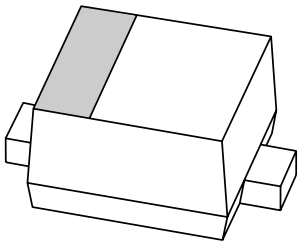
DATA SHEET



BB187
VHF variable capacitance diode

Product specification
Supersedes data of 1999 Oct 19

2002 Feb 20

Philips
Semiconductors

PHILIPS

VHF variable capacitance diode BB187

FEATURES

- High linearity
- Excellent matching to 2% DMA
- Ultra small plastic SMD package
- C25: 2.75 pF; ratio: min. 11
- Low series resistance.

APPLICATIONS

- Electronic tuning in VHF television tuners
- Voltage controlled oscillators (VCO).

DESCRIPTION

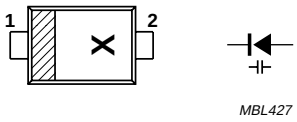
The BB187 is a variable capacitance diode, fabricated in planar technology and encapsulated in the SOD523 (SC-79) ultra small plastic SMD package. The excellent matching performance is achieved by gliding matching and a Direct Matching Assembly (DMA) procedure.

MARKING

TYPE NUMBER	MARKING CODE
BB187	X

PINNING

PIN	DESCRIPTION
1	cathode
2	anode



MBL427

Orientation of marking code as shown.
The marking bar indicates the cathode.

Fig.1 Simplified outline (SOD523) and symbol.

LIMITING VALUES

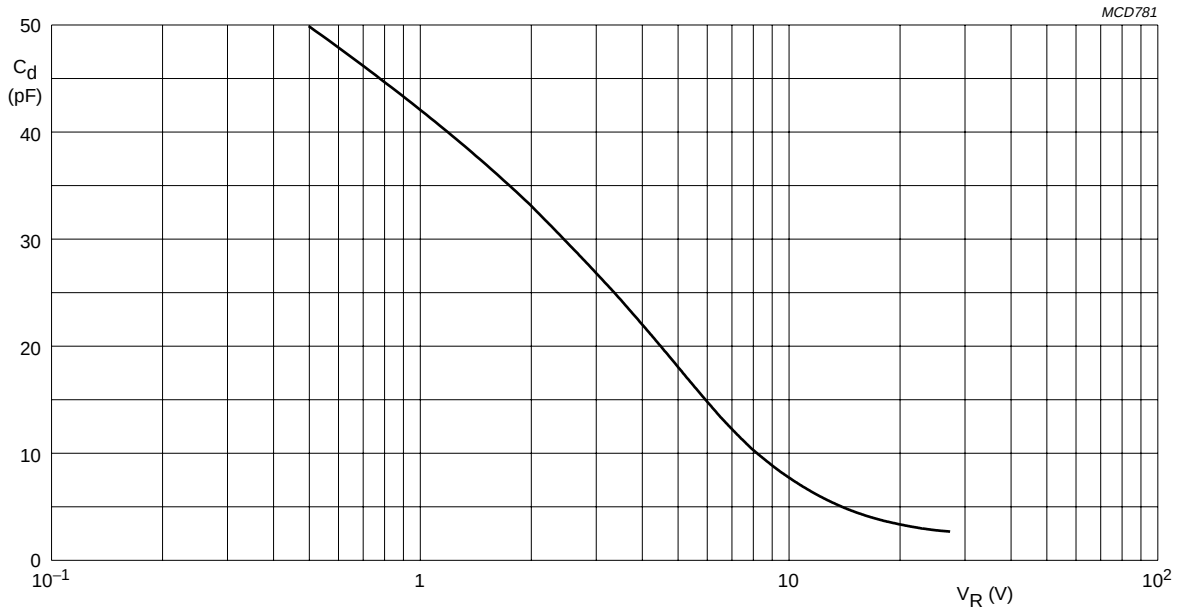
In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_R	continuous reverse voltage		–	32	V
V_{RM}	peak reverse voltage	in series with a 10 kΩ resistor	–	35	V
I_F	continuous forward current		–	20	mA
T_{stg}	storage temperature		–55	+150	°C
T_j	operating junction temperature		–55	+150	°C

CHARACTERISTICS

T_j = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_R	reverse current	V_R = 30 V; see Fig.3	–	–	10	nA
		V_R = 30 V; T_j = 85 °C; see Fig.3	–	–	200	nA
r_s	diode series resistance	f = 470 MHz; V_R = 5 V	–	–	0.75	Ω
C_d	diode capacitance	V_R = 2 V; f = 1 MHz; see Figs 2 and 4	29.3	–	34.2	pF
		V_R = 25 V; f = 1 MHz; see Figs 2 and 4	2.57	–	2.92	pF
$\frac{C_{d(2V)}}{C_{d(25V)}}$	capacitance ratio	f = 1 MHz	11	–	–	
$\frac{\Delta C_d}{C_d}$	capacitance matching	V_R = 2 to 25 V; in a sequence of 15 diodes (gliding)	–	–	2	%



f = 1 MHz; T_j = 25 °C.

