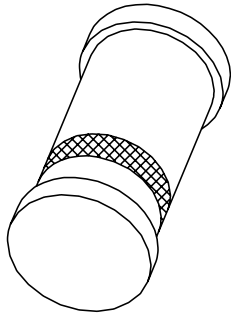


DATA SHEET



**PMLL4150; PMLL4151;
PMLL4153**
High-speed diodes

Product data sheet
Supersedes data of April 1996

1996 Sep 18

High-speed diodes

PMLL4150; PMLL4151; PMLL4153

FEATURES

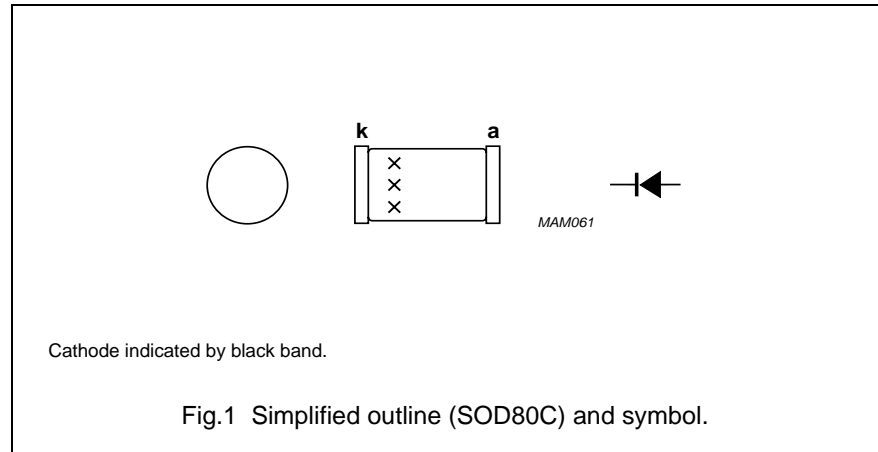
- Small hermetically sealed glass SMD package
- High switching speed: max. 4 ns
- General application
- Continuous reverse voltage: max. 50 V
- Repetitive peak reverse voltage: max. 75 V
- Repetitive peak forward current: max. 600 mA and 450 mA respectively.

APPLICATIONS

- High-speed switching
- The PMLL4150 is primarily intended for general purpose use in computer and industrial applications.
- The PMLL4151 and PMLL4153 are intended for military and industrial applications.

DESCRIPTION

The PMLL4150, PMLL4151, PMLL4153 are high-speed switching diodes fabricated in planar technology, and encapsulated in small hermetically sealed glass SOD80C SMD packages.



High-speed diodes

PMLL4150; PMLL4151;
PMLL4153**LIMITING VALUES**

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V _{RRM}	repetitive peak reverse voltage				
	PMLL4151		–	75	V
	PMLL4153		–	75	V
V _R	continuous reverse voltage		–	50	V
I _F	continuous forward current	see Fig.2; note 1			
	PMLL4150		–	300	mA
	PMLL4151		–	200	mA
	PMLL4153		–	200	mA
I _{FRM}	repetitive peak forward current				
	PMLL4150		–	600	mA
	PMLL4151		–	450	mA
	PMLL4153		–	450	mA
I _{FSM}	non-repetitive peak forward current	square wave; T _j = 25 °C prior to surge; see Fig.4			
		t = 1 μs	–	4	A
		t = 1 ms	–	1	A
		t = 1 s	–	0.5	A
P _{tot}	total power dissipation	T _{amb} = 25 °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.

