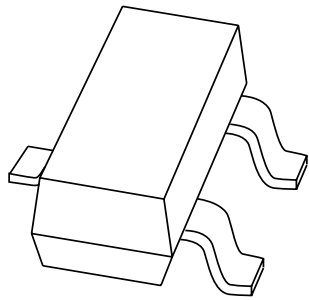


# DATA SHEET



## **PMBD6100** High-speed double diode

Product specification  
Supersedes data of 1996 Sep 18

1999 May 11

# High-speed double diode

# PMBD6100

### FEATURES

- Small plastic SMD package
- High switching speed: max. 4 ns
- General application
- Continuous reverse voltage: max. 70 V
- Repetitive peak reverse voltage: max. 85 V
- Repetitive peak forward current: max. 450 mA.

### APPLICATIONS

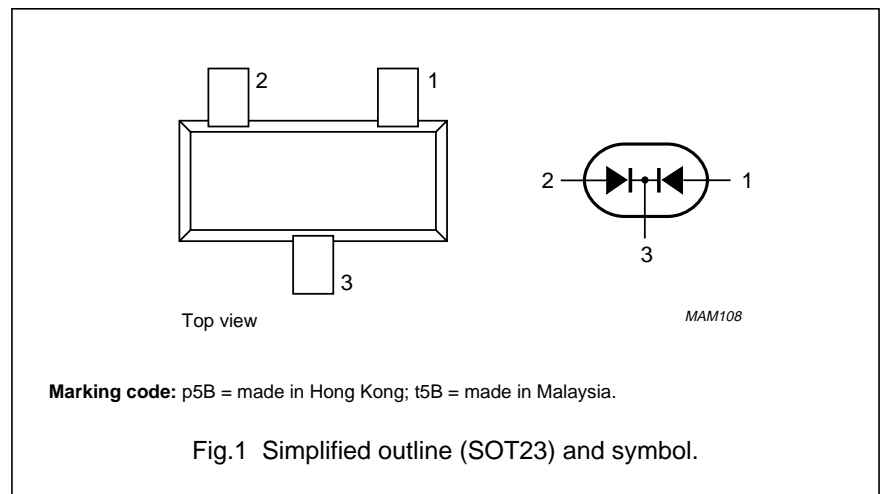
- High-speed switching in surface mounted circuits.

### DESCRIPTION

The PMBD6100 consists of two high-speed switching diodes with common cathodes, fabricated in planar technology, and encapsulated in the small SOT23 plastic SMD package.

### PINNING

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



### LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
<b>Per diode</b>					
$V_{RRM}$	repetitive peak reverse voltage		–	85	V
$V_R$	continuous reverse voltage		–	70	V
$I_F$	continuous forward current	single diode loaded; note 1; see Fig.2	–	215	mA
		double diode loaded; note 1; see Fig.2	–	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			
		$t = 1\ \mu\text{s}$	–	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	–	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

PMBD6100

**ELECTRICAL CHARACTERISTICS** $T_j = 25\text{ °C}$  unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
<b>Per diode</b>					
$V_F$	forward voltage	see Fig.3			
		$I_F = 1\text{ mA}$	550	700	mV
		$I_F = 10\text{ mA}$	–	855	mV
		$I_F = 50\text{ mA}$	–	1	V
		$I_F = 100\text{ mA}$	0.85	1.1	V
$I_R$	reverse current	see Fig.5			
		$V_R = 50\text{ V}$	–	100	nA
		$V_R = 50\text{ V}; T_j = 150\text{ °C}$	–	50	$\mu\text{A}$
$C_d$	diode capacitance	$f = 1\text{ MHz}; V_R = 0$ ; see Fig.6	–	1.5	pF
$t_{rr}$	reverse recovery time	when switched from $I_F = 10\text{ mA}$ to $I_R = 10\text{ mA}; R_L = 100\ \Omega$ ; measured at $I_R = 1\text{ mA}$ ; see Fig.7	–	4	ns
$V_{fr}$	forward recovery voltage	when switched from $I_F = 10\text{ mA}$ ; $t_r = 20\text{ ns}$ ; 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

