BBY62
UHF variable capacitance double diode

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

**FEATURES**
- Excellent linearity
- Small plastic SMD package
- C28:1.9 pF; ratio: 8.3.

**APPLICATIONS**
- Electronic tuning in UHF television tuners
- VCO.

**DESCRIPTION**
The BBY62 is a variable capacitance double diode, fabricated in planar technology, and encapsulated in the SOT143 small plastic SMD package.

The diodes are not electrically connected to one another.

**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>+125</td>
<td>°C</td>
</tr>
</tbody>
</table>

**ELECTRICAL CHARACTERISTICS**
\( T_j = 25 \, ^\circ C \); 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>( I_R )</td>
<td>reverse current</td>
<td>( V_R = 28 , V; , T_j = 85 , ^\circ 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>1.2</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>–</td>
<td>pF</td>
</tr>
<tr>
<td>( C_d )</td>
<td>diode capacitance</td>
<td>( V_R = 28 , V; , f = 1 , MHz ); see Figs 2 and 4</td>
<td>1.6</td>
<td>–</td>
<td>2</td>
<td>pF</td>
</tr>
<tr>
<td>( \frac{C_d(1V)}{C_d(28V)} )</td>
<td>capacitance ratio</td>
<td>( f = 1 , MHz )</td>
<td>–</td>
<td>8.3</td>
<td>–</td>
<td></td>
</tr>
</tbody>
</table>

**Note**
1. \( V_R \) is the value at which \( C_d = 9 \, pF \).
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Graphical Data

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

\[ C_d \text{ (pF)} \]

\[ V_r \text{ (V)} \]

\[ f = 1 \text{ MHz}; T_j = 25 ^\circ \text{C}. \]

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

\[ I_R \text{ (nA)} \]

\[ T_j \text{ (} ^\circ \text{C)} \]

Fig. 4  Temperature coefficient of diode capacitance as a function of reverse voltage; typical values.

\[ TC_d \text{ (K}^{-1}) \]

\[ V_r \text{ (V)} \]
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PACKAGE OUTLINE

Dimensions in mm.

Fig.5 SOT143.

DEFINITIONS

Data sheet status

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<th>Specification</th>
<th>Description</th>
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<tr>
<td>Objective specification</td>
<td>This data sheet contains target or goal specifications for product development.</td>
</tr>
<tr>
<td>Preliminary specification</td>
<td>This data sheet contains preliminary data; supplementary data may be published later.</td>
</tr>
<tr>
<td>Product specification</td>
<td>This data sheet contains final product specifications.</td>
</tr>
</tbody>
</table>

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

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