



# BB202

Low-voltage variable capacitance diode

Rev. 02 — 3 January 2008

Product data sheet

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NXP Semiconductors

# Low-voltage variable capacitance diode

**BB202**

## FEATURES

- Very steep C/V curve
- C0.2: 30.5 pF; C2.3: 9.5 pF
- C0.2 to C2.3 ratio: min. 2.5
- Very low series resistance
- Ultra small SMD plastic package.

## APPLICATIONS

- Electronic tuning in FM radio
- Voltage Controlled Oscillators (VCO).

## DESCRIPTION

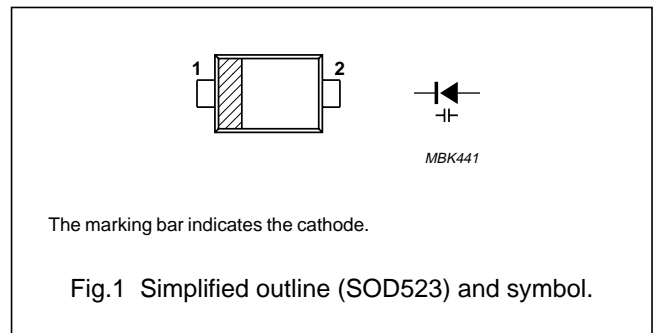
The BB202 is a variable capacitance diode, fabricated in planar technology, and encapsulated in the SOD523 ultra small SMD plastic package.

## MARKING

| TYPE NUMBER | MARKING CODE |
|-------------|--------------|
| BB202       | L2           |

## PINNING

| PIN | DESCRIPTION |
|-----|-------------|
| 1   | cathode     |
| 2   | anode       |



## LIMITING VALUES

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

| SYMBOL    | PARAMETER                      | MIN. | MAX. | UNIT |
|-----------|--------------------------------|------|------|------|
| $V_R$     | continuous reverse voltage     | –    | 6    | V    |
| $I_F$     | continuous forward current     | –    | 10   | mA   |
| $T_{stg}$ | storage temperature            | –55  | +85  | °C   |
| $T_j$     | operating junction temperature | –55  | +85  | °C   |

