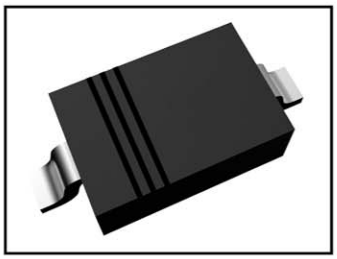
VHF Variable Capacitance Diode



FEATURES

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

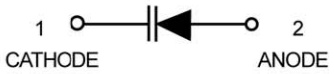
APPLICATIONS

- 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 °C unless otherwise specified.

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

Note

1. V_R is the value at which C_d = 30 pF.

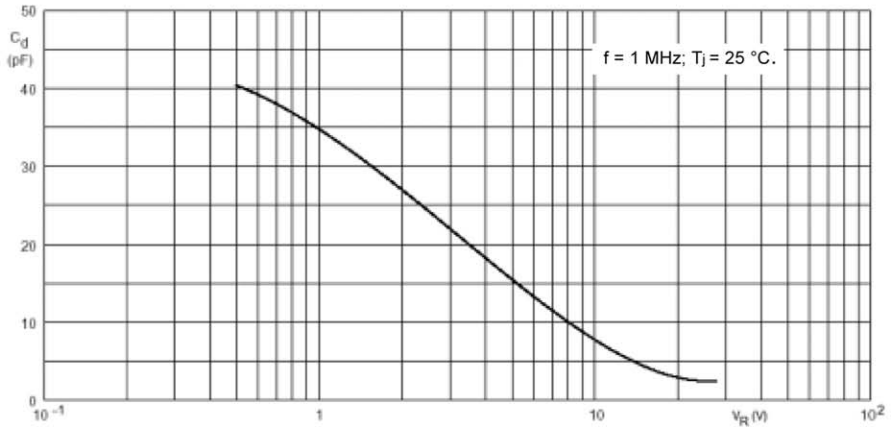


Fig.1 Diode capacitance as a function of reverse voltage; typical values.

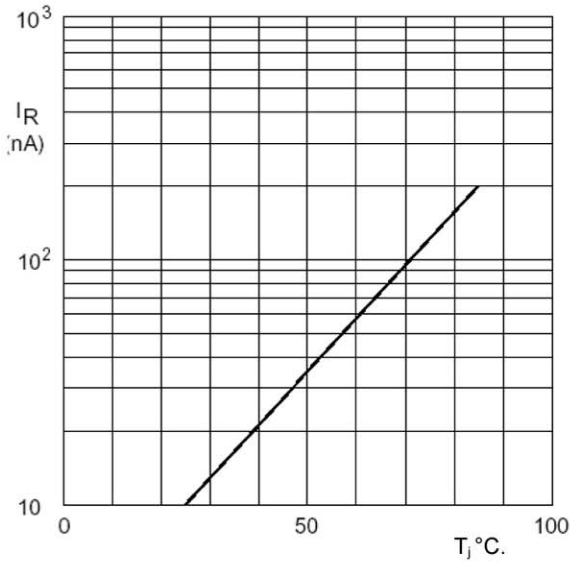


Fig.2 Reverse current as a function of junction temperature; maximum values.

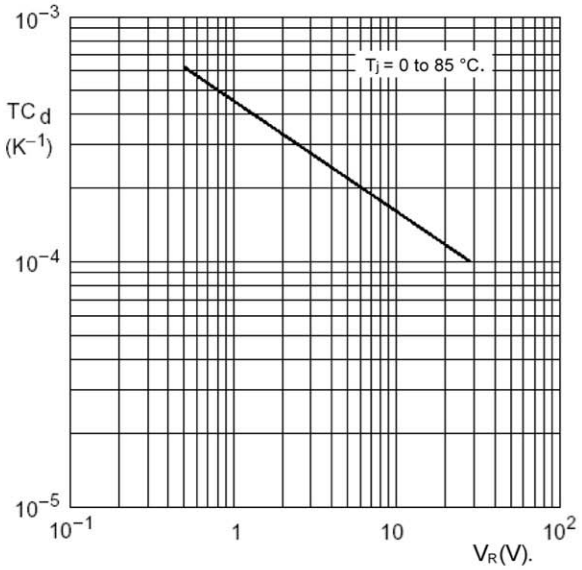


Fig.3 Temperature coefficient of diode capacitance as a function of reverse voltage; typical values.

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