

# DATA SHEET



## **PMLL4148; PMLL4448** High-speed diodes

Product specification  
Supersedes data of 1996 Sep 18

1999 May 27

# High-speed diodes

# PMLL4148; PMLL4448

## FEATURES

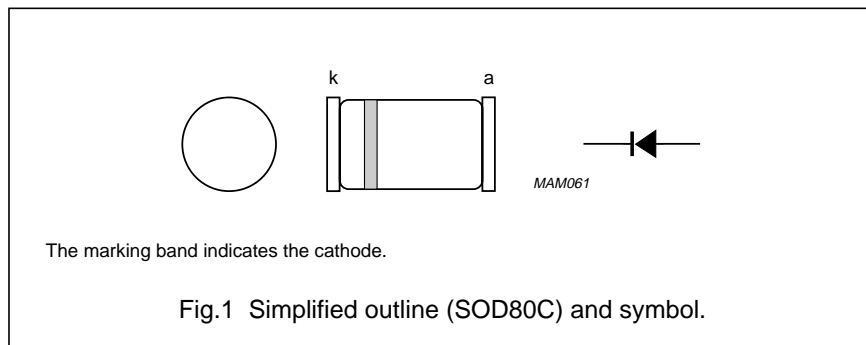
- Small hermetically sealed glass SMD package
- High switching speed: max. 4 ns
- Continuous reverse voltage: max. 75 V
- Repetitive peak reverse voltage: max. 75 V
- Repetitive peak forward current: max. 450 mA.

## APPLICATIONS

- High-speed switching
- Fast logic applications.

## DESCRIPTION

The PMLL4148 and PMLL4448 are high-speed switching diodes fabricated in planar technology, and encapsulated in small hermetically sealed glass SOD80C SMD packages.



## LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>RRM</sub>	repetitive peak reverse voltage		–	75	V
V <sub>R</sub>	continuous reverse voltage		–	75	V
I <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 t = 1 ms t = 1 s	–	4 1 0.5	A A A
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>j</sub>	junction temperature		–	200	°C

## Note

1. Device mounted on an FR4 printed-circuit board.

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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 PMLL4148 PMLL4448	see Fig.3			
		$I_F = 10\text{ mA}$	–	1	V
		$I_F = 5\text{ mA}$	620	720	mV
		$I_F = 100\text{ mA}$	–	1	V
$I_R$	reverse current	$V_R = 20\text{ V}$ ; see Fig.5		25	nA
		$V_R = 20\text{ V}$ ; $T_j = 150\text{ }^\circ\text{C}$ ; see Fig.5	–	50	$\mu\text{A}$
$I_R$	reverse current; PMLL4448	$V_R = 20\text{ V}$ ; $T_j = 100\text{ }^\circ\text{C}$ ; see Fig.5	–	3	$\mu\text{A}$
$C_d$	diode capacitance	$f = 1\text{ MHz}$ ; $V_R = 0$ ; see Fig.6		4	pF
$t_{rr}$	reverse recovery time	when switched from $I_F = 10\text{ mA}$ to $I_R = 60\text{ mA}$ ; $R_L = 100\ \Omega$ ; 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		300	K/W
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	350	K/W