## ELECTRICAL CHARACTERISTICS

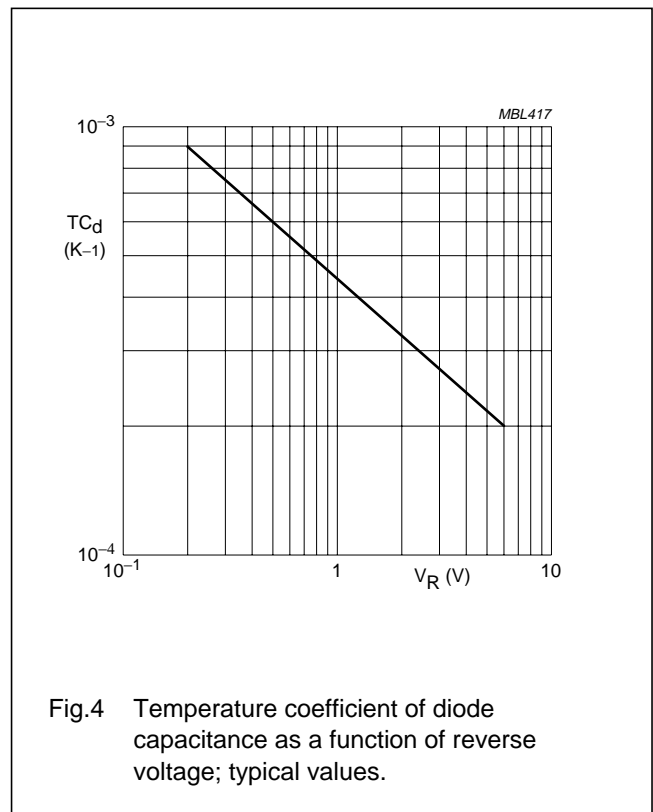
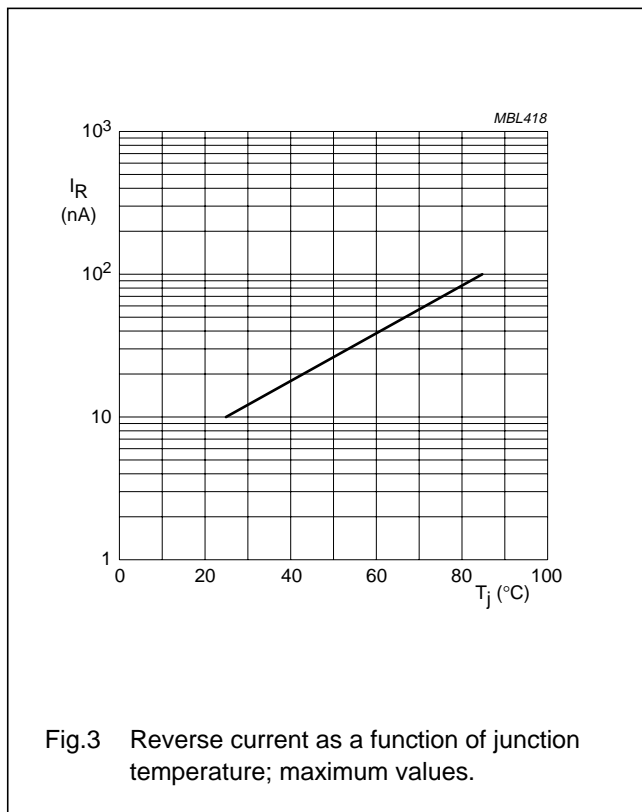
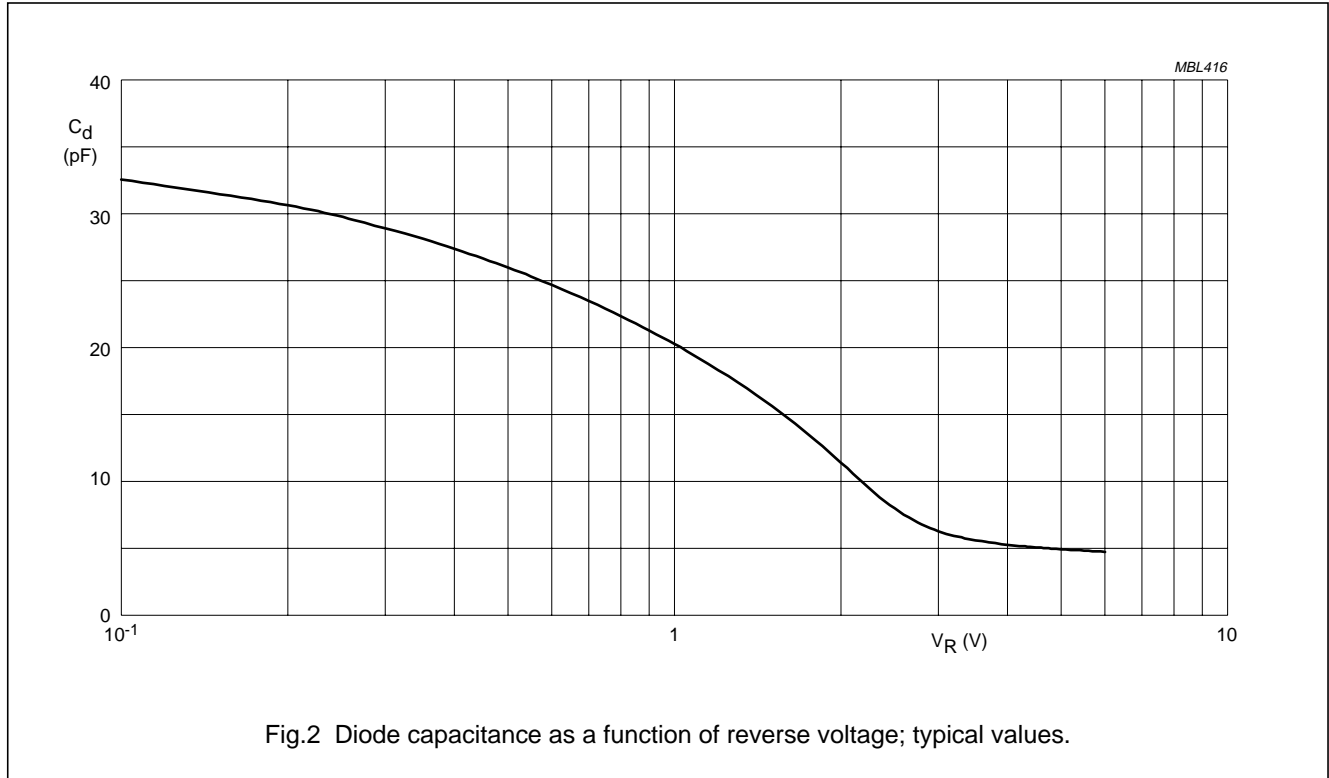
$T_j = 25\text{ °C}$  unless otherwise specified.

