BB184

UHF low voltage variable capacitance diode

Rev. 3 — 6 September 2011 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 and benefits

- 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		 sym008
2	anode		

3. Ordering information

Table 2. Ordering information

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

4. Marking

Table 3. Marking

Type number	Marking code
BB184	A2

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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	%

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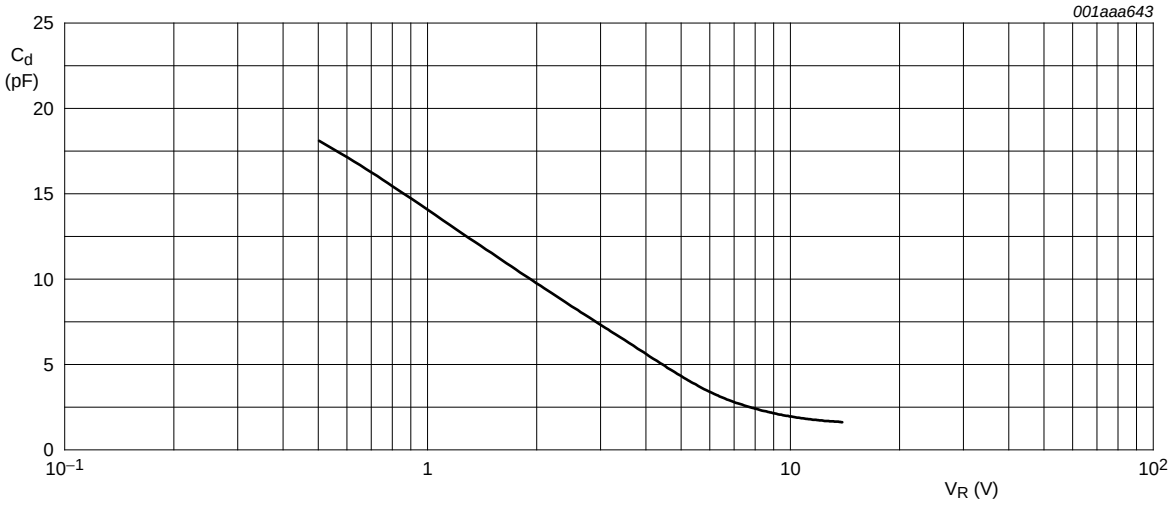

f = 1 MHz; T_j = 25 °C.

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

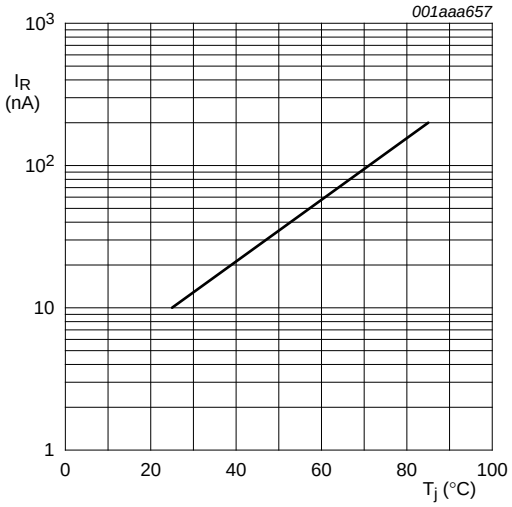

Fig 2. Reverse current as a function of junction temperature; maximum values.

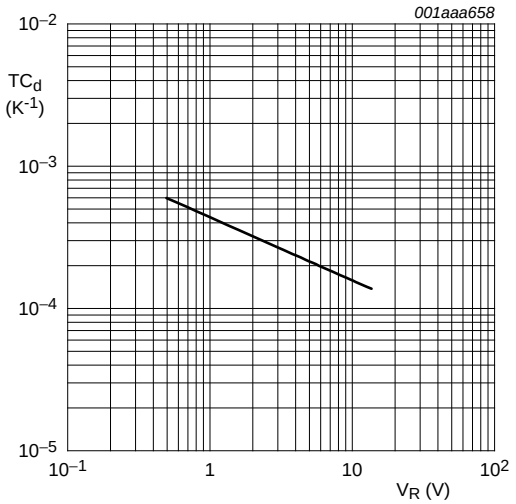

Fig 3. Temperature coefficient of diode capacitance as a function of reverse voltage; typical values.

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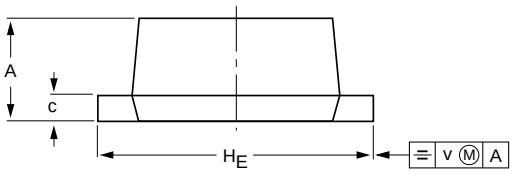
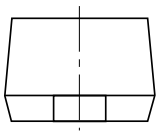
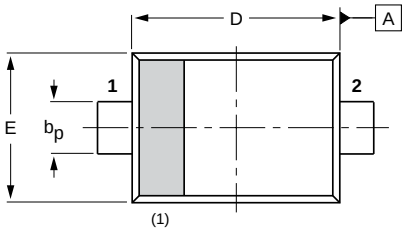
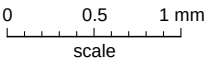
7. Package outline

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			~~02-12-13~~ 06-03-16

Fig 4. Package outline.

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8. Revision history

Table 6. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BB184 v.3	20110906	Product data sheet	-	BB184 v.2
Modifications:	• The format of this data sheet has been redesigned to comply with the new identity guidelines of NXP Semiconductors. • Legal texts have been adapted to the new company name where appropriate. • Package outline drawings have been updated to the latest version.			
BB184 v.2 (9397 750 13004)	20040422	Product data	-	BB184_N v.1
BB184_N v.1 (9397 750 12694)	20040114	Preliminary data	-	-

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9.1 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.

[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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