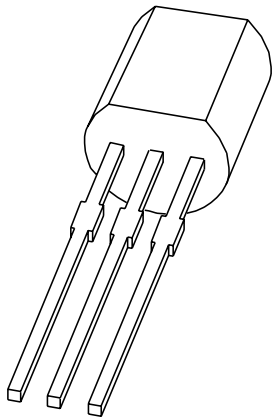


# DATA SHEET



## **BB204B; BB204G** VHF variable capacitance double diodes

Product specification  
Supersedes data of April 1992  
File under Discrete Semiconductors, SC01

1996 May 03

# VHF variable capacitance double diodes

# BB204B; BB204G

### FEATURES

- Selected capacitance ranges
- Leaded plastic package
- C30: 14 pF; ratio: 2.6.

### APPLICATIONS

- Electronic tuning in FM radio applications
- VCO.

### DESCRIPTION

The BB204B, BB204G are variable capacitance double diodes with common cathodes, fabricated in planar technology, and encapsulated in TO-92 variant leaded plastic packages.

### PINNING

| PIN | DESCRIPTION    |
|-----|----------------|
| 1   | anode (a1)     |
| 2   | common cathode |
| 3   | anode (a2)     |

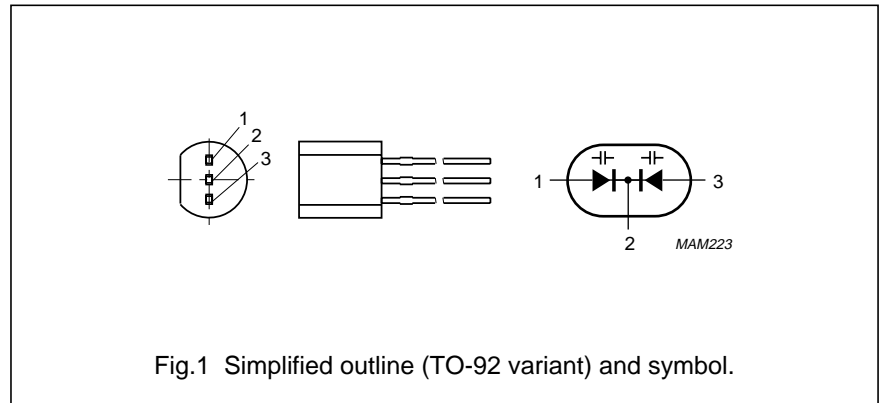


Fig.1 Simplified outline (TO-92 variant) and symbol.

### LIMITING VALUES

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

| SYMBOL           | PARAMETER                      | MIN. | MAX. | UNIT |
|------------------|--------------------------------|------|------|------|
| <b>Per diode</b> |                                |      |      |      |
| $V_R$            | continuous reverse voltage     | –    | 30   | V    |
| $I_F$            | continuous forward current     | –    | 100  | mA   |
| $T_{stg}$        | storage temperature            | –55  | +100 | °C   |
| $T_j$            | operating junction temperature | –55  | +100 | °C   |

## VHF variable capacitance double diodes

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**ELECTRICAL CHARACTERISTICS**

$T_j = 25\text{ }^\circ\text{C}$ ; unless otherwise specified.

