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Kind regards,

Team Nexperia
DATA SHEET

BAT17
Schottky barrier diode

Product data sheet
Supersedes data of 1999 May 26

2003 Mar 25
FEATURES
• Low forward voltage
• Small SMD package
• Low capacitance.

APPLICATIONS
• UHF mixer
• Sampling circuits
• Modulators
• Phase detection.

DESCRIPTION
Planar Schottky barrier diode in a small SOT23 plastic SMD package.

MARKING

<table>
<thead>
<tr>
<th>TYPE NUMBER</th>
<th>MARKING CODE(1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAT17</td>
<td>A3*</td>
</tr>
</tbody>
</table>

Note
1. * = p : Made in Hong Kong.
   * = t : Made in Malaysia.
   * = W : Made in China.

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

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>PARAMETER</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>4</td>
<td>V</td>
</tr>
<tr>
<td>( I_F )</td>
<td>continuous forward current</td>
<td>–</td>
<td>30</td>
<td>mA</td>
</tr>
<tr>
<td>( T_{stg} )</td>
<td>storage temperature</td>
<td>-65</td>
<td>+150</td>
<td>°C</td>
</tr>
<tr>
<td>( T_j )</td>
<td>junction temperature</td>
<td>–</td>
<td>100</td>
<td>°C</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>MAX.</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>$V_F$</td>
<td>forward voltage</td>
<td>see Fig.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$I_F = 0.1$ mA</td>
<td></td>
<td>350</td>
<td>mV</td>
</tr>
<tr>
<td></td>
<td>$I_F = 1$ mA</td>
<td></td>
<td>450</td>
<td>mV</td>
</tr>
<tr>
<td></td>
<td>$I_F = 10$ mA</td>
<td></td>
<td>600</td>
<td>mV</td>
</tr>
<tr>
<td>$I_R$</td>
<td>reverse current</td>
<td>$V_R = 3$ V; see Fig.3</td>
<td>0.25</td>
<td>μA</td>
</tr>
<tr>
<td></td>
<td>$V_R = 3$ V; $T_{\text{amb}} = 60 , ^\circ\text{C}$; see Fig.3</td>
<td>1.25</td>
<td>μA</td>
<td></td>
</tr>
<tr>
<td>$r_D$</td>
<td>diode forward resistance</td>
<td>$f = 1$ kHz; $I_F = 5$ mA</td>
<td>15</td>
<td>Ω</td>
</tr>
<tr>
<td>$C_d$</td>
<td>diode capacitance</td>
<td>$f = 1$ MHz; $V_R = 0$; see Fig.4</td>
<td>1</td>
<td>pF</td>
</tr>
<tr>
<td>$F$</td>
<td>noise figure</td>
<td>$f = 900$ MHz; note 1</td>
<td>8</td>
<td>dB</td>
</tr>
</tbody>
</table>

Note
1. The local oscillator is adjusted for a diode current of 2 mA. IF amplifier noise $F_{\text{IF}} = 1.5$ dB; $f = 35$ MHz.

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>$R_{\text{th}, j-a}$</td>
<td>thermal resistance from junction to ambient</td>
<td>note 1</td>
<td>500</td>
<td>K/W</td>
</tr>
</tbody>
</table>

Note
1. Refer to SOT23 standard mounting conditions.
Schottky barrier diode

**GRAPHICAL DATA**

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

- (1) $T_{\text{amb}} = 100^\circ$C.
- (2) $T_{\text{amb}} = 60^\circ$C.
- (3) $T_{\text{amb}} = 25^\circ$C.
- (4) $T_{\text{amb}} = -40^\circ$C.

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

- (1) $T_{\text{amb}} = 100^\circ$C.
- (2) $T_{\text{amb}} = 60^\circ$C.
- (3) $T_{\text{amb}} = 25^\circ$C.
- (4) $T_{\text{amb}} = -40^\circ$C.

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

- $f = 1$ MHz; $T_{\text{amb}} = 25^\circ$C.
Schottky barrier diode

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23

DIMENSIONS (mm are the original dimensions)

<table>
<thead>
<tr>
<th>UNIT</th>
<th>A</th>
<th>A1</th>
<th>bD</th>
<th>c</th>
<th>D</th>
<th>E</th>
<th>e</th>
<th>e1</th>
<th>HE</th>
<th>Lp</th>
<th>Q</th>
<th>v</th>
<th>w</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm</td>
<td>1.1</td>
<td>0.9</td>
<td>0.48</td>
<td>0.15</td>
<td>3.0</td>
<td>1.4</td>
<td>1.9</td>
<td>0.95</td>
<td>2.5</td>
<td>2.1</td>
<td>0.45</td>
<td>0.2</td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td>0.1</td>
<td></td>
<td>0.38</td>
<td>0.09</td>
<td>2.8</td>
<td>1.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OUTLINE VERSION

- IEC
- JEDEC
- EIAJ

REFERENCES

- SOT23
- TO-236AB

EUROPEAN PROJECTION

- 97-02-28
- 99-09-13

ISSUE DATE
Schottky barrier diode  BAT17

DATA SHEET STATUS

<table>
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<th>DOCUMENT STATUS(1)</th>
<th>PRODUCT STATUS(2)</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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