

# 1PS66SB82; 1PS88SB82

15 V, 30 mA low  $C_d$  Schottky barrier diodes

Rev. 04 — 13 January 2010

Product data sheet

## 1. Product profile

### 1.1 General description

Epitaxial low capacitance Schottky barrier diodes encapsulated in very small SMD plastic packages.

Table 1. Product overview

Type number	Package		Configuration
	NXP	JEITA	
1PS66SB82	SOT666	-	triple isolated diode
1PS88SB82	SOT363	SC-88	triple isolated diode

### 1.2 Features

- Low diode capacitance
- Low forward voltage
- Very small SMD plastic packages

### 1.3 Applications

- Digital applications:
  - ◆ Ultra high-speed switching
  - ◆ Clamping circuits
- RF applications:
  - ◆ Diode ring mixer
  - ◆ RF detector
  - ◆ RF voltage doubler

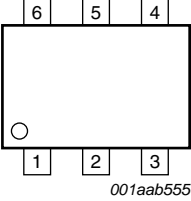
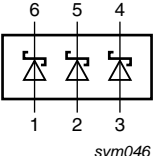
### 1.4 Quick reference data

Table 2. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$I_F$	continuous forward current		-	-	30	mA
$V_R$	continuous reverse voltage		-	-	15	V
$C_d$	diode capacitance	$V_R = 0$ V; $f = 1$ MHz; see <a href="#">Figure 4</a>	-	1	-	pF

## 2. Pinning information

Table 3. Pinning

Pin	Description	Simplified outline	Symbol
1	anode (diode 1)	 001aab555	 sym046
2	anode (diode 2)		
3	anode (diode 3)		
4	cathode (diode 3)		
5	cathode (diode 2)		
6	cathode (diode 1)		

## 3. Ordering information

Table 4. Ordering information

Type number	Package		
	Name	Description	Version
1PS66SB82	-	plastic surface mounted package; 6 leads	SOT666
1PS88SB82	SC-88	plastic surface mounted package; 6 leads	SOT363

## 4. Marking

Table 5. Marking codes

Type number	Marking code
1PS66SB82	N5
1PS88SB82	E1*

- [1] \* = -: made in Hong Kong  
 \* = p: made in Hong Kong  
 \* = t: made in Malaysia  
 \* = W: made in China

## 5. Limiting values

Table 6. Limiting values

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

Symbol	Parameter	Conditions	Min	Max	Unit
$V_R$	continuous reverse voltage		-	15	V
$I_F$	continuous forward current		-	30	mA
$T_j$	junction temperature		-	125	°C
$T_{amb}$	ambient temperature		-65	+125	°C
$T_{stg}$	storage temperature		-65	+150	°C

## 6. Thermal characteristics

**Table 7. Thermal characteristics**

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air	[1]			
	SOT666		[2][3]	-	700	K/W
	SOT363		[3][4]	-	416	K/W

[1] For Schottky barrier diodes thermal run-away has to be considered, as in some applications the reverse power losses  $P_R$  are a significant part of the total power losses. Nomograms for determining the reverse power losses  $P_R$  and  $I_{F(AV)}$  rating will be available on request.

[2] Refer to SOT666 standard mounting conditions.

[3] Reflow soldering is the only recommended soldering method.

[4] Refer to SOT363 (SC-88) standard mounting conditions.