Fig.2 Diode capacitance as a function of reverse voltage; typical values.

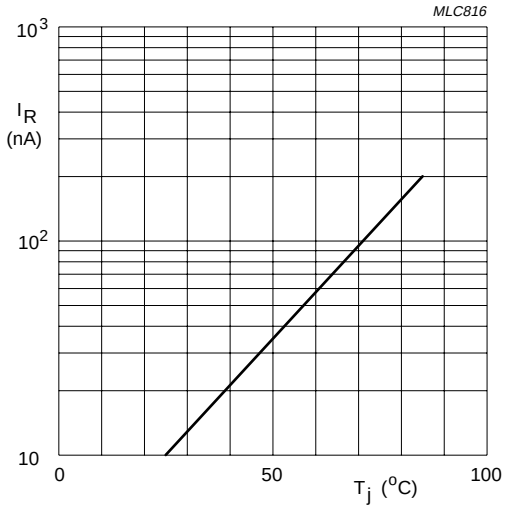


Fig.3 Reverse current as a function of junction temperature; maximum values.

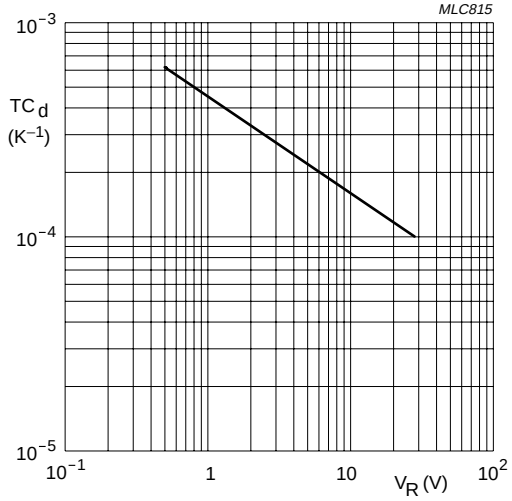
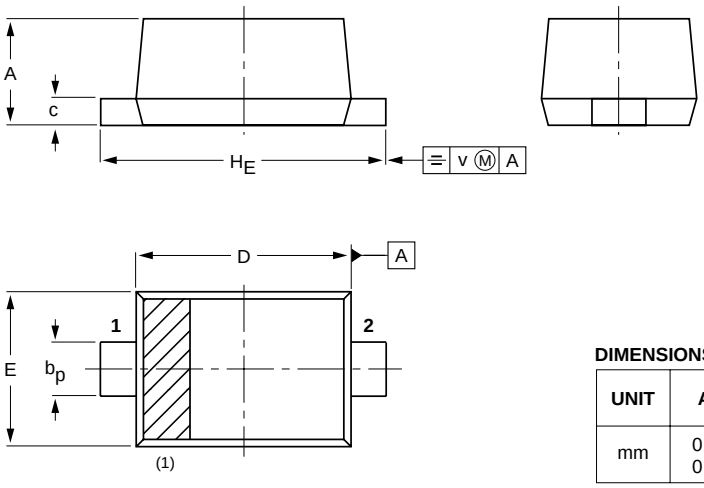
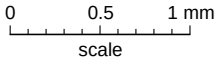


Fig.4 Temperature coefficient of diode capacitance as a function of reverse voltage; typical values.

PACKAGE OUTLINE

Plastic surface mounted package; 2 leads **SOD523**





DIMENSIONS (mm are the original dimensions)

UNIT	A	b_p	c	D	E	H_E	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

DATA SHEET STATUS

DATA SHEET STATUS[1]	PRODUCT STATUS[2]	DEFINITIONS
Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
Preliminary data	Qualification	This data sheet contains data from the preliminary specification. Supplementary data will be published at a later date. Philips Semiconductors reserves the right to change the specification without notice, in order to improve the design and supply the best possible product.
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Notes

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2. The product status of the device(s) described in this data sheet may have changed since this data sheet was published. The latest information is available on the Internet at URL http://www.semiconductors.philips.com.

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Limiting values definition — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). 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.

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