VHF variable capacitance diode

BB 178

FEATURES

- Excellent linearity
- Excellent matching to 2% DMA
- Ultra small plastic SMD package
- C 28: 2.6 pF; ratio: 15
- Very low series resistance.

APPLICATIONS

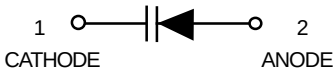
- Electronic tuning in VHF television tuners, band B up to 460 MHz
- Voltage controlled oscillators(VCO).

DESCRIPTION

The BB178 is a planar technology variable capacitance diode, in a SOD523 (SC-79) package. The excellent matching performance is achieved by gliding matching and a direct matching assembly procedure.

SOD523 SC-79

MARKING CODE:8



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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_R	continuous reverse voltage		–	32	V
V_{RM}	peak reverse voltage	in series with a 10 kΩ resistor	–	35	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.	TYP.	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; V_R is the value at which Cd =30 pF	–	0.65	0.8	Ω
C_d	diode capacitance	V_R = 1 V; f = 1 MHz; see Figs 1and 3	34.65	–	42.35	pF
		V_R = 28 V; f = 1 MHz; see Figs 1and 3	2.361	–	2.754	pF
$\frac{C_{d(1V)}}{C_{d(2V)}}$	capacitance ratio	f = 1 MHz	–	1.3	–	
$\frac{C_{d(1V)}}{C_{d(28V)}}$	capacitance ratio	f = 1 MHz	13.5	–	–	
$\frac{C_{d(25V)}}{C_{d(28V)}}$	capacitance ratio	f = 1 MHz	–	1.08	–	
$\frac{\Delta C_d}{C_d}$	capacitance matching	V_R = 1 to 28 V; in a sequence of 15 diodes(gliding)	–	–	2	%

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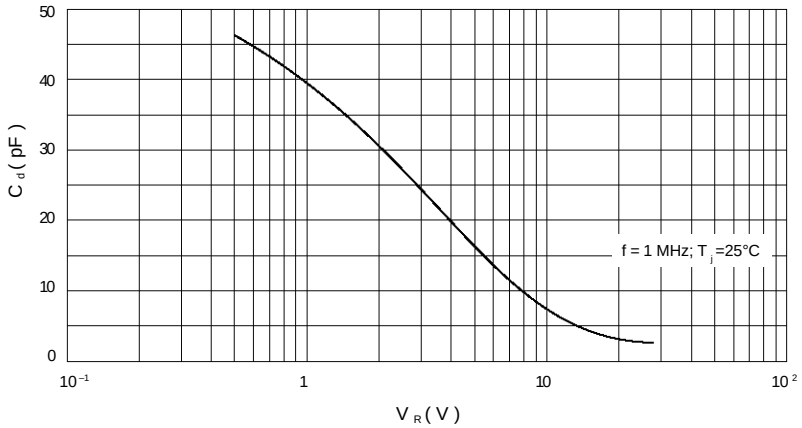

Fig.1 Diode capacitance as a function of reverse voltage; typical values.

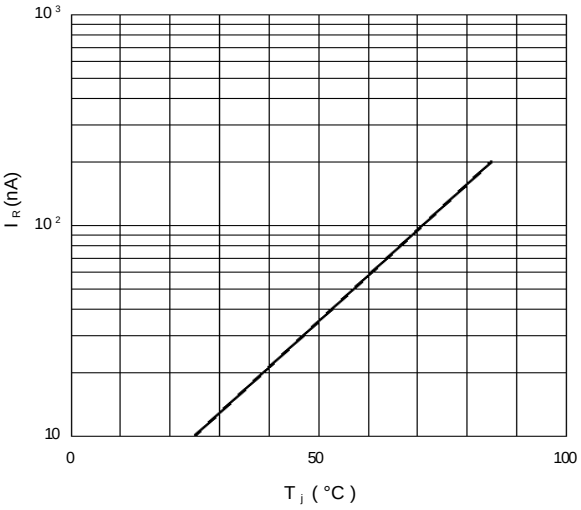

Fig.2 Reverse current as a function of junction temperature; maximum values.

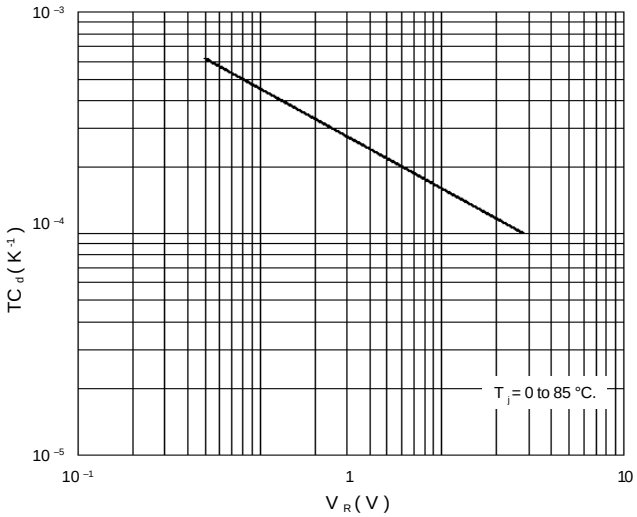

Fig.3 Temperature coefficient of diode capacitance as a function of reverse voltage; typical values.