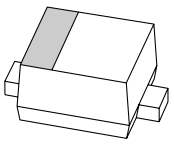


BB181

VHF variable capacitance diode

Rev. 03 — 16 February 2009 Product data sheet

1. Product profile

1.1 General description

The BB181 is a variable capacitance diode, fabricated in planar technology and encapsulated in the SOD523 (SC-79) ultra small plastic SMD package.

1.2 Features

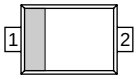
- Excellent linearity
- Ultra small plastic SMD package
- $C_{d(28V)}$: 1 pF; $C_{d(0V5)}$ to $C_{d(28V)}$ ratio : 14

1.3 Applications

- Electronic tuning in satellite tuners
- Tunable coupling
- Voltage Controlled Oscillators (VCO)

2. Pinning information

Table 1. Pinning

Pin	Description		Simplified outline	Graphic symbol
1	cathode	[1]		sym008
2	anode			

[1] The marking bar indicates the cathode.

3. Ordering information

Table 2. Ordering information

Type number	Package		
	Name	Description	Version
BB181	SC-79	plastic surface mounted package; 2 leads	SOD523

NXP founded by Philips

4. Marking

Table 3. Marking codes

Type number	Marking code
BB181	N

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		-	30	V
I_F	forward current		-	20	mA
T_{stg}	storage temperature		–55	+150	°C
T_j	junction temperature		–55	+150	°C

6. Characteristics

Table 5. Characteristics

T_j = 25 °C unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
I_R	reverse current	see Figure 2				
		V_R = 30 V	-	-	10	nA
		V_R = 30 V; T_j = 85 °C	-	-	200	nA
r_s	diode series resistance	f = 470 MHz at C_d = 9 pF	-	-	3	Ω
C_d	diode capacitance	f = 1 MHz; see Figure 1 and Figure 3				
		V_R = 0.5 V	8	-	17	pF
		V_R = 28 V	0.7	-	1.055	pF
$C_{d(0V5)}/C_{d(28V)}$	diode capacitance ratio (0.5 V to 28 V)	f = 1 MHz	12	-	16	

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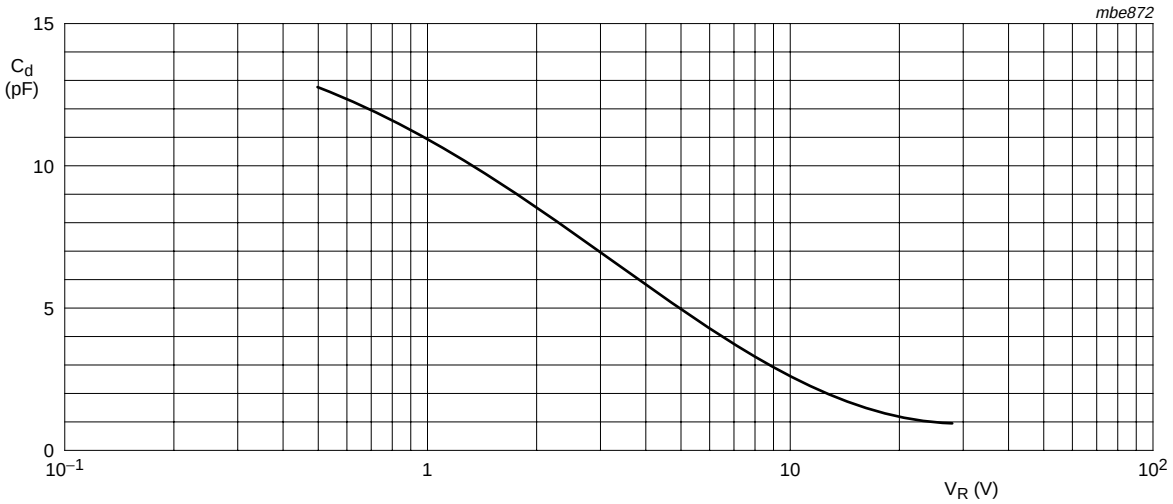


f = 1 MHz; T_j = 25 °C.

