



# BB173LX

## VHF variable capacitance diode

Rev. 1 — 25 March 2013

Product data sheet

## 1. Product profile

### 1.1 General description

The BB173LX is a variable capacitance diode, fabricated in planar technology, and encapsulated in the SOD882D (DFN1006D-2) ultra small leadless SMD plastic package.

### 1.2 Features and benefits

- Excellent linearity
- Ultra small leadless SMD package
- $C_{d(28V)} = 2.6 \text{ pF}$ ;  $C_{d(1V)}$  to  $C_{d(28V)}$  ratio = 15
- Low series resistance

### 1.3 Applications

- Voltage Controlled Oscillators (VCO)

## 2. Pinning information

Table 1. Pinning

Pin	Description	Simplified outline	Symbol
1	cathode	<a href="#">[1]</a>	 sym008
2	anode	 Transparent top view	

[1] The marking bar indicates the cathode.

## 3. Ordering information

Table 2. Ordering information

Type number	Package		
	Name	Description	Version
BB173LX	DFN1006D-2	leadless ultra small plastic package; 2 terminals; body 1 × 0.6 × 0.4	SOD882D



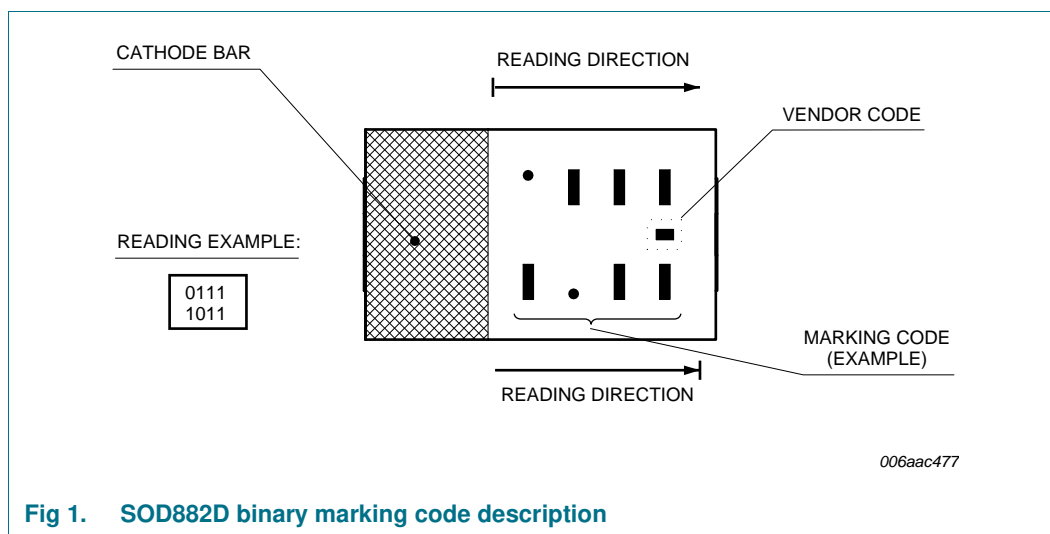
## 4. Marking

**Table 3. Marking codes**

Type number	Marking code <sup>[1]</sup>
BB173LX	1000
	1001

[1] For SOD882D binary marking code description, see [Figure 1](#).

### 4.1 Binary marking code description



## 5. Limiting values

**Table 4. Limiting values**

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

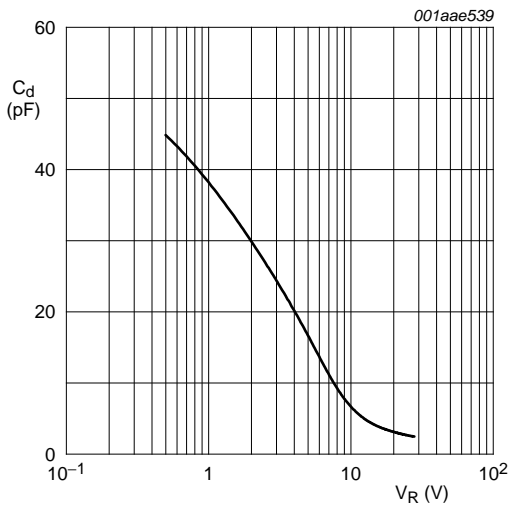
Symbol	Parameter	Conditions	Min	Max	Unit
$V_R$	reverse voltage		-	32	V
$I_F$	forward current		-	20	mA
$T_{stg}$	storage temperature		-55	+150	°C
$T_j$	junction temperature		-55	+125	°C

