



# BB207

## FM variable capacitance double diode

Rev. 02 — 27 April 2004

Product data sheet

## 1. Product profile

### 1.1 General description

The BB207 is a variable capacitance double diode with a common cathode, fabricated in silicon planar technology, and encapsulated in the SOT23 small plastic SMD package.

### 1.2 Features

- Excellent linearity
- $C_{d(1V)}$ : 81 pF;  $C_{d(7.5V)}$ : 27.6 pF
- $C_{d(1V)}$  to  $C_{d(7.5V)}$  ratio: min. 2.6
- Very low series resistance
- Small plastic SMD package.

### 1.3 Applications

- Electronic tuning in FM-radio.

## 2. Pinning information

Table 1: Discrete pinning

Pin	Description	Simplified outline	Symbol
1	anode 1	 Top view	 sym032
2	anode 2		
3	common cathode		

## 3. Ordering information

Table 2: Ordering information

Type number	Package		
	Name	Description	Version
BB207	-	plastic surface mounted package; 3 leads	SOT23

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## 4. Marking

**Table 3: Marking**

Type number	Marking code <sup>[1]</sup>
BB207	*13

[1] \* = p: made in Hong Kong.  
\* = w: made in China.

## 5. Limiting values

**Table 4: Limiting values**

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

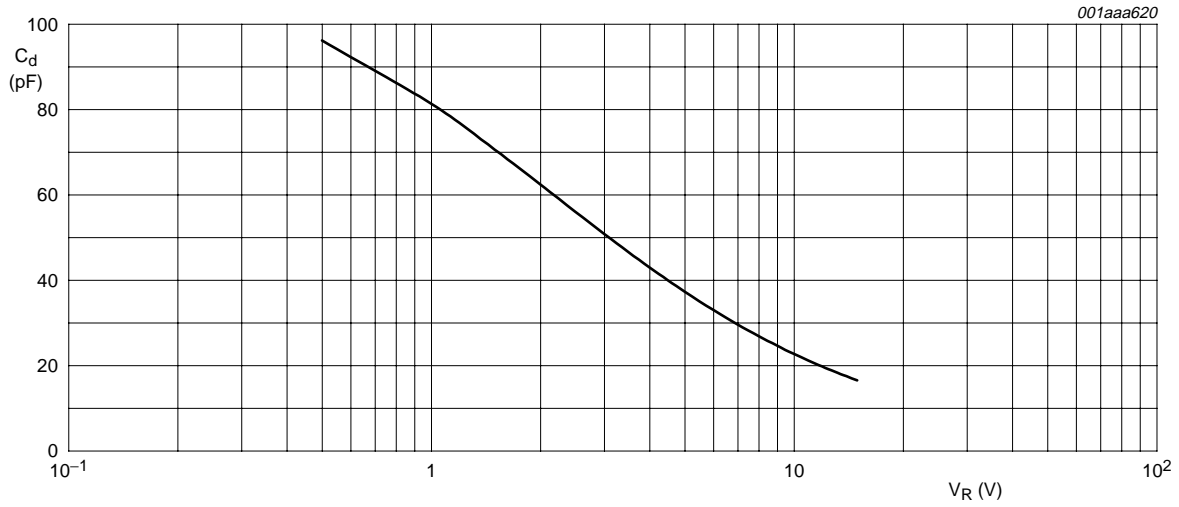
Symbol	Parameter	Conditions	Min	Max	Unit
<b>Per diode</b>					
$V_R$	continuous reverse voltage		-	15	V
$I_F$	continuous forward current		-	20	mA
$T_{stg}$	storage temperature		-55	+150	°C
$T_j$	junction temperature		-55	+125	°C

