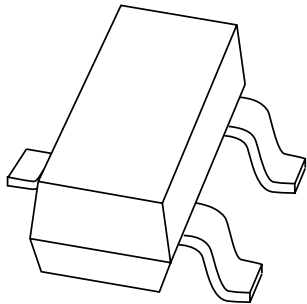


DATA SHEET



PMBD7100

High-speed double diode

Product data sheet

2003 Nov 07

High-speed double diode

PMBD7100

FEATURES

- Small plastic SMD package
- High switching speed: max. 4 ns
- Continuous reverse voltage: max. 100 V
- Repetitive peak reverse voltage: max. 100 V
- Repetitive peak forward current: max. 450 mA.

APPLICATIONS

- High-speed switching in thick and thin-film circuits.

DESCRIPTION

The PMBD7100 consists of two high-speed switching diodes with common cathodes, fabricated in planar technology, and encapsulated in the small SOT23 SMD plastic package.

MARKING

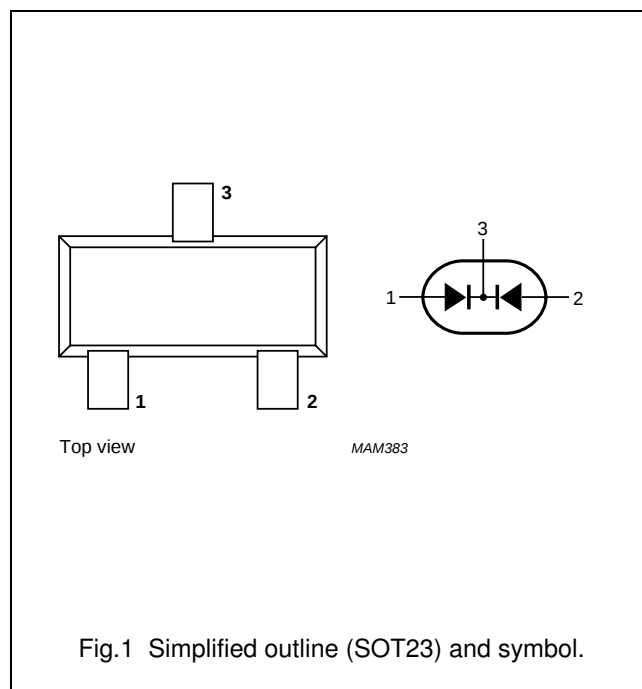
TYPE NUMBER	MARKING CODE ⁽¹⁾
PMBD7100	*3A

Note

- * = p: made in Hong Kong.
 * = t: made in Malaysia.
 * = W: made in China.

PINNING

PIN	DESCRIPTION
1	anode (a1)
2	anode (a2)
3	common connection



ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
PMBD7100	–	plastic surface mounted package; 3 leads	SOT23

High-speed double diode

PMBD7100

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
Per diode					
V_{RRM}	repetitive peak reverse voltage		–	100	V
V_R	continuous reverse voltage		–	100	V
I_F	continuous forward current	single diode loaded; see Fig.2; note 1	–	215	mA
		double diode loaded; see Fig.2; note 1	–	125	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			
		$t_p = 1\text{ }\mu\text{s}$	–	4	A
		$t_p = 1\text{ ms}$	–	1	A
		$t_p = 1\text{ s}$	–	0.5	A
P_{tot}	total power dissipation	$T_{amb} = 25\text{ °C}$; note 1	–	250	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C

Note

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

High-speed double diode

PMBD7100

ELECTRICAL CHARACTERISTICS

$T_{amb} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
Per diode				
V_F	forward voltage	see Fig.3 $I_F = 1\text{ mA}$ $I_F = 10\text{ mA}$ $I_F = 50\text{ mA}$ $I_F = 150\text{ mA}$	715 855 1 1.25	mV mV V V
I_R	reverse current	see Fig.5 $V_R = 25\text{ V}$ $V_R = 100\text{ V}$ $V_R = 25\text{ V}; T_j = 150\text{ }^{\circ}\text{C}$ $V_R = 100\text{ V}; T_j = 150\text{ }^{\circ}\text{C}$	30 2.5 60 100	nA μA μA μA
C_d	diode capacitance	$V_R = 0\text{ V}; f = 1\text{ MHz}$; see Fig.6	1.5	pF
t_{rr}	reverse recovery time	when switched from $I_F = 10\text{ mA}$ to $I_R = 10\text{ mA}$; $R_L = 100\text{ }\Omega$; measured at $I_R = 1\text{ mA}$; see Fig.7	4	ns
V_{fr}	forward recovery voltage	when switched from $I_F = 10\text{ mA}$ to $t_r = 20\text{ nA}$; see Fig.8	1.75	V

