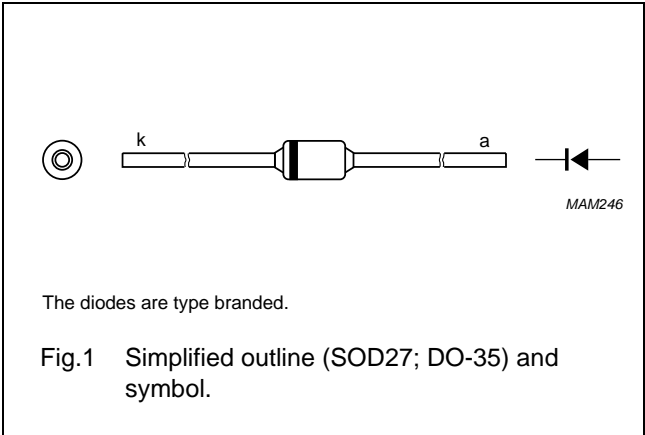
- Hermetically sealed leaded glass SOD27 (DO-35) package
- High switching speed: max. 4 ns
- General application
- Continuous reverse voltage: max. 100 V
- Repetitive peak reverse voltage: max. 100 V
- Repetitive peak forward current: max. 450 mA.

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

- 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	μA
I_R	reverse current; 1N4448	$V_R = 20\text{ V}$; $T_j = 100\text{ °C}$; see Fig.5	–	3	μA
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

