

BB179 UHF variable capacitance diode Rev. 02 – 5 October 2004

**Product data sheet** 

# 1. Product profile

#### 1.1 General description

The BB179 is a planar technology variable capacitance diode, in a SOD523 (SC-79) ultra small plastic SMD package. The excellent matching performance is achieved by gliding matching and a Direct Matching Assembly (DMA) procedure.

#### **1.2 Features**

- Excellent linearity
- Excellent matching to 2 % DMA
- Ultra small plastic SMD package
- C<sub>d(28V)</sub>: 2.1 pF; C<sub>d(1V)</sub> to C<sub>d(28V)</sub> ratio: 9
- Low series resistance.

#### **1.3 Applications**

- Electronic tuning in UHF television tuners
- Voltage Controlled Oscillators (VCO).

## 2. Pinning information



[1] The marking bar indicates the cathode.

# 3. Ordering information

#### Table 2:Ordering information

Type number	Package					
	Name	Description	Version			
BB179	SC-79	plastic surface mounted package; 2 leads	SOD523			



# 4. Marking

Table 3: Marking	
Type number	Marking code
BB179	9

# 5. Limiting values

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lable 4	1: L	imitin	g va	lues

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

Symbol	Parameter	Conditions	Min	Max	Unit
V <sub>R</sub>	reverse voltage		-	30	V
V <sub>RM</sub>	peak reverse voltage	in series with a 10 k $\Omega$ resistor	-	35	V
I <sub>F</sub>	forward current		-	20	mA
T <sub>stg</sub>	storage temperature		-55	+150	°C
Т <sub>ј</sub>	junction temperature		-55	+125	°C

# 6. Characteristics

#### Table 5: Characteristics

 $T_i = 25 \circ C$  unless otherwise specified.

Symbol	Parameter	Conditions		Min	Тур	Max	Unit
I <sub>R</sub>	reverse current	see Figure 2					
		V <sub>R</sub> = 30 V		-	-	10	nA
		$V_R$ = 30 V; $T_j$ = 85 °C		-	-	200	nA
r <sub>s</sub>	diode series resistance	f = 470 MHz	<u>[1]</u>	-	0.6	0.75	Ω
C <sub>d</sub>	diode	f = 1 MHz; see Figure 1 and $\underline{3}$					
	capacitance	V <sub>R</sub> = 1 V		18.22	-	21.26	pF
		V <sub>R</sub> = 28 V		1.951	2.1	2.225	pF
$\frac{C_{d(1V)}}{C_{d(2V)}}$	capacitance ratio	f = 1 MHz		-	1.27	-	
$\frac{C_{d(1V)}}{C_{d(28V)}}$	capacitance ratio	f = 1 MHz		8.45	9	10.9	
$\frac{C_{d(25V)}}{C_{d(28V)}}$	capacitance ratio	f = 1 MHz		-	1.05	-	
$\frac{\Delta C_d}{C_d}$	capacitance matching	V <sub>R</sub> = 1 V to 28 V; in a sequence of 10 diodes (gliding)		-	-	2	%

[1]  $V_R$  is the value at which  $C_d = 9 \text{ pF}$ 

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#### UHF variable capacitance diode



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# 7. Package outline



Fig 4. Package outline SOD523 (SC-79).

# 8. Revision history

Table 6	Revision	history
10010		

Document ID	Release date	Data sheet status	Change notice	Doc. number	Supersedes		
BB179_2	20041005	Product data sheet	-	9397 750 13832	BB179_1		
Modifications:	<ul> <li>The format of this data sheet has been redesigned to comply with the new presentation and information standard of Philips Semiconductors</li> </ul>						
	<ul> <li><u>Table 5 "Characteristics</u>": ΔC<sub>d</sub>/C<sub>d</sub> conditions changed from sequence of 15 diodes of 10 diodes</li> </ul>		diodes to sequence				
	• Table 5 "Ch	aracteristics": added typi	cal value of 2.1 pF	for C <sub>d(28V)</sub>			
	• Table 5 "Ch	aracteristics": added typi	cal value of 9 for C	$d_{(1V)}$ to $C_{d(28V)}$ ratio			
BB179_1	19971113	Product specification	-	9397 750 02985	-		

## 9. Data sheet status

Level	Data sheet status [1]	Product status [2] [3]	Definition
I	Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
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Limiting values definition — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). 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.

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# **BB179**

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