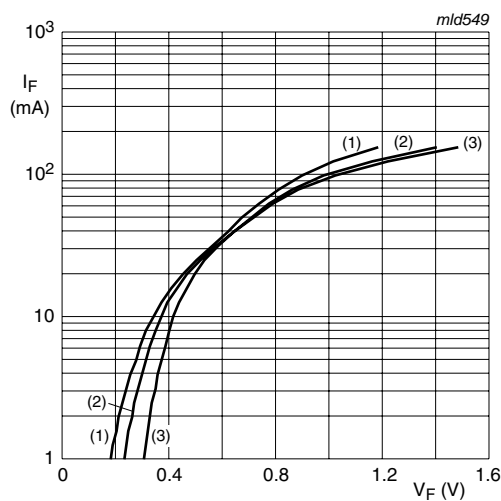
## 7. Characteristics

**Table 8. Characteristics**

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

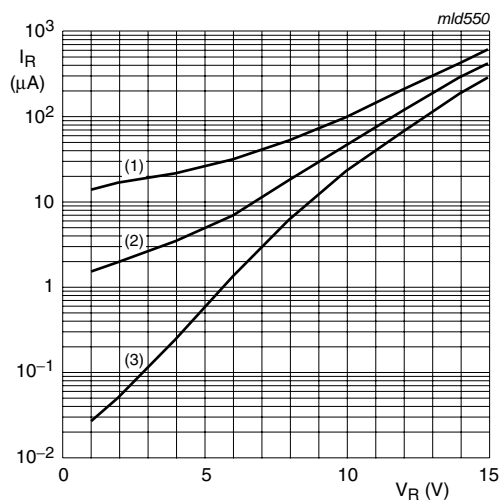
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$V_F$	forward voltage	see <a href="#">Figure 1</a>	[1]			
		$I_F = 1\text{ mA}$	-	-	340	mV
		$I_F = 30\text{ mA}$	-	-	700	mV
$I_R$	reverse current	$V_R = 1\text{ V}$ ; see <a href="#">Figure 2</a>	-	-	0.2	$\mu\text{A}$
$r_{dif}$	differential resistance	$I_F = 5\text{ mA}$ ; $f = 1\text{ kHz}$ ; see <a href="#">Figure 3</a>	-	12	-	$\Omega$
$C_d$	diode capacitance	$V_R = 0\text{ V}$ ; $f = 1\text{ MHz}$ ; see <a href="#">Figure 4</a>	-	1	-	pF

[1] Pulse test:  $t_p \leq 300\text{ }\mu\text{s}$ ;  $\delta \leq 0.02$ .



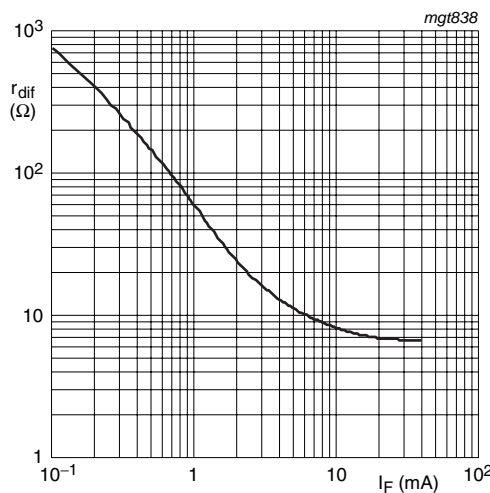
- (1)  $T_{amb} = 125\text{ °C}$
- (2)  $T_{amb} = 85\text{ °C}$
- (3)  $T_{amb} = 25\text{ °C}$

Fig 1. Forward current as a function of forward voltage; typical values



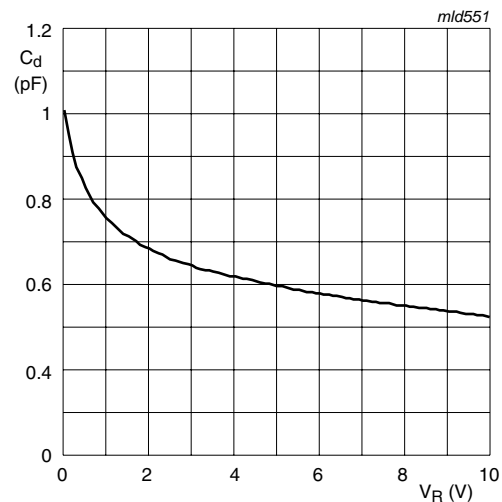
- (1)  $T_{amb} = 125\text{ °C}$
- (2)  $T_{amb} = 85\text{ °C}$
- (3)  $T_{amb} = 25\text{ °C}$

Fig 2. Reverse current as a function of reverse voltage; typical values



$f = 1\text{ kHz}$ ;  $T_{amb} = 25\text{ °C}$

Fig 3. Differential diode forward resistance as a function of forward current; typical values



