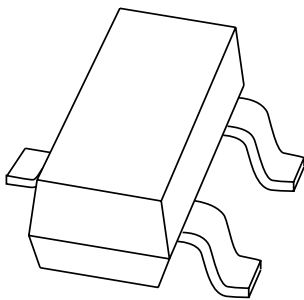


# DATA SHEET



**BB804**

VHF variable capacitance double  
diode

Product specification  
Supersedes data of 1996 May 03

1998 Nov 25

# VHF variable capacitance double diode

**BB804**

**FEATURES**

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

**MARKING**

| TYPE NUMBER | CODE |
|-------------|------|
| BB804       | SF5  |
| BB804W      | SF2  |

**PINNING**

| PIN | DESCRIPTION             |
|-----|-------------------------|
| 1   | anode (a <sub>1</sub> ) |
| 2   | anode (a <sub>2</sub> ) |
| 3   | common cathode          |

**APPLICATIONS**

- Electronic tuning in FM radio applications.

**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.

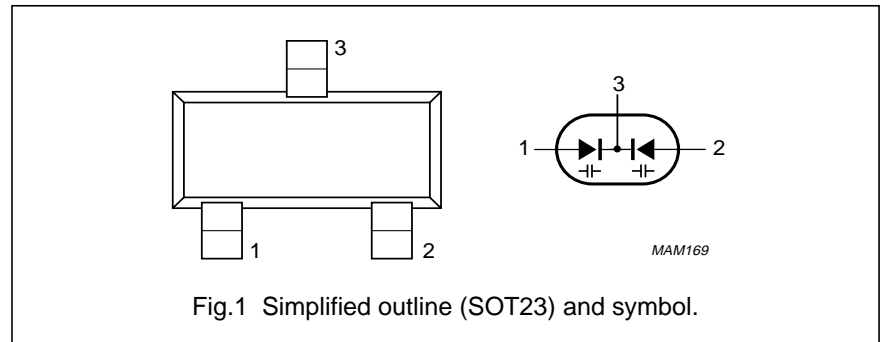


Fig.1 Simplified outline (SOT23) and symbol.

**LIMITING VALUES**

In accordance with the Absolute Maximum Rating System (IEC 134).

| SYMBOL           | PARAMETER                      | MIN. | MAX. | UNIT |
|------------------|--------------------------------|------|------|------|
| <b>Per diode</b> |                                |      |      |      |
| V <sub>R</sub>   | continuous reverse voltage     | –    | 18   | V    |
| I <sub>F</sub>   | continuous forward current     | –    | 50   | mA   |
| T <sub>stg</sub> | storage temperature            | –55  | +150 | °C   |
| T <sub>j</sub>   | operating junction temperature | –55  | +125 | °C   |

## VHF variable capacitance double diode

BB804

**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         | $V_R = 16\text{ V}$ ; see Fig.3                                     | –    | –    | 20   | nA       |
|                               |                         | $V_R = 16\text{ V}$ ; $T_j = 60\text{ °C}$ ; see Fig.3              | –    | –    | 200  | nA       |
| $r_s$                         | diode series resistance | $f = 100\text{ MHz}$ ; note 1                                       | –    | 0.2  | –    | $\Omega$ |
| $C_d$                         | diode capacitance       | $V_R = 2\text{ V}$ ; $f = 1\text{ MHz}$ ; see Figs 2 and 4          | 42   | –    | 46.5 | pF       |
|                               |                         | $V_R = 2\text{ V}$ ; $f = 1\text{ MHz}$ ; white 2; see Figs 2 and 4 | 44   | –    | 45.5 | pF       |
| $\frac{C_{d(2V)}}{C_{d(8V)}}$ | capacitance ratio       | $f = 1\text{ MHz}$  | 1.65 | –    | 1.75 |          |