6. Characteristics

**Table 5. Characteristics**  
*T<sub>j</sub> = 25 °C unless otherwise specified.*

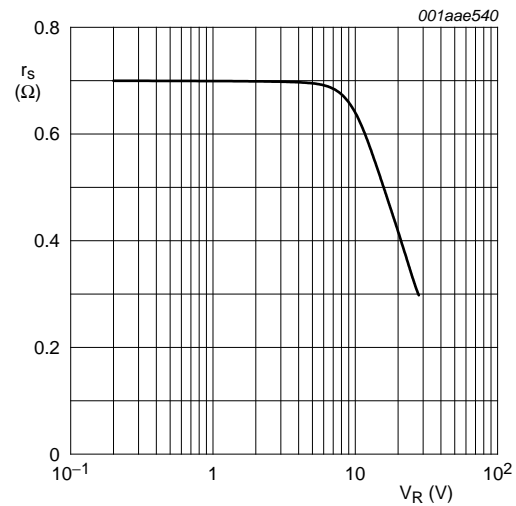
Symbol	Parameter	Conditions	Min	Typ	Max	Unit	
I <sub>R</sub>	reverse current	V <sub>R</sub> = 30 V	[1]	-	10	nA	
		V <sub>R</sub> = 30 V; T <sub>j</sub> = 85 °C	[1]	-	200	nA	
r <sub>s</sub>	diode series resistance	f = 100 MHz; C <sub>d</sub> = 30 pF	[2]	0.7	-	Ω	
C <sub>d</sub>	diode capacitance	f = 1 MHz	[3]				
		V <sub>R</sub> = 1 V		34.65	-	42.35	pF
		V <sub>R</sub> = 28 V		2.36	2.6	2.75	pF
C <sub>d(1V)</sub> /C <sub>d(2V)</sub>	diode capacitance ratio (1 V to 2 V)	f = 1 MHz	-	1.3	-		
C <sub>d(1V)</sub> /C <sub>d(28V)</sub>	diode capacitance ratio (1 V to 28 V)	f = 1 MHz	13.5	15	-		
C <sub>d(25V)</sub> /C <sub>d(28V)</sub>	diode capacitance ratio (25 V to 28 V)	f = 1 MHz	-	1.08	-		

- [1] See [Figure 4](#).
- [2] See [Figure 3](#).
- [3] See [Figure 2](#) and [Figure 5](#).



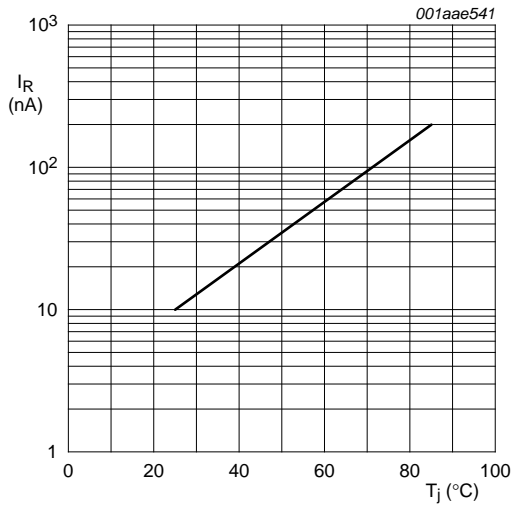
f = 1 MHz; T<sub>j</sub> = 25 °C.

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

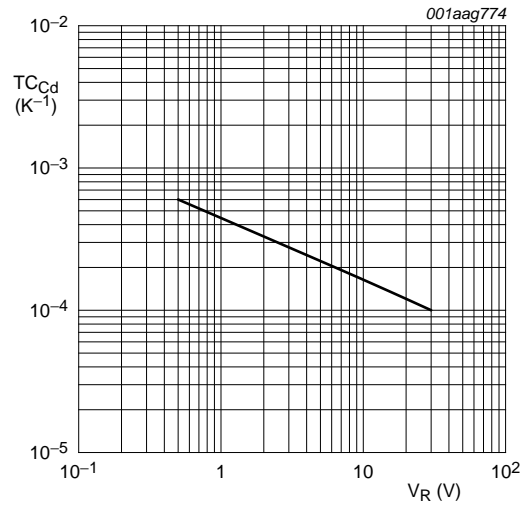


f = 100 MHz; T<sub>j</sub> = 25 °C.

**Fig 3. Diode series resistance as a function of reverse voltage; typical values**



**Fig 4.** Reverse current as a function of junction temperature; maximum values



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

**Fig 5.** Diode capacitance temperature coefficient as a function of reverse voltage; typical values

7. Package outline

DFN1006D-2: Leadless ultra small plastic package; 2 terminals; body 1 x 0.6 x 0.4 mm

