Product data sheet

1. Product profile

1.1 General description

The BB172 is a variable capacitance diode, fabricated in planar technology, and encapsulated in the SOD323 (SC-76) very small SMD plastic package.

1.2 Features and benefits

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

1.3 Applications

Voltage Controlled Oscillators (VCO)

2. Pinning information

Table 1.	Pinning		
Pin	Description	Simplified outline	Symbol
1	cathode	[1]	JL
2	anode		**
			sym008

^[1] The marking bar indicates the cathode.

3. Ordering information

3.1 Package information

Table 2. Package information

Type number	Package		
	Name	Description	Version
BB172	SC-76	plastic surface-mounted package; 2 leads	SOD323



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3.2 Ordering information

Table 3. Ordering options

Type number	Orderable part number	Package	Packing method	Minimum order quantity
BB172	BB172X	SC-76	tape and reel	3000

4. Marking

Table 4. Marking

Type number	Marking code
BB172	4K

5. Limiting values

Table 5. 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
l _F	forward current		-	20	mΑ
T _{stg}	storage temperature		-55	+150	°C
Tj	junction temperature		-55	+125	°C

6. Characteristics

Table 6. Characteristics

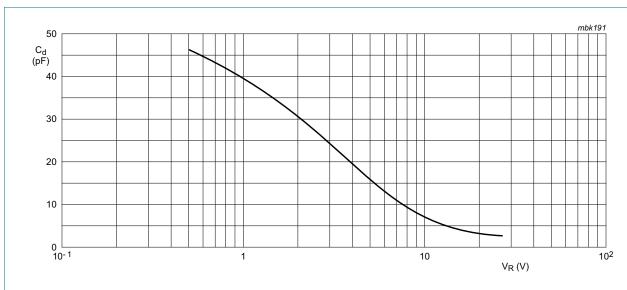
 $T_j = 25$ °C unless otherwise specified.

Symbol	Parameter	Conditions		Min	Тур	Max	Unit
I _R	reverse current	$V_R = 30 V$	[1]	-	-	10	nA
		$V_R = 30 \text{ V}; T_j = 85 ^{\circ}\text{C}$	[1]	-	-	200	nΑ
r _s	diode series resistance	$f = 100 \text{ MHz}; C_d = 30 \text{ pF}$		-	0.65	8.0	Ω
C _d	diode capacitance	f = 1 MHz	[2]				
		V _R = 1 V		34.65	-	42.35	pF
		V _R = 28 V		2.361	2.6	2.754	pF
$C_{d(1V)}/C_{d(2V)}$	diode capacitance ratio (1 V to 2 V)	f = 1 MHz		-	1.3	-	
$C_{d(1V)}/C_{d(28V)}$	diode capacitance ratio (1 V to 28 V)	f = 1 MHz		13.5	15	-	
$C_{d(25V)}/C_{d(28V)}$	diode capacitance ratio (25 V to 28 V)	f = 1 MHz		-	1.08	-	

^[1] See Figure 2.

[2] See Figure 1 and Figure 3.

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

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

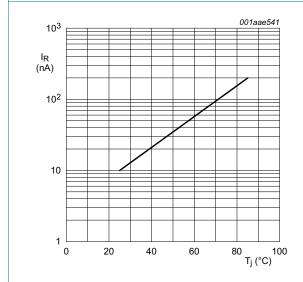
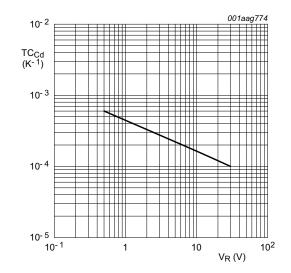


Fig 2. Reverse current as a function of junction temperature; maximum values.



 $T_i = 0$ °C to 85 °C.

Fig 3. Diode capacitance temperature coefficient as a function of reverse voltage; typical values.

7. Package outline

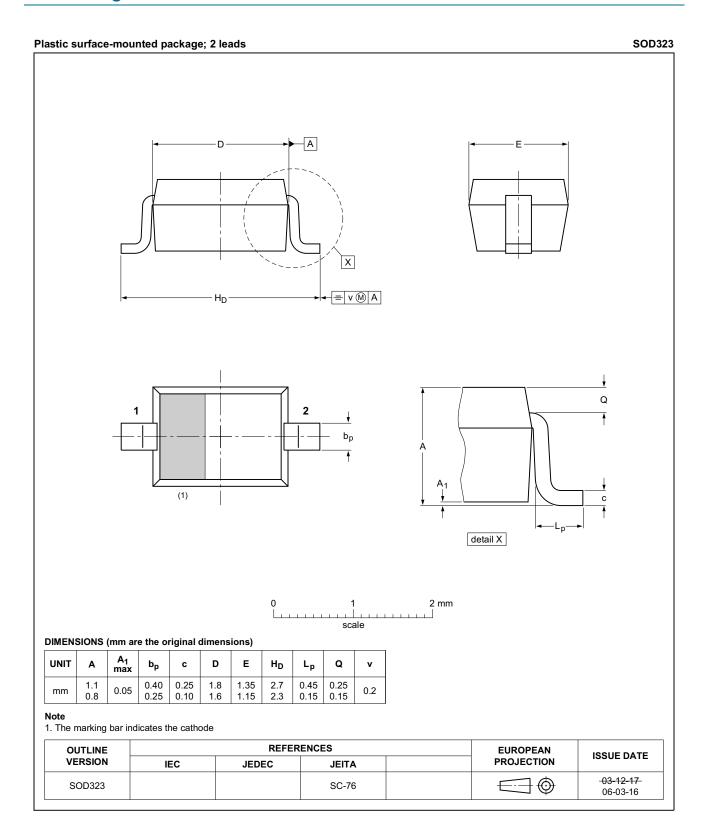


Fig 4. Package outline SOD323 (SC-76)

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8. Abbreviations

Table 7. Abbreviations

Acronym	Description
SMD	Surface Mounted Device
VHF	Very High Frequency

9. Revision history

Table 8. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BB172 v.2	20131203	Product data sheet	-	BB172 v.1
Modifications	 Section 3 on page 1: additional ordering information has been added 			
BB172 v.1	20130325	Product data sheet	-	-

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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.

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