BB215
UHF variable capacitance diode

Product specification
Supersedes data of November 1993
File under Discrete Semiconductors, SC01
UHF variable capacitance diode

FEATURES
- Excellent linearity
- Matched to 3%
- Small hermetically sealed glass SMD package
- C28: 2 pF; ratio: 8.3
- Low series resistance.

APPLICATIONS
- Electronic tuning in UHF television tuners
- VCO.

DESCRIPTION
The BB215 is a variable capacitance diode, fabricated in planar technology, and encapsulated in the SOD80 glass SMD package.

LIMITING VALUES
In accordance with the Absolute Maximum Rating System (IEC 134).

<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>30</td>
<td>V</td>
</tr>
<tr>
<td>I_F</td>
<td>continuous forward current</td>
<td>–</td>
<td>20</td>
<td>mA</td>
</tr>
<tr>
<td>T_stg</td>
<td>storage temperature</td>
<td>−55</td>
<td>+150</td>
<td>°C</td>
</tr>
<tr>
<td>T_j</td>
<td>operating junction temperature</td>
<td>−55</td>
<td>+100</td>
<td>°C</td>
</tr>
</tbody>
</table>

ELECTRICAL CHARACTERISTICS
T_j = 25 °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 = 28 V; see Fig.3</td>
<td>–</td>
<td>–</td>
<td>10</td>
<td>nA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V_R = 28 V; T_j = 85 °C; see Fig.3</td>
<td>–</td>
<td>–</td>
<td>200</td>
<td>nA</td>
</tr>
<tr>
<td>r_s</td>
<td>diode series resistance</td>
<td>f = 470 MHz; note 1</td>
<td>–</td>
<td>–</td>
<td>0.75</td>
<td>Ω</td>
</tr>
<tr>
<td>C_d</td>
<td>diode capacitance</td>
<td>V_R = 1 V; f = 1 MHz; see Figs 2 and 4</td>
<td>–</td>
<td>16.5</td>
<td>18</td>
<td>pF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V_R = 28 V; f = 1 MHz; see Figs 2 and 4</td>
<td>1.8</td>
<td>–</td>
<td>2.2</td>
<td>pF</td>
</tr>
<tr>
<td>C_d(V)</td>
<td>capacitance ratio</td>
<td>f = 1 MHz</td>
<td>7.6</td>
<td>8.3</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>C_d(28V)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ΔC_d</td>
<td>capacitance matching</td>
<td>V_R = 0.5 to 28 V</td>
<td>–</td>
<td>–</td>
<td>3</td>
<td>%</td>
</tr>
</tbody>
</table>

Note
1. V_R is the value at which C_d = 9 pF.
GRAPHICAL DATA

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

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.
UHF variable capacitance diode BB215

PACKAGE OUTLINE

DEFINITIONS

Data sheet status

Objective specification | This data sheet contains target or goal specifications for product development.
Preliminary specification | This data sheet contains preliminary data; supplementary data may be published later.
Product specification | This data sheet contains final product specifications.

Limiting values

Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.

Application information

Where application information is given, it is advisory and does not form part of the specification.

LIFE SUPPORT APPLICATIONS

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips for any damages resulting from such improper use or sale.

Fig.5 SOD80.

Dimensions in mm.
Cathode side indicated by a white band.
Second green band for type identification.