High-speed diodes

PMLL4150; PMLL4151;
PMLL4153**ELECTRICAL CHARACTERISTICS**T_j = 25 °C; unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V _F	forward voltage PMLL4150 PMLL4151 PMLL4153	see Fig.3			
		I _F = 1 mA	540	620	mV
		I _F = 10 mA	660	740	mV
		I _F = 50 mA	760	860	mV
		I _F = 100 mA	820	920	mV
		I _F = 200 mA	870	1000	mV
		I _F = 50 mA	–	1000	mV
		I _F = 0.1 mA	490	550	mV
		I _F = 0.25 mA	530	590	mV
		I _F = 1 mA	590	670	mV
		I _F = 2 mA	620	700	mV
		I _F = 10 mA	700	810	mV
I _F = 50 mA	740	880	mV		
I _R	reverse current PMLL4150 PMLL4151 PMLL4153	V _R = 50 V; see Fig.5			
			–	0.1	μA
			–	0.05	μA
I _R	reverse current PMLL4150 PMLL4151 PMLL4153	V _R = 50 V; T _j = 150 °C; see Fig.5			
			–	100	μA
			–	50	μA
C _d	diode capacitance PMLL4150 PMLL4151 PMLL4153	f = 1 MHz; V _R = 0; see Fig.6			
			–	2.5	pF
			–	2	pF
				2	pF

High-speed diodes

PMLL4150; PMLL4151;
PMLL4153

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
t_{rr}	reverse recovery time PMLL4150	when switched from $I_F = 10$ mA to $I_R = 1$ mA; $R_L = 100 \Omega$; measured at $I_R = 0.1$ mA; see Fig.7	–	6	ns
		when switched from $I_F = 10$ mA to 200 mA to $I_R = 10$ mA to 200 mA; $R_L = 100 \Omega$; measured at $I_R = 0.1 \times I_F$; see Fig.7	–	4	ns
		when switched from $I_F = 200$ mA to 400 mA to $I_R = 200$ mA to 400 mA; $R_L = 100 \Omega$; measured at $I_R = 0.1 \times I_F$; see Fig.7	–	6	ns
t_{rr}	reverse recovery time PMLL4151	when switched from $I_F = 10$ mA to $I_R = 10$ mA; $R_L = 100 \Omega$; measured at $I_R = 1$ mA; see Fig.7	–	4	ns
		when switched from $I_F = 10$ mA to $I_R = 60$ mA; $R_L = 100 \Omega$; measured at $I_R = 1$ mA; see Fig.7	–	2	ns
t_{rr}	reverse recovery time PMLL4153	when switched from $I_F = 10$ mA to $I_R = 10$ mA; $R_L = 100 \Omega$; measured at $I_R = 1$ mA; see Fig.7	–	4	ns
		when switched from $I_F = 10$ mA to $I_R = 60$ mA; $R_L = 100 \Omega$; measured at $I_R = 1$ mA; see Fig.7	–	2	ns
t_{fr}	forward recovery time	when switched to $I_F = 200$ mA; $t_r = 0.4$ ns; measured at $V_F = 1$ V; see Fig.8	–	10	ns

