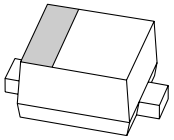


BB184

UHF low voltage variable capacitance diode

Rev. 02 — 22 April 2004 Product data sheet

1. Product profile

1.1 General description

The BB184 is a variable capacitance diode, fabricated in planar technology, and encapsulated in the SOD523 (SC-79) ultra small SMD plastic package.

1.2 Features

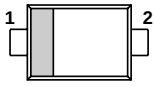
- Very steep CV curve
- $C_{d(1V)}$: 14 pF; $C_{d(10V)}$: 2 pF
- $C_{d(1V)}$ to $C_{d(10V)}$ ratio: typical 7
- Ultra small SMD plastic package.

1.3 Applications

- Voltage Controlled Oscillators (VCO)
- Tuning in low voltage television.

2. Pinning information

Table 1: Discrete pinning

Pin	Description	Simplified outline	Symbol
1	cathode	 Top view	 sym008
2	anode		

3. Ordering information

Table 2: Ordering information

Type number	Package		
	Name	Description	Version
BB184	-	plastic surface mounted package; 2 leads	SOD523

PHILIPS

4. Marking

Table 3: Marking

Type number	Marking code
BB184	A2

5. Limiting values

Table 4: Limiting values

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

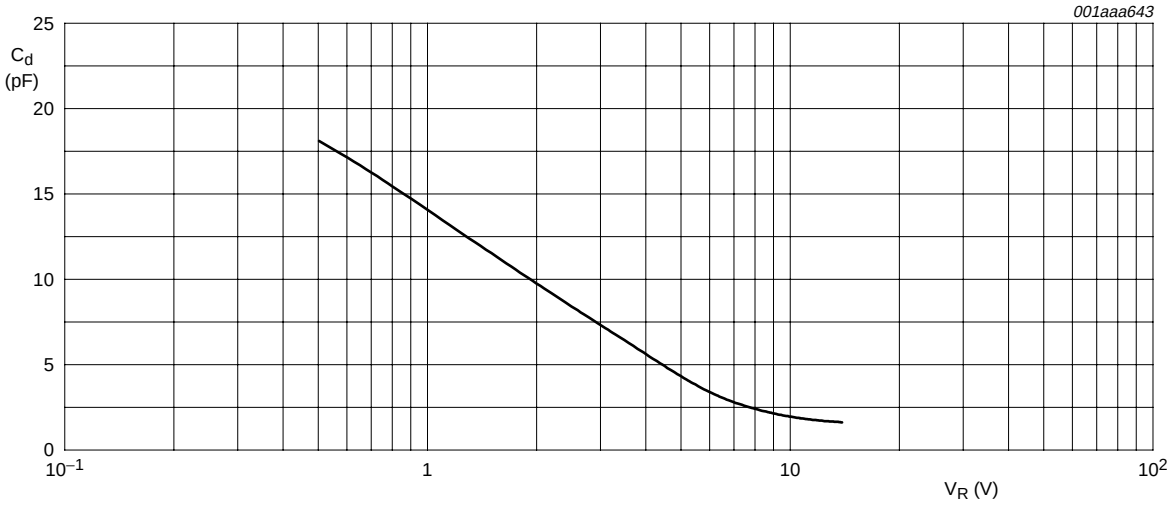
Symbol	Parameter	Conditions	Min	Max	Unit
V_R	continuous reverse voltage		-	13	V
I_F	continuous forward current		-	10	mA
T_{stg}	storage temperature		–55	+150	°C
T_j	operating junction temperature		–55	+125	°C

6. Characteristics

Table 5: Electrical characteristics

T_j = 25 °C unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
I_R	reverse current	V_R = 10 V; see Figure 2	-	-	10	nA
		V_R = 10 V; T_j = 85 °C; see Figure 2	-	-	200	nA
r_s	diode series resistance	f = 470 MHz; C_d = 9 pF	-	0.65	-	Ω
C_d	diode capacitance	f = 1 MHz; see Figure 1 and 3				
		V_R = 1 V	12.7	14	15.3	pF
		V_R = 4 V	-	5.5	-	pF
		V_R = 10 V	1.87	2	2.13	pF
$\frac{C_{d(1V)}}{C_{d(10V)}}$	capacitance ratio	f = 1 MHz	6	7	-	
$\frac{\Delta C_d}{C_d}$	capacitance matching	V_R = 1 to 10 V; in a sequence of 5 diodes (gliding)	-	-	2	%



f = 1 MHz; T_j = 25 °C.