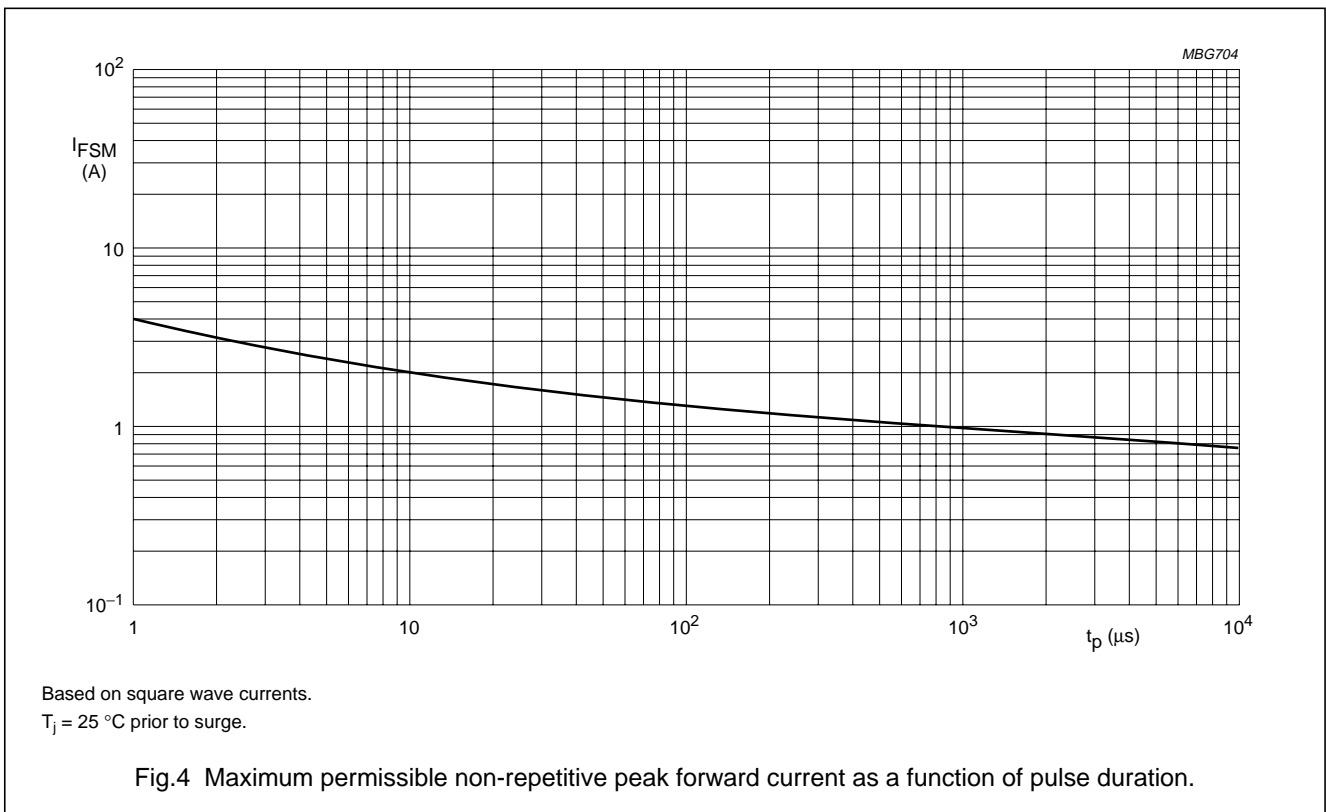
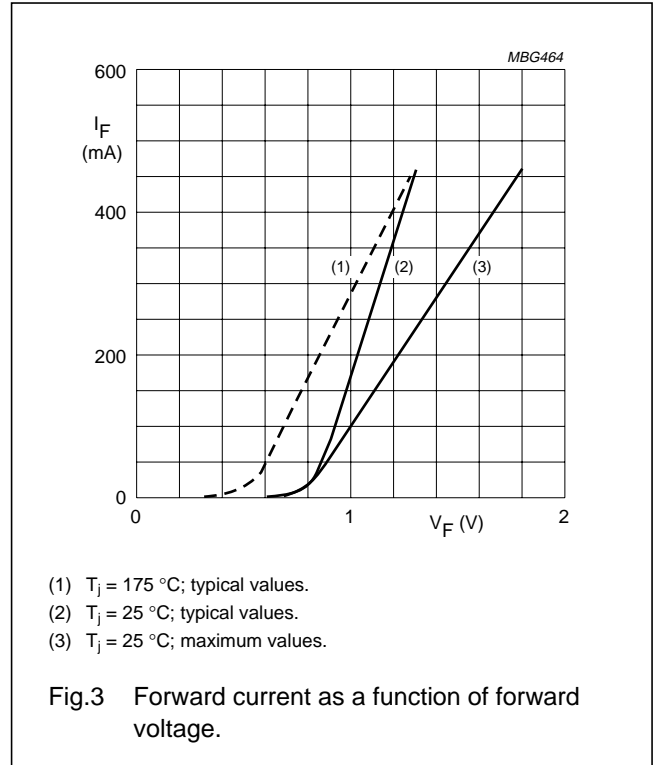
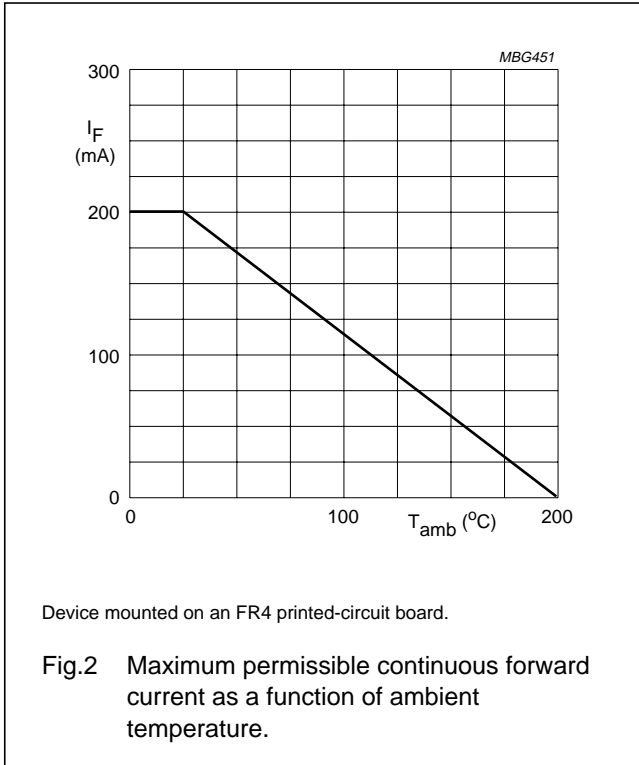
**Note**

