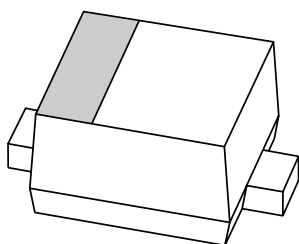


DATA SHEET



BB142

Low-voltage variable
capacitance diode

Preliminary specification

1999 May 12

Low-voltage variable capacitance diode

BB142

FEATURES

- Excellent linearity
- Ultra small plastic SMD package
- C₄: 2.05 pF; ratio: 2.2
- Low series resistance.

APPLICATIONS

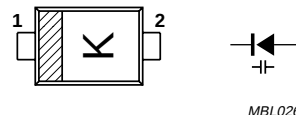
- Voltage controlled oscillators (VCO).

DESCRIPTION

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

PINNING

PIN	DESCRIPTION
1	cathode
2	anode



Marking code: K.

Orientation of marking code as shown.

Cathode side indicated by a bar.

Fig.1 Simplified outline (SOD523; SC-79) and symbol.

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

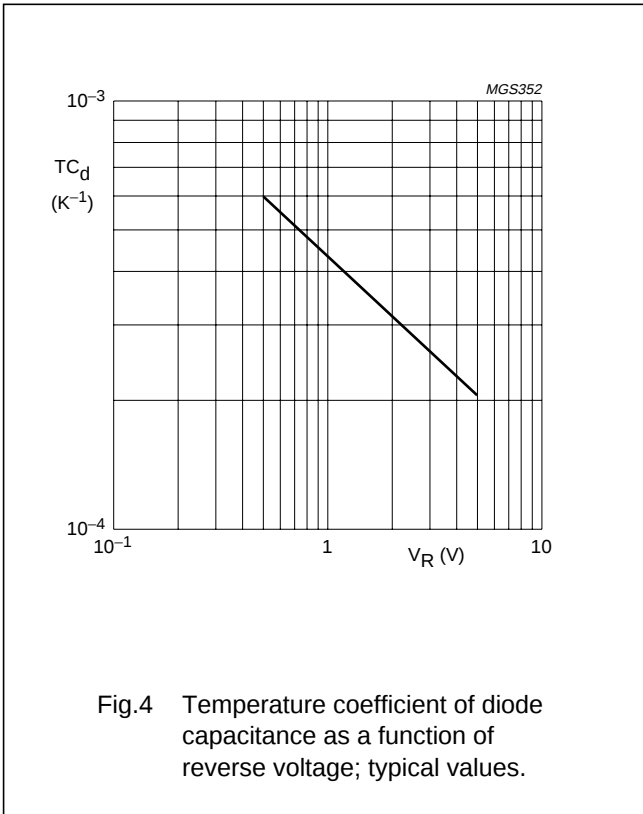
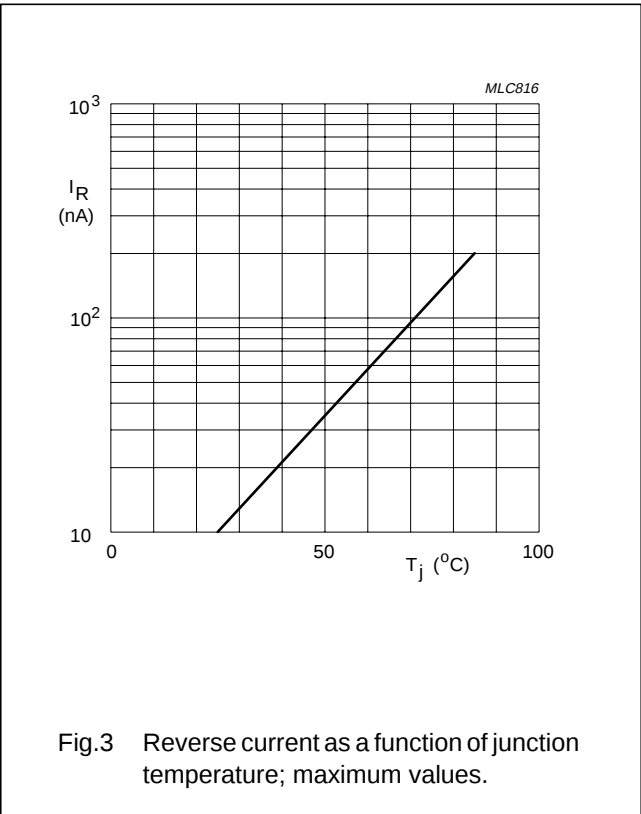
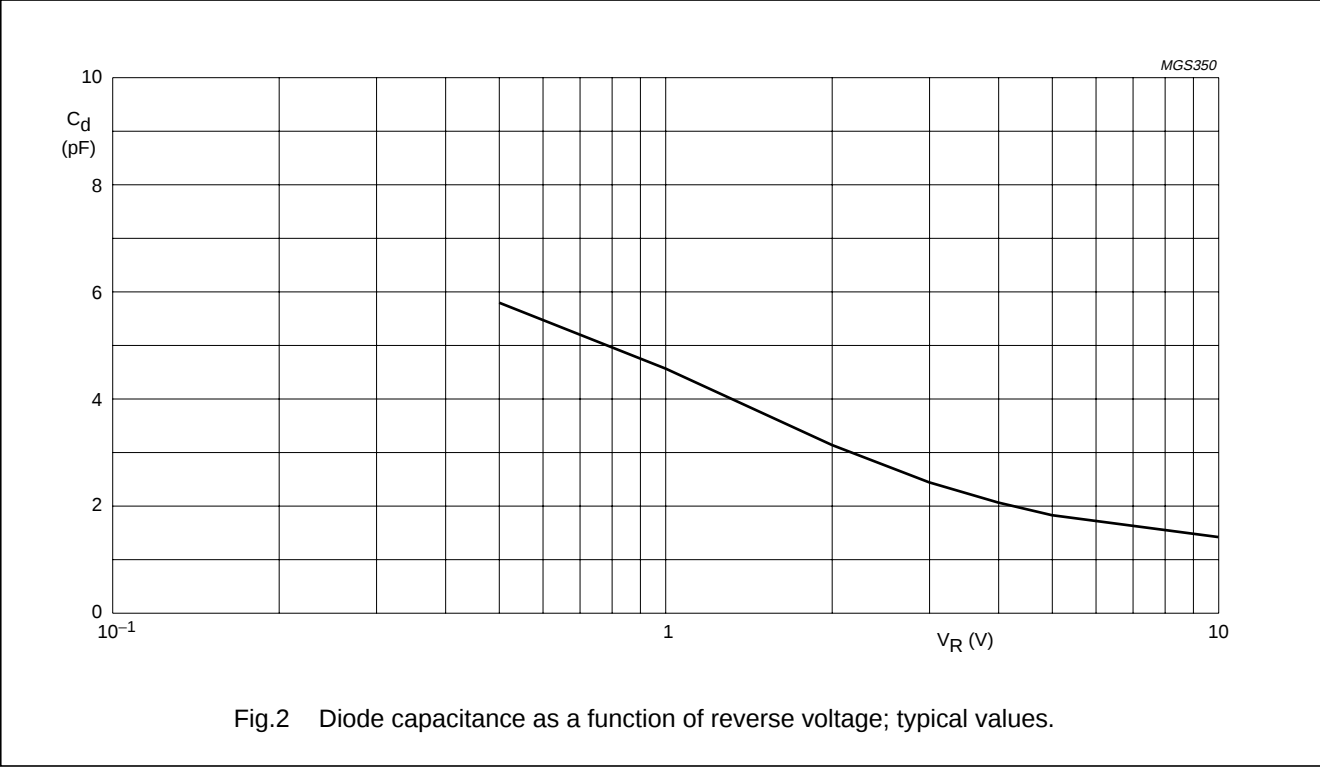
T_j = 25 °C unless otherwise specified.

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

Low-voltage variable capacitance diode

BB142

GRAPHICAL DATA



Low-voltage variable capacitance diode

BB142

PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SOD523

Top view: Dimensions A (height), c (lead thickness), HE (body length), D (body width), E (total width), bp (lead width). Marking: v (cathode), A (anode).

Side view: Shows the profile of the package.

Front view: Shows the package with leads 1 and 2. Marking bar (1) indicates the cathode.

Scale: 0, 0.5, 1 mm

DIMENSIONS (mm are the original dimensions)

UNIT	A	bp	c	D	E	HE	v
mm	0.7 0.5	0.35 0.25	0.2 0.1	1.3 1.1	0.9 0.7	1.7 1.5	0.15

Note
1. The marking bar indicates the cathode.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOD523			SC-79			98-11-25

DEFINITIONS

Data sheet status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

LIFE SUPPORT APPLICATIONS

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips for any damages resulting from such improper use or sale.

Low-voltage variable capacitance diode

BB142

NOTES

Low-voltage variable capacitance diode

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NOTES

Low-voltage variable capacitance diode

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NOTES

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