



# 1PS79SB30

Schottky barrier single diode

24 July 2012

Product data sheet

## 1. Product profile

### 1.1 General description

Planar Schottky barrier diode with an integrated guard ring for stress protection, encapsulated in a SOD523 (SC-79) ultra small Surface-Mounted Device (SMD) plastic package.

### 1.2 Features and benefits

- Very low forward voltage
- Very low reverse current
- Guard ring protected
- Ultra small SMD package
- AEC-Q101 qualified

### 1.3 Applications

- Ultra high-speed switching
- Voltage clamping
- Blocking diodes

### 1.4 Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$I_F$	forward current		-	-	200	mA
$V_R$	reverse voltage		-	-	40	V
$V_F$	forward voltage	$I_F = 10 \text{ mA}; T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	320	360	mV

## 2. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	cathode[1]	 SOD523	 aaa-003679
2	A	anode		

[1] The marking bar indicates the cathode.

### 3. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
1PS79SB30	SOD523	plastic surface-mounted package; 2 leads	SOD523

### 4. Marking

Table 4. Marking codes

Type number	Marking code
1PS79SB30	G1

### 5. Limiting values

Table 5. Limiting values

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

Symbol	Parameter	Conditions	Min	Max	Unit
$V_R$	reverse voltage		-	40	V
$I_F$	forward current		-	200	mA
$I_{FRM}$	repetitive peak forward current	$t_p \leq 1$ s; $\delta \leq 0.5$	-	300	mA
$I_{FSM}$	non-repetitive peak forward current	$t_p = 8.3$ ms; $T_{j(\text{init})} = 25$ °C; half sine wave	-	1	A
$T_j$	junction temperature		-	150	°C
$T_{\text{amb}}$	ambient temperature		-65	150	°C
$T_{\text{stg}}$	storage temperature		-65	150	°C

### 6. Thermal characteristics

Table 6. Thermal characteristics

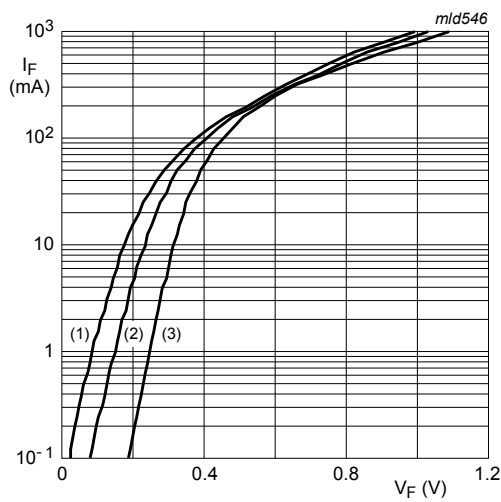
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$R_{\text{th}(j-a)}$	thermal resistance from junction to ambient	in free air	[1]	-	450	K/W

[1] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint.

## 7. Characteristics

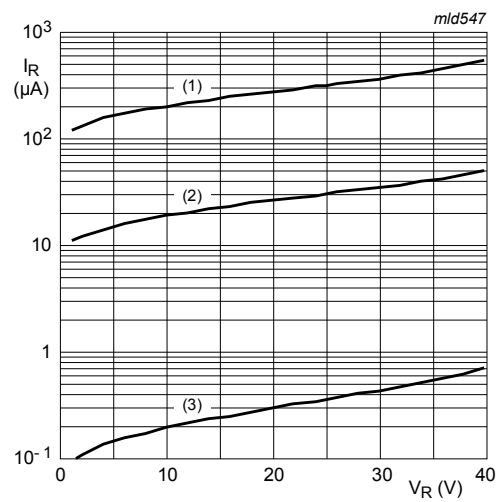
Table 7. Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$V_F$	forward voltage	$I_F = 0.1 \text{ mA}; T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	190	220	mV
		$I_F = 1 \text{ mA}; T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	250	290	mV
		$I_F = 10 \text{ mA}; T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	320	360	mV
		$I_F = 100 \text{ mA}; T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	440	500	mV
		$I_F = 200 \text{ mA}; T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	520	600	mV
$I_R$	reverse current	$V_R = 25 \text{ V}; T_{\text{amb}} = 25 \text{ }^\circ\text{C}; \text{pulsed};$ $t_p = 300 \text{ } \mu\text{s}; \delta = 0.02$	-	-	0.5	$\mu\text{A}$
$C_d$	diode capacitance	$f = 1 \text{ MHz}; T_{\text{amb}} = 25 \text{ }^\circ\text{C}; V_R = 1 \text{ V}$	-	-	20	pF



