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Kind regards,

Team Nexperia
PMEG2005EB
Low $V_F$ MEGA Schottky barrier diode

Product data sheet
Supersedes data of 2003 Feb 20

2003 Apr 04
Low $V_F$ MEGA Schottky barrier diode

PMEG2005EB

FEATURES
- Forward current: 0.5 A
- Reverse voltage: 20 V
- Very low forward voltage
- Guard ring protected
- Ultra small SMD package.

APPLICATIONS
- Ultra high-speed switching
- Voltage clamping
- Protection circuits
- Low current rectification
- Low power consumption applications (e.g. handheld devices).

DESCRIPTION
Planar Maximum Efficiency General Application (MEGA) Schottky barrier diode, encapsulated in a SOD523 (SC-79) ultra small SMD plastic package.

PINNING

<table>
<thead>
<tr>
<th>PIN</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>cathode</td>
</tr>
<tr>
<td>2</td>
<td>anode</td>
</tr>
</tbody>
</table>

Marking code: L5. The marking bar indicates the cathode.

Fig.1 Simplified outline (SOD523; SC-79) and symbol.

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>continuous reverse voltage</td>
<td>–</td>
<td>20</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>$I_F$</td>
<td>continuous forward current</td>
<td>–</td>
<td>500</td>
<td>mA</td>
<td></td>
</tr>
<tr>
<td>$I_{FRM}$</td>
<td>repetitive peak forward current</td>
<td>$t_p = 1$ ms; $\delta \leq 0.25$</td>
<td>–</td>
<td>3.5</td>
<td>A</td>
</tr>
<tr>
<td>$I_{FSM}$</td>
<td>non-repetitive peak forward current</td>
<td>$t = 8$ ms square wave</td>
<td>–</td>
<td>6</td>
<td>A</td>
</tr>
<tr>
<td>$T_{stg}$</td>
<td>storage temperature</td>
<td>–65</td>
<td>+150</td>
<td>°C</td>
<td></td>
</tr>
<tr>
<td>$T_J$</td>
<td>junction temperature</td>
<td>–</td>
<td>125</td>
<td>°C</td>
<td></td>
</tr>
<tr>
<td>$T_{amb}$</td>
<td>operating ambient temperature</td>
<td>–65</td>
<td>+125</td>
<td>°C</td>
<td></td>
</tr>
</tbody>
</table>
### ELECTRICAL CHARACTERISTICS

\( T_{\text{amb}} = 25 \, ^\circ\text{C}; \) unless otherwise specified.

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>PARAMETER</th>
<th>CONDITIONS</th>
<th>TYP.</th>
<th>MAX.</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>( V_F )</td>
<td>continuous forward voltage</td>
<td>see Fig.2</td>
<td>120</td>
<td>180</td>
<td>mV</td>
</tr>
<tr>
<td></td>
<td>( I_F = 0.1 , \text{mA} )</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>( I_F = 1 , \text{mA} )</td>
<td></td>
<td>180</td>
<td>240</td>
<td>mV</td>
</tr>
<tr>
<td></td>
<td>( I_F = 10 , \text{mA} )</td>
<td></td>
<td>245</td>
<td>290</td>
<td>mV</td>
</tr>
<tr>
<td></td>
<td>( I_F = 100 , \text{mA} )</td>
<td></td>
<td>320</td>
<td>380</td>
<td>mV</td>
</tr>
<tr>
<td></td>
<td>( I_F = 500 , \text{mA} )</td>
<td></td>
<td>430</td>
<td>480</td>
<td>mV</td>
</tr>
<tr>
<td>( I_R )</td>
<td>continuous reverse current</td>
<td>( V_R = 10 , \text{V}; ) see Fig.3; note 1</td>
<td>7</td>
<td>30</td>
<td>( \mu\text{A} )</td>
</tr>
<tr>
<td>( C_d )</td>
<td>diode capacitance</td>
<td>( V_R = 1 , \text{V}; f = 1 , \text{MHz}; ) see Fig.4</td>
<td>24</td>
<td>30</td>
<td>pF</td>
</tr>
</tbody>
</table>

**Note**

1. Pulsed test: \( t_p = 300 \, \mu\text{s}; \delta = 0.02 \).

### THERMAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>PARAMETER</th>
<th>CONDITIONS</th>
<th>VALUE</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>( R_{th,j-a} )</td>
<td>thermal resistance from junction to ambient</td>
<td>note 1</td>
<td>400</td>
<td>K/W</td>
</tr>
</tbody>
</table>

**Note**

1. Refer to SOD523 (SC-79) standard mounting conditions.
Low $V_F$ MEGA Schottky barrier diode

**GRAPHICAL DATA**

**Fig. 2** Forward current as a function of forward voltage; typical values.

- $T_{amb} = 125 \, ^\circ C$.
- $T_{amb} = 85 \, ^\circ C$.
- $T_{amb} = 25 \, ^\circ C$.

**Fig. 3** Reverse current as a function of reverse voltage; typical values.

- $T_{amb} = 125 \, ^\circ C$.
- $T_{amb} = 85 \, ^\circ C$.
- $T_{amb} = 25 \, ^\circ C$.

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

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

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2003 Apr 04
Low $V_F$ MEGA Schottky barrier diode

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PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SOD523

OUTLINE

REFERENCES

<table>
<thead>
<tr>
<th>OUTLINE VERSION</th>
<th>IEC</th>
<th>JEDEC</th>
<th>JEITA</th>
<th>EUROPEAN PROJECTION</th>
<th>ISSUE DATE</th>
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<td>SOD523</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>02-12-13</td>
</tr>
</tbody>
</table>

Note
1. The marking bar indicates the cathode.

DIMENSIONS (mm are the original dimensions)

<table>
<thead>
<tr>
<th>UNIT</th>
<th>A</th>
<th>$b_p$</th>
<th>c</th>
<th>D</th>
<th>E</th>
<th>$H_E$</th>
<th>$v$</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm</td>
<td>0.65</td>
<td>0.34</td>
<td>0.17</td>
<td>1.25</td>
<td>0.85</td>
<td>1.65</td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td>0.58</td>
<td>0.26</td>
<td>0.11</td>
<td>1.15</td>
<td>0.75</td>
<td>1.55</td>
<td></td>
</tr>
</tbody>
</table>
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DATA SHEET STATUS

<table>
<thead>
<tr>
<th>DOCUMENT STATUS</th>
<th>PRODUCT STATUS</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective data sheet</td>
<td>Development</td>
<td>This document contains data from the objective specification for product development.</td>
</tr>
<tr>
<td>Preliminary data sheet</td>
<td>Qualification</td>
<td>This document contains data from the preliminary specification.</td>
</tr>
<tr>
<td>Product data sheet</td>
<td>Production</td>
<td>This document contains the product specification.</td>
</tr>
</tbody>
</table>

Notes

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