| SYMBOL                            | PARAMETER               | CONDITIONS   | MIN. | TYP. | MAX. | UNIT     |
|-----------------------------------|-------------------------|--|------|------|------|----------|
| $I_R$                             | reverse current         | $V_R = 6\text{ V}$ ; see Fig.3                         | –    | –    | 10   | nA       |
|                                   |                         | $V_R = 6\text{ V}$ ; $T_j = 85\text{ °C}$ ; see Fig.3  | –    | –    | 100  | nA       |
| $r_s$                             | diode series resistance | $f = 100\text{ MHz}$ ; $C = 30\text{ pF}$              | –    | 0.35 | 0.6  | $\Omega$ |
| $C_d$                             | diode capacitance       | $V_R = 0.2$ ; $f = 1\text{ MHz}$ ; see Fig.2 and Fig.4 | 28.2 | –    | 33.5 | pF       |
|                                   |                         | $V_R = 2.3$ ; $f = 1\text{ MHz}$ ; see Fig.2 and Fig.4 | 7.2  | –    | 11.2 | pF       |
| $\frac{C_{d(0.2V)}}{C_{d(2.3V)}}$ | capacitance ratio       | $f = 1\text{ MHz}$                                     | 2.5  | –    | –    |          |

Low-voltage variable capacitance diode

BB202

GRAPHICAL DATA



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BB202

PACKAGE OUTLINE

Plastic surface-mounted package; 2 leads

SOD523

**DIMENSIONS (mm are the original dimensions)**

| UNIT | A    | bp   | c    | D    | E    | HE   | v   |
|------|------|------|------|------|------|------|-----|
| mm   | 0.65 | 0.34 | 0.17 | 1.25 | 0.85 | 1.65 | 0.1 |
|      | 0.58 | 0.26 | 0.11 | 1.15 | 0.75 | 1.55 |     |

**Note**  
1. The marking bar indicates the cathode.

| OUTLINE VERSION | REFERENCES |       |       |  | EUROPEAN PROJECTION | ISSUE DATE           |
|-----------------|------------|-------|-------|--|---------------------|----------------------|
|                 | IEC        | JEDEC | JEITA |  |                     |                      |
| SOD523          |            |       | SC-79 |  |                     | 02-12-13<br>06-03-16 |

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### Data sheet status

| Document status <sup>[1][2]</sup> | Product status <sup>[3]</sup> | 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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## Revision history

### Revision history

| Document ID                 | Release date                                | Data sheet status     | Change notice | Supersedes |
|-----------------------------|---|-----------------------|---------------|------------|
| BB202_N_2                   | 20080103                                    | Product data sheet    | -             | BB202_1    |
| Modifications:              | • Package outline drawing on page 4 changed |                       |               |            |
| BB202_1<br>(9397 750 09195) | 20020218                                    | Product specification | -             | -          |

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