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

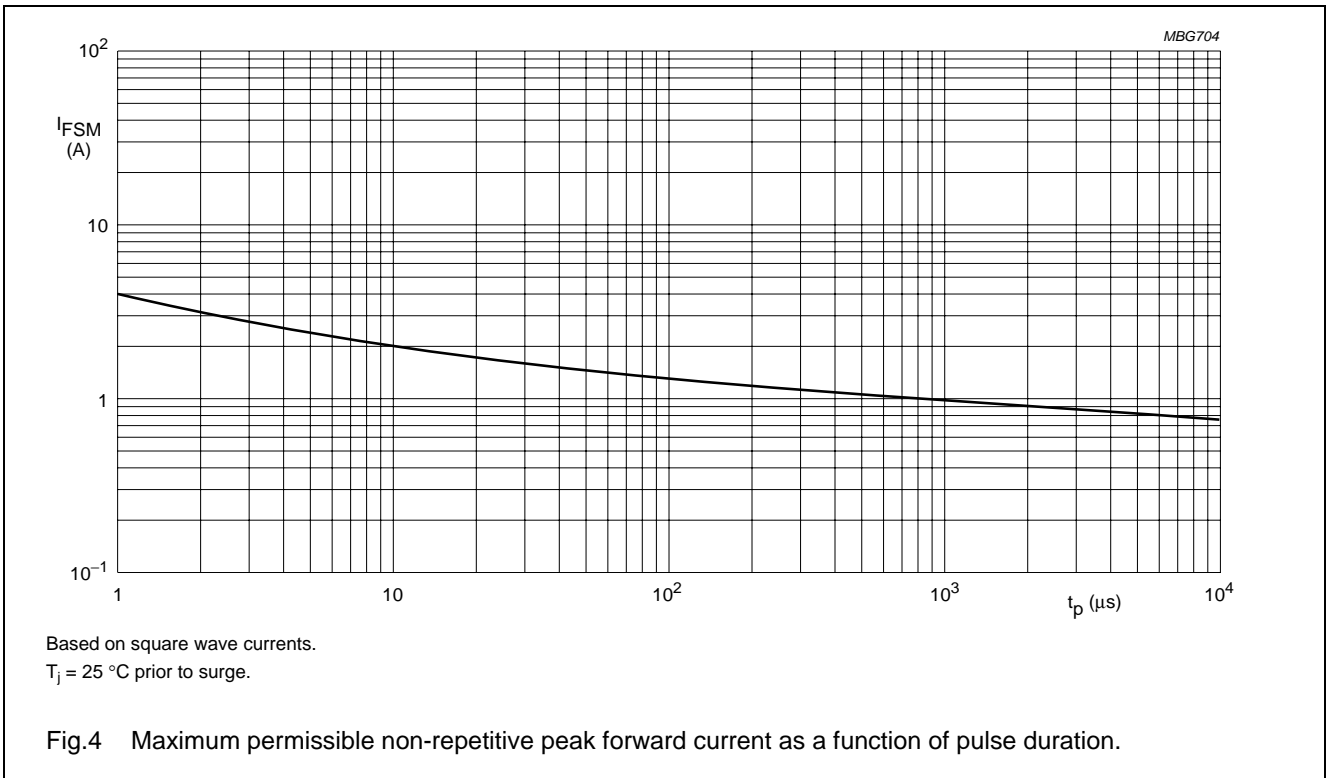
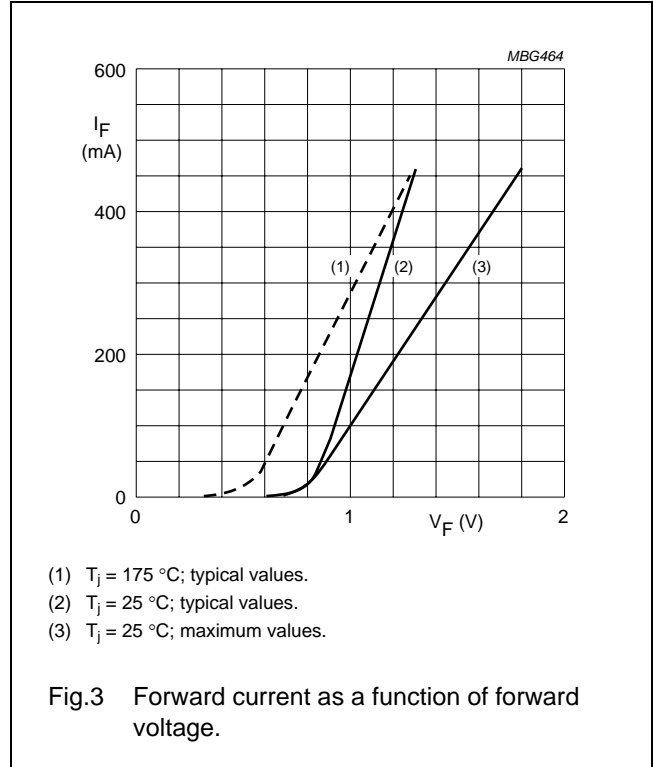
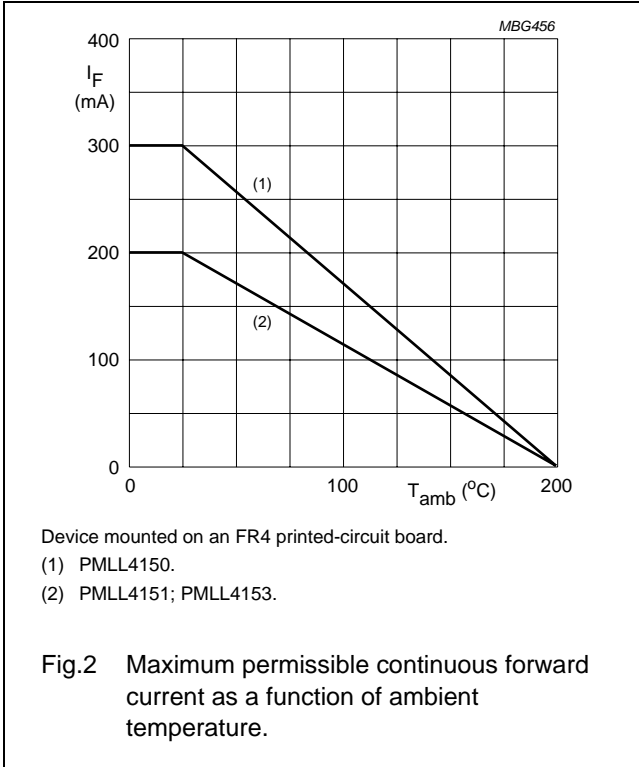
Note

