

Low-voltage variable capacitance diode

FEATURES

- Excellent linearity
- Ultra small plastic SMD package
- C4: 2.38 pF; ratio: 1.76
- Low series resistance.

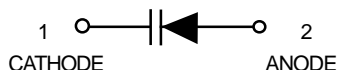
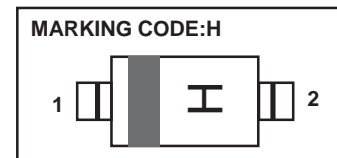
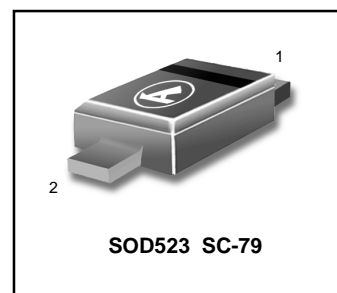
APPLICATIONS

- Voltage controlled oscillators (VCO).

DESCRIPTION

The BB141 is a variable capacitance diode, fabricated in planar technology, and encapsulated in the SOD523 (SC-79) ultra small plastic SMD package.

BB 141



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.	TYP.	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	$f = 470\text{ MHz}$; $V_R = 1\text{ V}$	–	0.4	–	Ω
C_d	diode capacitance	$V_R = 1\text{ V}$; $f = 1\text{ MHz}$; see Figs 1 and 3	3.9	4.2	4.5	pF
		$V_R = 4\text{ V}$; $f = 1\text{ MHz}$; see Figs 1 and 3	2.22	2.38	2.55	pF
$\frac{C_{d(1V)}}{C_{d(4V)}}$	capacitance ratio	$f = 1\text{ MHz}$	1.65	1.76	–	

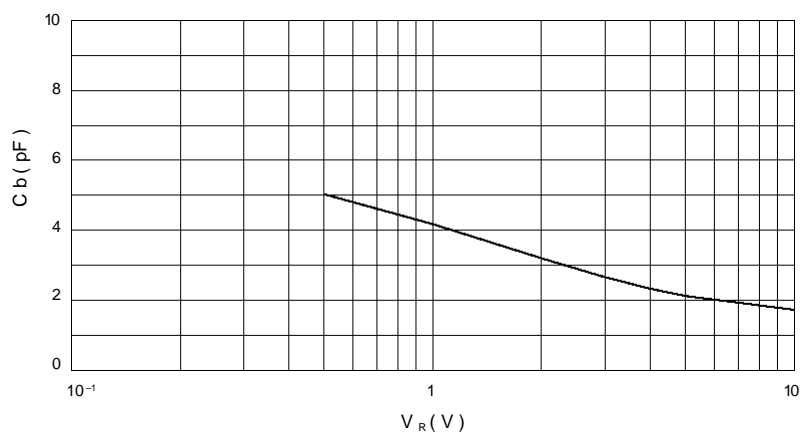
BB 141


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

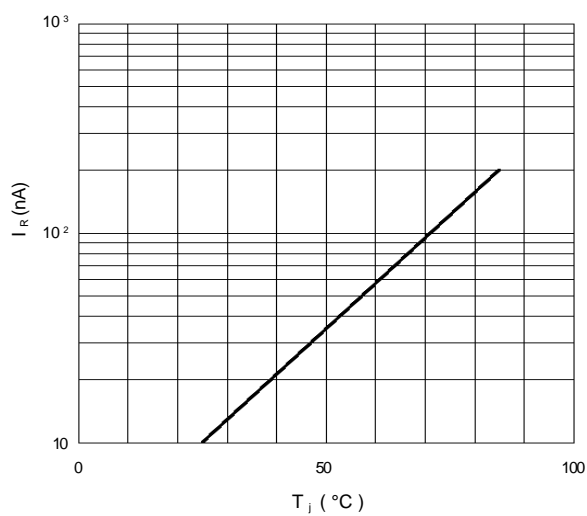


Fig.2 Reverse current as a function of junction temperature; maximum values.

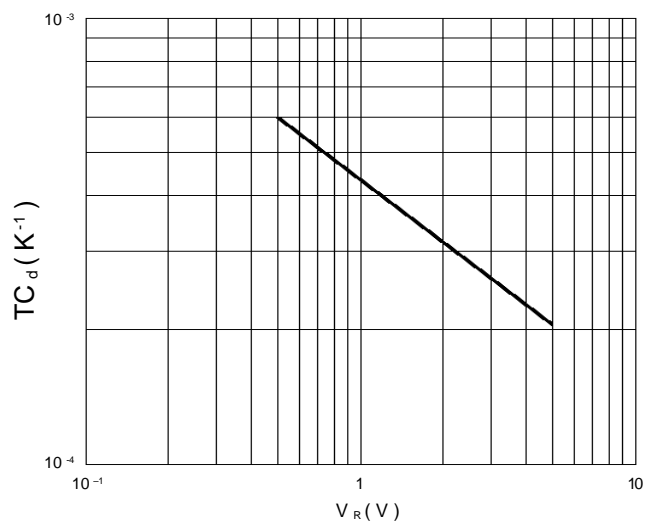


Fig.3 Temperature coefficient of diode capacitance as a function of reverse voltage; typical values.