



# BB181

VHF variable capacitance diode

Rev. 02 — 2 January 2008

Product data sheet

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NXP Semiconductors

# VHF variable capacitance diode

**BB181**

## FEATURES

- Excellent linearity
- Ultra small plastic SMD package
- C28: 1 pF; ratio: 14.

## APPLICATIONS

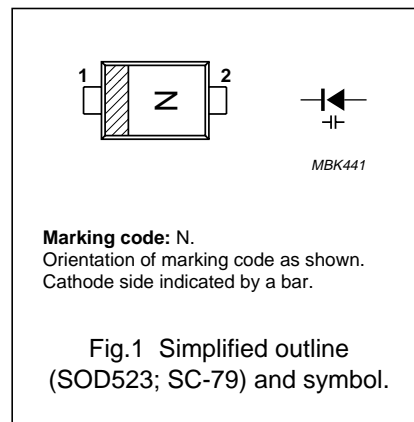
- Electronic tuning in satellite tuners
- Tuneable coupling
- Voltage controlled oscillators (VCO).

## DESCRIPTION

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

## PINNING

PIN	DESCRIPTION
1	cathode
2	anode



## LIMITING VALUES

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

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
$V_R$	continuous reverse voltage	–	30	V
$I_F$	continuous forward current	–	20	mA
$T_{stg}$	storage temperature	–55	+150	°C
$T_j$	operating junction temperature	–55	+150	°C

## ELECTRICAL CHARACTERISTICS

$T_j = 25\text{ °C}$  unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$I_R$	reverse current	$V_R = 30\text{ V}$ ; see Fig.3	–	10	nA
		$V_R = 30\text{ V}$ ; $T_j = 85\text{ °C}$ ; see Fig.3	–	200	nA
$r_s$	diode series resistance	$f = 470\text{ MHz}$ ; note 1	–	3	$\Omega$
$C_d$	diode capacitance	$V_R = 0.5\text{ V}$ ; $f = 1\text{ MHz}$ ; see Figs 2 and 4	8	17	pF
		$V_R = 28\text{ V}$ ; $f = 1\text{ MHz}$ ; see Figs 2 and 4	0.7	1.055	pF
$\frac{C_{d(0.5V)}}{C_{d(28V)}}$	capacitance ratio	$f = 1\text{ MHz}$	12	16	

