

# Low-voltage variable capacitance diode

**FEATURES**

- Ultra small plastic SMD package
- C4: 2.75 pF; ratio: 2.4
- Low series resistance.

**APPLICATIONS**

- Voltage controlled oscillators (VCO).

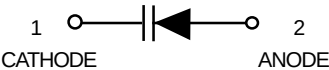
**DESCRIPTION**

The BB145B is a planar technology variable capacitance diode in a SOD523 (SC-79) package.

**BB 145B**



SOD523 SC-79



MARKING CODE:Z



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

| SYMBOL    | PARAMETER                      | CONDITIONS                              | MIN. | MAX. | UNIT |
|-----------|--------------------------------|-----------------------------------------|------|------|------|
| $V_R$     | continuous reverse voltage     |                                         | –    | 6    | V    |
| $V_{RM}$  | peak reverse voltage           | in series with a 10 k $\Omega$ resistor | –    | 8    | V    |
| $I_F$     | continuous forward current     |                                         | –    | 20   | mA   |
| $T_{stg}$ | storage temperature            |                                         | –55  | +150 | °C   |
| $T_j$     | operating junction temperature |                                         | –55  | +150 | °C   |

**ELECTRICAL CHARACTERISTICS**  $T_j=25^{\circ}\text{C}$  unless otherwise specified.

| SYMBOL                        | PARAMETER               | CONDITIONS                                                    | MIN. | MAX. | UNIT     |
|-------------------------------|-------------------------|---------------------------------------------------------------|------|------|----------|
| $I_R$                         | reverse current         | $V_R = 6\text{ V}$ ; see Fig.2                                | –    | 10   | nA       |
|                               |                         | $V_R = 6\text{ V}$ ; $T_j = 85^{\circ}\text{C}$ ; see Fig.2   | –    | 200  | nA       |
| $r_s$                         | diode series resistance | $f = 470\text{ MHz}$ ; $V_R = 1\text{ V}$                     | –    | 0.6  | $\Omega$ |
| $C_d$                         | diode capacitance       | $V_R = 1\text{ V}$ ; $f = 1\text{ MHz}$ ;<br>see Figs 1 and 3 | 6.4  | 7.2  | pF       |
|                               |                         | $V_R = 4\text{ V}$ ; $f = 1\text{ MHz}$ ;<br>see Figs 1 and 3 | 2.55 | 2.95 | pF       |
|                               |                         |                                                               |      |      |          |
| $\frac{C_{d(1V)}}{C_{d(4V)}}$ | capacitance ratio       | $f = 1\text{ MHz}$                                            | 2.2  | –    |          |

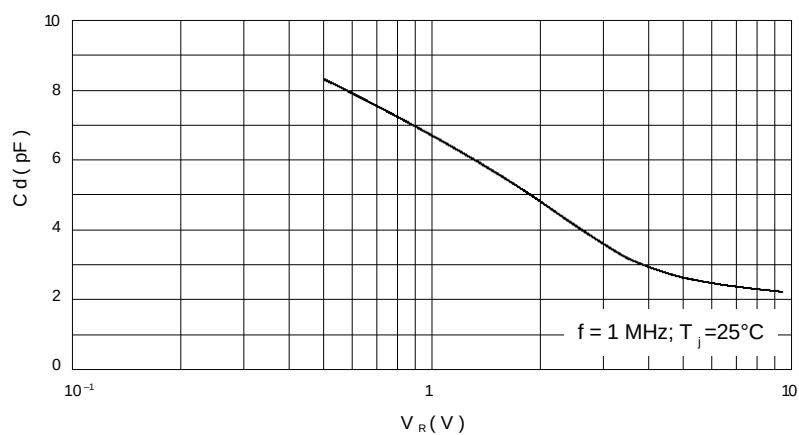
**BB 145B**


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

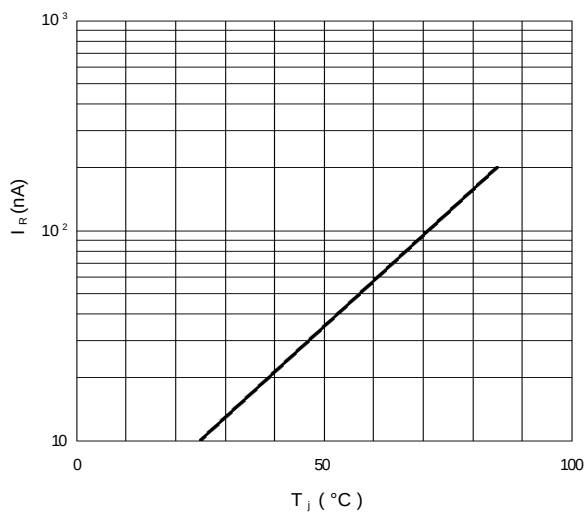


Fig.2 Reverse current as a function of junction temperature; maximum values.

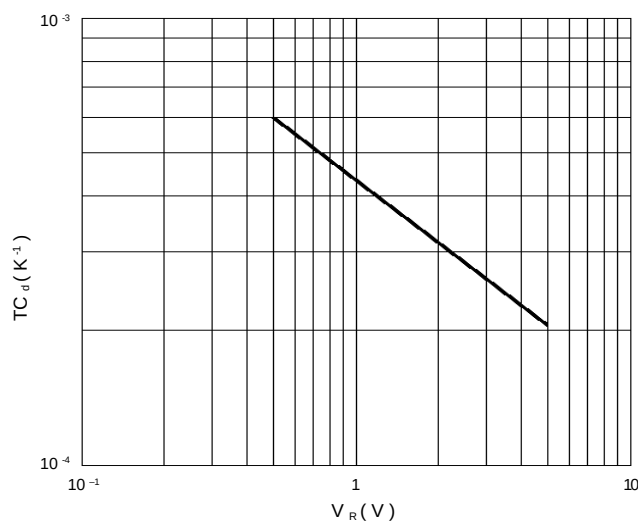


Fig.3 Temperature coefficient of diode capacitance as a function of reverse voltage; typical values.