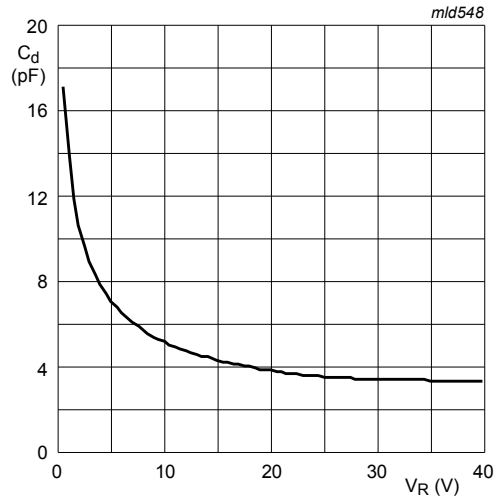
- (1)  $T_{\text{amb}} = 125 \text{ }^\circ\text{C}$
- (2)  $T_{\text{amb}} = 85 \text{ }^\circ\text{C}$
- (3)  $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$

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



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

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



f = 1 MHz; T<sub>amb</sub> = 25 °C

Fig. 3. Diode capacitance as a function of reverse voltage; typical values

## 8. Test information

### 8.1 Quality information

This product has been qualified in accordance with the Automotive Electronics Council (AEC) standard Q101 - Stress test qualification for discrete semiconductors, and is suitable for use in automotive applications.

