



# BB804

## VHF variable capacitance double diode

Rev. 03 — 1 July 2004

Product data sheet

## 1. Product profile

### 1.1 General description

The BB804 is a variable capacitance double diode with a common cathode, fabricated in planar technology and encapsulated in the SOT23 small plastic SMD package.

### 1.2 Features

- Selected capacitance range
- Small plastic SMD package
- C8: 26 pF; ratio: 1.7
- Low series resistance.

### 1.3 Applications

- Electronic tuning in FM radio applications.

## 2. Pinning information

Table 1: Pinning

Pin	Description	Simplified outline	Symbol
1	anode (a1)	 SOT23	 sym032
2	anode (a2)		
3	common cathode		

## 3. Ordering information

Table 2: Ordering information

Type number	Package		
	Name	Description	Version
BB804	-	plastic surface mounted package; 3 leads	SOT23

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## 4. Marking

**Table 3: Marking**

Type number	Marking code <sup>[1]</sup>
BB804	16*

- [1] \* = p: made in Hong Kong.  
 \* = t: made in Malaysia.  
 \* = 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		-	18	V
$I_F$	continuous forward current		-	50	mA
$T_{stg}$	storage temperature		-55	+150	°C
$T_j$	junction temperature		-55	+125	°C

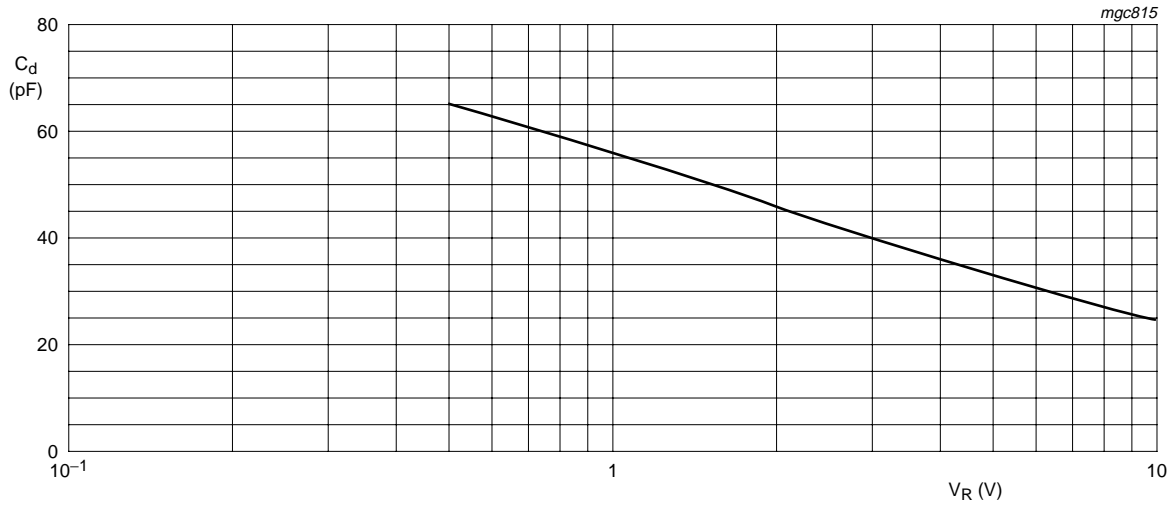
## 6. Characteristics

**Table 5: Characteristics**

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

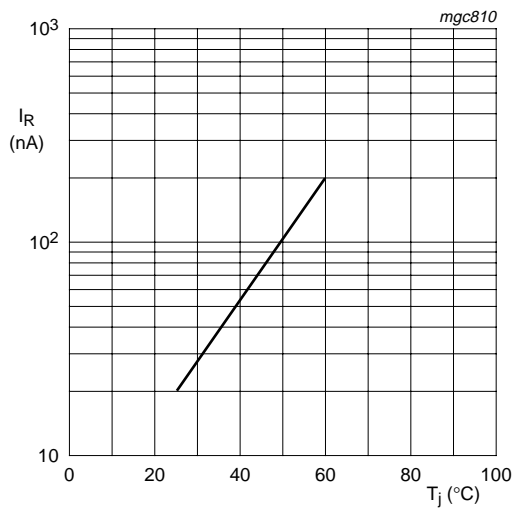
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Per diode</b>						
$I_R$	reverse current	see <a href="#">Figure 2</a>				
		$V_R = 16\text{ V}$	-	-	20	nA
		$V_R = 16\text{ V}; T_j = 60\text{ °C}$	-	-	200	nA
$r_s$	diode series resistance	$f = 100\text{ MHz}$	<sup>[1]</sup> -	0.2	-	$\Omega$
$C_d$	diode capacitance	$V_R = 2\text{ V}; f = 1\text{ MHz};$ see <a href="#">Figure 1</a> and <a href="#">Figure 3</a>	42	-	46.5	pF
$\frac{C_{d(2V)}}{C_{d(8V)}}$	capacitance ratio	$f = 1\text{ MHz}$	1.65	-	1.75	

- [1]  $V_R$  is the value at which  $C_d = 38\text{ pF}$ .