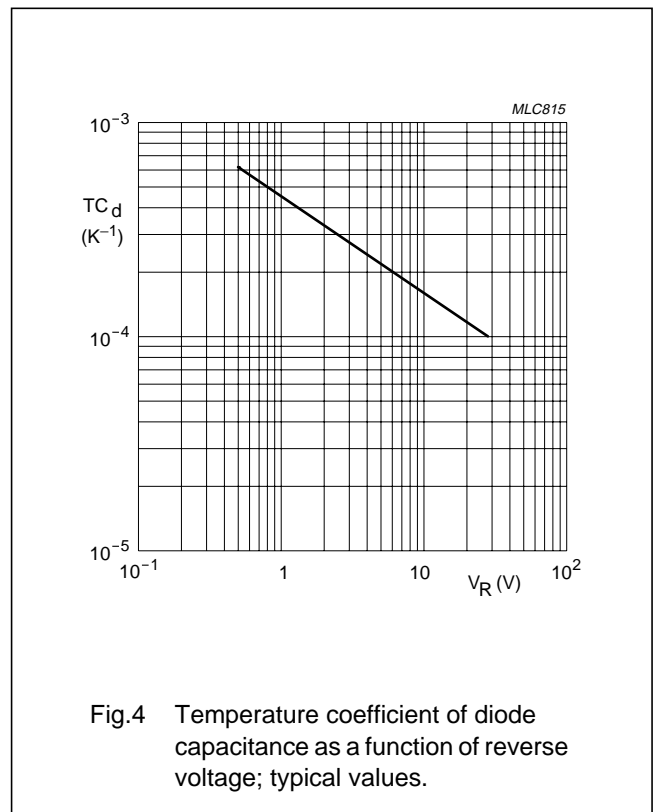
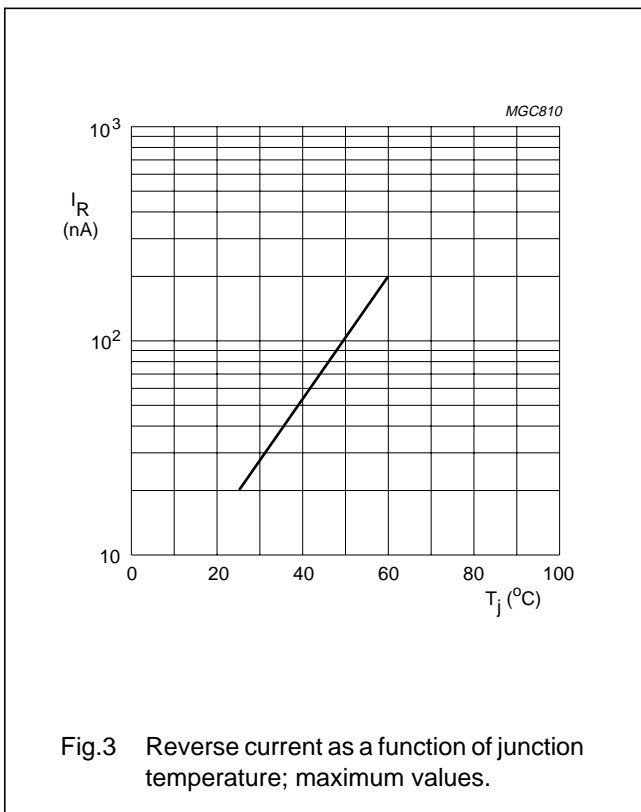
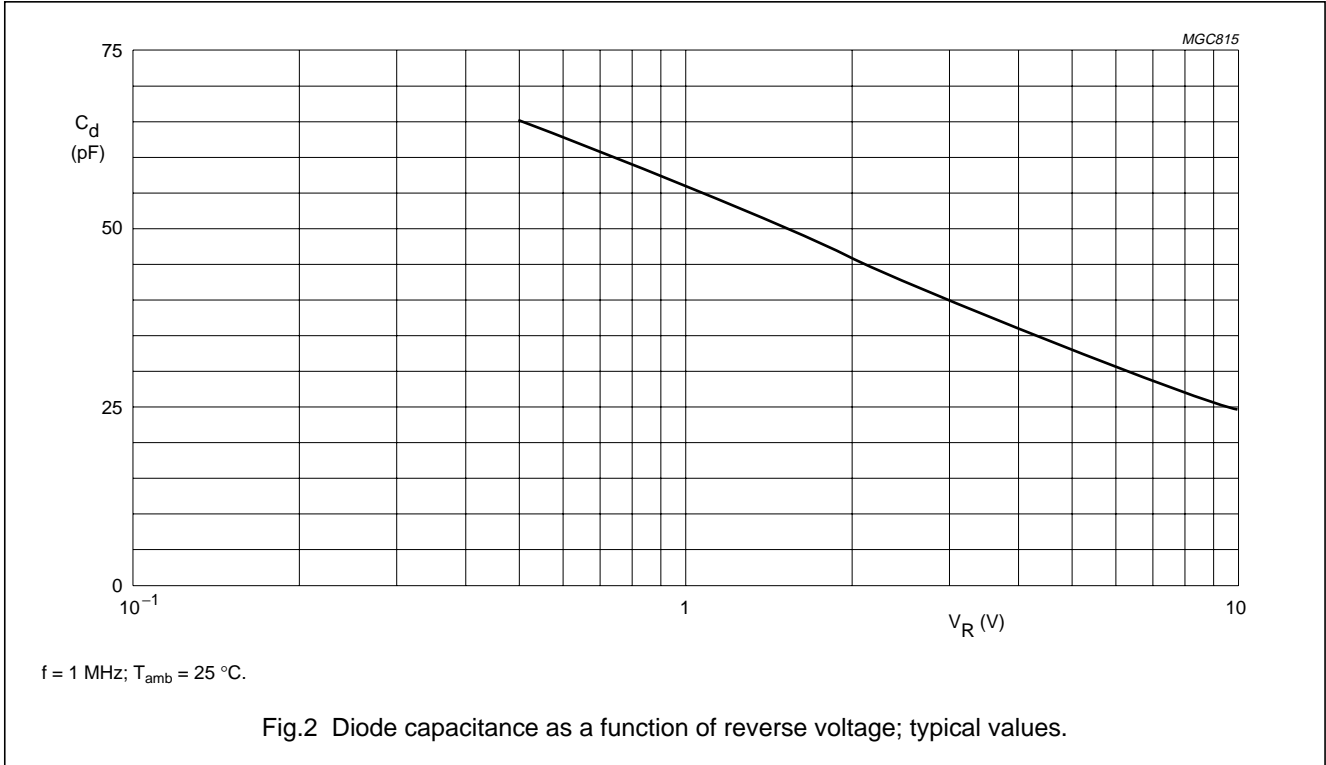
**Note**

