ETL SEMICONDUCTOR

Low-voltage variable capacitance diode

BB 141

FEATURES

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

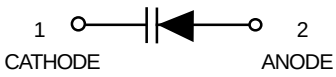
APPLICATIONS

- 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.

SOD523 SC-79



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 kΩ 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°C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_R	reverse current	V_R = 6 V; see Fig.2	–	–	10	nA
		V_R =6 V; T_j =85°C; see Fig.2	–	–	200	nA
r_s	diode series resistance	f = 470 MHz; V_R =1 V	–	0.4	–	Ω
C_d	diode capacitance	V_R = 1 V; f = 1 MHz; see Figs 1 and 3	3.9	4.2	4.5	pF
		V_R = 4 V; f = 1 MHz; see Figs 1 and 3	2.22	2.38	2.55	pF
$\frac{C_{d(1V)}}{C_{d(4V)}}$	capacitance ratio	f = 1 MHz	1.65	1.76	–	

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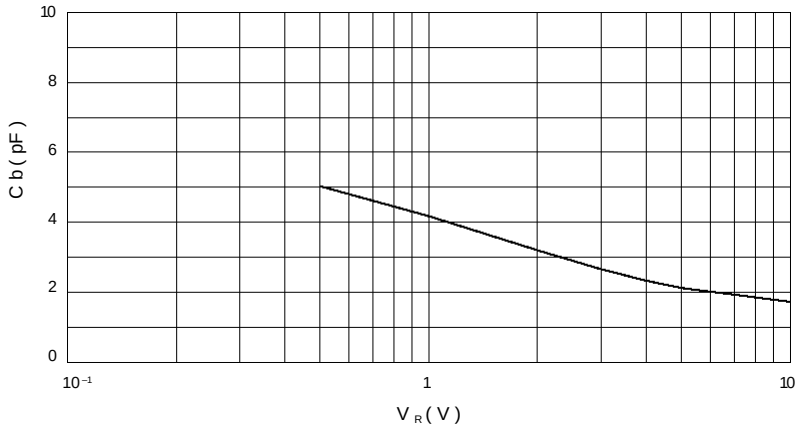

Fig.1 Diode capacitance as a function of reverse voltage; typical values.

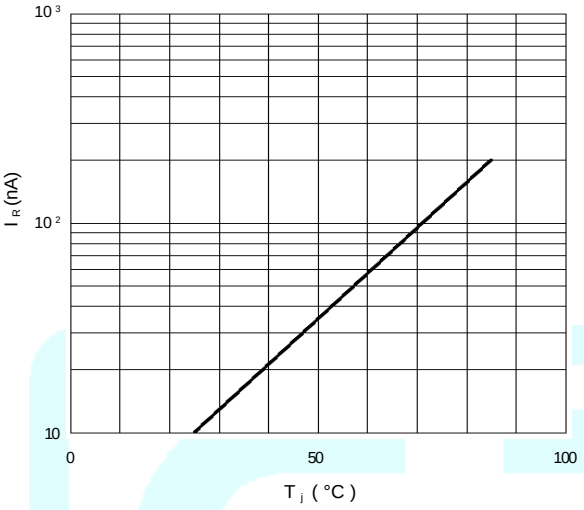

Fig.2 Reverse current as a function of junction temperature; maximum values.

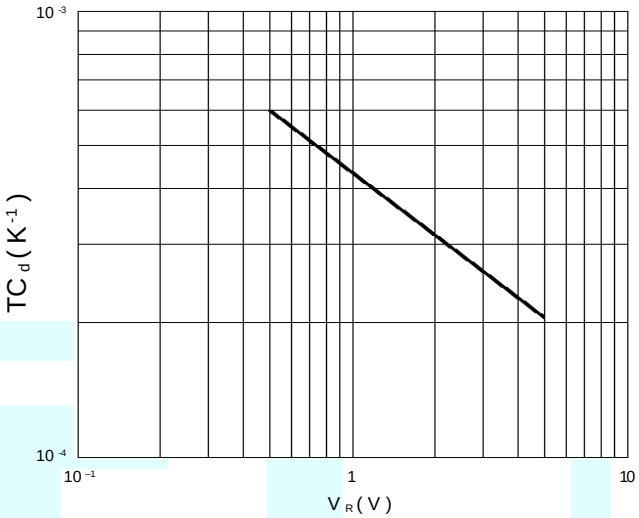

Fig.3 Temperature coefficient of diode capacitance as a function of reverse voltage; typical values.