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

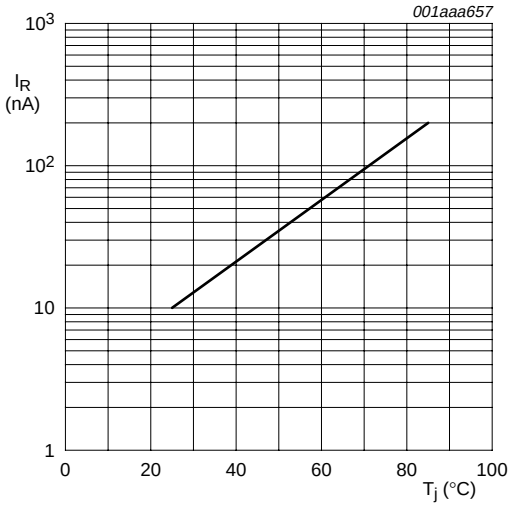


Fig 2. Reverse current as a function of junction temperature; maximum values.

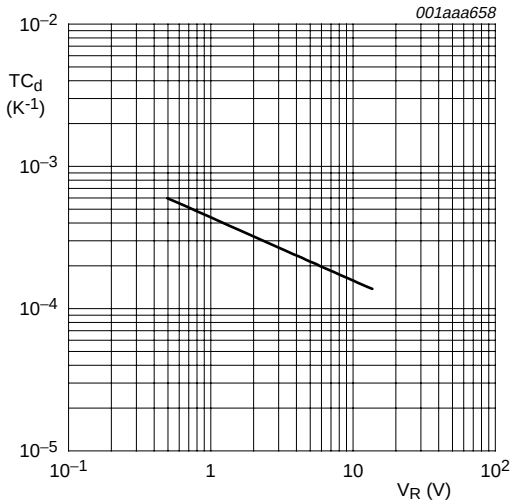
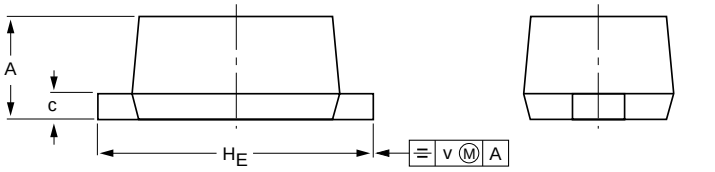
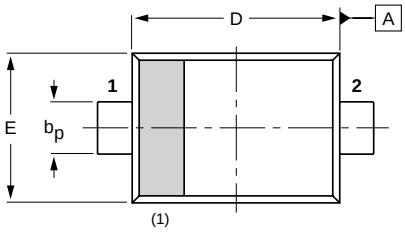


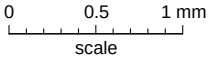
Fig 3. Temperature coefficient of diode capacitance as a function of reverse voltage; typical values.

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			~~98-11-25~~ 02-12-13

Fig 4. Package outline.

8. Revision history

Table 6: Revision history

Document ID	Release date	Data sheet status	Change notice	Order number	Supersedes
BB184_2	20040422	Product data	-	9397 750 13004	BB184_N_1
Modifications:	• The format of this data sheet has been redesigned to comply with the new presentation and information standard of Philips Semiconductors				
BB184_N_1	20040114	Preliminary data	-	9397 750 12694	-

9. Data sheet status

Level	Data sheet status [1]	Product status [2] [3]	Definition
I	Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
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[3] For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

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Limiting values definition — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.

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