

# BB182

## VHF variable capacitance diode

Rev. 03 — 24 February 2009

Product data sheet

## 1. Product profile

### 1.1 General description

The BB182 is a planar technology variable capacitance diode in a SOD523 (SC-79) ultra small plastic package. The excellent matching performance is achieved by gliding matching and a Direct Matching Assembly (DMA) procedure.

### 1.2 Features




- High linearity
- Excellent matching to 2 % DMA
- Ultra small plastic SMD package
- $C_{d(28V)}$ : 2.7 pF;  $C_{d(1V)}$  to  $C_{d(28V)}$  ratio: 22
- Low series resistance

### 1.3 Applications

- Electronic tuning in VHF television tuners, Band A up to 160 MHz
- Voltage Controlled Oscillators (VCO)

## 2. Pinning information

Table 1. Pinning

Pin	Description	Simplified outline	Graphic symbol
1	cathode	[1]	
2	anode		

*sym008*

[1] The marking bar indicates the cathode.

## 3. Ordering information

Table 2. Ordering information

Type number	Package		Version
	Name	Description	
BB182	SC-79	plastic surface-mounted package; 2 leads	SOD523

## 4. Marking

Table 3. Marking codes

Type number	Marking code
BB182	2

## 5. Limiting values

Table 4. Limiting values

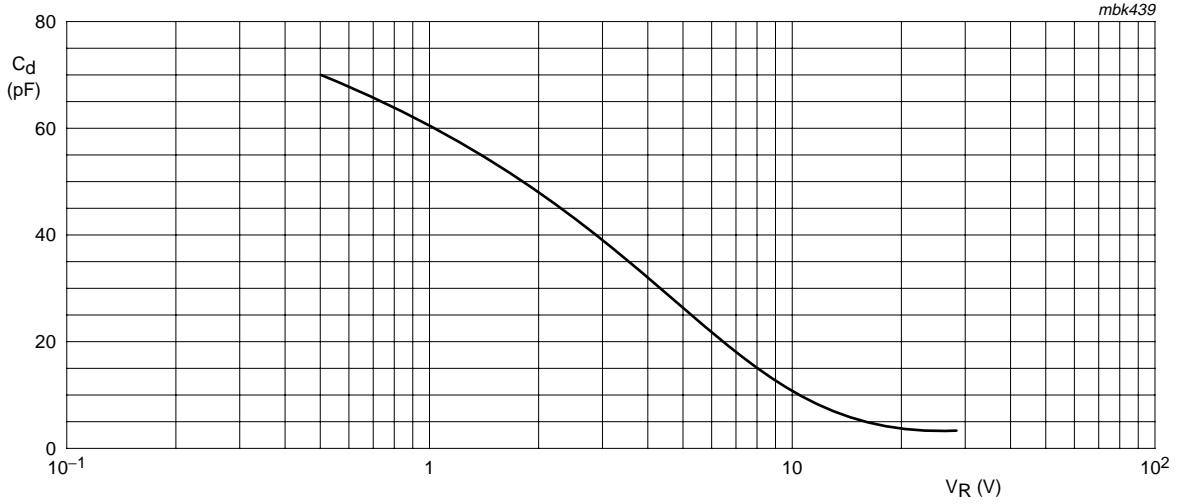
In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions	Min	Max	Unit
$V_R$	reverse voltage		-	32	V
		peak value in series with a 10 k $\Omega$ resistor	-	35	V
$I_F$	forward current		-	20	mA
$T_{stg}$	storage temperature		-55	+150	$^{\circ}\text{C}$
$T_j$	junction temperature		-55	+125	$^{\circ}\text{C}$

## 6. Characteristics

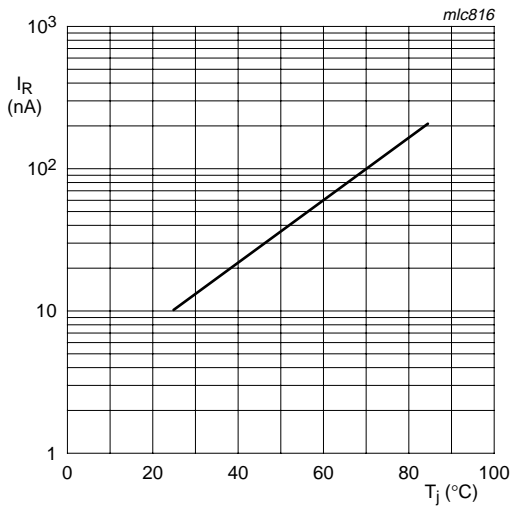
Table 5. Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$I_R$	reverse current	see <a href="#">Figure 2</a>				
		$V_R = 30\text{ V}$	-	-	10	nA
		$V_R = 30\text{ V}; T_j = 85\text{ }^{\circ}\text{C}$	-	-	200	nA
$r_s$	diode series resistance	$f = 100\text{ MHz}$ at $C_d = 30\text{ pF}$	-	1.0	1.2	$\Omega$
$C_d$	diode capacitance	$f = 1\text{ MHz}$ ; see <a href="#">Figure 1</a> and <a href="#">Figure 3</a>				
		$V_R = 1\text{ V}$	52	-	62	pF
		$V_R = 28\text{ V}$	2.48	2.7	2.89	pF
$C_{d(1V)}/C_{d(2V)}$	diode capacitance ratio (1 V to 2 V)	$f = 1\text{ MHz}$	-	1.31	-	
$C_{d(1V)}/C_{d(28V)}$	diode capacitance ratio (1 V to 28 V)	$f = 1\text{ MHz}$	20.6	22	-	
$C_{d(25V)}/C_{d(28V)}$	diode capacitance ratio (25 V to 28 V)	$f = 1\text{ MHz}$	-	1.05	-	
$\Delta C_d/C_d$	diode capacitance matching	$V_R = 1\text{ V to } 28\text{ V}$ ; in a sequence of 10 diodes (gliding)	-	-	2	%