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

High-speed diodes

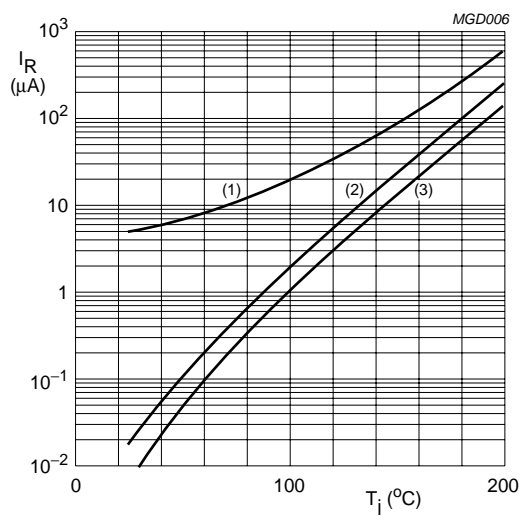
PMLL4150; PMLL4151;
PMLL4153

GRAPHICAL DATA



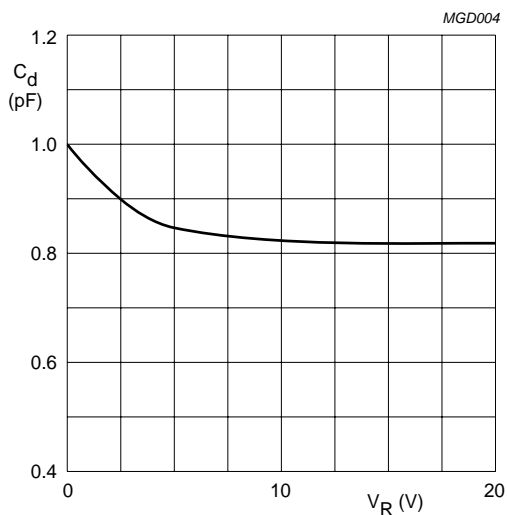
High-speed diodes

PMLL4150; PMLL4151;
PMLL4153



- (1) $V_R = 75\text{ V}$; maximum values.
- (2) $V_R = 75\text{ V}$; typical values.
- (3) $V_R = 20\text{ V}$; typical values.