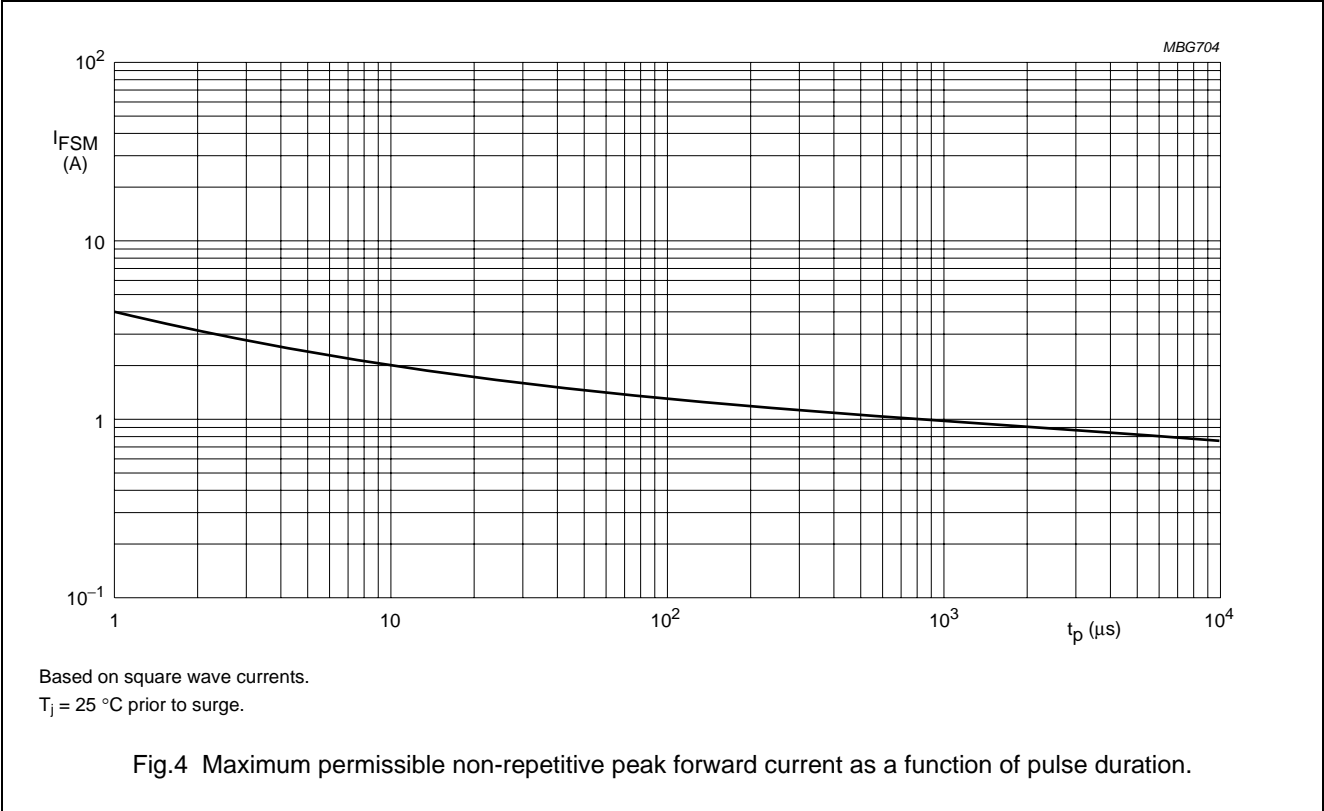
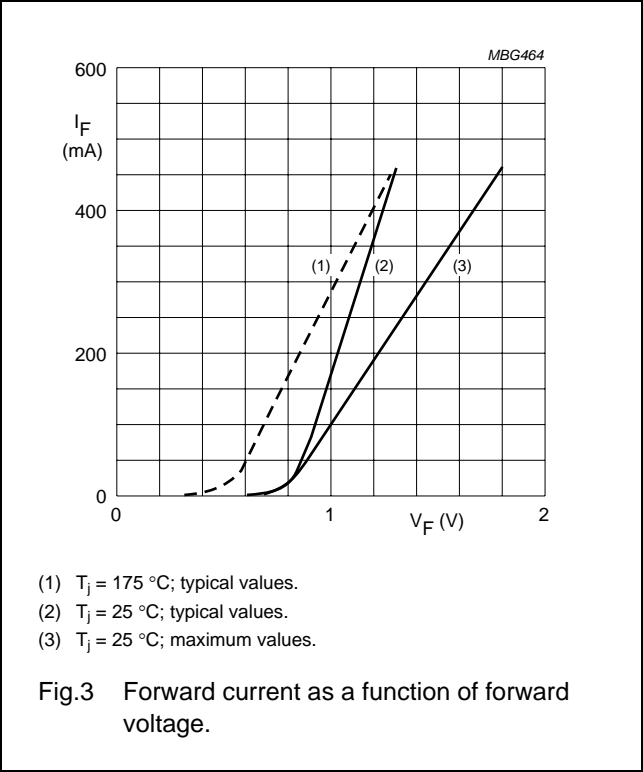
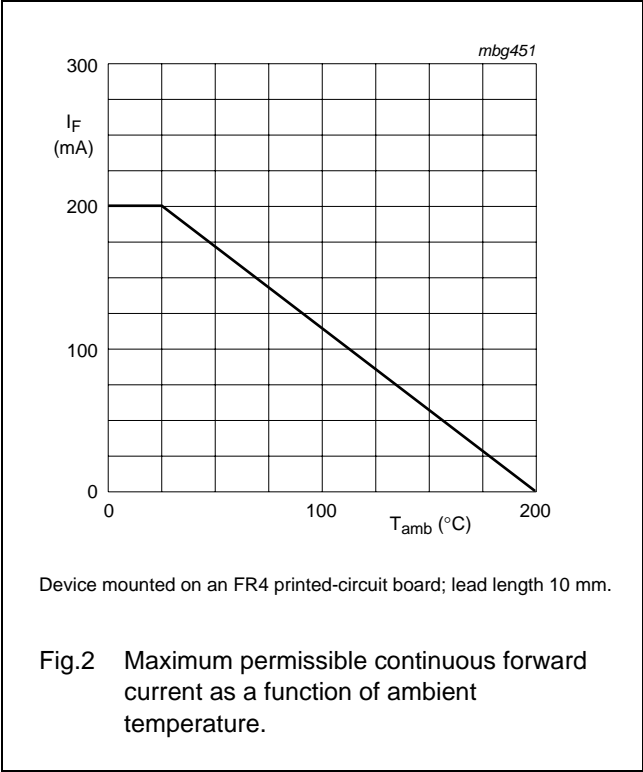
Note

