

# Low-voltage variable capacitance diode

### FEATURES

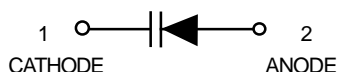
- Excellent linearity
- Ultra small plastic SMD package
- C<sub>4</sub>: 2.05 pF; ratio: 2.2
- Low series resistance.

### APPLICATIONS

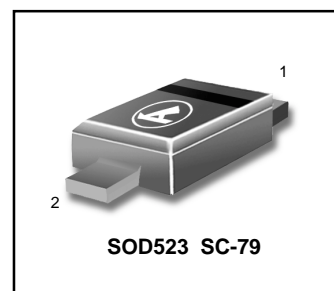
- Voltage controlled oscillators (VCO).

### DESCRIPTION

The BB142 is a variable capacitance diode, fabricated in planar technology, and encapsulated in the SOD523 (SC-79) ultra small plastic SMD package.



**BB 142**



MARKING CODE:K



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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>R</sub>	continuous reverse voltage		–	6	V
V <sub>RM</sub>	peak reverse voltage	in series with a 10 kΩ resistor	–	8	V
I <sub>F</sub>	continuous forward current		–	20	mA
T <sub>stg</sub>	storage temperature		–55	+150	°C
T <sub>j</sub>	operating junction temperature		–55	+150	°C

**ELECTRICAL CHARACTERISTICS** T<sub>j</sub>=25°C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I <sub>R</sub>	reverse current	V <sub>R</sub> = 6 V; see Fig.2	–	–	10	nA
		V <sub>R</sub> = 6 V; T <sub>j</sub> = 85°C; see Fig.2	–	–	200	nA
r <sub>s</sub>	diode series resistance	f = 470 MHz; V <sub>R</sub> = 1 V	–	0.5	–	Ω
C <sub>d</sub>	diode capacitance	V <sub>R</sub> = 1 V; f = 1 MHz; see Figs 1 and 3	4	4.6	4.9	pF
		V <sub>R</sub> = 4 V; f = 1 MHz; see Figs 1 and 3	1.85	2.05	2.35	pF
$\frac{C_{d(1V)}}{C_{d(4V)}}$	capacitance ratio	f = 1 MHz	2	2.2	–	

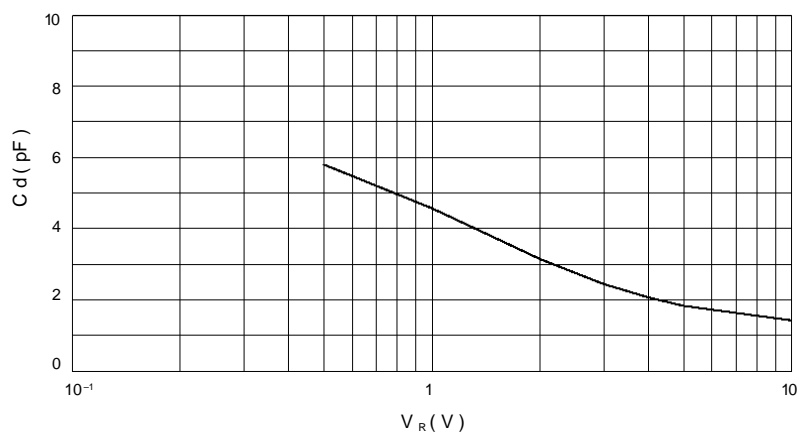
**BB 142**


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

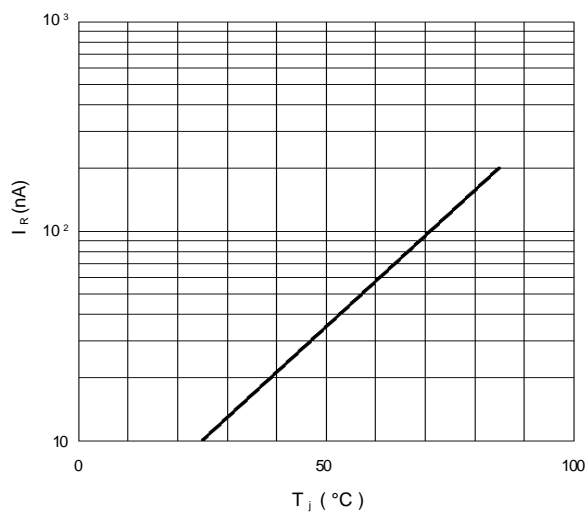


Fig.2 Reverse current as a function of junction temperature; maximum values.

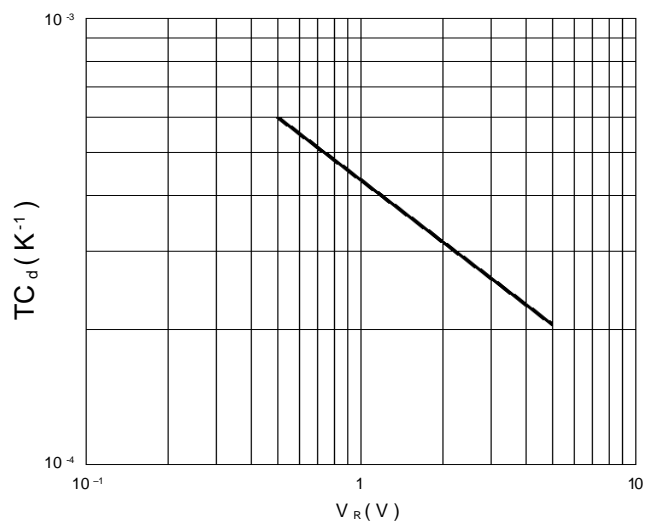


Fig.3 Temperature coefficient of diode capacitance as a function of reverse voltage; typical values.