| SYMBOL                         | PARAMETER                   | CONDITIONS   | MIN. | TYP. | MAX. | UNIT     |
|--------------------------------|-----------------------------|--|------|------|------|----------|
| <b>Per diode</b>               |                             |  |      |      |      |          |
| $I_R$                          | reverse current             | $V_R = 30\text{ V}$ ; see Fig.3                                    | –    | –    | 50   | nA       |
|                                |                             | $V_R = 30\text{ V}$ ; $T_j = 85\text{ }^\circ\text{C}$ ; see Fig.3 | –    | –    | 300  | nA       |
| $r_s$                          | diode series resistance     | $f = 100\text{ MHz}$ ; note 1                                      | –    | 0.2  | 0.4  | $\Omega$ |
| $C_d$                          | diode capacitance<br>BB204B | see Figs 2 and 4<br>$V_R = 3\text{ V}$ ; $f = 1\text{ MHz}$        | 37   | –    | 42   | pF       |
|                                |                             | $V_R = 8\text{ V}$ ; $f = 1\text{ MHz}$                            | 24   | –    | 29   | pF       |
|                                |                             | $V_R = 30\text{ V}$ ; $f = 1\text{ MHz}$                           | –    | 14   | –    | pF       |
|                                | BB204G                      | $V_R = 3\text{ V}$ ; $f = 1\text{ MHz}$                            | 34   | –    | 39   | pF       |
|                                |                             | $V_R = 8\text{ V}$ ; $f = 1\text{ MHz}$                            | 22   | –    | 27   | pF       |
|                                |                             | $V_R = 30\text{ V}$ ; $f = 1\text{ MHz}$                           | –    | 14   | –    | pF       |
| $\frac{C_{d(3V)}}{C_{d(30V)}}$ | capacitance ratio           | $f = 1\text{ MHz}$   | 2.5  | –    | 2.8  |          |