1. Device mounted on an FR4 printed-circuit board.

High-speed diodes

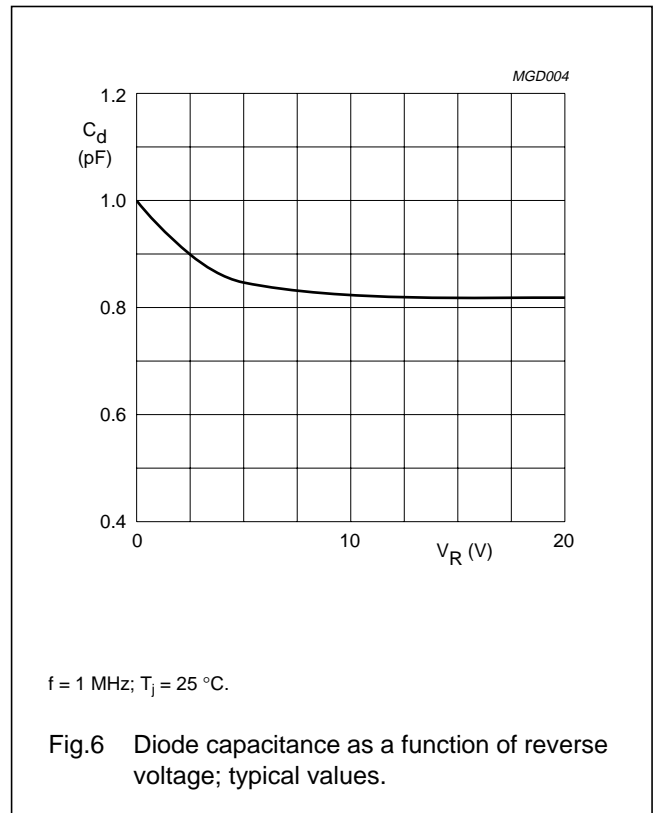
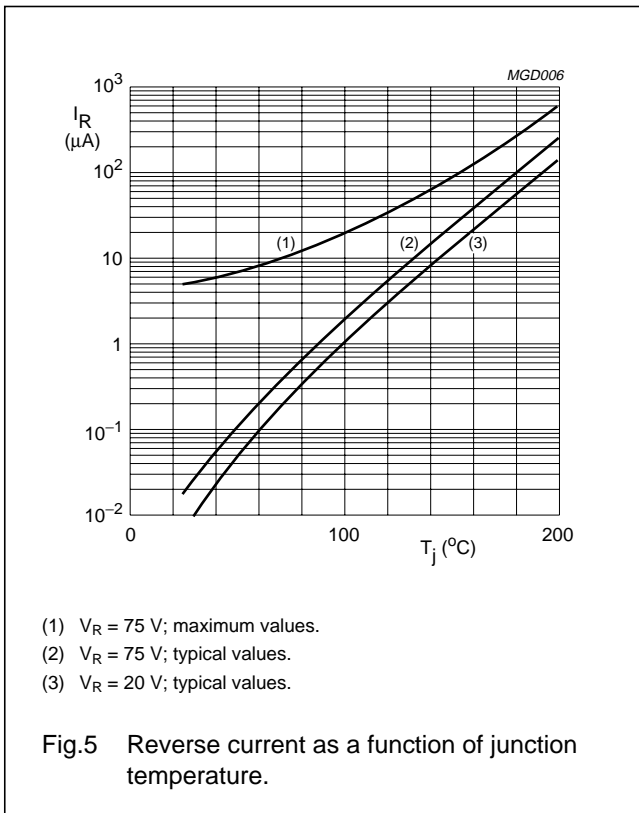
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GRAPHICAL DATA



