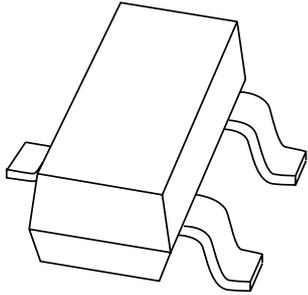


# DATA SHEET



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

Product data sheet  
Supersedes data of 1999 May 11

2003 Mar 25

# 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.

### MARKING

TYPE NUMBER	MARKING CODE <sup>(1)</sup>
PMBD6100	*5B

### Note

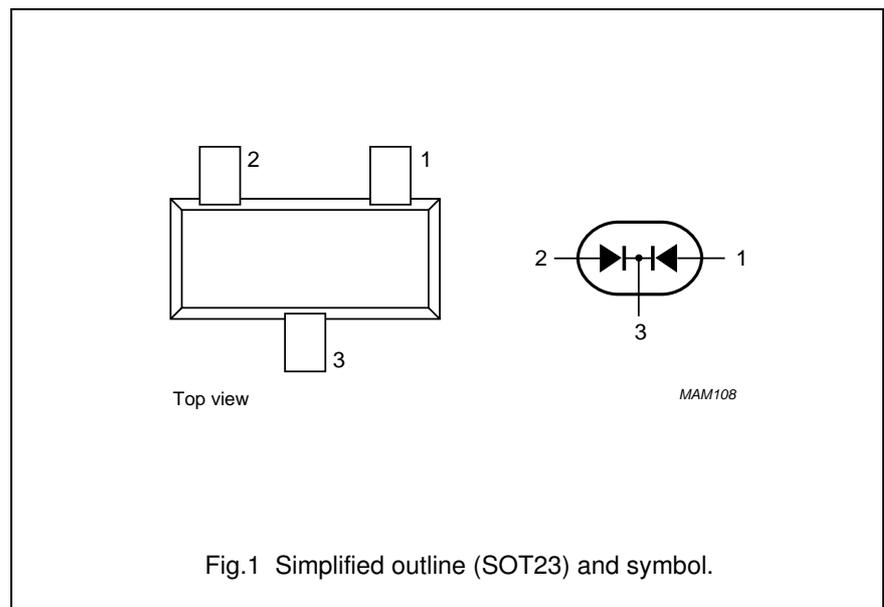
- \* = p : Made in Hong Kong.  
 \* = t : Made in Malaysia.  
 \* = W : Made in China.

### 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 60134).

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

## High-speed double diode

## PMBD6100

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$I_{FRM}$	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 $t = 1\ \mu\text{s}$ $t = 1\ \text{ms}$ $t = 1\ \text{s}$	– – –	4 1 0.5	A A 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.

**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 $I_F = 1\ \text{mA}$ $I_F = 10\ \text{mA}$ $I_F = 50\ \text{mA}$ $I_F = 100\ \text{mA}$	550 – – 0.85	700 855 1 1.1	mV mV V V
$I_R$	reverse current	see Fig.5 $V_R = 50\ \text{V}$ $V_R = 50\ \text{V}; T_j = 150\text{ °C}$	– –	100 50	nA $\mu\text{A}$
$C_d$	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