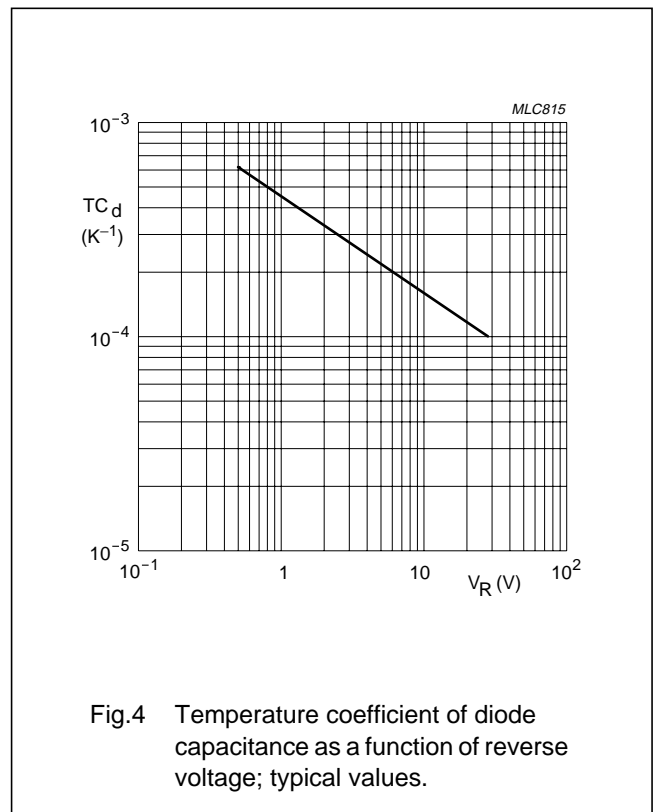
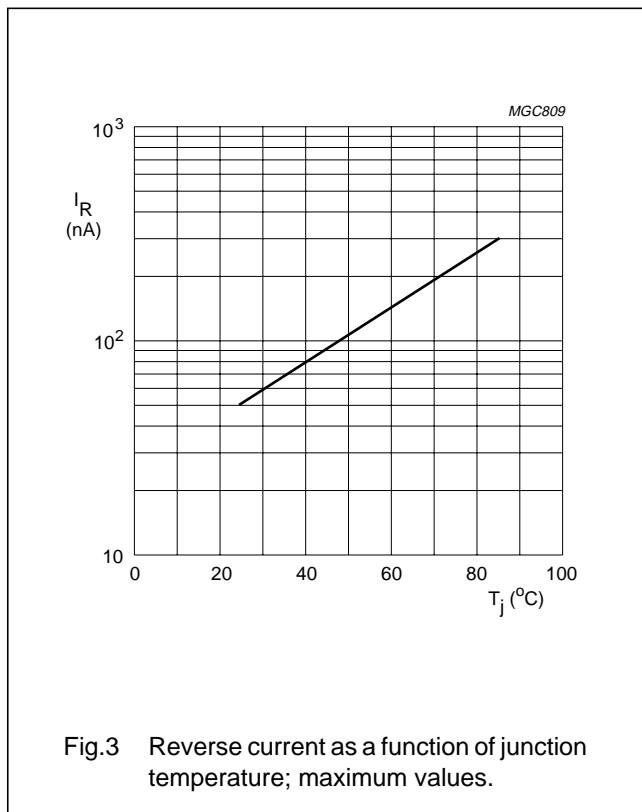
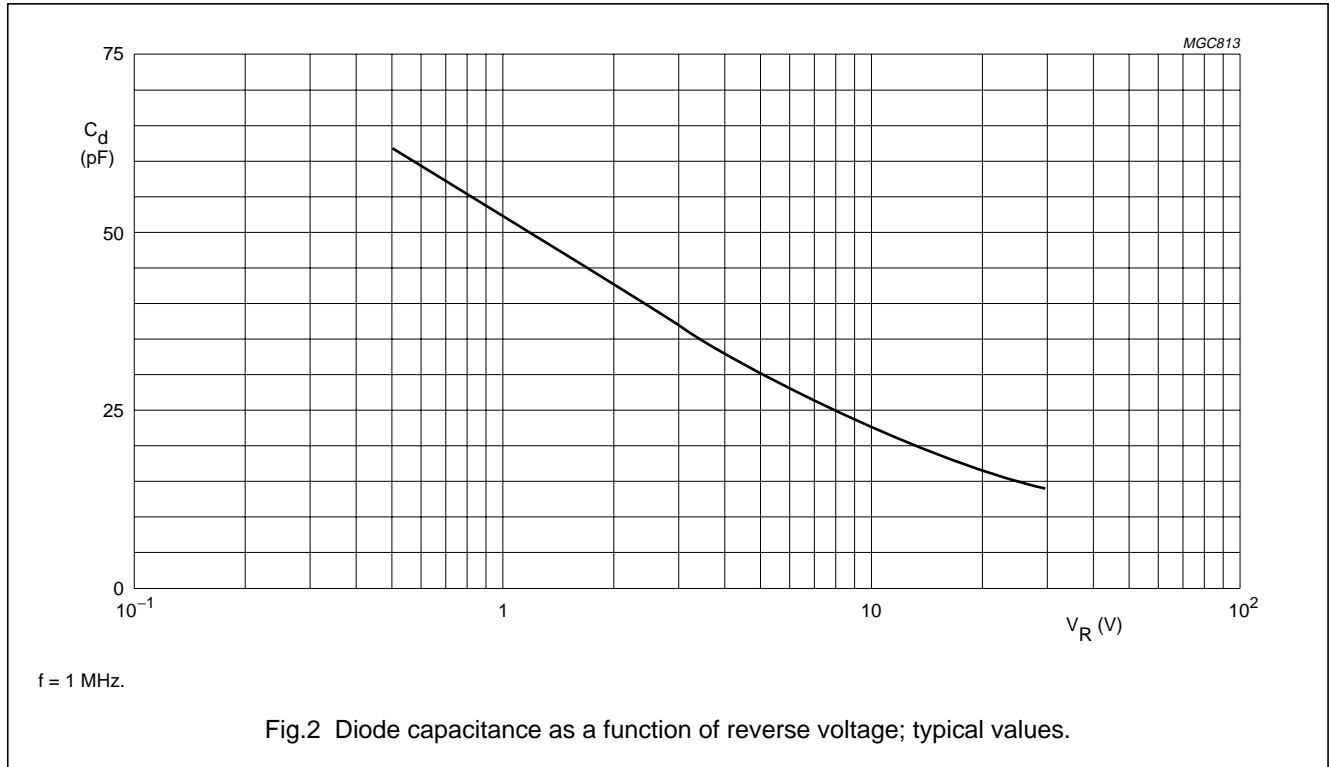
**Note**

