

# DATA SHEET



**BB149A**

**UHF variable capacitance diode**

Product specification

1997 Dec 17

## UHF variable capacitance diode

## BB149A

## FEATURES

- Excellent linearity
- Excellent matching to 2% DMA
- Very small plastic SMD package
- C28: 2.1 pF; ratio 9
- Low series resistance.

## APPLICATIONS

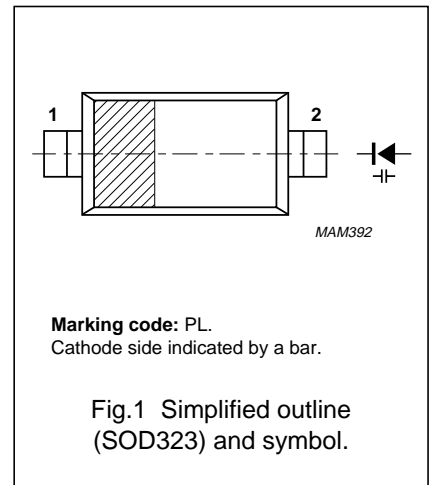
- Electronic tuning in UHF television tuners
- Voltage controlled oscillators (VCO).

## DESCRIPTION

The BB149A is a planar technology variable capacitance diode, in a SOD323 very small plastic SMD package. The excellent matching performance is achieved by gliding matching and a direct matching assembly procedure.

## PINNING

PIN	DESCRIPTION
1	cathode
2	anode



## LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_R$	continuous reverse voltage		–	30	V
$V_{Rp}$	peak reverse voltage	in series with a 10 k $\Omega$ resistor	–	35	V
$I_F$	continuous forward current		–	20	mA
$T_{stg}$	storage temperature		–55	+150	$^{\circ}$ C
$T_j$	operating junction temperature		–55	+125	$^{\circ}$ C