## 6. Characteristics

**Table 5: Electrical Characteristics**

$T_j = 25\text{ °C}$  unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Per diode</b>						
$I_R$	reverse current	$V_R = 15\text{ V}$ ; see <a href="#">Figure 2</a>	-	-	10	nA
		$V_R = 15\text{ V}$ ; $T_j = 85\text{ °C}$ ; see <a href="#">Figure 2</a>	-	-	200	nA
$r_s$	diode series resistance	$f = 100\text{ MHz}$ ; $V_R = 3\text{ V}$	-	0.2	0.4	$\Omega$
$C_d$	diode capacitance	$V_R = 1\text{ V}$ ; $f = 1\text{ MHz}$ ; see <a href="#">Figure 1</a>	76	81	86	pF
		$V_R = 3\text{ V}$ ; $f = 1\text{ MHz}$ ; see <a href="#">Figure 1</a>	-	50.5	-	pF
		$V_R = 7.5\text{ V}$ ; $f = 1\text{ MHz}$ ; see <a href="#">Figure 1</a>	25.5	27.6	29.7	pF
		$V_R = 8\text{ V}$ ; $f = 1\text{ MHz}$ ; see <a href="#">Figure 1</a>	-	26.3	-	pF
$\frac{C_{d(1V)}}{C_{d(7.5V)}}$	capacitance ratio	$f = 1\text{ MHz}$	2.6	-	3.3	



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

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

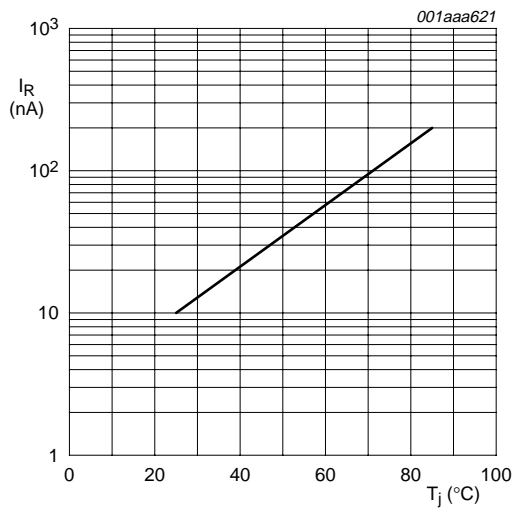


Fig 2. Reverse current as a function of junction temperature; maximum values.

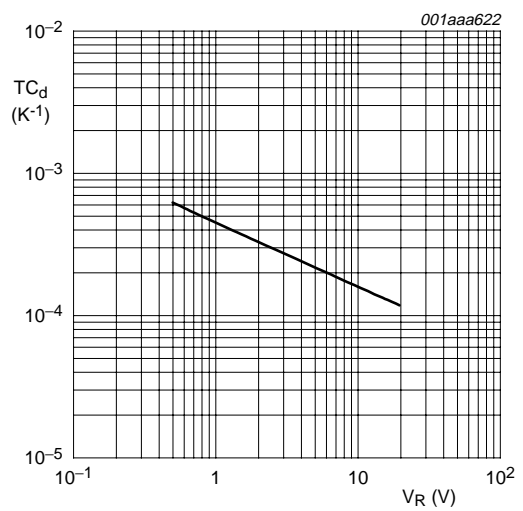


Fig 3. Temperature coefficient of diode capacitance as a function of reverse voltage; typical values.