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

High-speed diodes

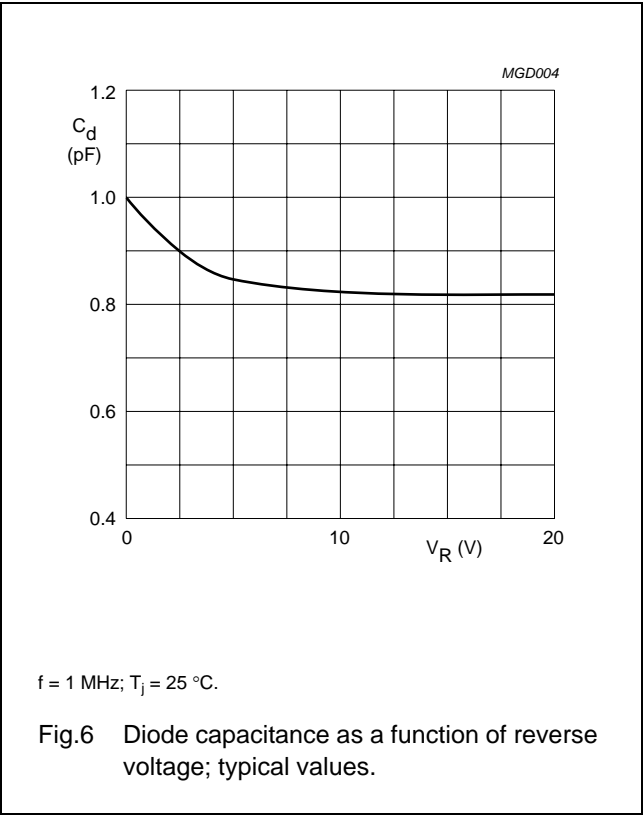
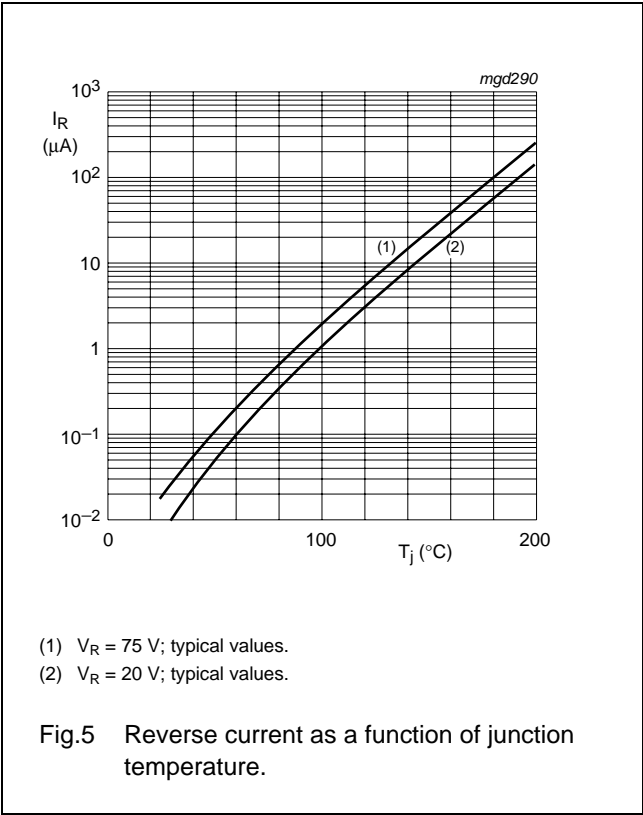
1N4148; 1N4448