## ELECTRICAL CHARACTERISTICS

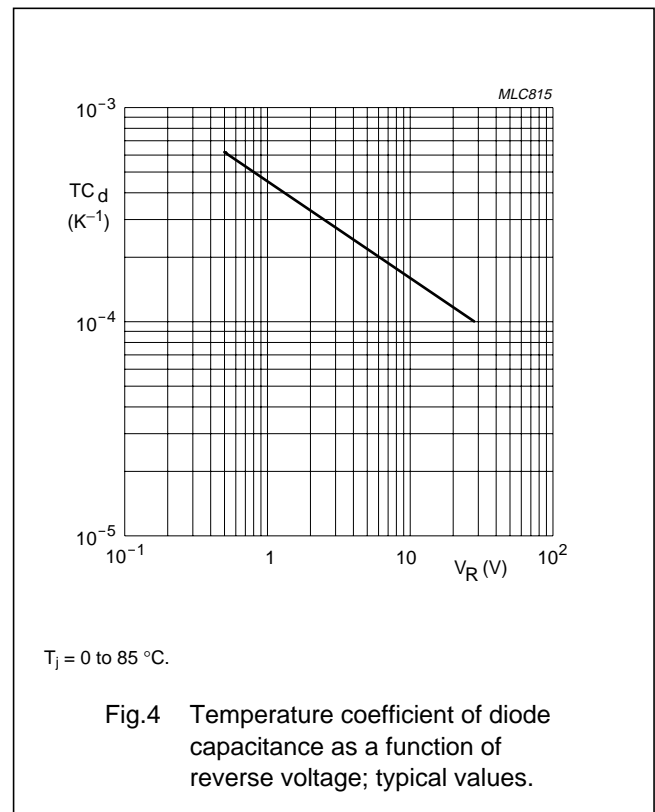
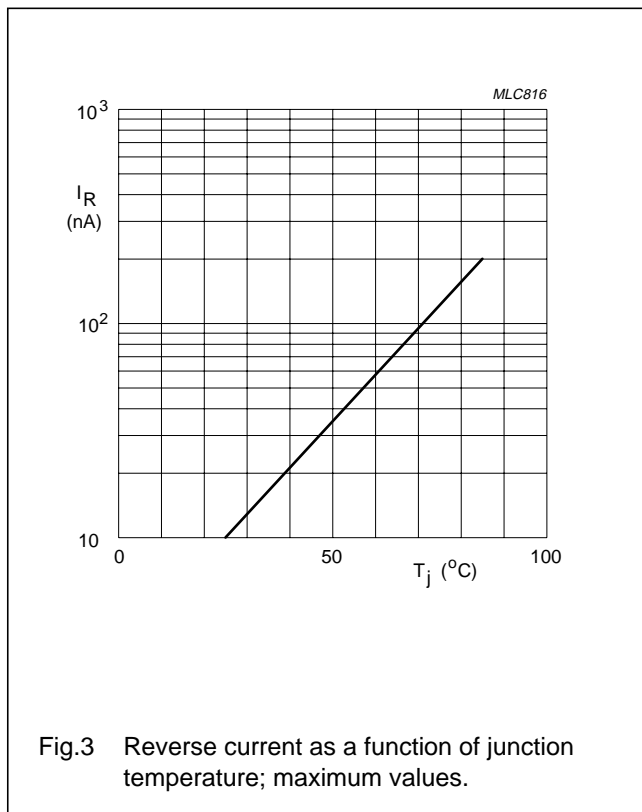
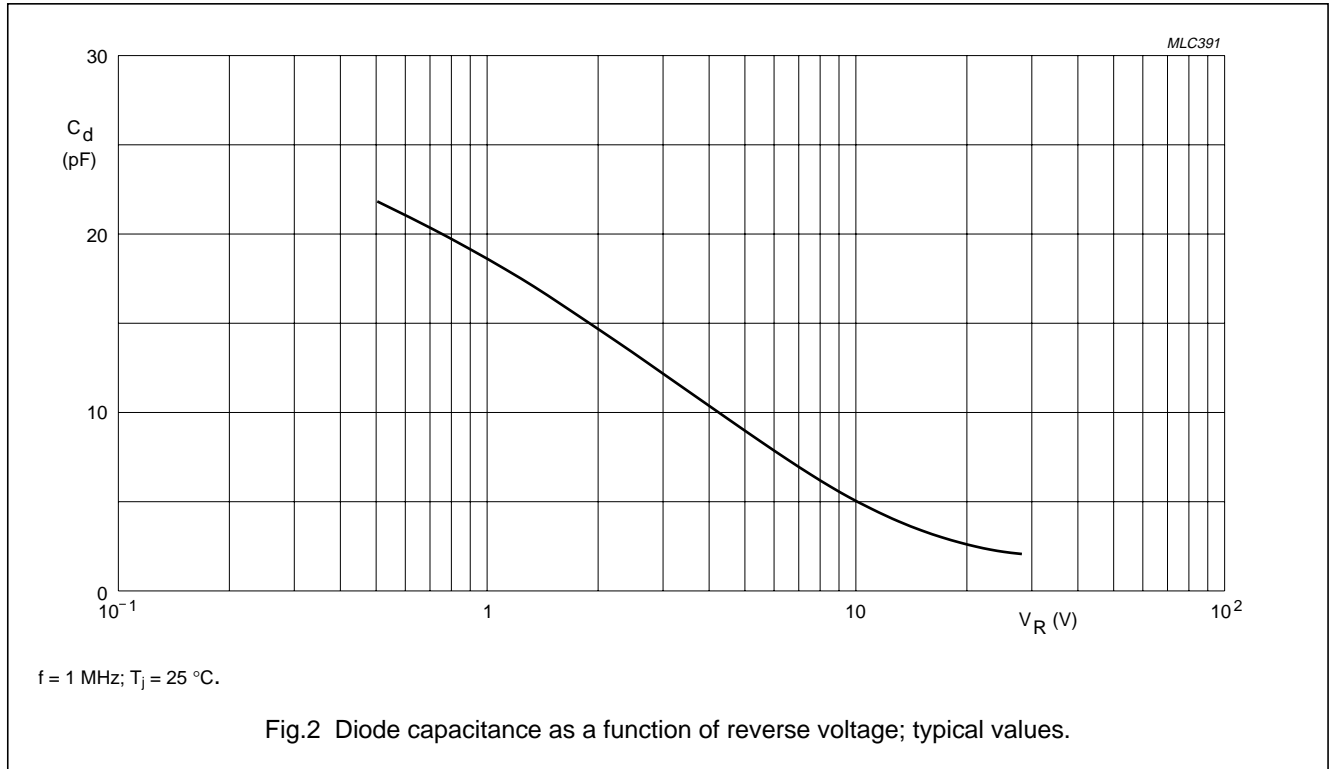
$T_j = 25^{\circ}$ C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$I_R$	reverse current	$V_R = 30$ V; see Fig.3	–	–	10	nA
		$V_R = 30$ V; $T_j = 85^{\circ}$ C; see Fig.3	–	–	200	nA
$r_s$	diode series resistance	$f = 470$ MHz; $V_R$ is the value at which $C_d = 9$ pF	–	0.6	0.75	$\Omega$
$C_d$	diode capacitance	$V_R = 1$ V; $f = 1$ MHz; see Figs 2 and 4	18.22	–	21.26	pF
		$V_R = 28$ V; $f = 1$ MHz; see Figs 2 and 4	1.951	–	2.225	pF
$\frac{C_{d(1V)}}{C_{d(2V)}}$	capacitance ratio	$f = 1$ MHz	–	1.27	–	
$\frac{C_{d(1V)}}{C_{d(28V)}}$	capacitance ratio	$f = 1$ MHz	8.45	–	10.9	
$\frac{C_{d(25V)}}{C_{d(28V)}}$	capacitance ratio	$f = 1$ MHz	–	1.05	–	
$\frac{\Delta C_d}{C_d}$	capacitance matching	$V_R = 1$ to 28 V; in a sequence of 15 diodes (gliding)	–	–	2	%

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GRAPHICAL DATA



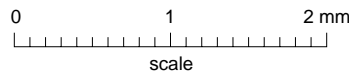
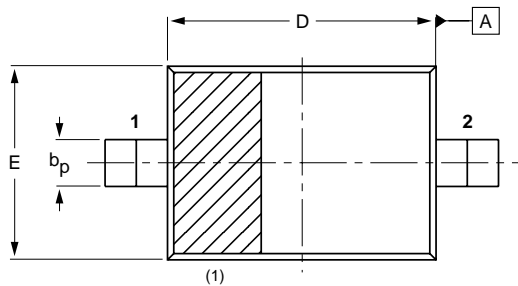
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PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SOD323



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub> max.	b <sub>p</sub>	c	D	E	H <sub>E</sub>	L <sub>p</sub>	Q	v
mm	1.1 0.8	+0.05 -0.05	0.40 0.25	0.25 0.10	1.8 1.6	1.35 1.15	2.7 2.3	0.45 0.15	0.25 0.15	0.2

Note

1. The marking bar indicates the cathode.

OUTLINE VERSION	REFERENCES			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ		
SOD323					98-09-14

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**DEFINITIONS**

<b>Data sheet status</b>	
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.
<b>Limiting values</b>	
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.	
<b>Application information</b>	
Where application information is given, it is advisory and does not form part of the specification.	

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**NOTES**

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**NOTES**

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