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-tp}$	thermal resistance from junction to tie-point		360	K/W
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	500	K/W

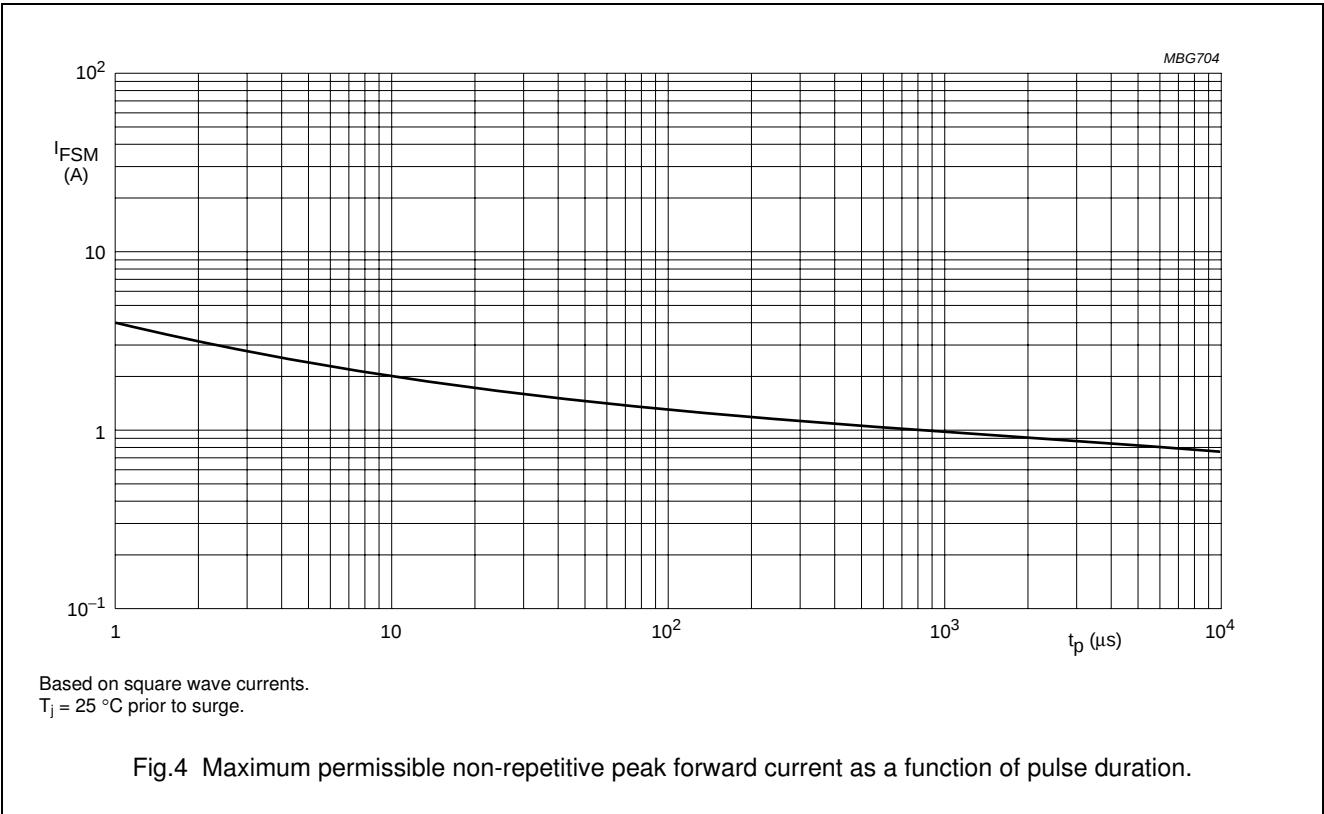
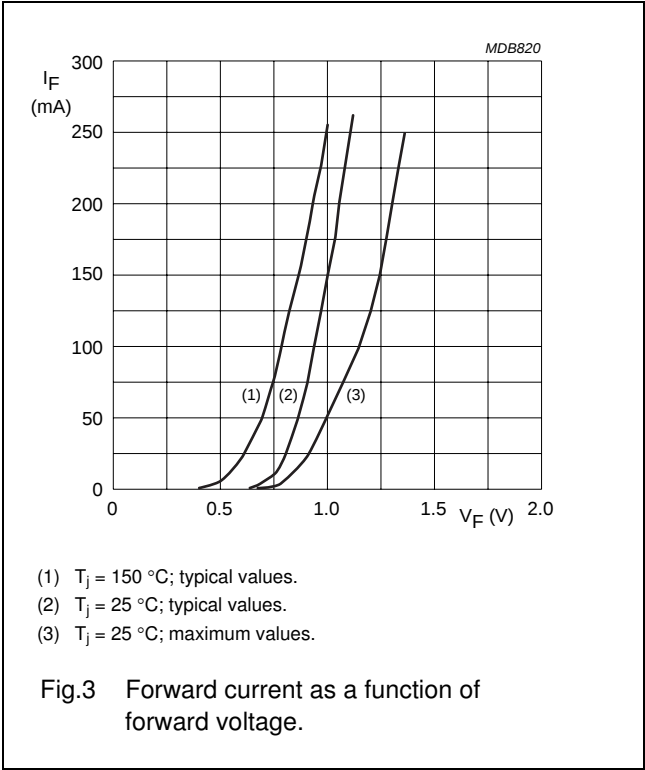
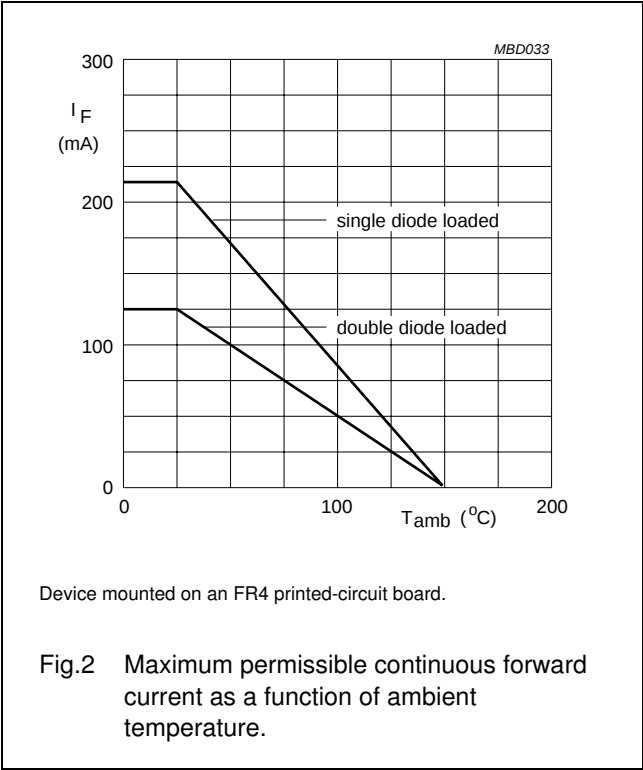
Note