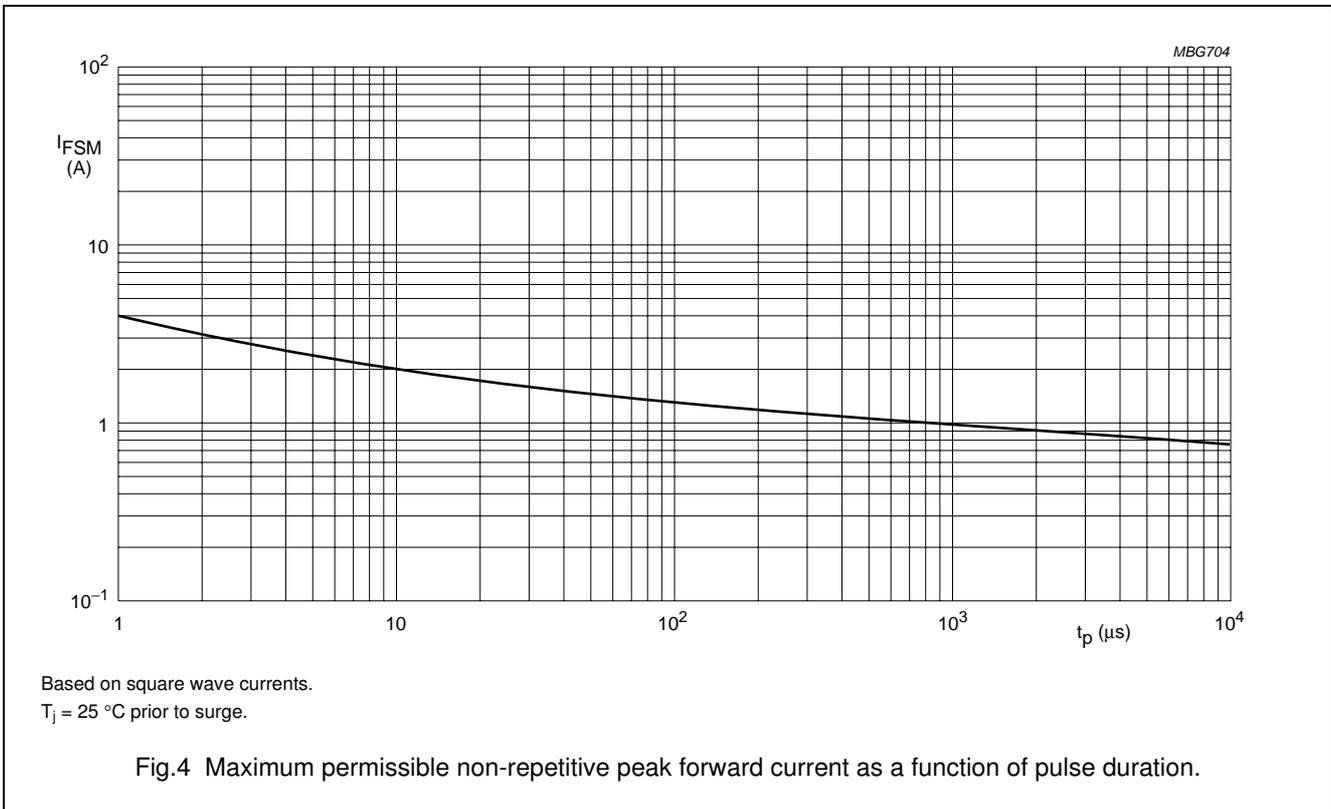
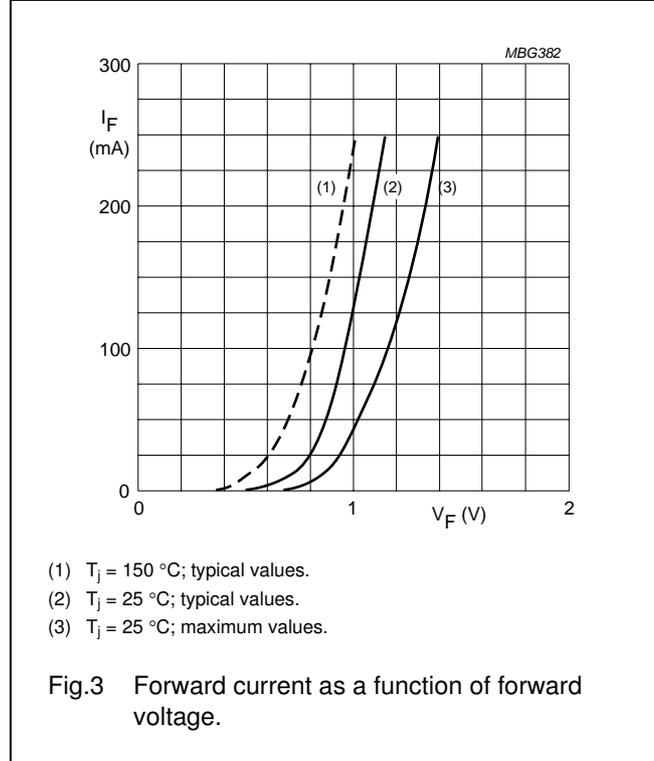
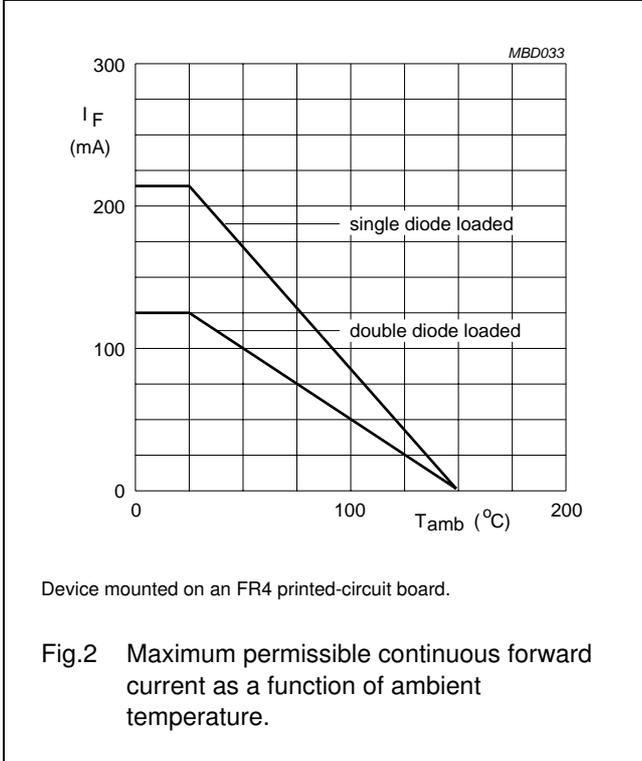
**Note**