**7. Package outline**

Plastic surface mounted package; 3 leads

SOT23

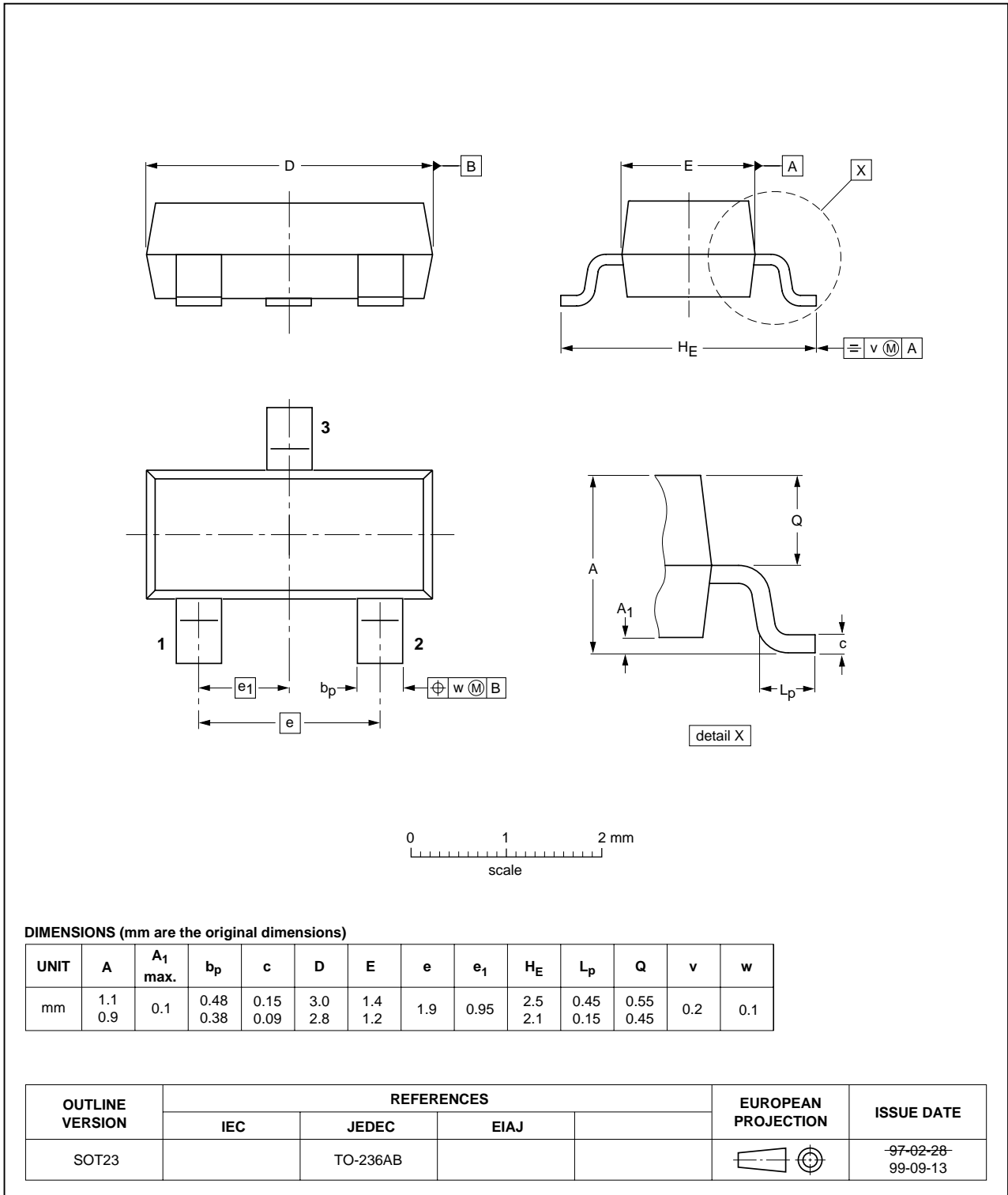


Fig 4. Package outline.

## 8. Revision history

**Table 6: Revision history**

Document ID	Release date	Data sheet status	Change notice	Order number	Supersedes
BB207_2	20040427	Product data	-	9397 750 13003	BB207_N_1
Modifications:	<ul style="list-style-type: none"><li>The format of this data sheet has been redesigned to comply with the new presentation and information standard of Philips Semiconductors.</li></ul>				
BB207_N_1	20031117	Preliminary data	-	9397 750 12695	-

## 9. Data sheet status

Level	Data sheet status <sup>[1]</sup>	Product status <sup>[2]</sup> <sup>[3]</sup>	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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