

Low-voltage variable capacitance diode

FEATURES

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

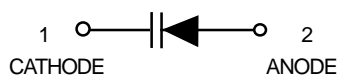
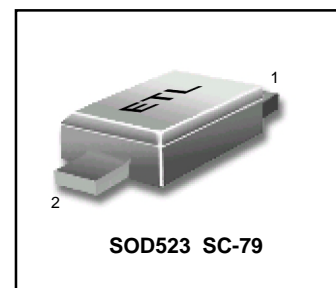
APPLICATIONS

- Voltage controlled oscillators (VCO).

DESCRIPTION

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

BB 145B



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 Ω 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 | Ω |
| C_d | diode capacitance | $V_R = 1\text{ V}$; $f = 1\text{ MHz}$; see Figs 1 and 3 | 6.4 | 7.2 | pF |
| | | $V_R = 4\text{ V}$; $f = 1\text{ MHz}$; 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 | – | |

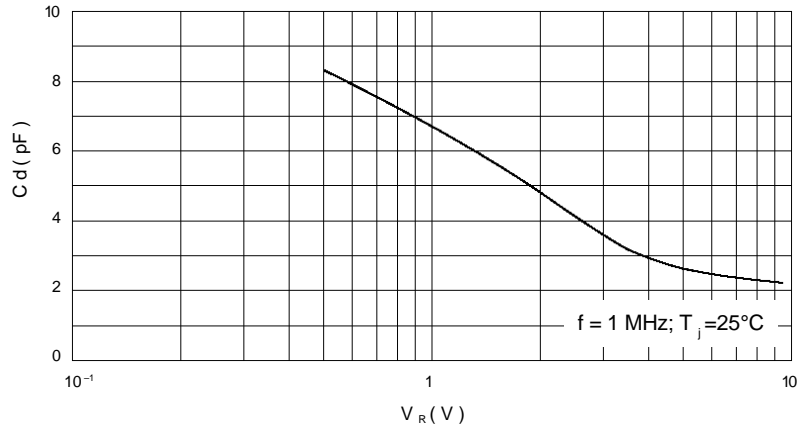


Fig.1 Diode capacitance as a function of reverse voltage; typical values.

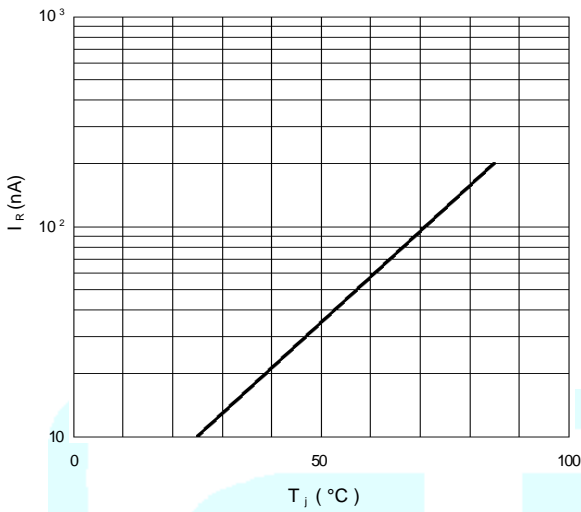


Fig.2 Reverse current as a function of junction temperature; maximum values.

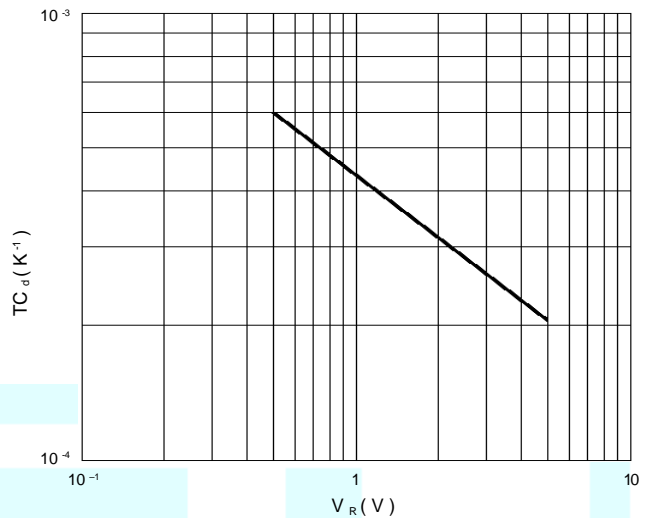


Fig.3 Temperature coefficient of diode capacitance as a function of reverse voltage; typical values.