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

High-speed double diode

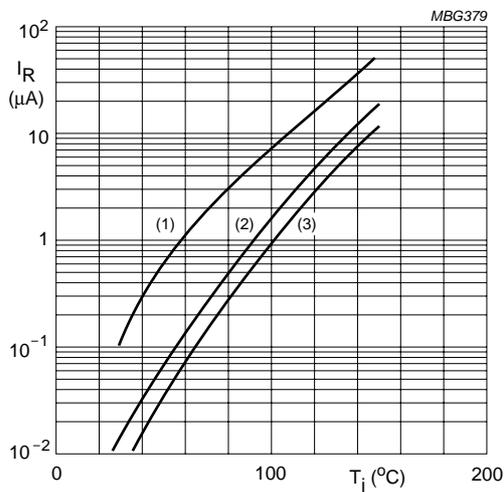
PMBD6100

GRAPHICAL DATA



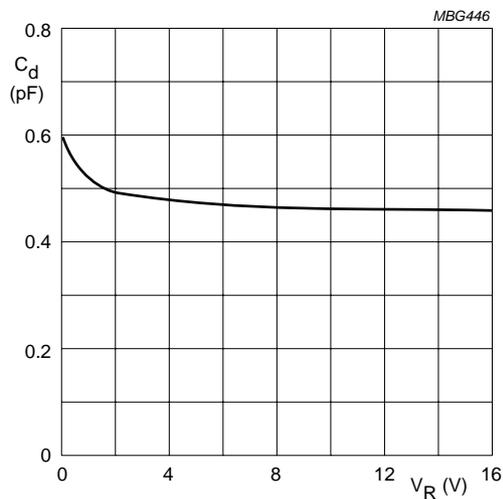
High-speed double diode

PMBD6100



- (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.