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

VHF variable capacitance double diode

BB804

GRAPHICAL DATA



VHF variable capacitance double diode

BB804

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23



DIMENSIONS (mm are the original dimensions)

| UNIT | A          | A <sub>1</sub><br>max. | b <sub>p</sub> | c            | D          | E          | e   | e <sub>1</sub> | H <sub>E</sub> | L <sub>p</sub> | Q            | v   | w   |
|------|------------|------------------------|----------------|--------------|------------|------------|-----|----------------|----------------|----------------|--------------|-----|-----|
| mm   | 1.1<br>0.9 | 0.1                    | 0.48<br>0.38   | 0.15<br>0.09 | 3.0<br>2.8 | 1.4<br>1.2 | 1.9 | 0.95           | 2.5<br>2.1     | 0.45<br>0.15   | 0.55<br>0.45 | 0.2 | 0.1 |

| OUTLINE VERSION | REFERENCES |       |      |  | EUROPEAN PROJECTION | ISSUE DATE |
|-----------------|------------|-------|------|--|---------------------|------------|
|                 | IEC        | JEDEC | EIAJ |  |                     |            |
| SOT23           |            |       |      |  |                     | 97-02-28   |

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**VHF variable capacitance double diode****BB804**

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**DEFINITIONS**

|   |   |
|---|---|
| <b>Data sheet status</b>  |   |
| Objective specification   | This data sheet contains target or goal specifications for product development.       |
| Preliminary specification   | This data sheet contains preliminary data; supplementary data may be published later. |
| Product specification   | This data sheet contains final product specifications.                                |
| <b>Limiting values</b>  |   |
| Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). 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. |   |
| <b>Application information</b>  |   |
| Where application information is given, it is advisory and does not form part of the specification.   |   |

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VHF variable capacitance double diode

BB804

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