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

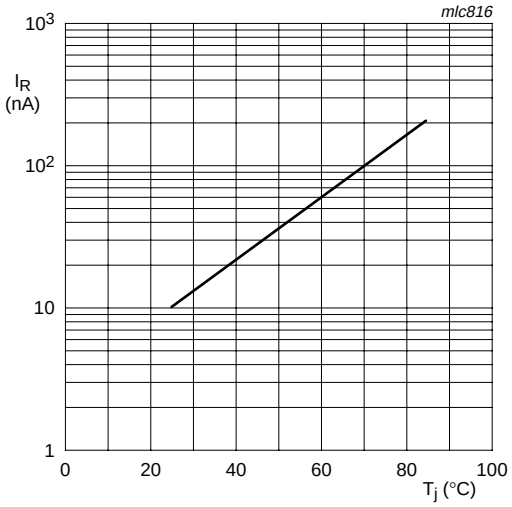
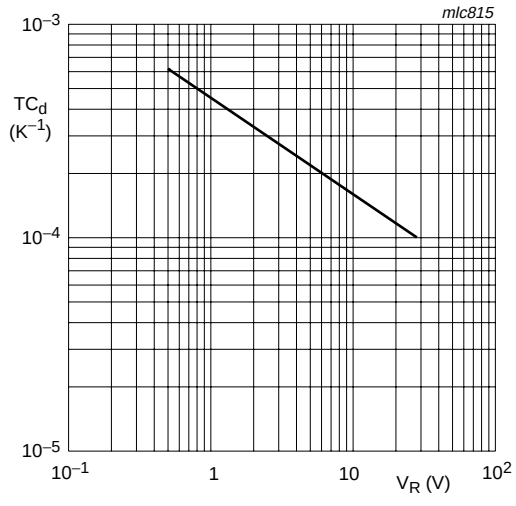


Fig 2. Reverse current as a function of junction temperature; maximum values



T_j = 0 °C to 85 °C.

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

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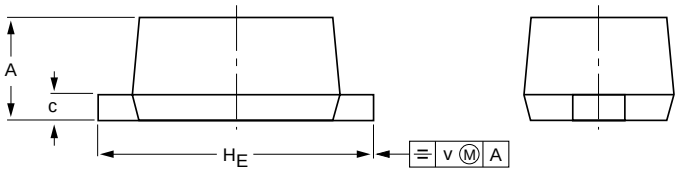
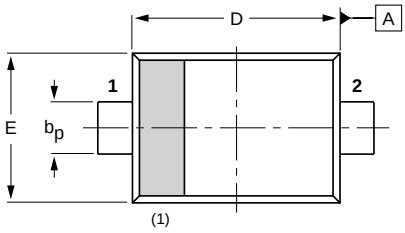
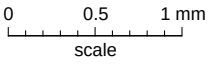
7. Package outline

Plastic surface-mounted package; 2 leads **SOD523**







DIMENSIONS (mm are the original dimensions)

UNIT	A	b_p	c	D	E	H_E	v
mm	0.65 0.58	0.34 0.26	0.17 0.11	1.25 1.15	0.85 0.75	1.65 1.55	0.1

Note

1. The marking bar indicates the cathode.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOD523			SC-79			~~02-12-13~~ 06-03-16

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
BB181_3	20090216	Product data sheet	-	BB181_N_2
Modifications:	• The format of this data sheet has been redesigned to comply with the new presentation and information standard of NXP semiconductors			
BB181_N_2	20080102	Product data sheet	-	BB181_1
BB181_1	19981126	Product specification	-	-

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10.1 Data sheet status

Document status[1][2]	Product status[3]	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".

[3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL http://www.nxp.com.

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