Important notice

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In data sheets and application notes which still contain NXP or Philips Semiconductors references, use the references to Nexperia, as shown below.


Instead of sales.addresses@www.nxp.com or sales.addresses@www.semiconductors.philips.com, use salesaddresses@nexperia.com (email)

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If you have any questions related to the data sheet, please contact our nearest sales office via e-mail or telephone (details via salesaddresses@nexperia.com). Thank you for your cooperation and understanding.

Kind regards,

Team Nexperia
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>
<thead>
<tr>
<th>Table 1. Quick reference data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symbol</td>
</tr>
<tr>
<td>---------</td>
</tr>
<tr>
<td>$I_F$</td>
</tr>
<tr>
<td>$V_R$</td>
</tr>
<tr>
<td>$V_F$</td>
</tr>
</tbody>
</table>

2. Pinning information

<table>
<thead>
<tr>
<th>Table 2. Pinning information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin</td>
</tr>
<tr>
<td>-----</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
</tbody>
</table>

[1] The marking bar indicates the cathode.
3. Ordering information

Table 3. Ordering information

<table>
<thead>
<tr>
<th>Type number</th>
<th>Package</th>
<th>Description</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>1PS79SB30</td>
<td>SOD523</td>
<td>plastic surface-mounted package; 2 leads</td>
<td>SOD523</td>
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</tbody>
</table>

4. Marking

Table 4. Marking codes

<table>
<thead>
<tr>
<th>Type number</th>
<th>Marking code</th>
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<tr>
<td>1PS79SB30</td>
<td>G1</td>
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</table>

5. Limiting values

Table 5. Limiting values

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

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Conditions</th>
<th>Min</th>
<th>Max</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>V_R</td>
<td>reverse voltage</td>
<td></td>
<td>-</td>
<td>40</td>
<td>V</td>
</tr>
<tr>
<td>I_F</td>
<td>forward current</td>
<td></td>
<td>-</td>
<td>200</td>
<td>mA</td>
</tr>
<tr>
<td>I_FRM</td>
<td>repetitive peak forward current</td>
<td>t_p ≤ 1 s; δ ≤ 0.5</td>
<td>-</td>
<td>300</td>
<td>mA</td>
</tr>
<tr>
<td>I_FSM</td>
<td>non-repetitive peak forward current</td>
<td>t_p = 8.3 ms; T_j(init) = 25 °C; half sine wave</td>
<td>-</td>
<td>1</td>
<td>A</td>
</tr>
<tr>
<td>T_j</td>
<td>junction temperature</td>
<td></td>
<td>-</td>
<td>150</td>
<td>°C</td>
</tr>
<tr>
<td>T_amb</td>
<td>ambient temperature</td>
<td></td>
<td>-65</td>
<td>150</td>
<td>°C</td>
</tr>
<tr>
<td>T_stg</td>
<td>storage temperature</td>
<td></td>
<td>-65</td>
<td>150</td>
<td>°C</td>
</tr>
</tbody>
</table>

6. Thermal characteristics

Table 6. Thermal characteristics

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Conditions</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>R_th(j-a)</td>
<td>thermal resistance from junction to ambient</td>
<td>in free air</td>
<td>[1]</td>
<td>-</td>
<td>-</td>
<td>450</td>
</tr>
</tbody>
</table>

7. Characteristics

Table 7. Characteristics

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

![Graph 1](image1.png)

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

![Graph 2](image2.png)

Fig. 2. Reverse current 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. 3. Diode capacitance as a function of reverse voltage; typical values

Fig. 4. SOD523
10. Soldering

Footprint information for reflow soldering of plastic surface-mounted, 2 leads package

![Footprint diagram](sod523_fr)

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

11. Revision history

Table 8. Revision history

<table>
<thead>
<tr>
<th>Data sheet ID</th>
<th>Release date</th>
<th>Data sheet status</th>
<th>Change notice</th>
<th>Supersedes</th>
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<tr>
<td>1PS79SB30 v.2</td>
<td>20120724</td>
<td>Product data sheet</td>
<td>-</td>
<td>1PS79SB30 v.1</td>
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<tr>
<td>1PS79SB30 v.1</td>
<td>20010220</td>
<td>Product data sheet</td>
<td>-</td>
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Modifications:
- 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
12. Legal information

12.1 Data sheet status

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Objective [short] data sheet</td>
<td>Development</td>
<td>This document contains data from the objective specification for product development.</td>
</tr>
<tr>
<td>Preliminary [short] data sheet</td>
<td>Qualification</td>
<td>This document contains data from the preliminary specification.</td>
</tr>
<tr>
<td>Product [short] data sheet</td>
<td>Production</td>
<td>This document contains the product specification.</td>
</tr>
</tbody>
</table>

[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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