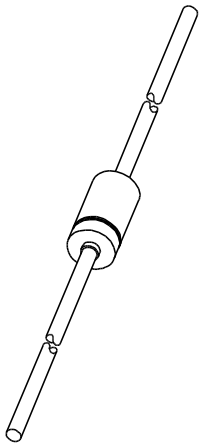
DATA SHEET



BB405B
UHF variable capacitance diode

Product specification
Supersedes data of April 1992
File under Discrete Semiconductors, SC01

1996 May 03

Philips
Semiconductors

PHILIPS

UHF variable capacitance diode BB405B

FEATURES

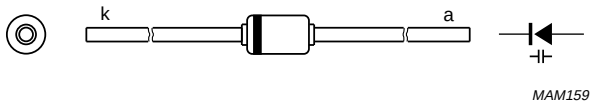
- Excellent linearity
- Matched to 3%
- Hermetically sealed leaded glass SOD68 (DO-34) package
- C28: 2 pF; ratio: 8.3
- Low series resistance.

APPLICATIONS

- Electronic tuning in UHF television tuners
- VCO.

DESCRIPTION

The BB405B is a variable capacitance diode, fabricated in planar technology, and encapsulated in the hermetically sealed leaded glass SOD68 (DO-34) package.



Cathode side indicated by a white band on a black body.

Fig.1 Simplified outline (SOD68; DO34) and symbol.

LIMITING VALUES

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

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
V_R	continuous reverse voltage	–	30	V
I_F	continuous forward current	–	20	mA
T_{stg}	storage temperature	–55	+150	°C
T_j	operating junction temperature	–55	+100	°C

ELECTRICAL CHARACTERISTICS

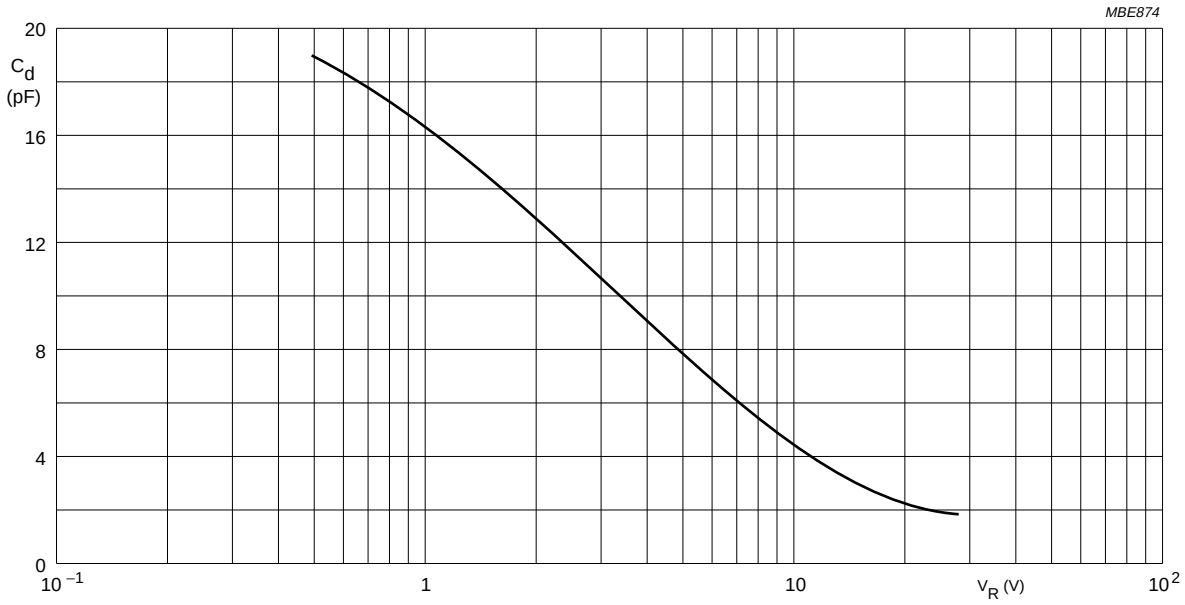
T_j = 25 °C; unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_R	reverse current	V_R = 28 V; see Fig.3	–	–	10	nA
		V_R = 28 V; T_j = 85 °C; see Fig.3	–	–	200	nA
r_s	diode series resistance	f = 470 MHz; note 1	–	–	0.75	Ω
C_d	diode capacitance	V_R = 1 V; f = 1 MHz; see Figs 2 and 4	–	–	18	pF
		V_R = 3 V; f = 1 MHz; see Figs 2 and 4	–	11	–	pF
		V_R = 28 V; f = 1 MHz; see Figs 2 and 4	1.8	–	2.2	pF
$\frac{C_{d\,(1V)}}{C_{d\,(28V)}}$	capacitance ratio	f = 1 MHz	7.6	–	–	
$\frac{\Delta C_d}{C_d}$	capacitance matching	V_R = 0.5 to 28 V	–	–	3	%

Note

1. V_R is the value at which C_d = 9 pF.

GRAPHICAL DATA



f = 1 MHz; T_j = 25 °C.

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

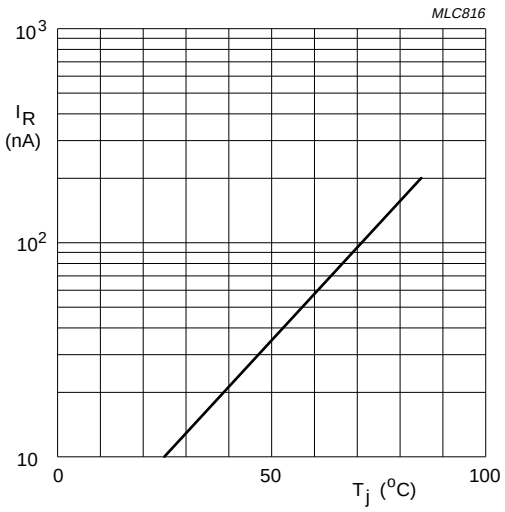
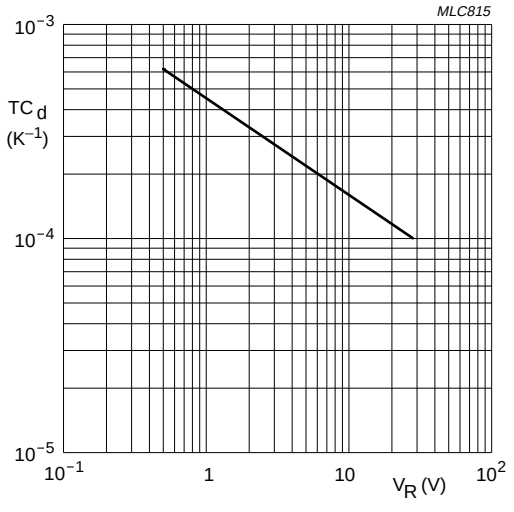


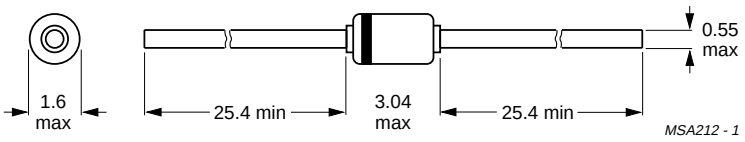
Fig.3 Reverse current as a function of junction temperature; maximum values.



T_j = 0 to 85 °C.

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

PACKAGE OUTLINE



Dimensions in mm.

Fig.5 SOD68 (DO-34).

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.