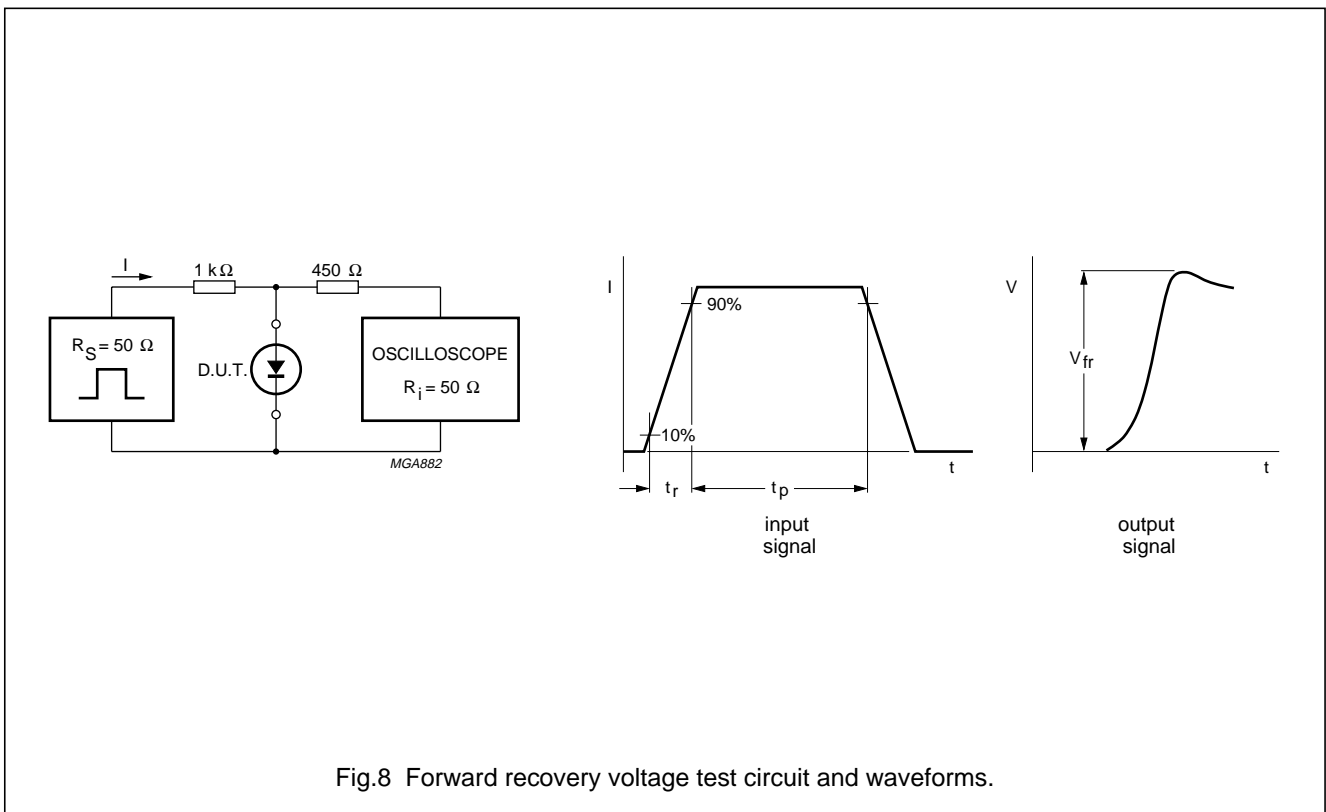
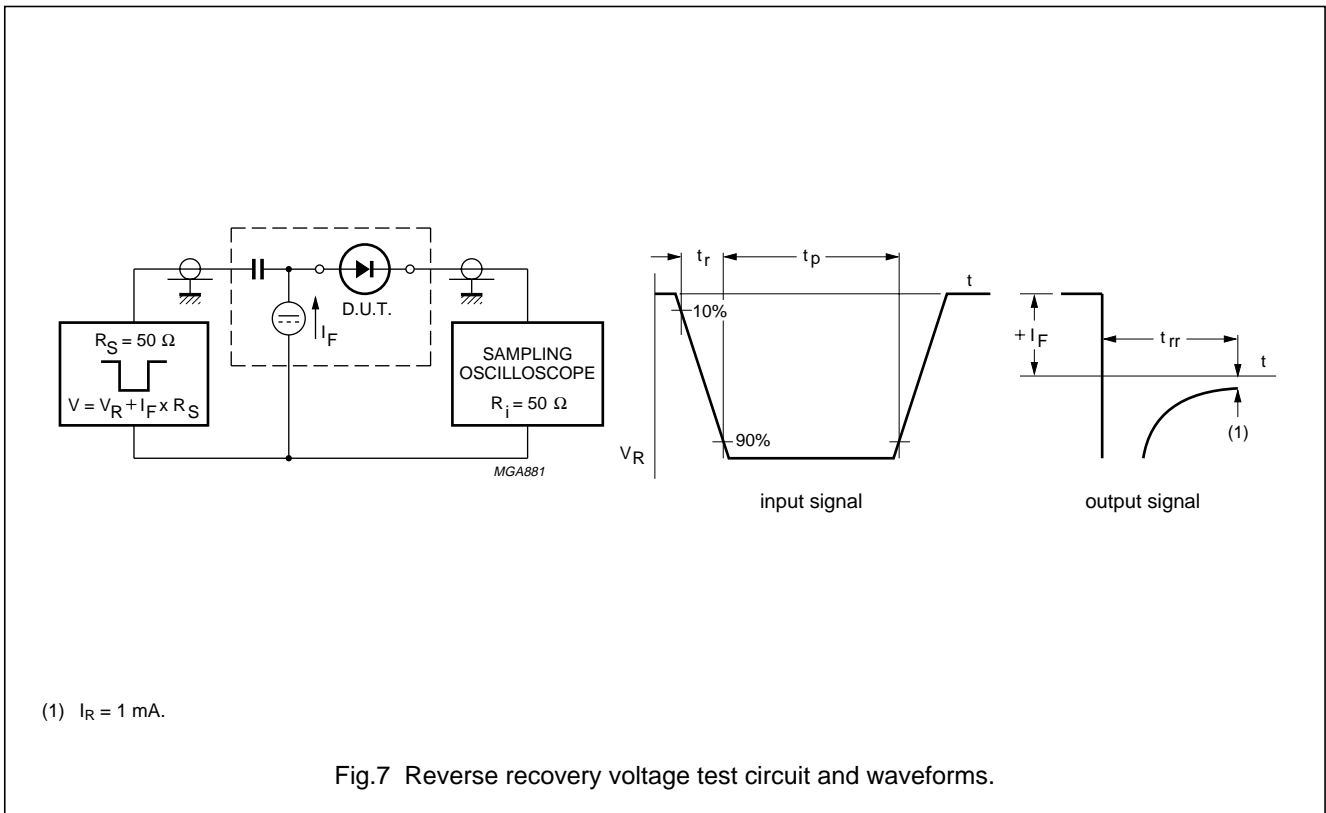
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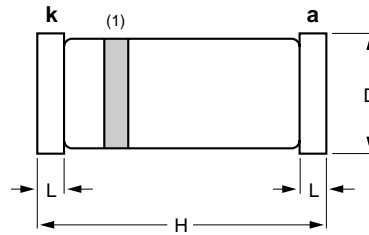
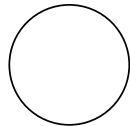
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PACKAGE OUTLINE

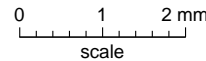
Hermetically sealed glass surface mounted package; 2 connectors

SOD80C



DIMENSIONS (mm are the original dimensions)

UNIT	D	H	L
mm	1.60 1.45	3.7 3.3	0.3



Note

1. The marking band indicates the cathode.

OUTLINE VERSION	REFERENCES			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ		
SOD80C	100H01				97-06-20

DEFINITIONS

Data Sheet Status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

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