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

High-speed double diode

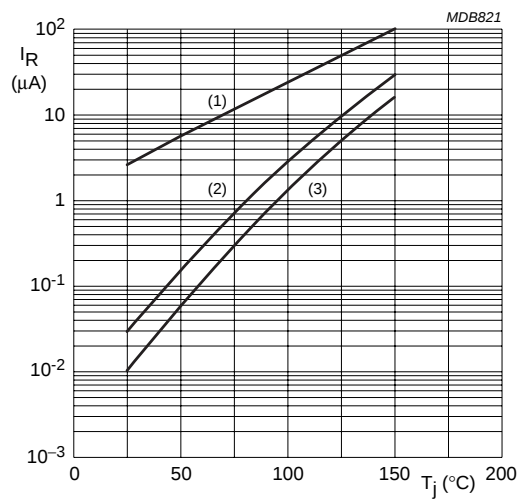
PMBD7100

GRAPHICAL DATA



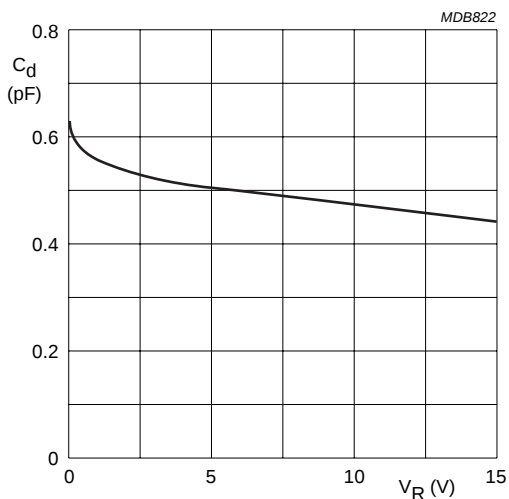
High-speed double diode

PMBD7100



- (1) $V_R = 100^{\circ}C$; maximum values.
- (2) $V_R = 100^{\circ}C$; typical values.
- (3) $V_R = 25^{\circ}C$; typical values.