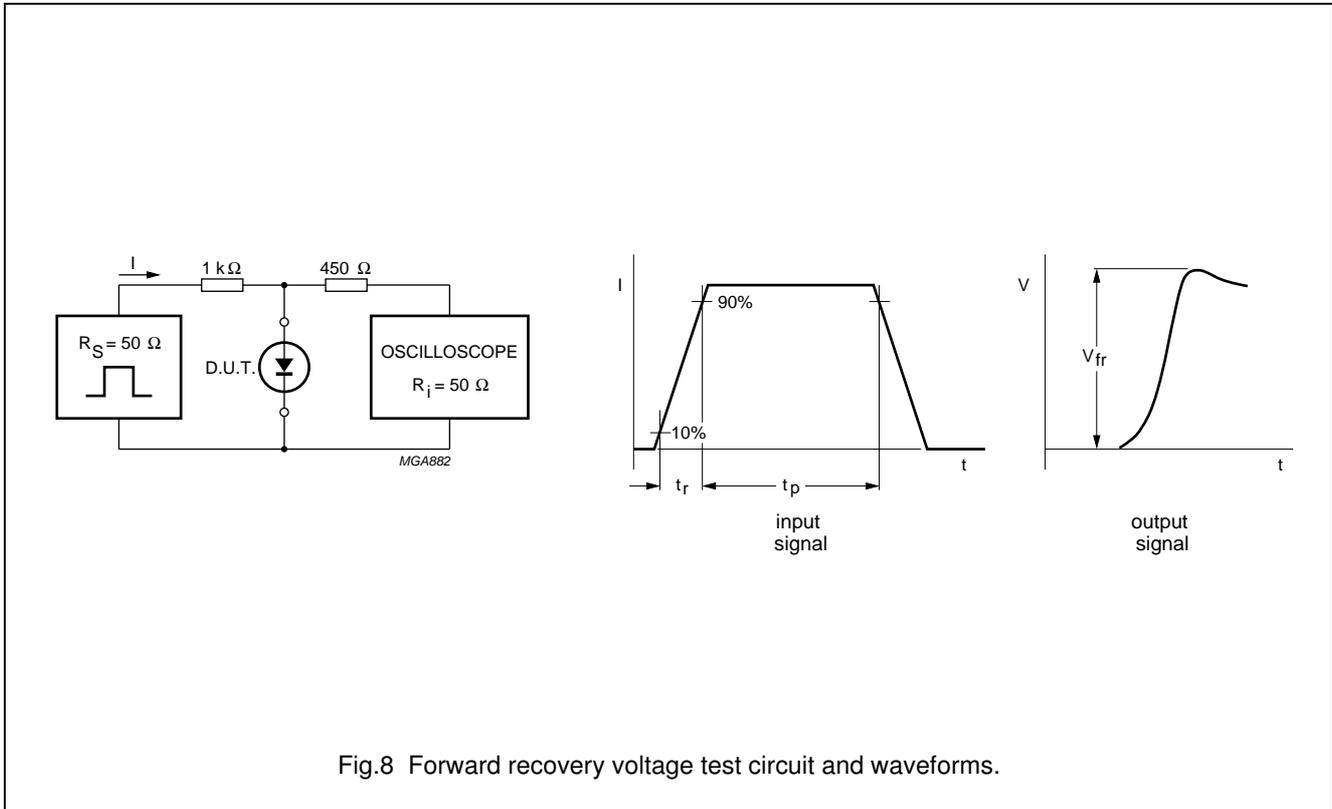
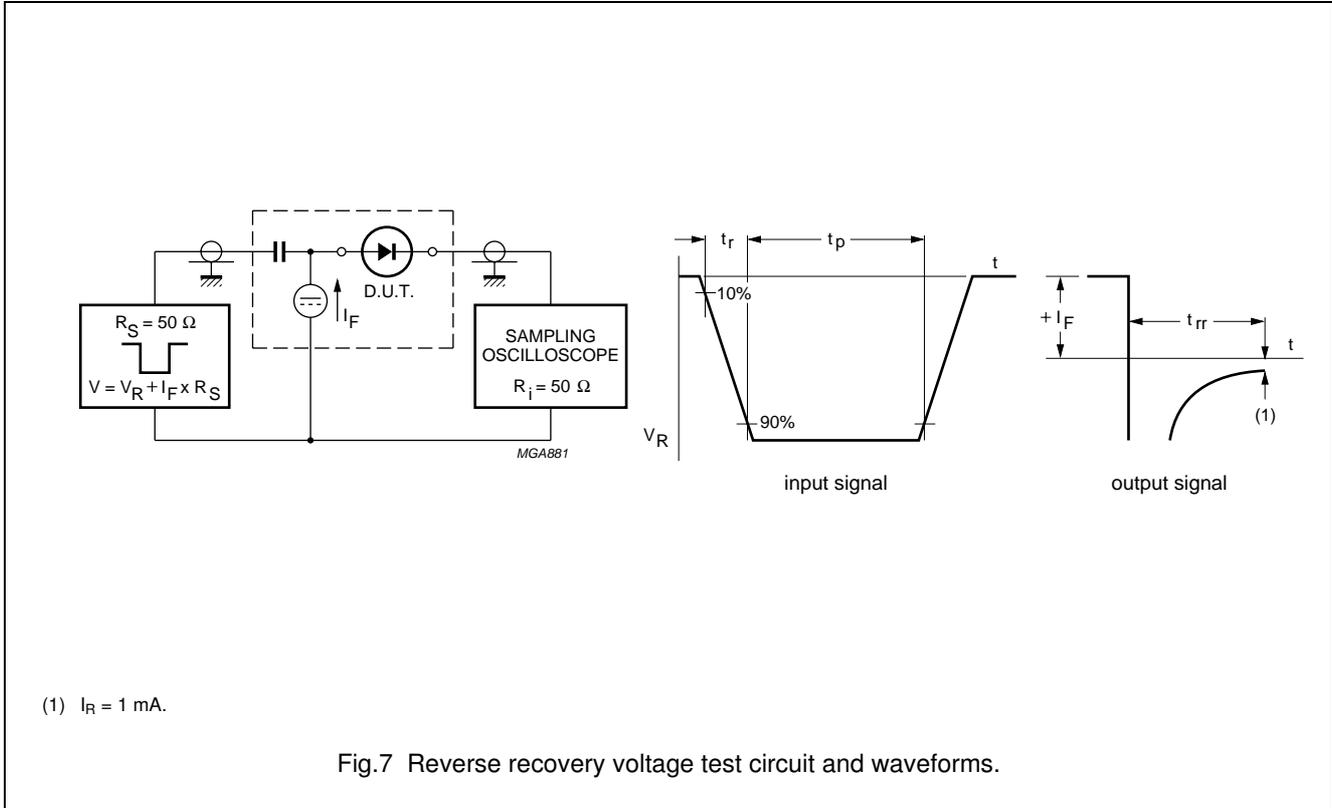