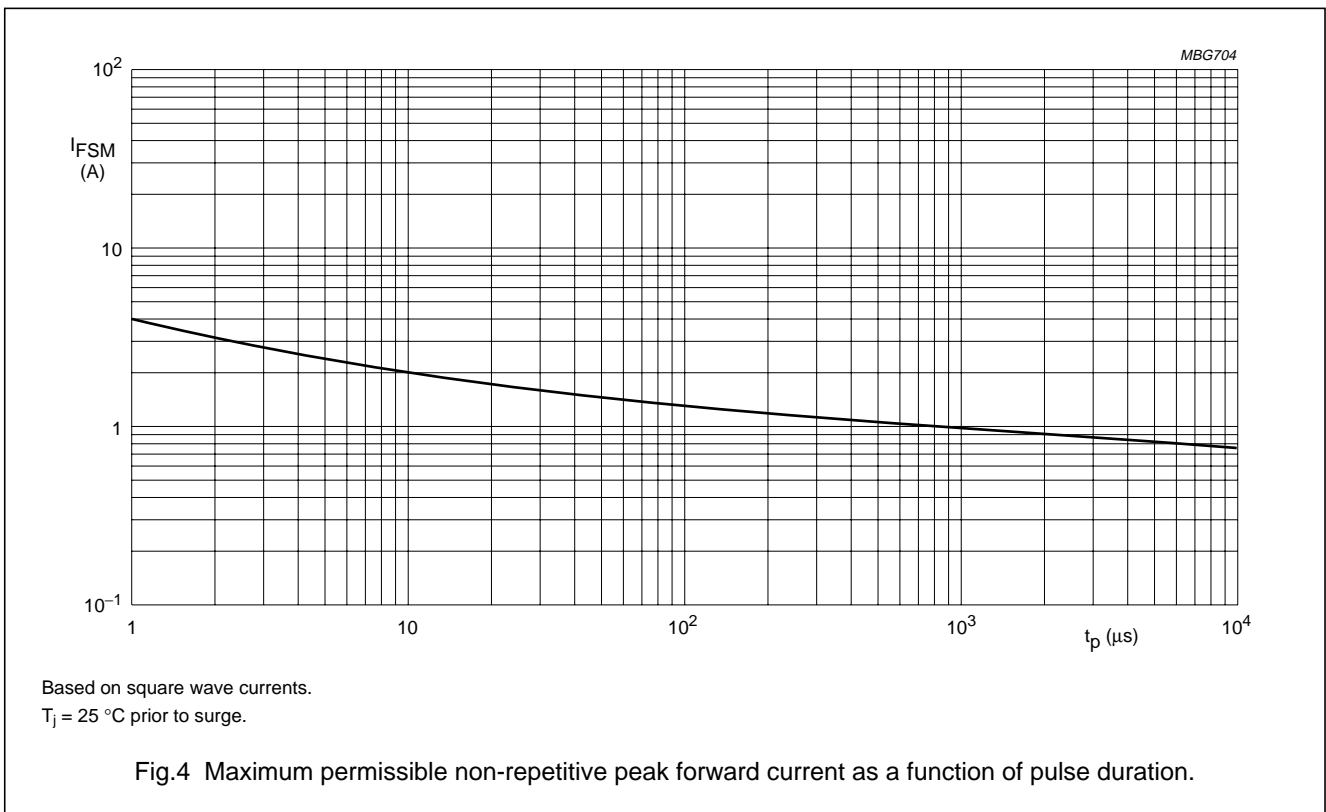
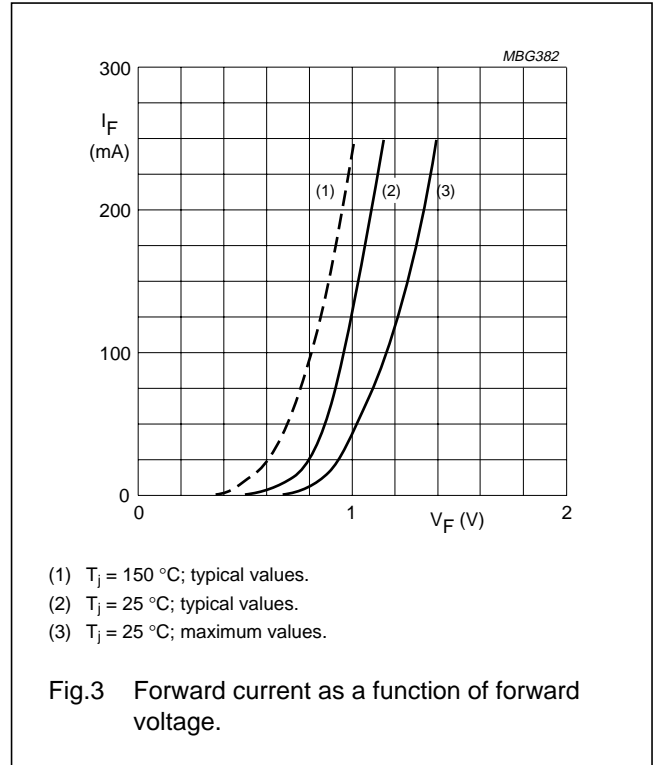
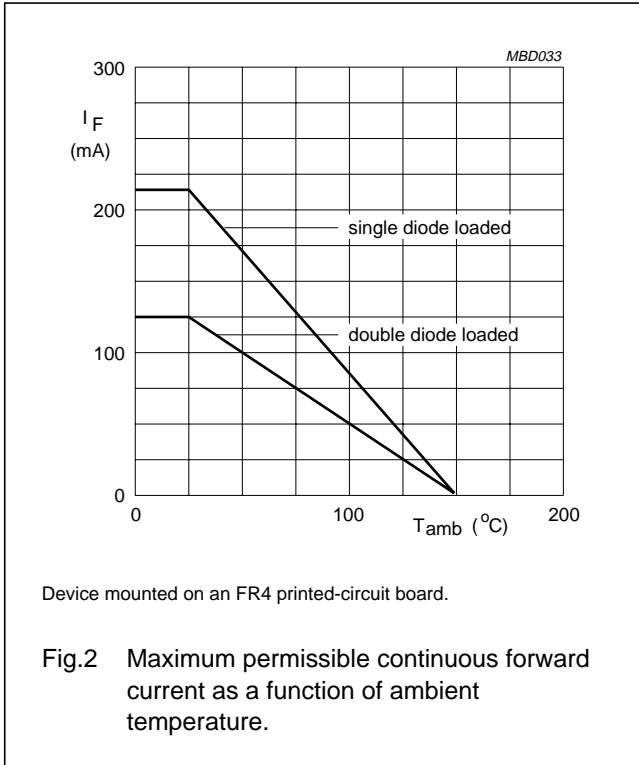
**Note**

