Product data sheet

1. Product profile

1.1 General description

The BB170 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
- $C_{d(28V)} = 2.6 \text{ pF}$; $C_{d(1V)}$ 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	[1]	Ш
2	anode	1 2	sym008

^[1] The marking bar indicates the cathode.

3. Ordering information

Table 2. Ordering information

Type number	Package				
	Name	Description	Version		
BB170	SC-76	plastic surface-mounted package; 2 leads	SOD323		



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4. Marking

Table 3. Marking

Type number	Marking code
BB170	4H

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
Tj	junction temperature		-55	+125	°C

6. Characteristics

Table 5. Characteristics

 $T_i = 25$ °C unless otherwise specified.

	<u> </u>						
Symbol	Parameter	Conditions		Min	Тур	Max	Unit
I _R	reverse current	$V_R = 30 V$	[1]	-	-	10	nΑ
		$V_R = 30 \text{ V}; T_j = 85 ^{\circ}\text{C}$	[1]	-	-	200	nA
r _s	diode series resistance	$f = 100 \text{ MHz}; C_d = 12 \text{ pF}$		-	-	0.9	Ω
C _d	diode capacitance	f = 1 MHz	[2]				
		V _R = 1 V		36.8	-	41.8	pF
		V _R = 28 V		2.4	2.6	2.75	pF
$C_{d(1V)}/C_{d(28V)}$	diode capacitance ratio (1 V to 28 V)	f = 1 MHz		14.5	15	-	

^[1] See Figure 2.

^[2] See Figure 1 and Figure 3.

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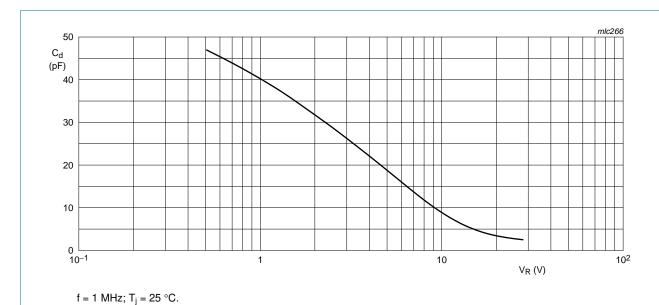


Fig 1. Diode capacitance as a function of reverse voltage; typical values.

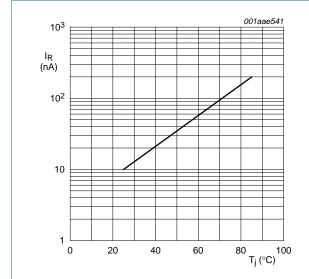


Fig 2. Reverse current as a function of junction temperature; maximum values.

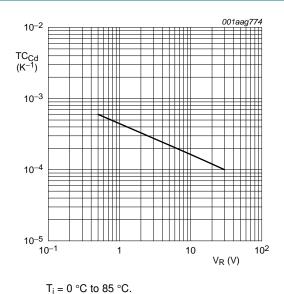


Fig 3. Diode capacitance temperature coefficient as a function of reverse voltage; typical values.

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7. Package outline

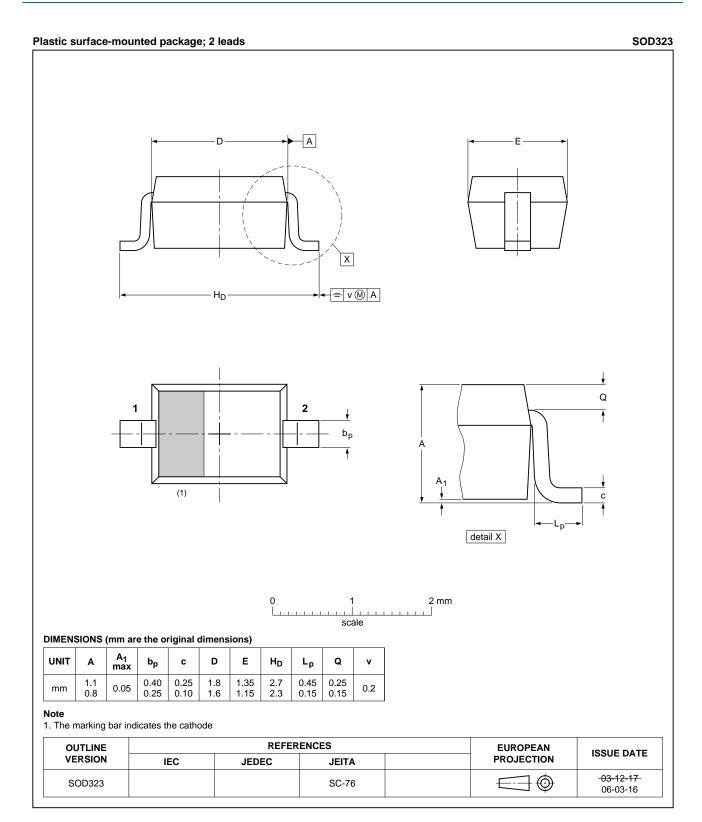


Fig 4. Package outline SOD323 (SC-76)

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VHF variable capacitance diode

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
BB170 v.1	20130325	Product data sheet	-	-

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10. Legal information

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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