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

VHF variable capacitance double diodes

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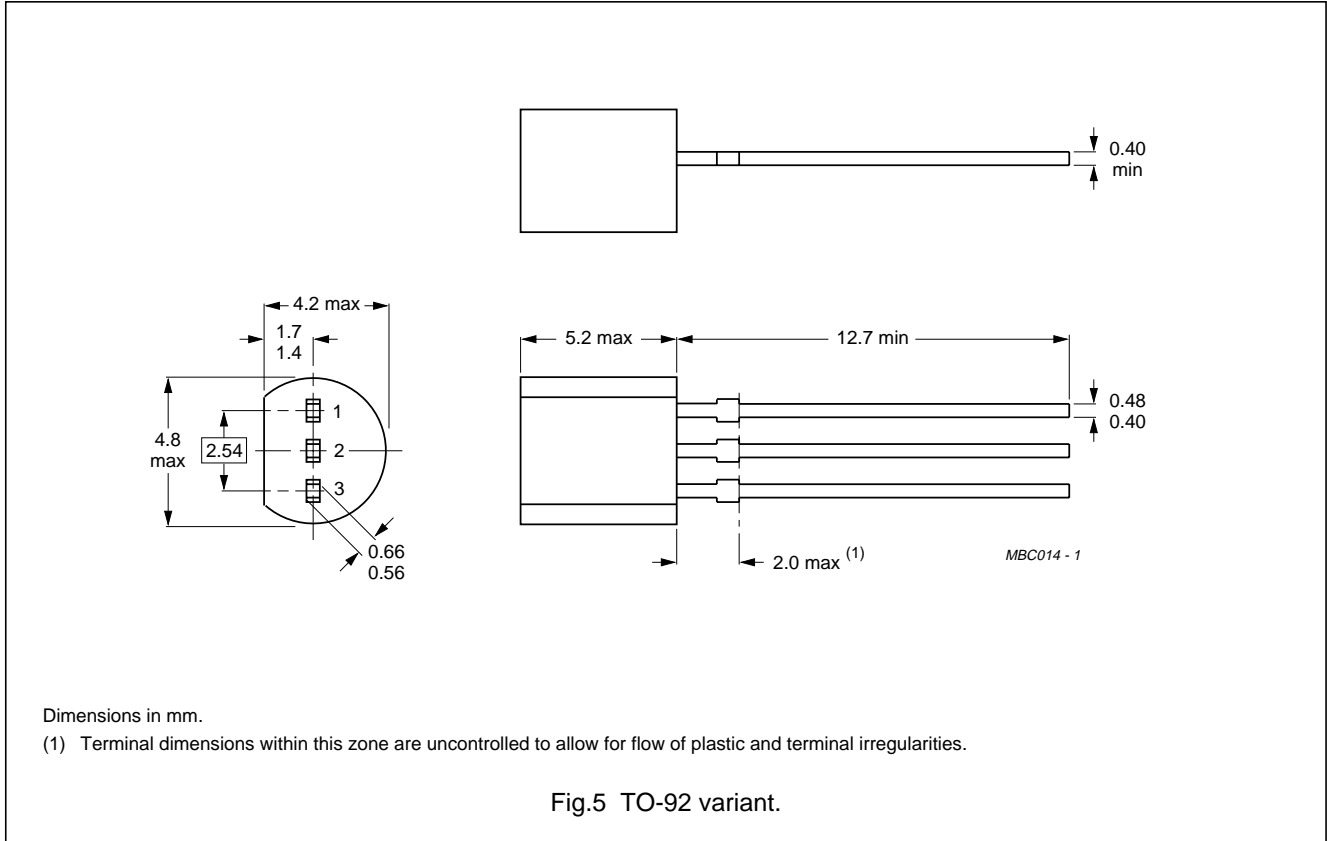
GRAPHICAL DATA



VHF variable capacitance double diodes

BB204B; BB204G

PACKAGE OUTLINE



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.   |   |

LIFE SUPPORT APPLICATIONS

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