$f = 1\text{ MHz}$ ;  $T_{amb} = 25\text{ °C}$

Fig 4. Diode capacitance as a function of reverse voltage; typical values

8. Package outline

Plastic surface-mounted package; 6 leads

SOT666

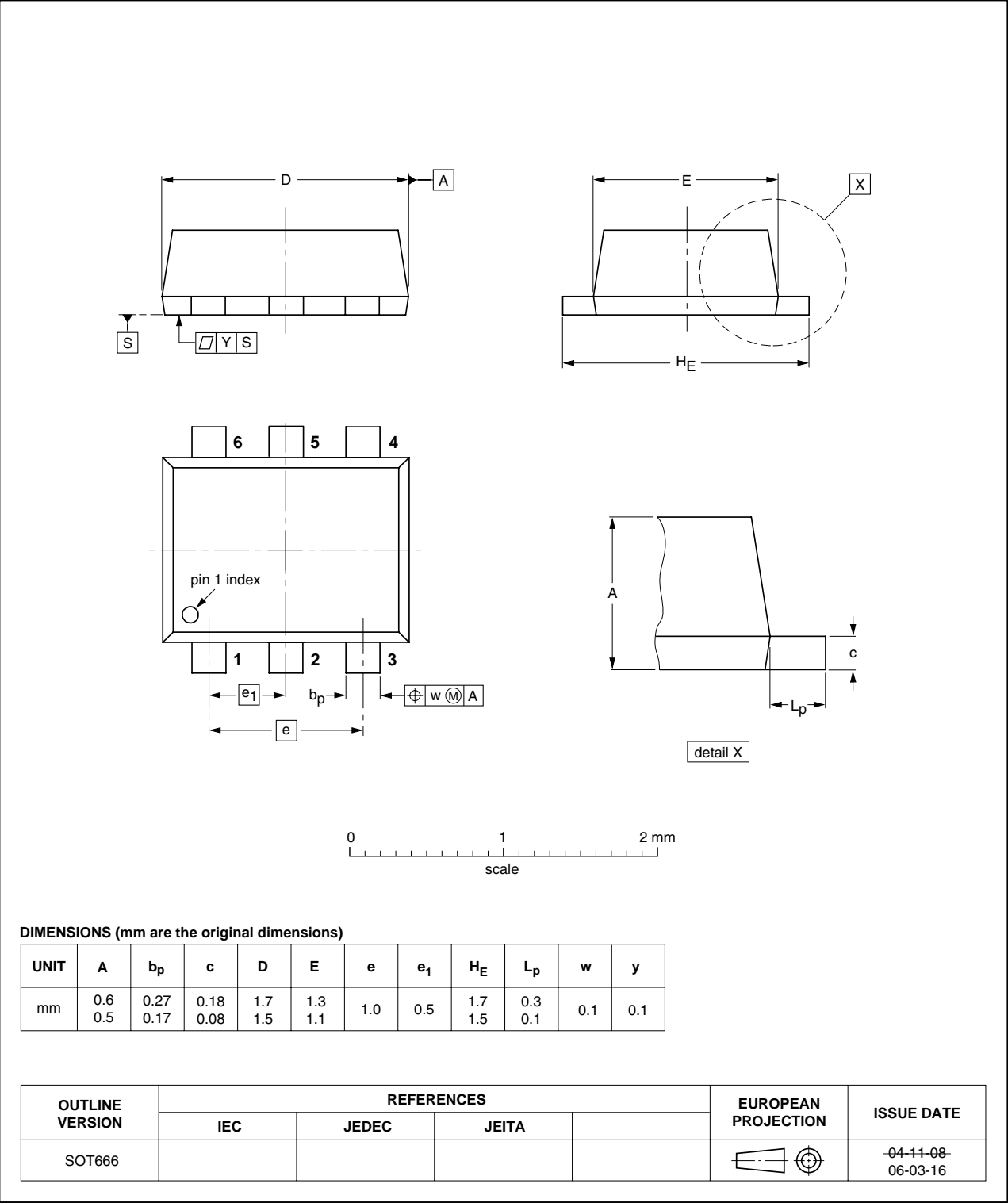


Fig 5. Package outline SOT666

Plastic surface-mounted package; 6 leads

SOT363

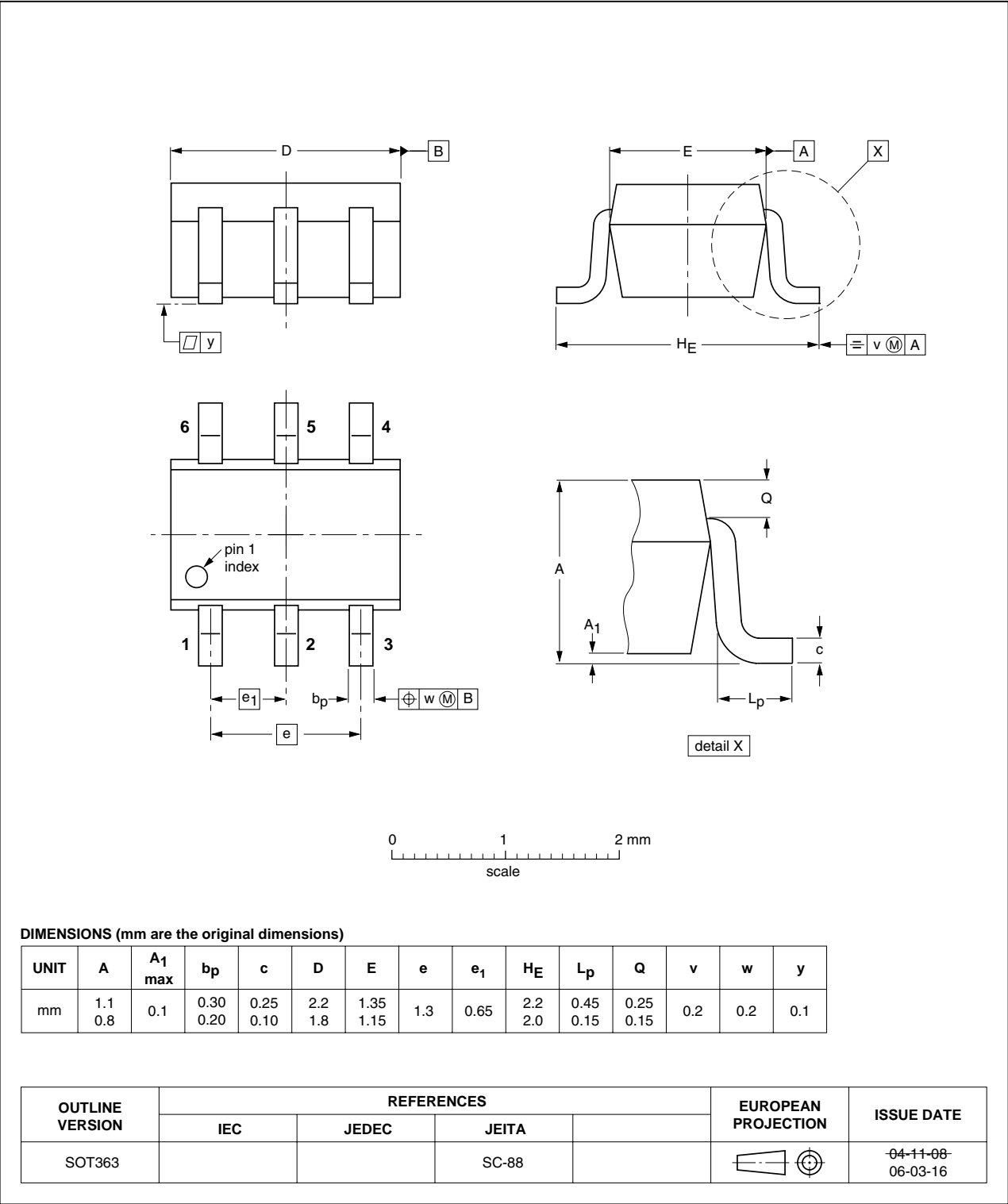


Fig 6. Package outline SOT363 (SC-88)

## 9. Packing information

**Table 9. Packing methods**

The -xxx numbers are the last three digits of the 12NC ordering code.<sup>[1]</sup>

Type number	Package	Description	Packing quantity		
			3 000	4 000	10 000
1PS66SB82	SOT666	4 mm pitch, 8 mm tape and reel	-	-115	-
1PS88SB82	SOT363	4 mm pitch, 8 mm tape and reel	-115	-	-135

[1] For further information and the availability of packing methods see [Section 12](#).

## 10. Revision history

Table 10. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
1PS66SB82_1PS88SB82_4	20100113	Product data sheet	-	1PS66SB82_1PS88SB82_3
Modifications:				
<ul style="list-style-type: none"><li>• This data sheet was changed to reflect the new company name NXP Semiconductors, including new legal definitions and disclaimers. No changes were made to the technical content.</li><li>• <a href="#">Table 3 "Pinning"</a>: updated</li><li>• <a href="#">Figure 5 "Package outline SOT666"</a>: updated</li><li>• <a href="#">Figure 6 "Package outline SOT363 (SC-88)"</a>: updated</li></ul>				
