

VHF variable capacitance diode

FEATURES

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

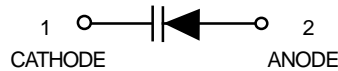
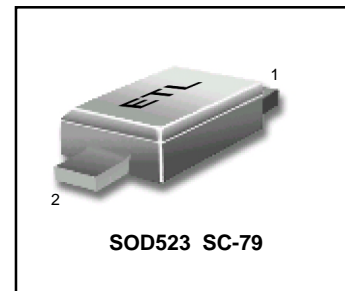
APPLICATIONS

- 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.

BB 178



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 k Ω resistor	–	35	V
I_F	continuous forward current		–	20	mA
T_{stg}	storage temperature		–55	+150	$^{\circ}$ C
T_j	operating junction temperature		–55	+125	$^{\circ}$ C

ELECTRICAL CHARACTERISTICS $T_j=25^{\circ}$ 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; $T_j=85^{\circ}$ C; see Fig.2	–	–	200	nA
r_s	diode series resistance	$f = 100$ MHz; V_R is the value at which $C_d = 30$ pF	–	0.65	0.8	Ω
C_d	diode capacitance	$V_R = 1$ V; $f = 1$ MHz; see Figs 1 and 3	34.65	–	42.35	pF
		$V_R = 28$ V; $f = 1$ MHz; see Figs 1 and 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	%

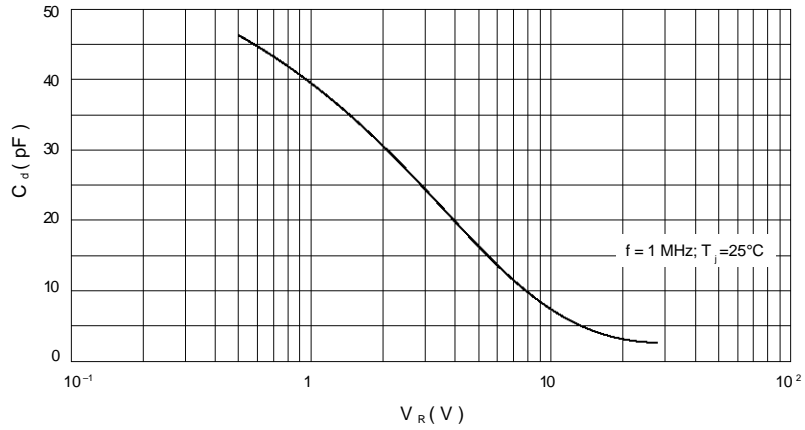


Fig.1 Diode capacitance as a function of reverse voltage; typical values.

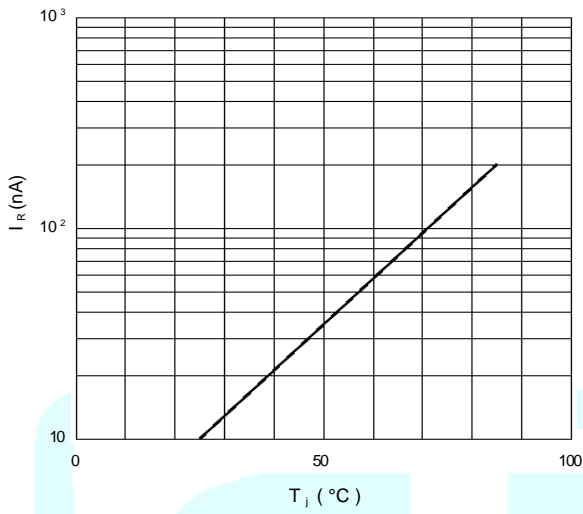


Fig.2 Reverse current as a function of junction temperature; maximum values.

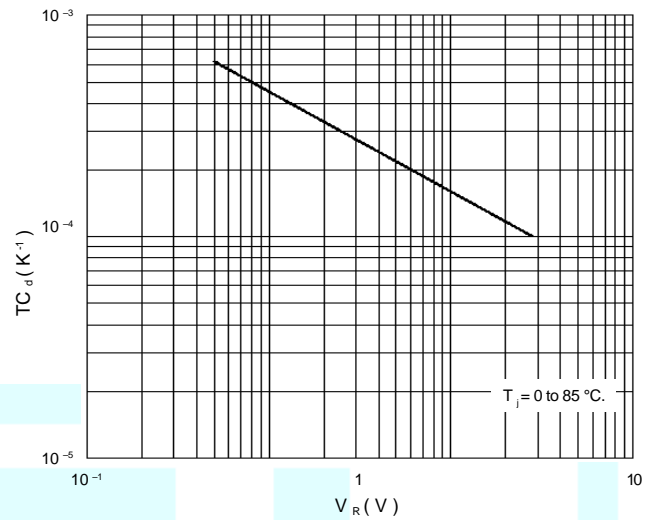


Fig.3 Temperature coefficient of diode capacitance as a function of reverse voltage; typical values.