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

High-speed double diode

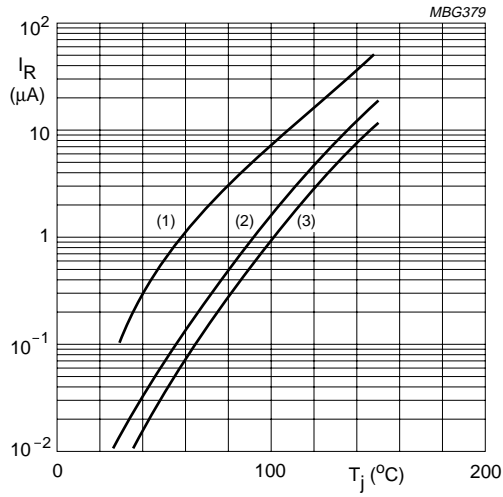
PMBD6100

GRAPHICAL DATA



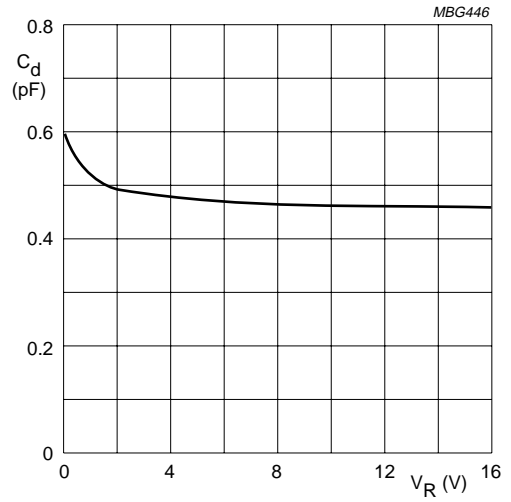
High-speed double diode

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- (1)  $V_R = 50\text{ V}$ ; maximum values.
- (2)  $V_R = 50\text{ V}$ ; typical values.
- (3)  $V_R = 30\text{ V}$ ; typical values.

