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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.



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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_{amb}	ambient temperature		-65	150	°C
T_{stg}	storage temperature		-65	150	°C

6. Thermal characteristics

Table 6. Thermal characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$R_{th(j-a)}$	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.

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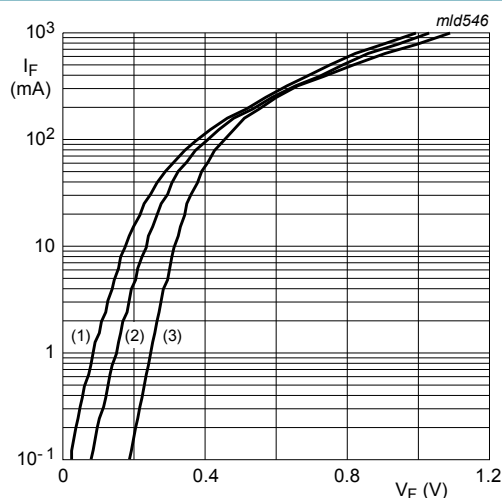
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7. Characteristics

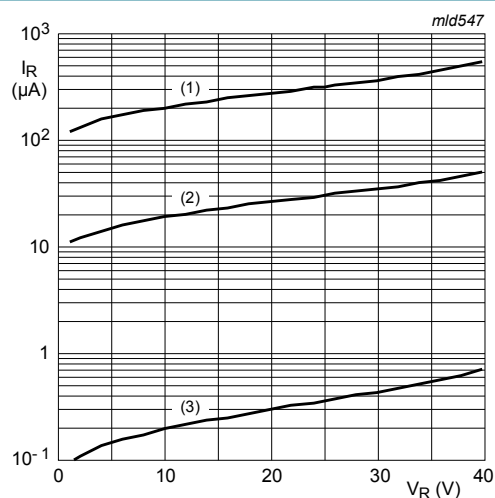
Table 7. Characteristics

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



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

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



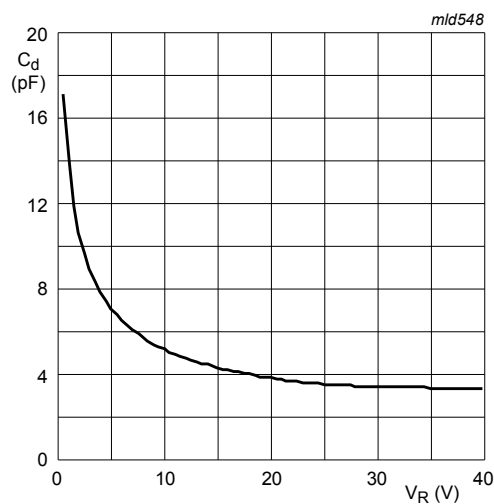
- (1) $T_{\text{amb}} = 125^\circ\text{C}$
- (2) $T_{\text{amb}} = 85^\circ\text{C}$
- (3) $T_{\text{amb}} = 25^\circ\text{C}$

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

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

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

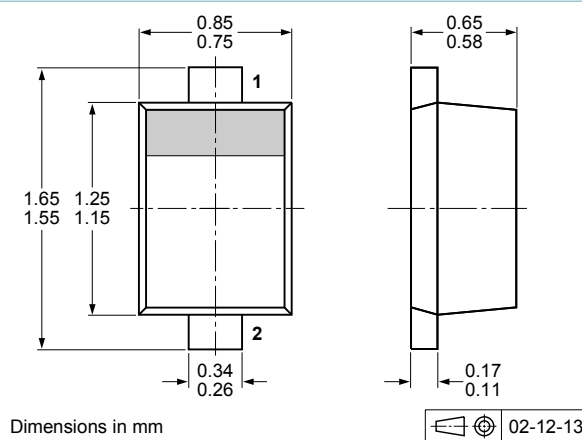


Fig. 4. SOD523

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10. Soldering

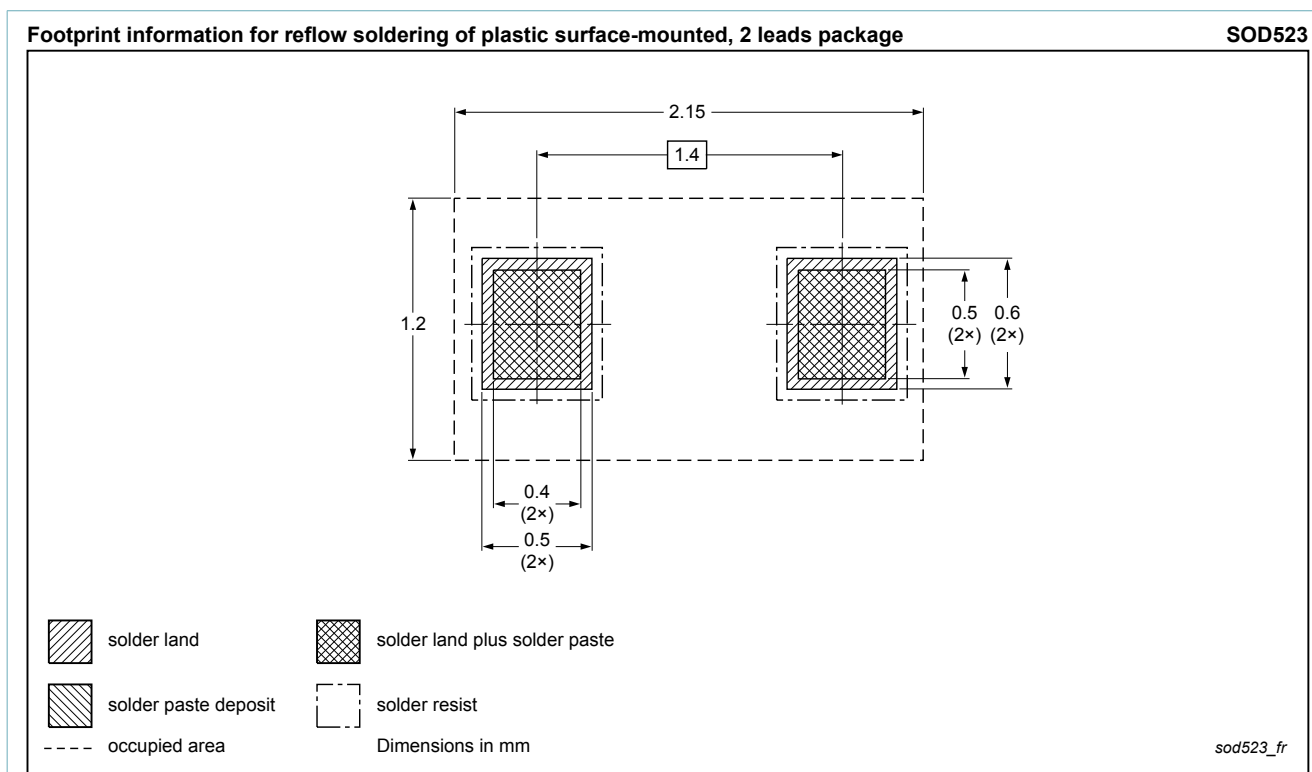


Fig. 5. Reflow soldering footprint for SOD523 (SOD523)

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"> The format of this document has been redesigned to comply with the new identity guidelines of NXP Semiconductors. Legal texts have been adapted to the new company name where appropriate. Section "Product profile" updated Section "Marking" added Package outline drawing replaced by minimized package outline drawing Section "Test information" added Section "Soldering" added 			
1PS79SB30 v.1	20010220	Product data sheet	-	-

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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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