1PS66SB82_1PS88SB82_3	20050124	Product data sheet	-	1PS88SB82_2
1PS88SB82_2	20030411	Product specification	-	1PS88SB82_1
1PS88SB82_1	20010216	Product specification	-	-



## 11. Legal information

### 11.1 Data sheet status

Document status <sup>[1][2]</sup>	Product status <sup>[3]</sup>	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

[1] Please consult the most recently issued document before initiating or completing a design.

[2] The term 'short data sheet' is explained in section "Definitions".

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13. Contents

1 Product profile . . . . . 1

1.1 General description . . . . . 1

1.2 Features . . . . . 1

1.3 Applications . . . . . 1

1.4 Quick reference data . . . . . 1

2 Pinning information . . . . . 2

3 Ordering information . . . . . 2

4 Marking . . . . . 2

5 Limiting values . . . . . 2

6 Thermal characteristics . . . . . 3

7 Characteristics . . . . . 3

8 Package outline . . . . . 5

9 Packing information . . . . . 7

10 Revision history . . . . . 8

11 Legal information . . . . . 9

11.1 Data sheet status . . . . . 9

11.2 Definitions . . . . . 9

11.3 Disclaimers . . . . . 9

11.4 Trademarks . . . . . 9

12 Contact information . . . . . 9

13 Contents . . . . . 10



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