GRAPHICAL DATA



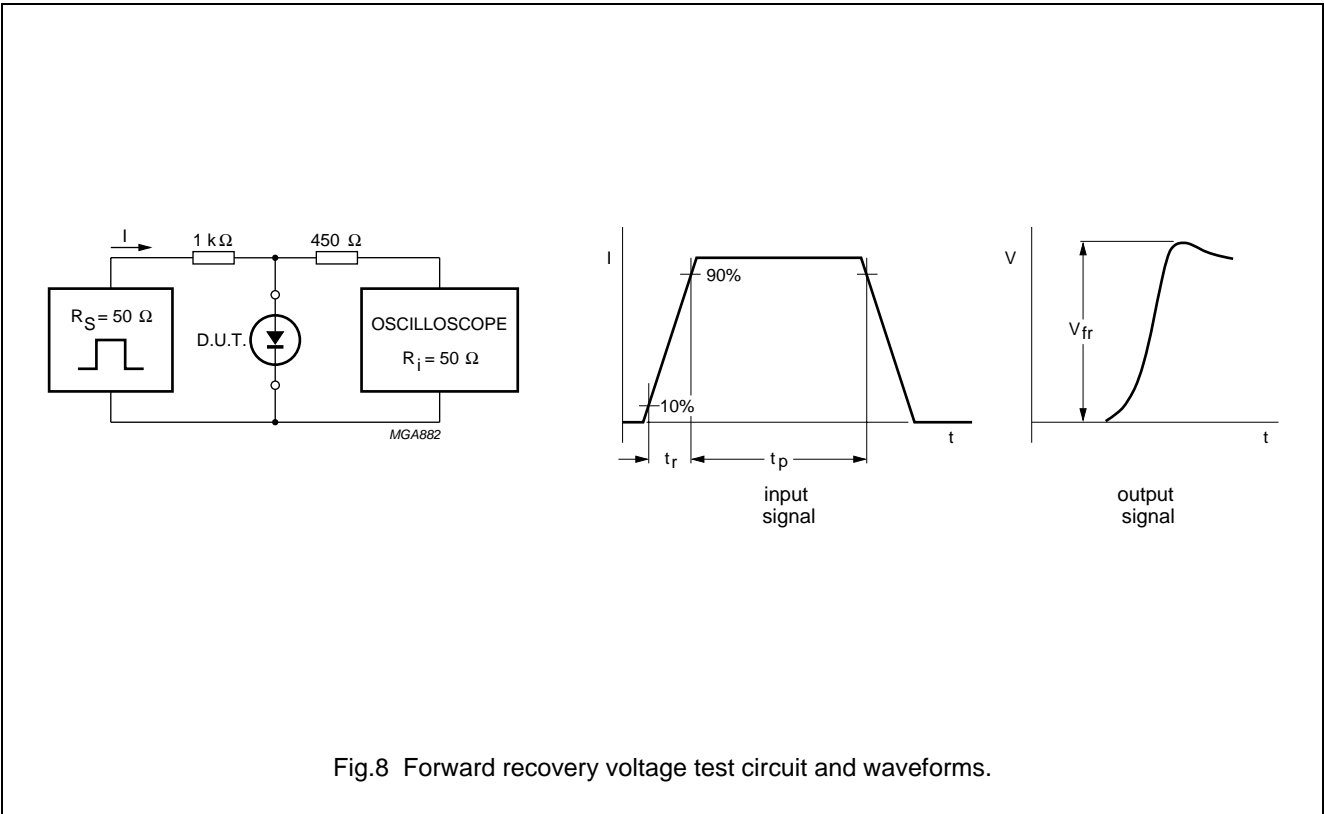
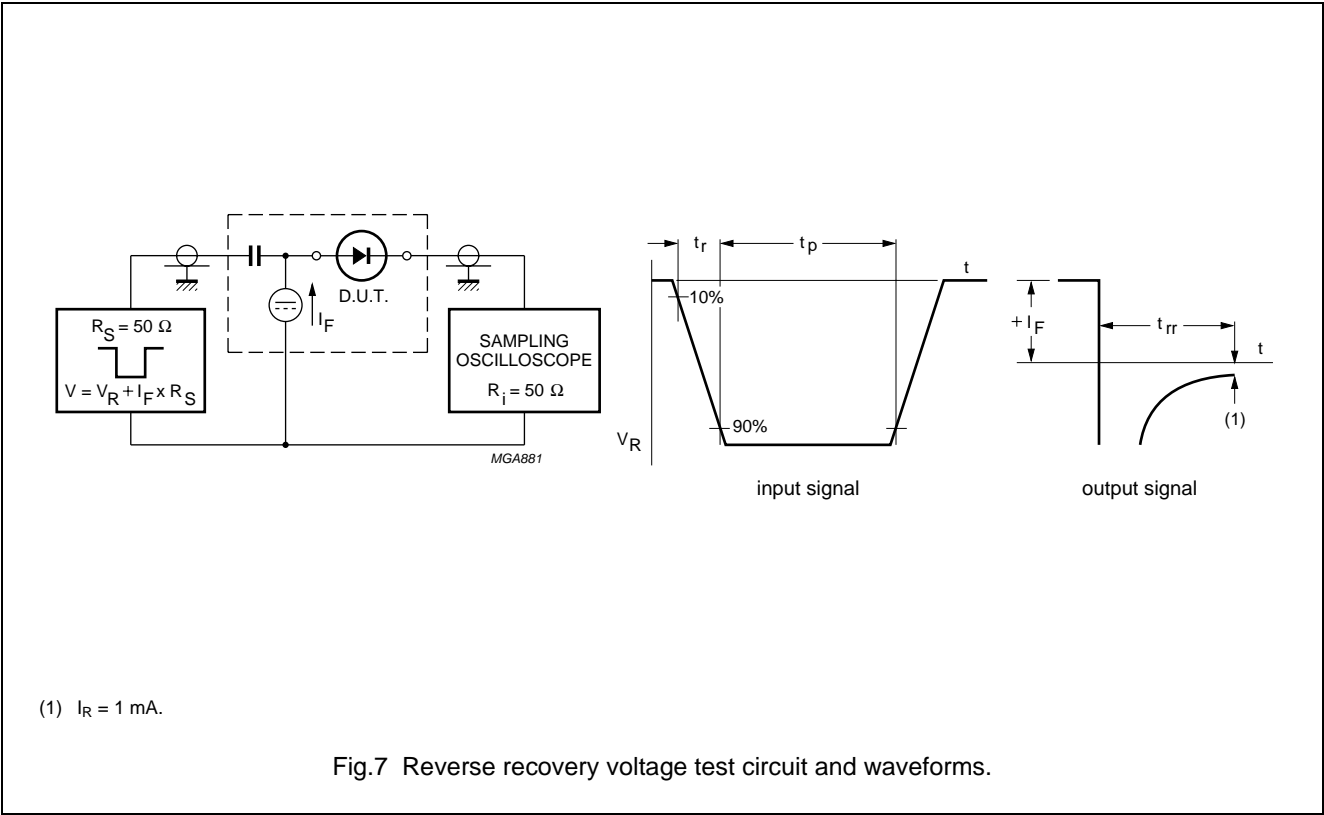
High-speed diodes

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: Diameter D

Side view: Length L, marking band (1), length G1, length L, lead thickness b

End view: Lead thickness b

DIMENSIONS (mm are the original dimensions)

UNIT	b max.	D max.	G ₁ max.	L min.
mm	0.56	1.85	4.25	25.4

0 1 2 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 ⁽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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