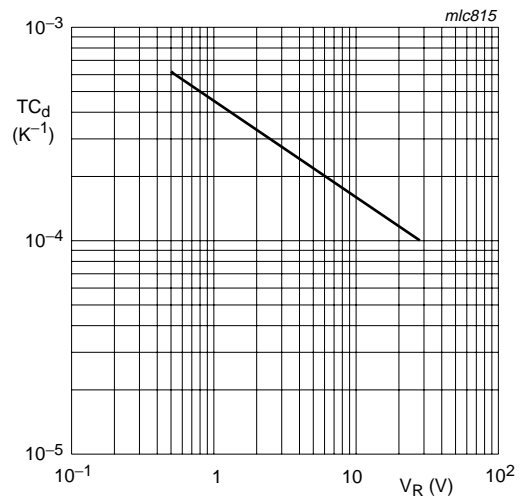


$f = 1 \text{ MHz}; T_j = 25 \text{ }^\circ\text{C}.$

**Fig 1. Diode capacitance as a function of reverse voltage; typical values**



**Fig 2. Reverse current as a function of junction temperature; maximum values**



$T_j = 0 \text{ }^\circ\text{C to } 85 \text{ }^\circ\text{C}.$

**Fig 3. Temperature coefficient of diode capacitance as a function of reverse voltage; typical values**

## 7. Package outline

Plastic surface-mounted package; 2 leads

SOD523

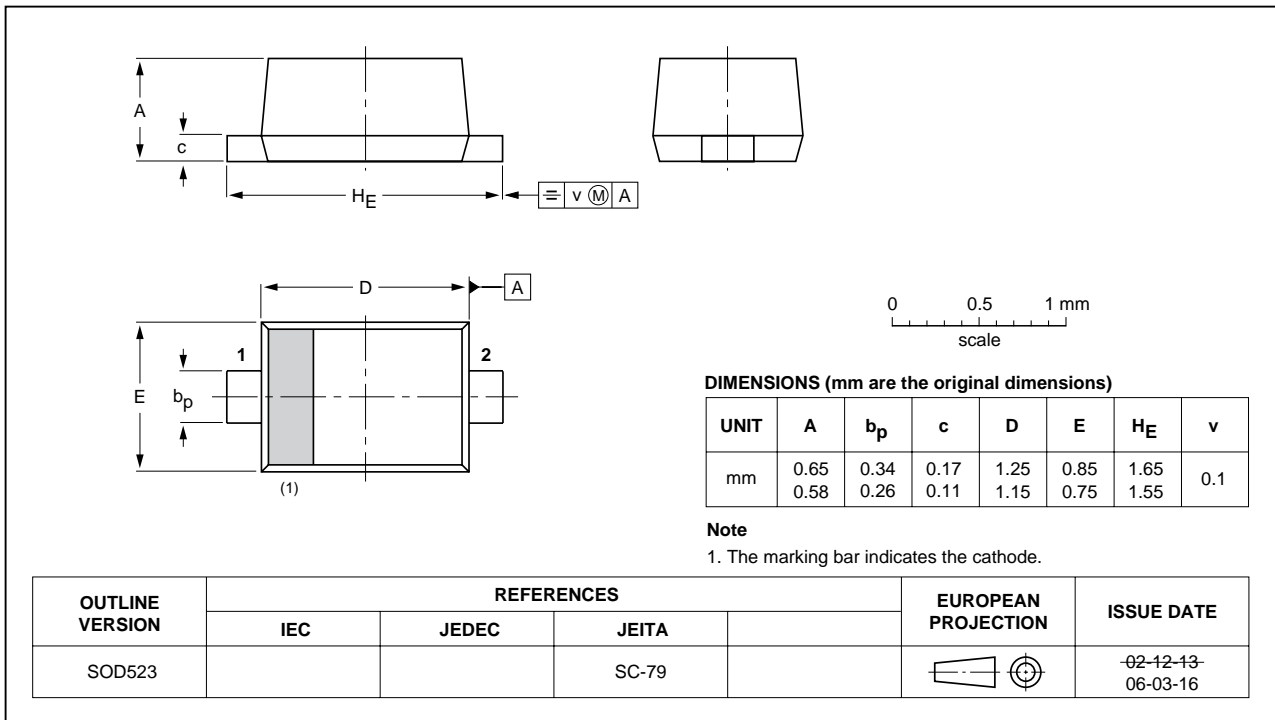


Fig 4. Package outline SOD523 (SC-79)

## 8. Abbreviations

Table 6. Abbreviations

Acronym	Description
SMD	Surface-Mounted Device
VHF	Very High Frequency

## 9. Revision history

Table 7. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BB182_3	20090224	Product data sheet	-	BB182_2
Modifications:		<ul style="list-style-type: none"> <li>The format of this data sheet has been redesigned to comply with the new identity guidelines of NXP Semiconductors</li> <li>Legal texts have been adapted to the new company name where appropriate</li> </ul>		
BB182_2	20041103	Product data sheet	-	BB182_1
BB182_1	19971113	Product specification	-	-

## 10. Legal information

### 10.1 Data sheet status

Document status <sup>[1][2]</sup>	Product status <sup>[3]</sup>	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

[1] Please consult the most recently issued document before initiating or completing a design.

[2] The term 'short data sheet' is explained in section "Definitions".

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Date of release: 24 February 2009

Document identifier: BB182\_3