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

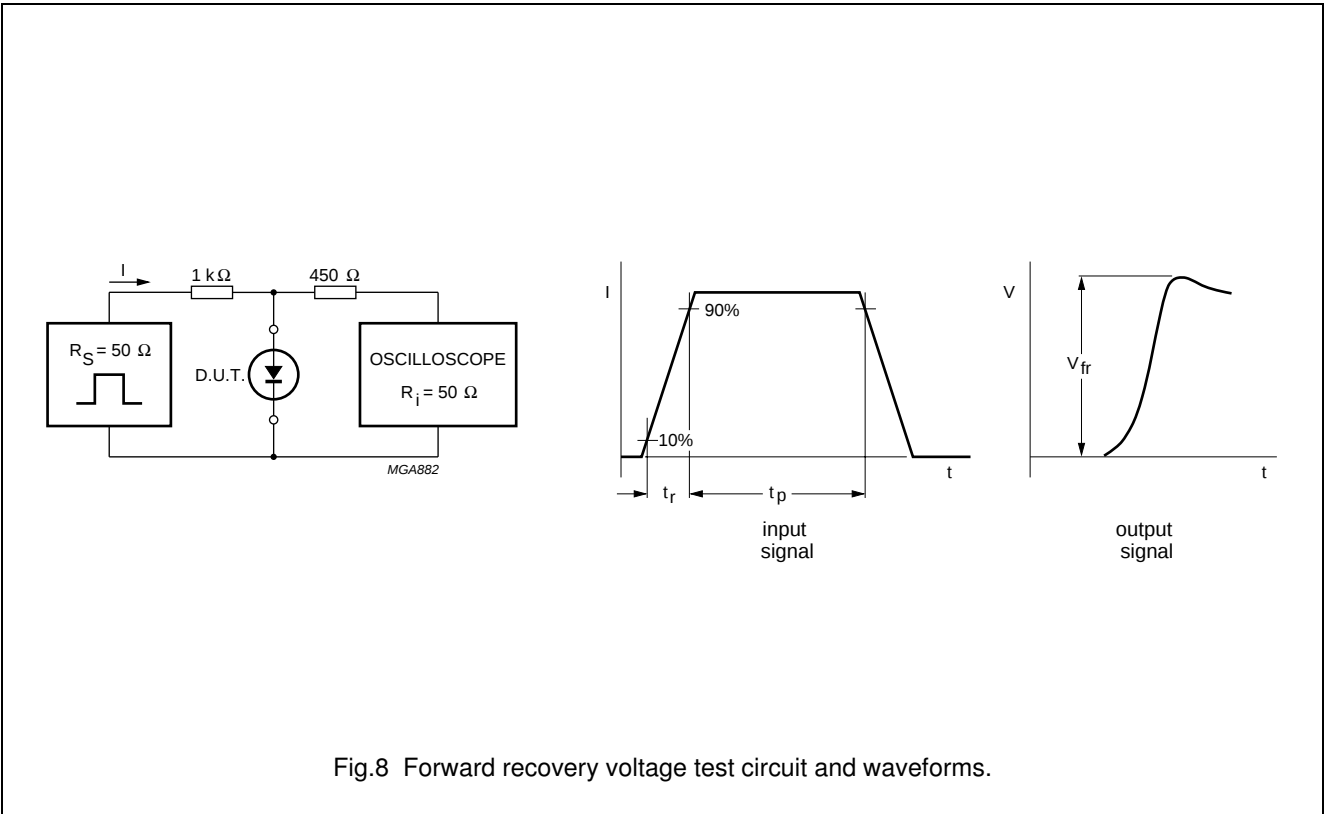
