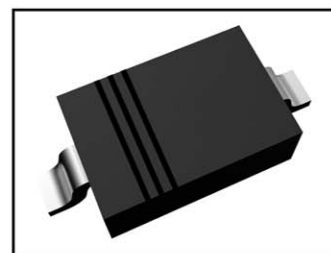


VHF Variable Capacitance Diode



● FEATURES

- Excellent linearity
- Excellent matching to 0.7% DMA
- Very small plastic SMD package
- C28: 2.5 pF; ratio: 16.
- Low series resistance.

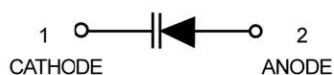
● APPLICATIONS

- Electronic tuning in VHF television tuners, band B up to 460 MHz
- VCO.

● DESCRIPTION

The BB133 is a variable capacitance diode fabricated in planar technology, and encapsulated in the SOD323 very small plastic SMD package.

The excellent matching performance is achieved by gliding matching and a direct matching assembly procedure. The unmatched type, BB150 has the same specification.



LIMITING VALUES

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

| SYMBOL | PARAMETER | MIN. | MAX. | UNIT |
|-----------|--------------------------------|------|------|------|
| V_R | continuous reverse voltage | – | 30 | V |
| I_F | continuous forward current | – | 20 | mA |
| T_{stg} | storage temperature | –55 | +150 | °C |
| T_j | operating junction temperature | –55 | +125 | °C |

ELECTRICAL CHARACTERISTICS

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

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|------------------------------|-------------------------|--|------|------|-----------|
| I_R | reverse current | $V_R = 30\text{ V}$; see Fig.2 | – | 10 | nA |
| | | $V_R = 30\text{ V}$; $T_j = 85\text{ °C}$; see Fig.2 | – | 200 | nA |
| r_s | diode series resistance | $f = 100\text{ MHz}$; note 1 | – | 0.9 | \square |
| C_d | diode capacitance | $V_R = 0.5\text{ V}$; $f = 1\text{ MHz}$; see Figs 1 and 3 | 38 | 46 | pF |
| | | $V_R = 28\text{ V}$; $f = 1\text{ MHz}$; see Figs 1 and 3 | 2.2 | 2.6 | pF |
| $\frac{C_d(0.5V)}{C_d(28V)}$ | capacitance ratio | $f = 1\text{ MHz}$ | 14 | 21 | |
| $\frac{\square C_d}{C_d}$ | capacitance matching | $V_R = 0.5\text{ to }28\text{ V}$; in a sequence of 4 diodes (gliding) | – | 0.7 | % |
| | | $V_R = 0.5\text{ to }28\text{ V}$; in a sequence of 15 diodes (gliding) | – | 2 | % |

Note

1. V_R is the value at which $C_d = 30\text{ pF}$.

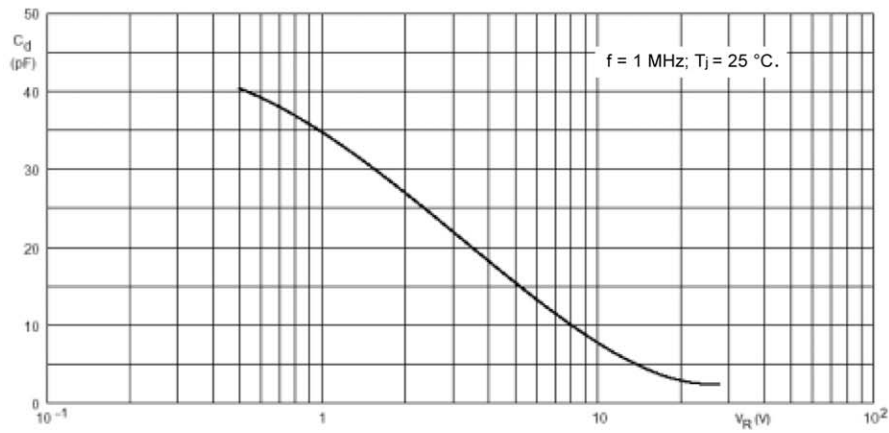


Fig.1 Diode capacitance as a function of reverse voltage; typical values.

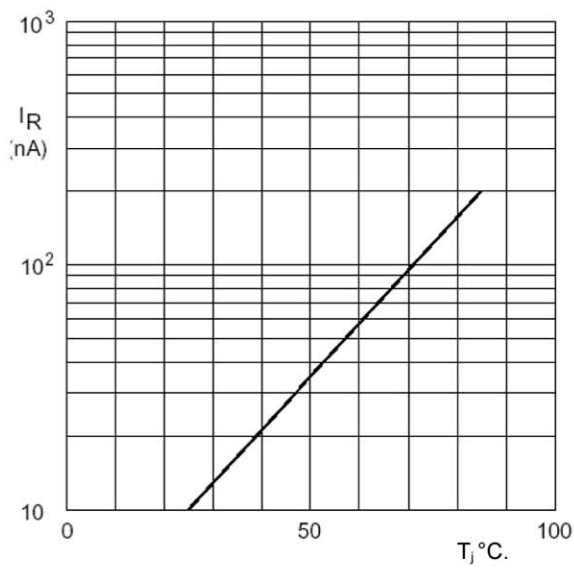


Fig.2 Reverse current as a function of junction temperature; maximum values.

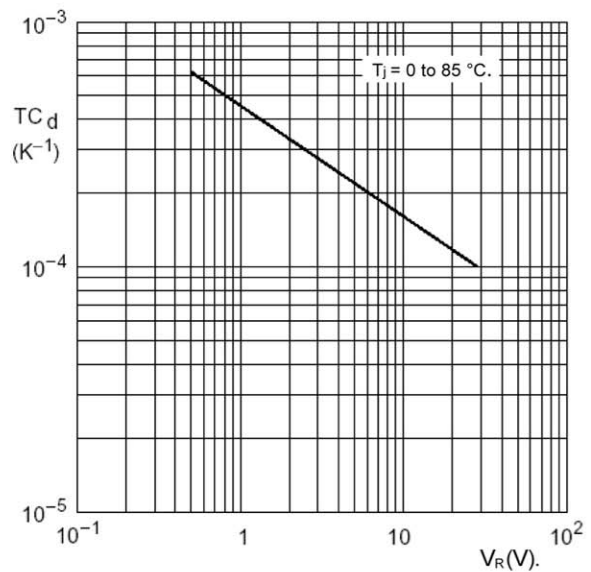


Fig.3 Temperature coefficient of diode capacitance as a function of reverse voltage; typical values.