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

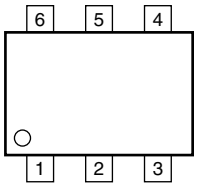
Table 2. Quick reference data

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 Figure 4	-	1	-	pF

2. Pinning information

Table 3. Pinning

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



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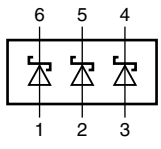

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3. Ordering information

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.

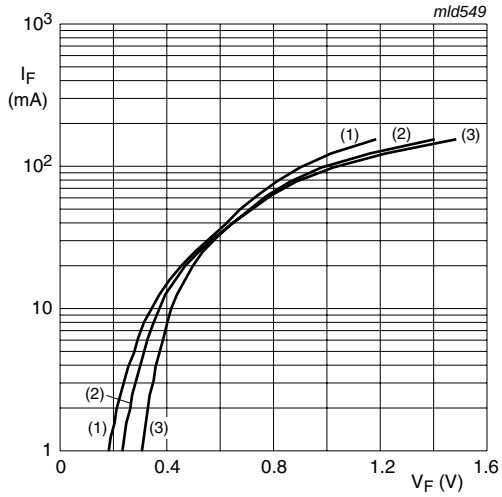
7. Characteristics

Table 8. Characteristics

T_{amb} = 25 °C unless otherwise specified.

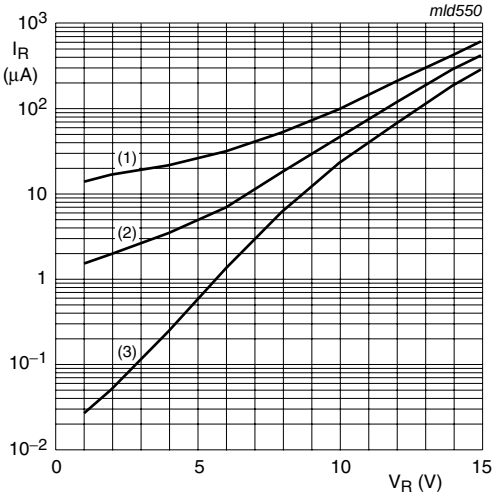
Symbol	Parameter	Conditions		Min	Typ	Max	Unit
V_F	forward voltage	see Figure 1	[1]				
		I_F = 1 mA		-	-	340	mV
		I_F = 30 mA		-	-	700	mV
I_R	reverse current	V_R = 1 V; see Figure 2		-	-	0.2	μA
r_{dif}	differential resistance	I_F = 5 mA; f = 1 kHz; see Figure 3		-	12	-	Ω
C_d	diode capacitance	V_R = 0 V; f = 1 MHz; see Figure 4		-	1	-	pF

[1] Pulse test: $t_p \leq 300$ μs; $\delta \leq 0.02$.



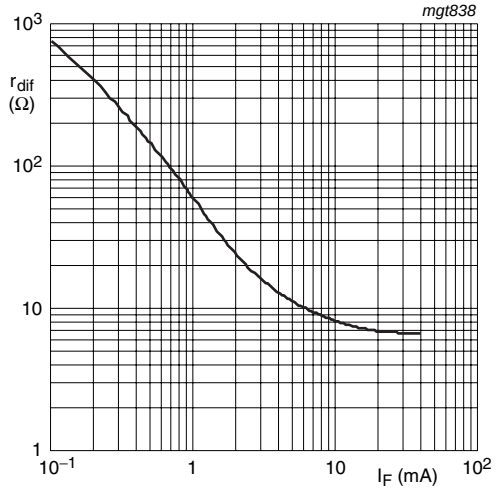
(1) T_{amb} = 125 °C
(2) T_{amb} = 85 °C
(3) T_{amb} = 25 °C