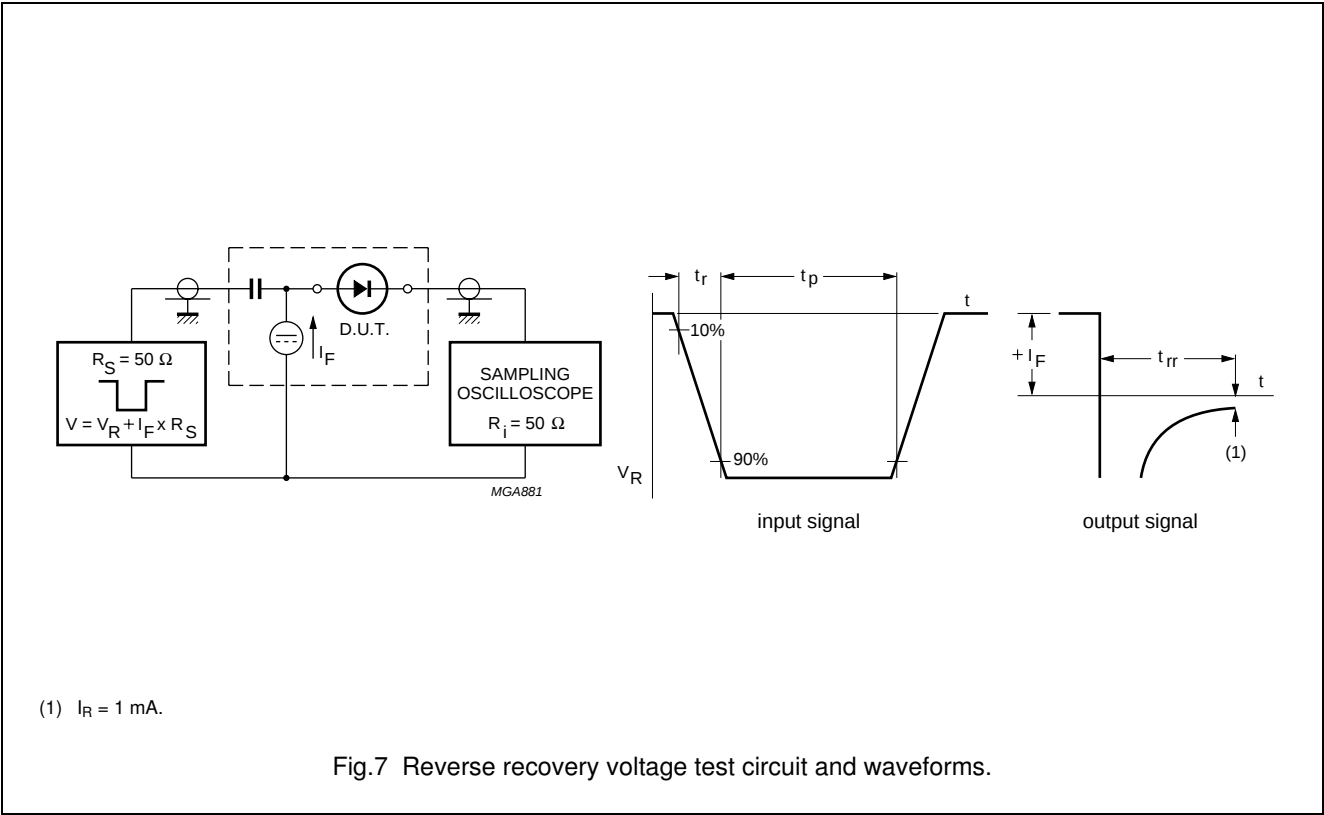


$f = 1\text{ MHz}$; $T_j = 25^{\circ}C$.