## 9. Package outline

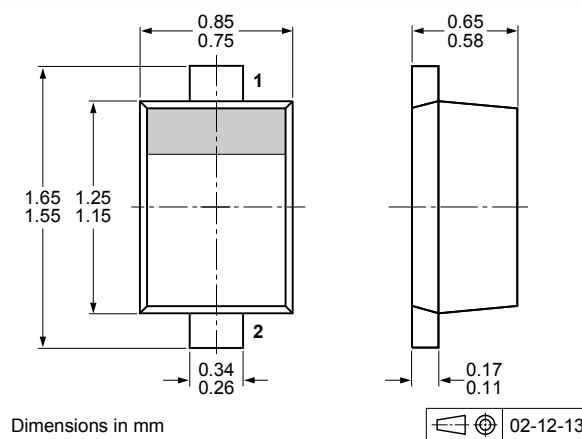


Fig. 4. SOD523

## 10. Soldering

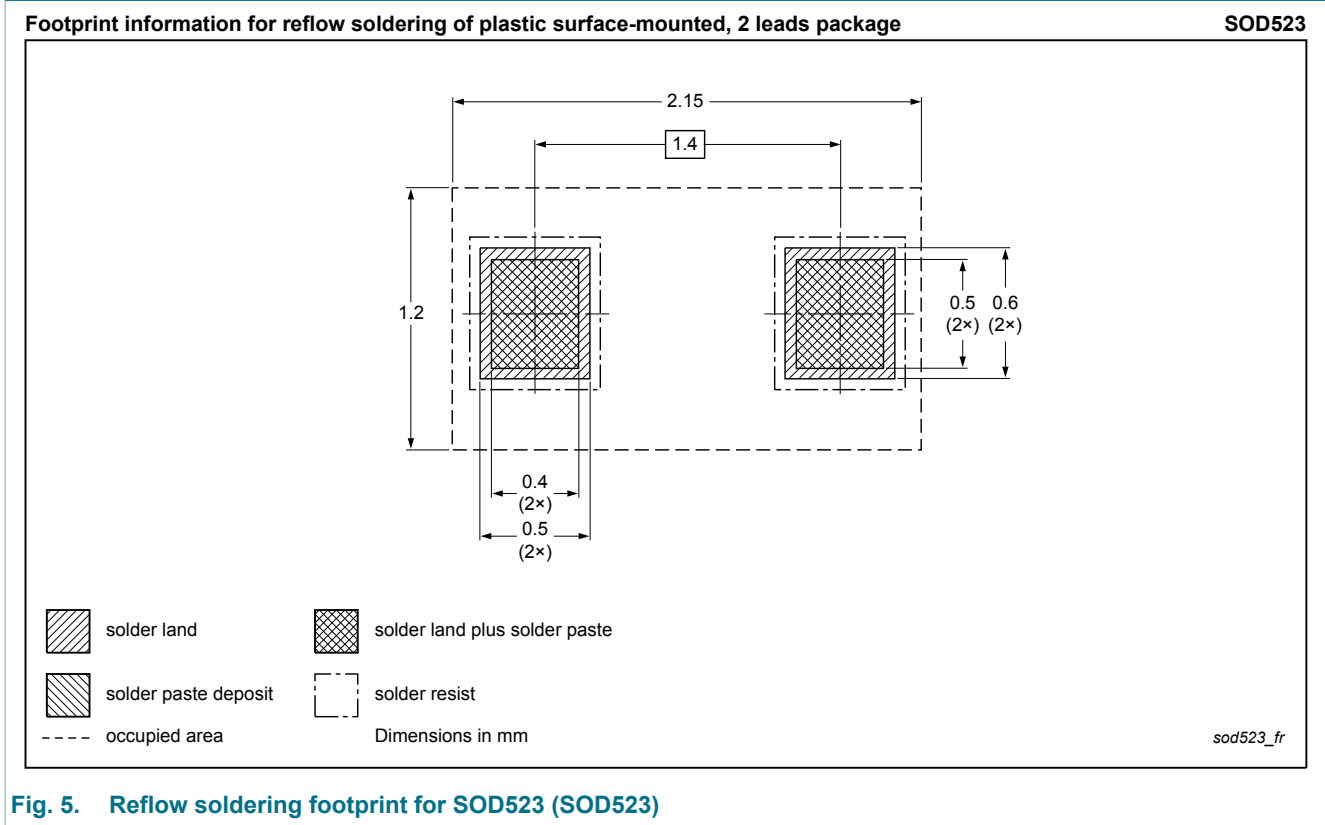


Fig. 5. Reflow soldering footprint for SOD523 (SOD523)

## 11. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
1PS79SB30 v.2	20120724	Product data sheet	-	1PS79SB30 v.1
Modifications:	<ul style="list-style-type: none"> <li>The format of this document has been redesigned to comply with the new identity guidelines of NXP Semiconductors.</li> <li>Legal texts have been adapted to the new company name where appropriate.</li> <li>Section "Product profile" updated</li> <li>Section "Marking" added</li> <li>Package outline drawing replaced by minimized package outline drawing</li> <li>Section "Test information" added</li> <li>Section "Soldering" added</li> </ul>			
1PS79SB30 v.1	20010220	Product data sheet	-	-

## 12. Legal information

### 12.1 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".
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## 13. Contents

<b>1</b>	<b>Product profile</b> .....	<b>1</b>
1.1	General description .....	1
1.2	Features and benefits .....	1
1.3	Applications .....	1
1.4	Quick reference data .....	1
<b>2</b>	<b>Pinning information</b> .....	<b>1</b>
<b>3</b>	<b>Ordering information</b> .....	<b>2</b>
<b>4</b>	<b>Marking</b> .....	<b>2</b>
<b>5</b>	<b>Limiting values</b> .....	<b>2</b>
<b>6</b>	<b>Thermal characteristics</b> .....	<b>2</b>
<b>7</b>	<b>Characteristics</b> .....	<b>3</b>
<b>8</b>	<b>Test information</b> .....	<b>4</b>
8.1	Quality information .....	
<b>9</b>	<b>Package outline</b> .....	<b>4</b>
<b>10</b>	<b>Soldering</b> .....	<b>5</b>
<b>11</b>	<b>Revision history</b> .....	<b>5</b>
<b>12</b>	<b>Legal information</b> .....	<b>6</b>
12.1	Data sheet status .....	6
12.2	Definitions .....	6
12.3	Disclaimers .....	6
12.4	Trademarks .....	7

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