

# Low-voltage variable capacitance diode

### FEATURES

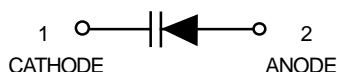
- Excellent linearity
- Ultra small plastic SMD package
- C<sub>4</sub>: 2.05 pF; ratio: 2.2
- Low series resistance.

### APPLICATIONS

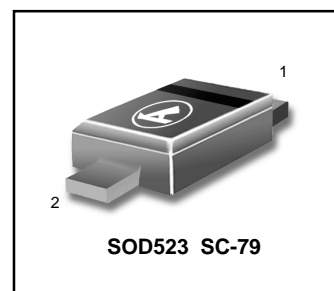
- Voltage controlled oscillators (VCO).

### 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
$V_R$	continuous reverse voltage		–	6	V
$V_{RM}$	peak reverse voltage	in series with a 10 k $\Omega$ 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	$f=470\text{ MHz}$ ; $V_R=1\text{ V}$	–	0.5	–	$\Omega$
$C_d$	diode capacitance	$V_R=1\text{ V}$ ; $f=1\text{ MHz}$ ; see Figs 1 and 3	4	4.6	4.9	pF
		$V_R=4\text{ V}$ ; $f=1\text{ MHz}$ ; see Figs 1 and 3	1.85	2.05	2.35	pF
$\frac{C_{d(1V)}}{C_{d(4V)}}$	capacitance ratio	$f=1\text{ MHz}$	2	2.2	–	

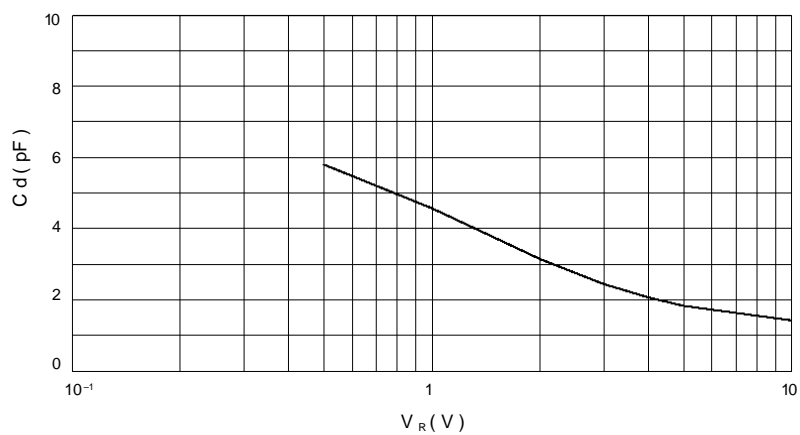
**BB 142**


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

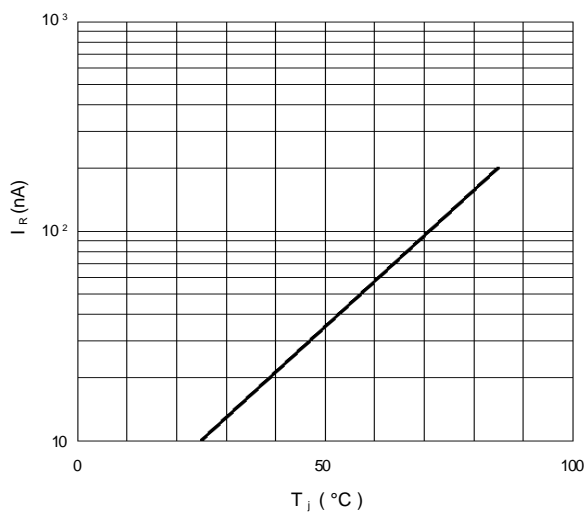


Fig.2 Reverse current as a function of junction temperature; maximum values.

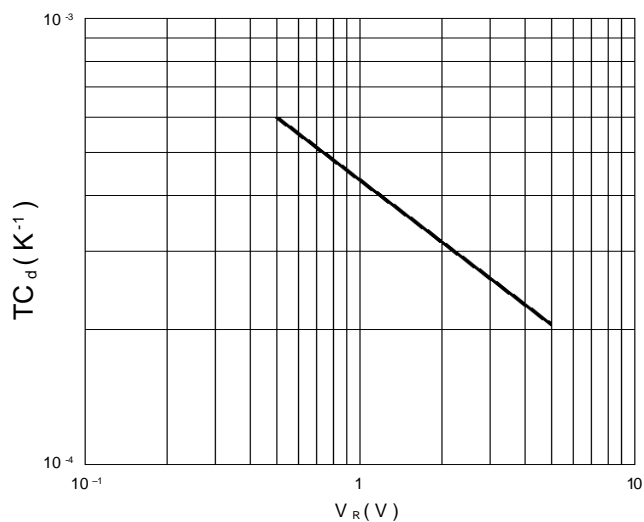


Fig.3 Temperature coefficient of diode capacitance as a function of reverse voltage; typical values.