BB201
Low-voltage variable capacitance double diode
Low-voltage variable capacitance double diode

FEATURES

- Excellent linearity
- C1: 95 pF; C7.5: 27.6 pF
- C1 to C7.5 ratio: min. 3.1
- Very low series resistance
- Small plastic SMD package.

APPLICATIONS

- Electronic tuning in FM-radio
- Voltage Controlled Oscillators (VCO).

DESCRIPTION

The BB201 is a variable capacitance double diode with a common cathode, fabricated in silicon planar technology and encapsulated in the SOT23 small plastic SMD package.

MARKING

<table>
<thead>
<tr>
<th>TYPE NUMBER</th>
<th>MARKING CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>BB201</td>
<td>Scp</td>
</tr>
</tbody>
</table>

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>VR</td>
<td>continuous reverse voltage</td>
<td>–</td>
<td>15</td>
<td>V</td>
</tr>
<tr>
<td>IF</td>
<td>continuous forward current</td>
<td>–</td>
<td>20</td>
<td>mA</td>
</tr>
<tr>
<td>T_stg</td>
<td>storage temperature range</td>
<td>–55</td>
<td>+125</td>
<td>°C</td>
</tr>
<tr>
<td>T_j</td>
<td>operating junction temperature</td>
<td>–55</td>
<td>+125</td>
<td>°C</td>
</tr>
</tbody>
</table>
# Low-voltage variable capacitance double diode

**BB201**

## CHARACTERISTICS

$T_J = 25 \, ^\circ\text{C}$ unless otherwise specified.

<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>$I_R$</td>
<td>reverse current</td>
<td>$V_R = 15 , \text{V}$</td>
<td>–</td>
<td>–</td>
<td>10</td>
<td>nA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$V_R = 15 , \text{V}; , T_J = 85 , ^\circ\text{C}$</td>
<td>–</td>
<td>–</td>
<td>200</td>
<td>nA</td>
</tr>
<tr>
<td>$r_S$</td>
<td>diode series resistance</td>
<td>$f = 100 , \text{MHz}; , V_R = 3 , \text{V}$</td>
<td>–</td>
<td>0.25</td>
<td>0.5</td>
<td>$\Omega$</td>
</tr>
<tr>
<td>$C_d$</td>
<td>diode capacitance</td>
<td>$V_R = 1 , \text{V}; , f = 1 , \text{MHz}$</td>
<td>89</td>
<td>95</td>
<td>102</td>
<td>pF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$V_R = 3 , \text{V}; , f = 1 , \text{MHz}$</td>
<td>–</td>
<td>60</td>
<td>–</td>
<td>pF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$V_R = 7.5 , \text{V}; , f = 1 , \text{MHz}$</td>
<td>25.5</td>
<td>27.6</td>
<td>29.7</td>
<td>pF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$V_R = 8 , \text{V}; , f = 1 , \text{MHz}$</td>
<td>–</td>
<td>25.5</td>
<td>–</td>
<td>pF</td>
</tr>
<tr>
<td>$C_d(1\text{V})$</td>
<td>capacitance ratio</td>
<td>$f = 1 , \text{MHz}$</td>
<td>3.1</td>
<td>–</td>
<td>3.8</td>
<td></td>
</tr>
</tbody>
</table>

## GRAPHICAL DATA

![Graphical Data](image.png)

Fig. 2 Diode capacitance as a function of reverse voltage; typical values.
Low-voltage variable capacitance double diode

Fig.3  Reverse current as a function of junction temperature; maximum values.

Fig.4  Temperature coefficient of diode capacitance as a function of reverse voltage; typical values.
Low-voltage variable capacitance double 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>b_p</th>
<th>c</th>
<th>D</th>
<th>E</th>
<th>e</th>
<th>e1</th>
<th>H_E</th>
<th>L_P</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>0.1</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>0.45</td>
<td>0.55</td>
<td>0.2</td>
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</table>

OUTLINE VERSION

<table>
<thead>
<tr>
<th>IEC</th>
<th>JEDEC</th>
<th>JEITA</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOT23</td>
<td>TO-236AB</td>
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REFERENCES

EUROPEAN PROJECTION

ISSUE DATE

04-11-04

06-03-16
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DATA SHEET STATUS

<table>
<thead>
<tr>
<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>

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