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

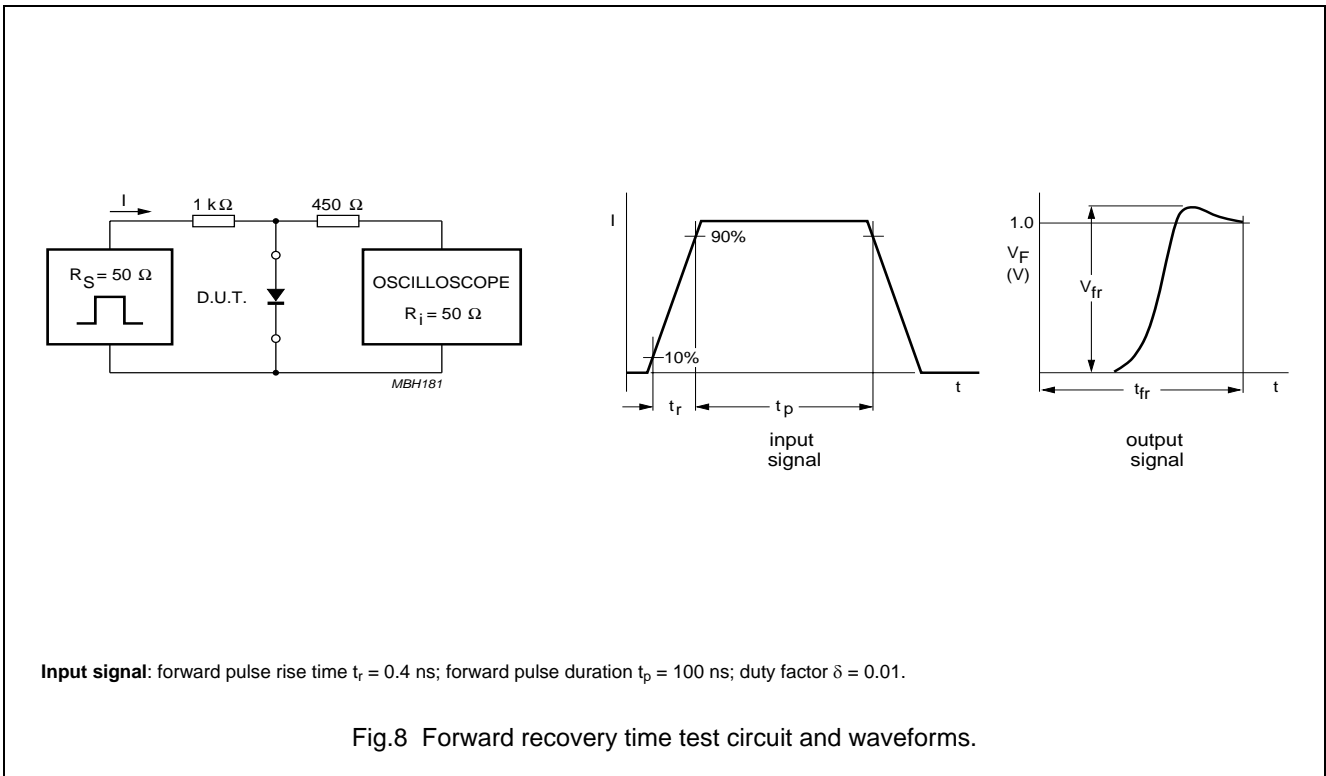
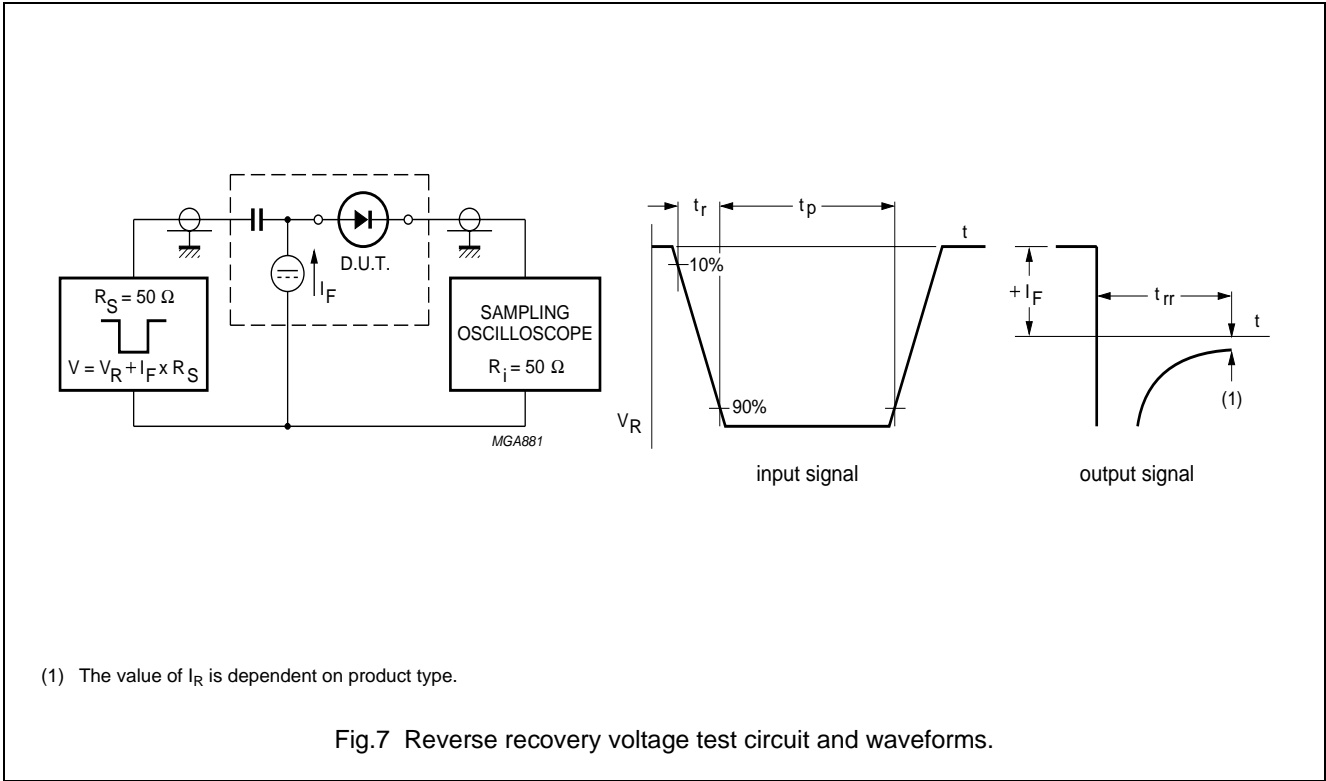


$f = 1\text{ MHz}$; $T_j = 25\text{ }^{\circ}\text{C}$.

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

High-speed diodes

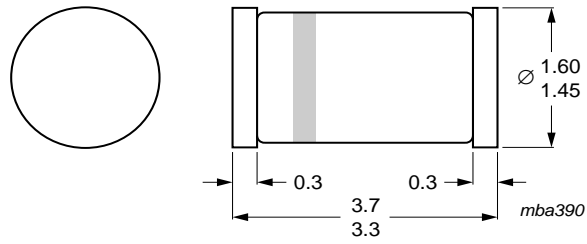
PMLL4150; PMLL4151;
PMLL4153



High-speed diodes

PMLL4150; PMLL4151;
PMLL4153

PACKAGE OUTLINE



Dimensions in mm.

Fig.9 SOD80C.

High-speed diodes

PMLL4150; PMLL4151;
PMLL4153

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.

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