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



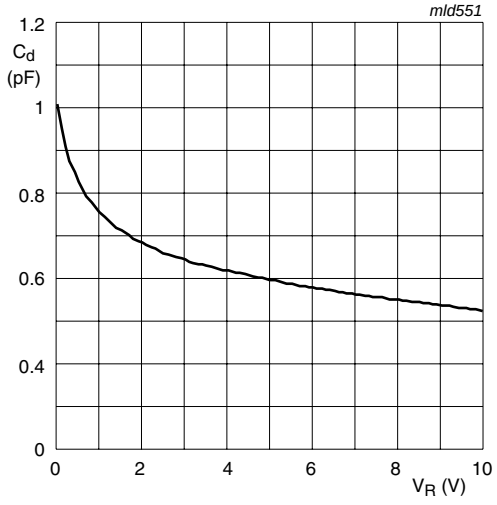
(1) T_{amb} = 125 °C
(2) T_{amb} = 85 °C
(3) T_{amb} = 25 °C

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



f = 1 kHz; T_{amb} = 25 °C

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

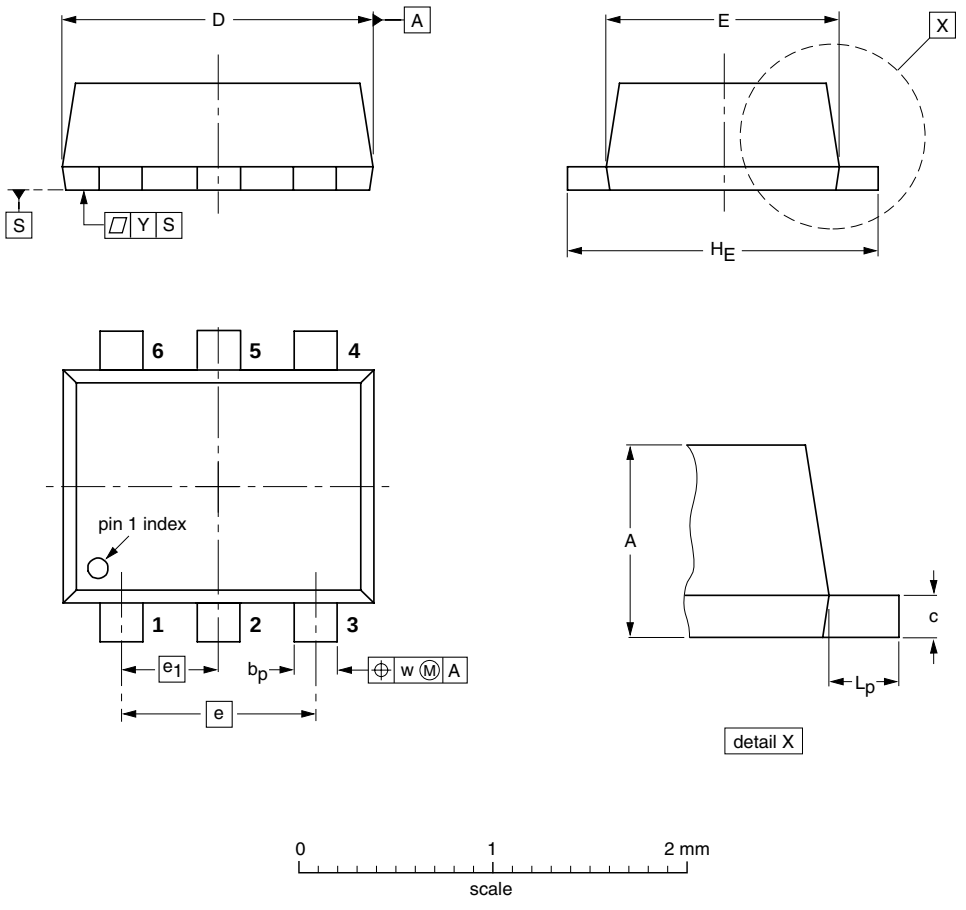


f = 1 MHz; T_{amb} = 25 °C

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

8. Package outline

Plastic surface-mounted package; 6 leads **SOT666**



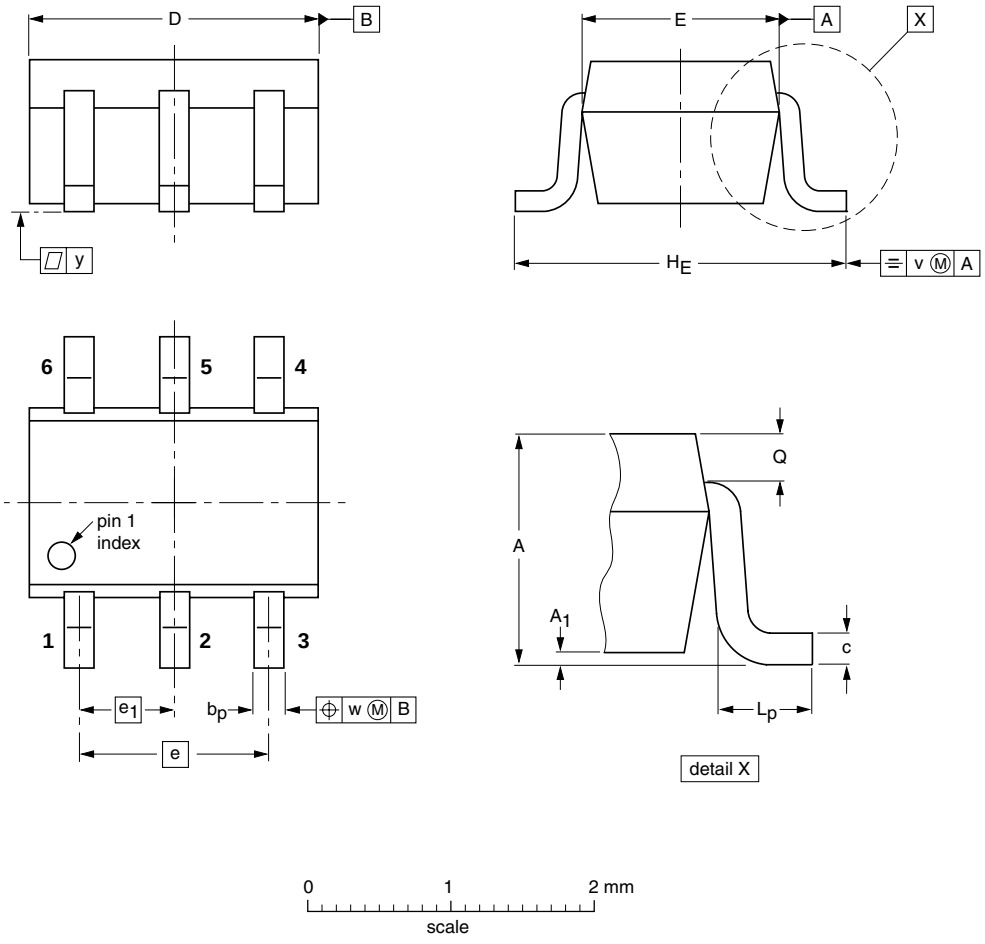
DIMENSIONS (mm are the original dimensions)

UNIT	A	b_p	c	D	E	e	e_1	H_E	L_p	w	y
mm	0.6 0.5	0.27 0.17	0.18 0.08	1.7 1.5	1.3 1.1	1.0	0.5	1.7 1.5	0.3 0.1	0.1	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT666						~~04-11-08~~ 06-03-16

Fig 5. Package outline SOT666

Plastic surface-mounted package; 6 leads **SOT363**



DIMENSIONS (mm are the original dimensions)

UNIT	A	A_1 max	b_p	c	D	E	e	e_1	H_E	L_p	Q	v	w	y
mm	1.1 0.8	0.1	0.30 0.20	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.25 0.15	0.2	0.2	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT363			SC-88			~~04-11-08~~ 06-03-16

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.[1]

Type number	Package	Description	Packing quantity		
			3 000	4000	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:	• 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. • Table 3 “Pinning”: updated • Figure 5 “Package outline SOT666”: updated • Figure 6 “Package outline SOT363 (SC-88)”: updated			
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[1][2]	Product status[3]	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".

[3] 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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