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

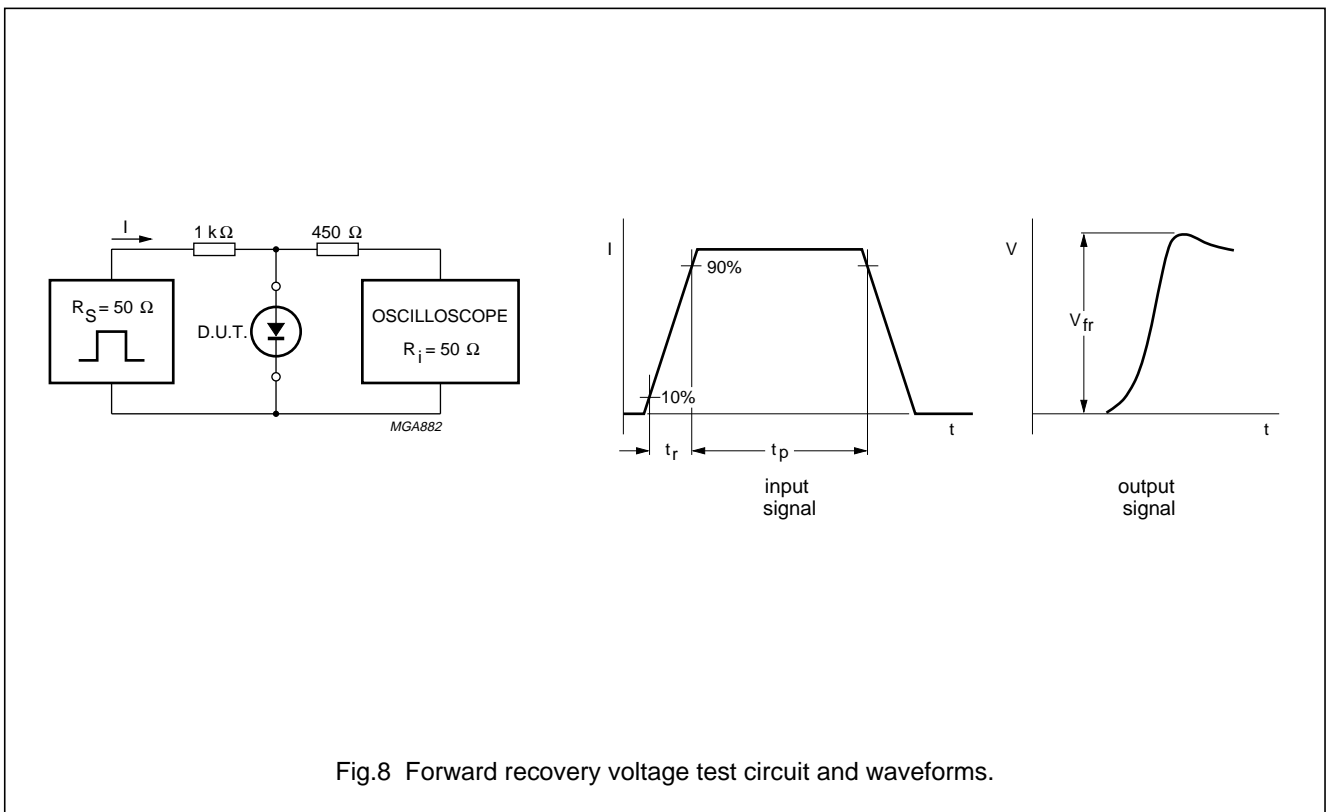