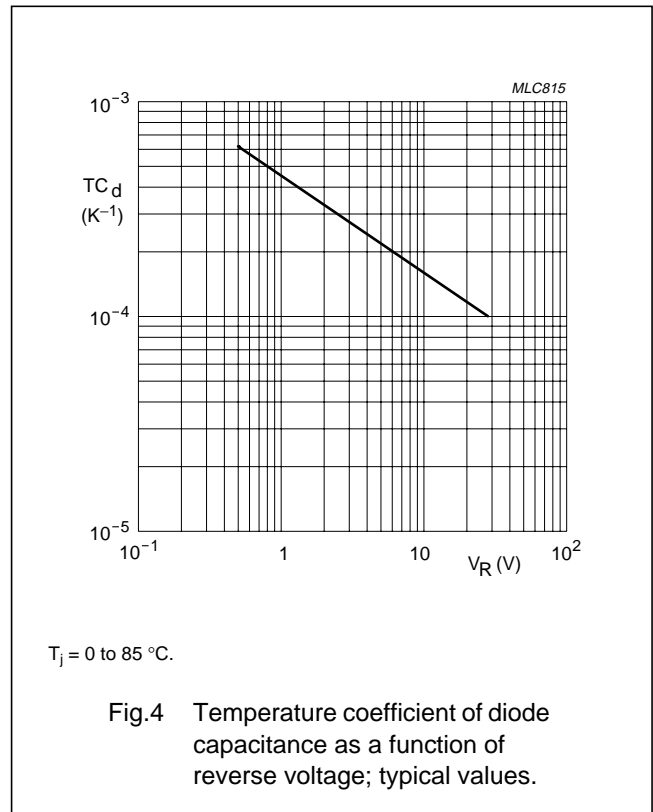
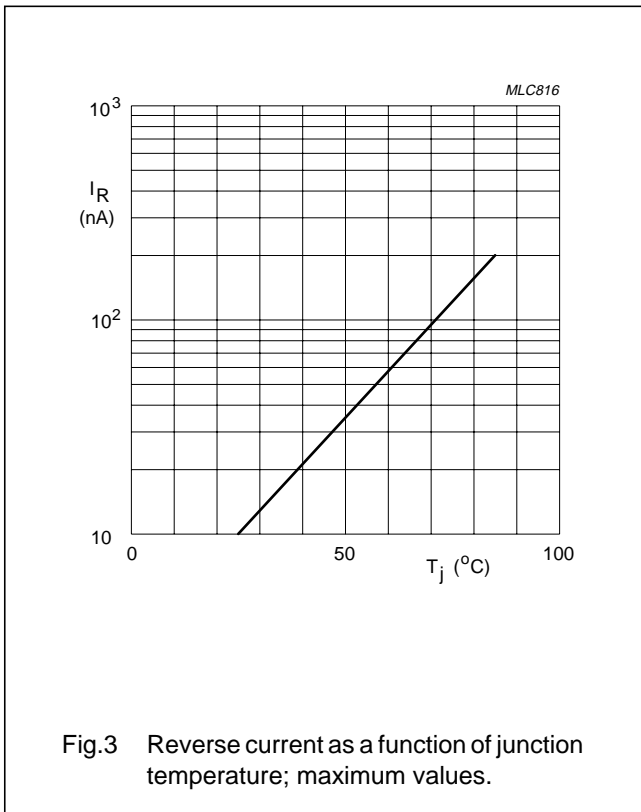
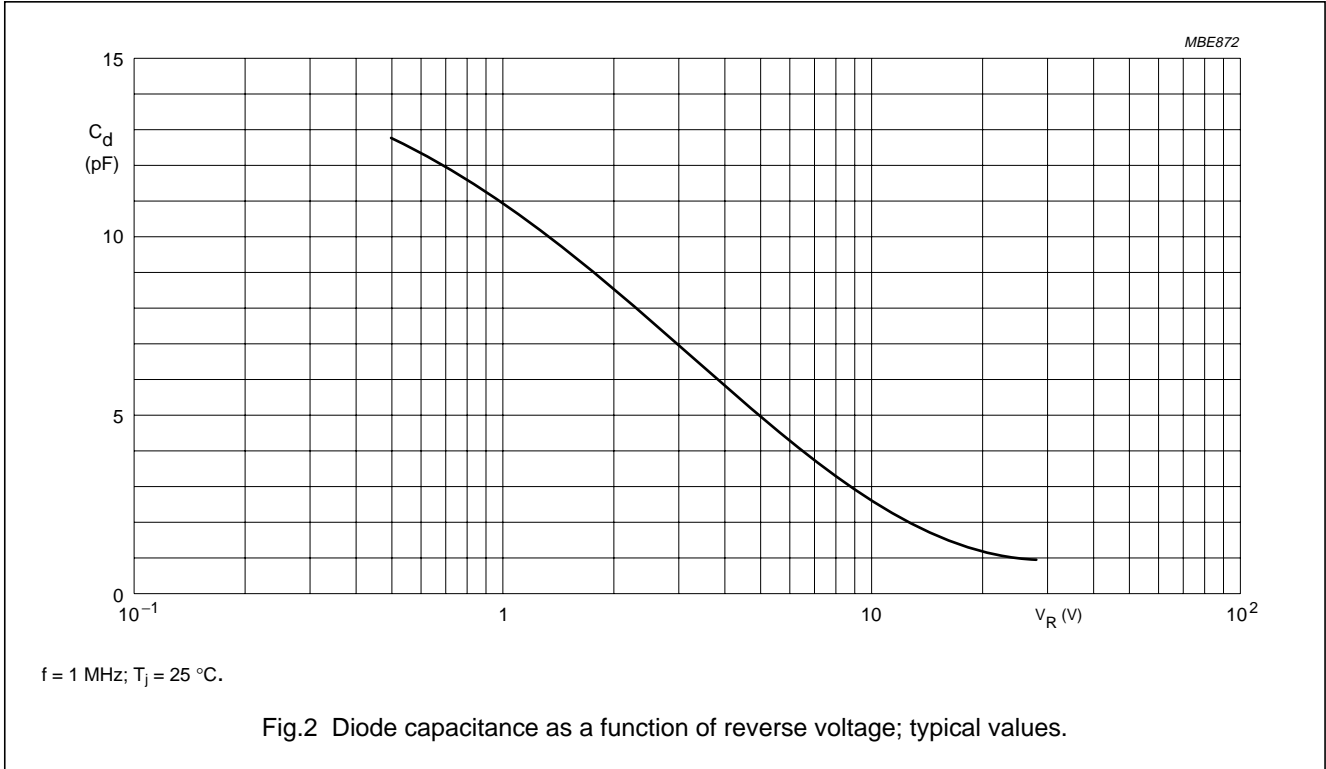
### Note

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

VHF variable capacitance diode

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GRAPHICAL DATA



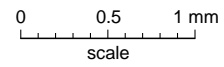
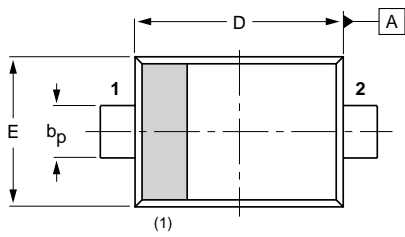
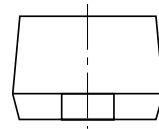
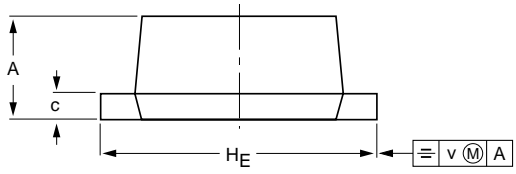
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PACKAGE OUTLINE

Plastic surface-mounted package; 2 leads

SOD523



DIMENSIONS (mm are the original dimensions)

UNIT	A	bp	c	D	E	HE	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

## Legal information

### 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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## Revision history

### Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BB181_N_2	20080102	Product data sheet	-	BB181_1
Modifications:	• Package outline drawing on page 4 changed			
BB181_1 (9397 750 04886)	19981126	Product specification	-	-

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