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

High-speed double diode

PMBD7100



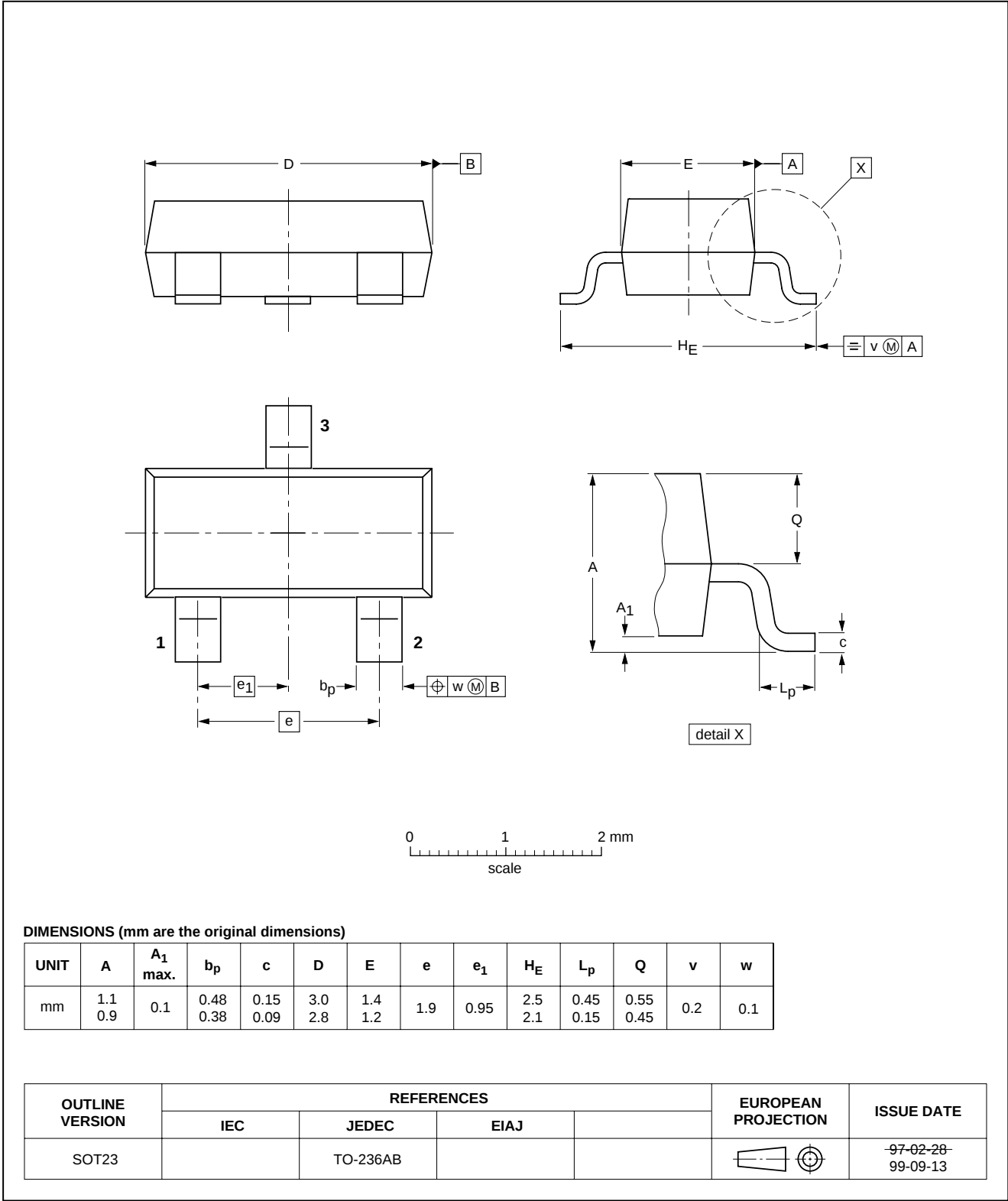
High-speed double diode

PMBD7100

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23



High-speed double diode

PMBD7100

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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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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