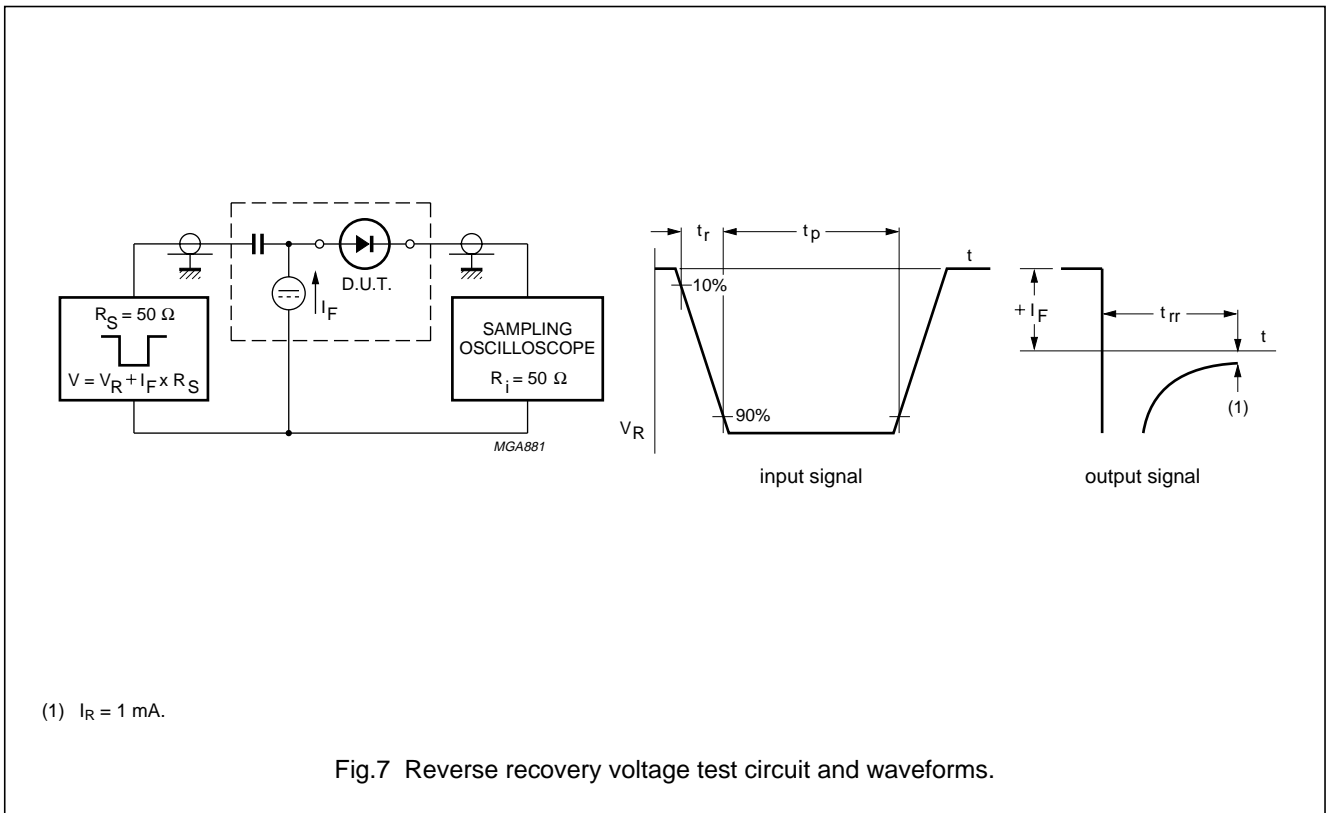


$f = 1\text{ MHz}$ ;  $T_j = 25\text{ °C}$ .