SOD882D

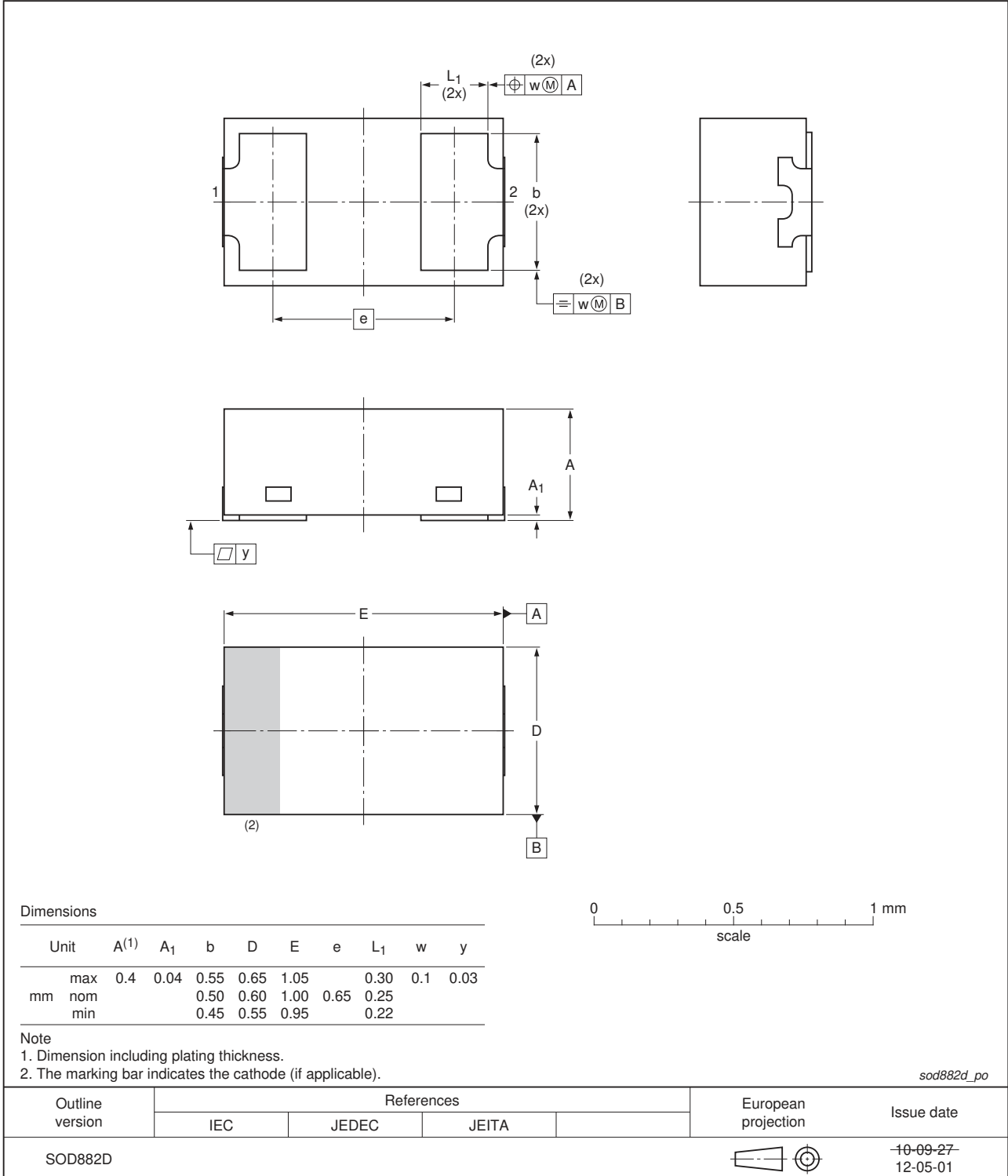


Fig 6. Package outline SOD882D (DFN1006D-2)

## 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
BB173LX v.1	20130325	Product data sheet	-	-

## 10. Legal information

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

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## 12. Contents

<b>1</b>	<b>Product profile</b> . . . . .	<b>1</b>
1.1	General description . . . . .	1
1.2	Features and benefits . . . . .	1
1.3	Applications . . . . .	1
<b>2</b>	<b>Pinning information</b> . . . . .	<b>1</b>
<b>3</b>	<b>Ordering information</b> . . . . .	<b>1</b>
<b>4</b>	<b>Marking</b> . . . . .	<b>2</b>
4.1	Binary marking code description . . . . .	2
<b>5</b>	<b>Limiting values</b> . . . . .	<b>2</b>
<b>6</b>	<b>Characteristics</b> . . . . .	<b>3</b>
<b>7</b>	<b>Package outline</b> . . . . .	<b>5</b>
<b>8</b>	<b>Abbreviations</b> . . . . .	<b>6</b>
<b>9</b>	<b>Revision history</b> . . . . .	<b>6</b>
<b>10</b>	<b>Legal information</b> . . . . .	<b>7</b>
10.1	Data sheet status . . . . .	7
10.2	Definitions . . . . .	7
10.3	Disclaimers . . . . .	7
10.4	Trademarks . . . . .	8
<b>11</b>	<b>Contact information</b> . . . . .	<b>8</b>
<b>12</b>	<b>Contents</b> . . . . .	<b>9</b>

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