$f = 1\text{ MHz}$ ;  $T_j = 25\text{ °C}$ .

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

# High-speed double diode

# PMBD6100



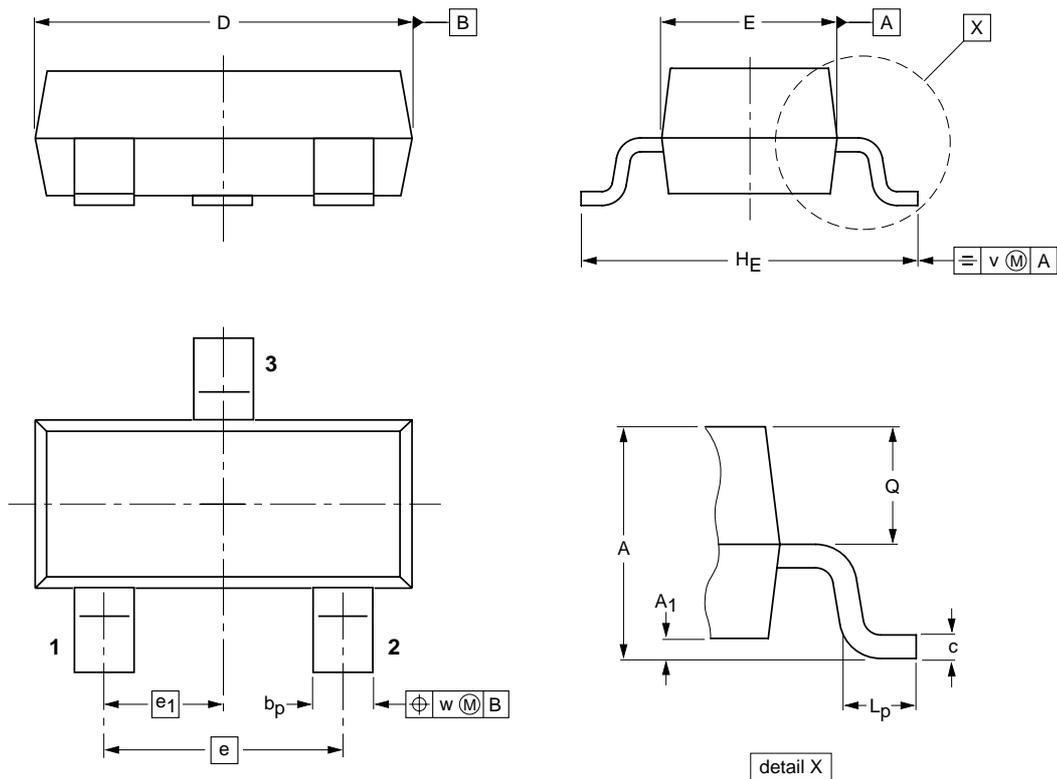
# High-speed double diode

# PMBD6100

## PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23



**DIMENSIONS (mm are the original dimensions)**

UNIT	A	A <sub>1</sub> max.	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	Q	v	w
mm	1.1 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1

OUTLINE VERSION	REFERENCES			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ		
SOT23		TO-236AB			97-02-28 99-09-13

# High-speed double diode

# PMBD6100

## DATA SHEET STATUS

DOCUMENT STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	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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For sales offices addresses send e-mail to: **[salesaddresses@nxp.com](mailto:salesaddresses@nxp.com)**

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