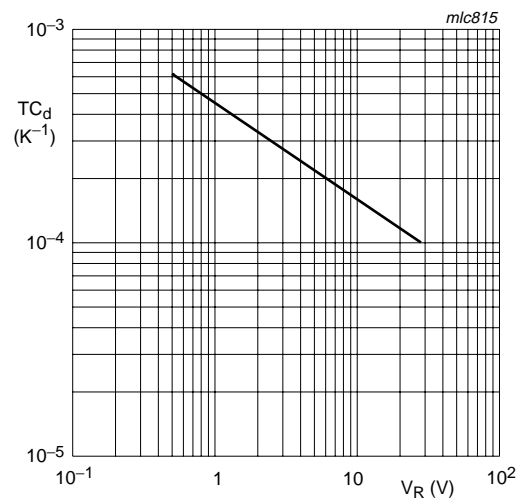


$f = 1 \text{ MHz}; T_j = 25 \text{ }^\circ\text{C}.$

**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

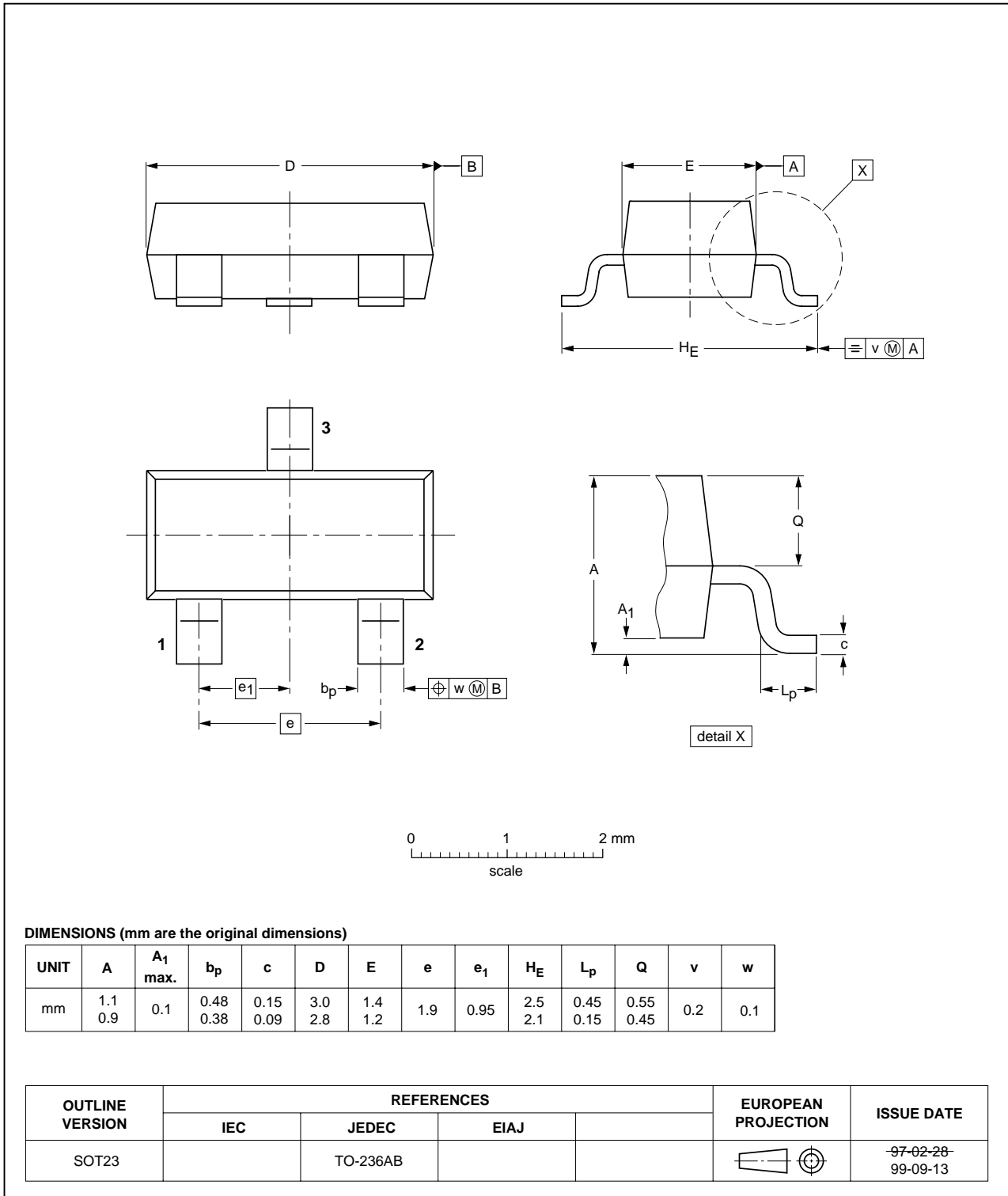


Fig 4. Package outline.

## 8. Revision history

**Table 6: Revision history**

Document ID	Release date	Data sheet status	Change notice	Order number	Supersedes
BB804_3	20040630	Product data sheet	-	9397 750 13386	BB804_2
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><li>• <a href="#">Table 3</a>: marking code changed.</li></ul>				
BB804_2	19981125	Product data sheet	-	9397 750 04717	BB804_1
BB804_1	19960503	-	-	-	-

## 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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