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

High-speed double diode

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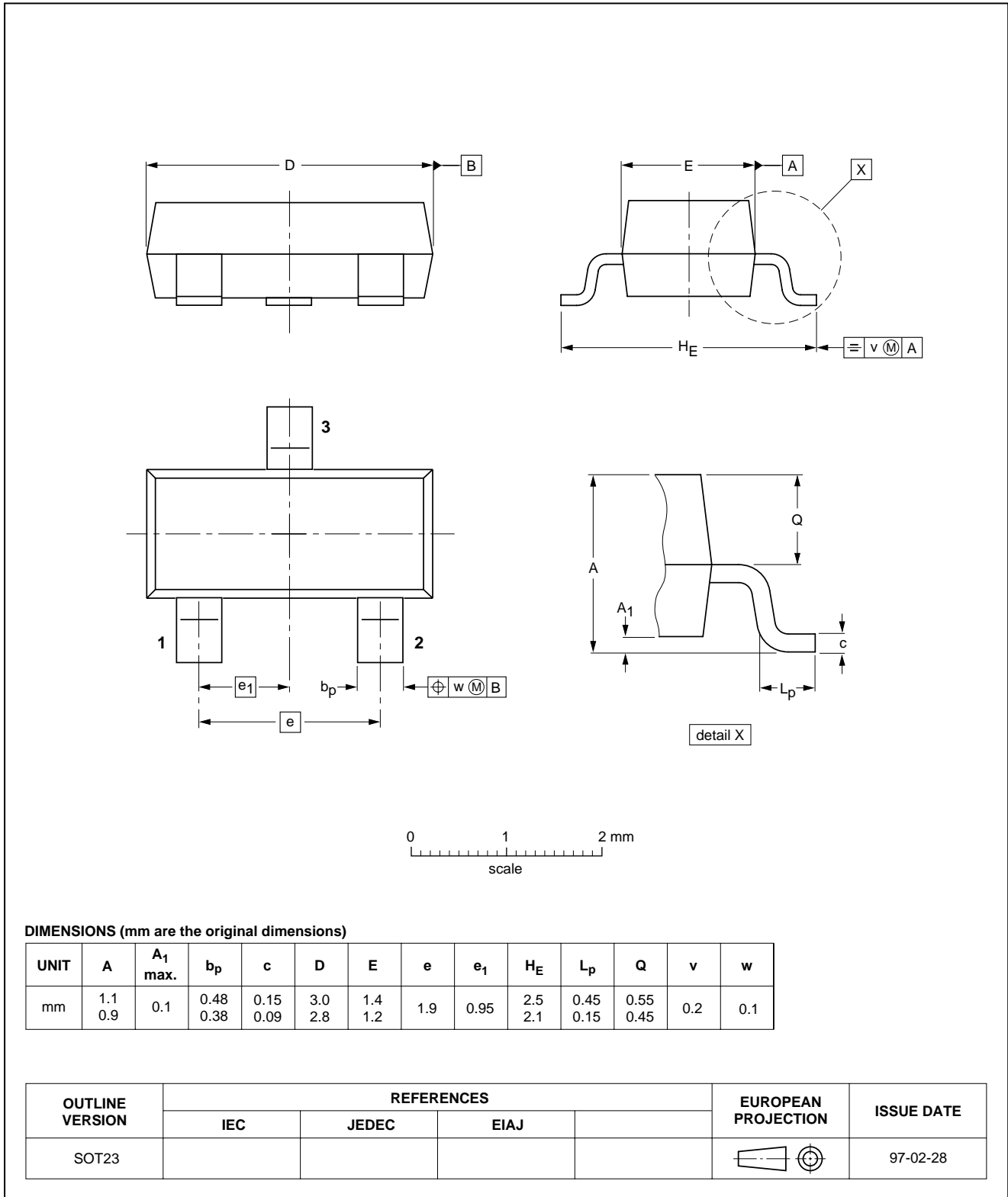
# High-speed double diode

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## PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23



## High-speed double diode

PMBD6100

**DEFINITIONS**

<b>Data Sheet Status</b>	
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.
<b>Limiting values</b>	
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.	
<b>Application information</b>	
Where application information is given, it is advisory and does not form part of the specification.	

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High-speed double diode

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**NOTES**

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**NOTES**

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**NOTES**

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