NXP Semiconductors Product data sheet

# **High-speed diodes**

1N4148; 1N4448

### **FEATURES**

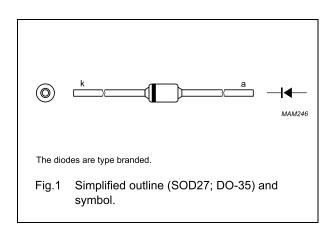
- Hermetically sealed leaded glass SOD27 (DO-35) package
- High switching speed: max. 4 ns
- General application
- Continuous reverse voltage: max. 100 V
- Repetitive peak reverse voltage: max. 100 V
- Repetitive peak forward current: max. 450 mA.

### **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			
ITPE NUMBER	NAME	DESCRIPTION	VERSION	
1N4148	-	hermetically sealed glass package; axial leaded; 2 leads	SOD27	
1N4448				

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## **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
l <sub>F</sub>	continuous forward current	see Fig.2; note 1	-	200	mA
I <sub>FRM</sub>	repetitive peak forward current		_	450	mA
I <sub>FSM</sub>	non-repetitive peak forward current	square wave; T <sub>j</sub> = 25 °C prior to surge; see Fig.4			
		t = 1 μs	_	4	Α
		t = 1 ms	_	1	Α
		t = 1 s	_	0.5	Α
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> = 25 °C; note 1	_	500	mW
T <sub>stg</sub>	storage temperature		-65	+200	°C
T <sub>i</sub>	junction temperature		_	200	°C

## Note

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

# **ELECTRICAL CHARACTERISTICS**

 $T_j$  = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>F</sub>	forward voltage	see Fig.3			
	1N4148	I <sub>F</sub> = 10 mA	_	1	V
	1N4448	I <sub>F</sub> = 5 mA	0.62	0.72	V
		I <sub>F</sub> = 100 mA	_	1	V
I <sub>R</sub>	reverse current	V <sub>R</sub> = 20 V; see Fig.5		25	nA
		V <sub>R</sub> = 20 V; T <sub>j</sub> = 150 °C; see Fig.5	_	50	μΑ
I <sub>R</sub>	reverse current; 1N4448	V <sub>R</sub> = 20 V; T <sub>j</sub> = 100 °C; see Fig.5	_	3	μА
C <sub>d</sub>	diode capacitance	$f = 1 \text{ MHz}$ ; $V_R = 0 \text{ V}$ ; see Fig.6	_	4	pF
t <sub>rr</sub>	reverse recovery time	when switched from I <sub>F</sub> = 10 mA to I <sub>R</sub> = 60 mA; R <sub>L</sub> = 100 $\Omega$ ; measured at I <sub>R</sub> = 1 mA; see Fig.7	_	4	ns
V <sub>fr</sub>	forward recovery voltage	when switched from $I_F = 50$ mA; $t_r = 20$ ns; see Fig.8	_	2.5	V

# THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R <sub>th(j-tp)</sub>	thermal resistance from junction to tie-point	lead length 10 mm	240	K/W
R <sub>th(j-a)</sub>	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.