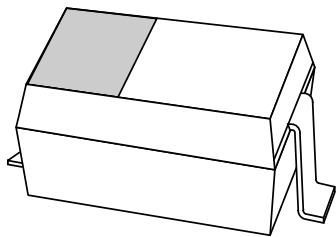


# DATA SHEET



**BB157**

VHF variable capacitance diode

Product specification  
Supersedes data of 2002 Feb 06

2002 Mar 05

VHF variable capacitance diode

BB157

FEATURES

- High linearity
- Excellent matching to 2% DMA
- Very 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

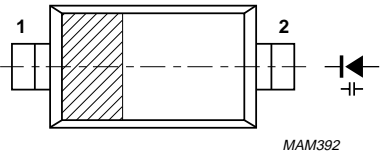
The BB157 is a variable capacitance diode, fabricated in planar technology and encapsulated in the SOD323 (SC-76) very small plastic SMD package. The excellent matching performance is achieved by gliding matching and a Direct Matching Assembly (DMA) procedure.

MARKING

TYPE NUMBER	MARKING CODE
BB157	PG

PINNING

PIN	DESCRIPTION
1	cathode
2	anode



MAM392

The marking bar indicates the cathode.

Fig.1 Simplified outline SOD323 (SC76) 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		—	30	V
$V_{RM}$	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	°C
$T_j$	operating junction temperature		−55	+150	°C

## VHF variable capacitance diode

BB157

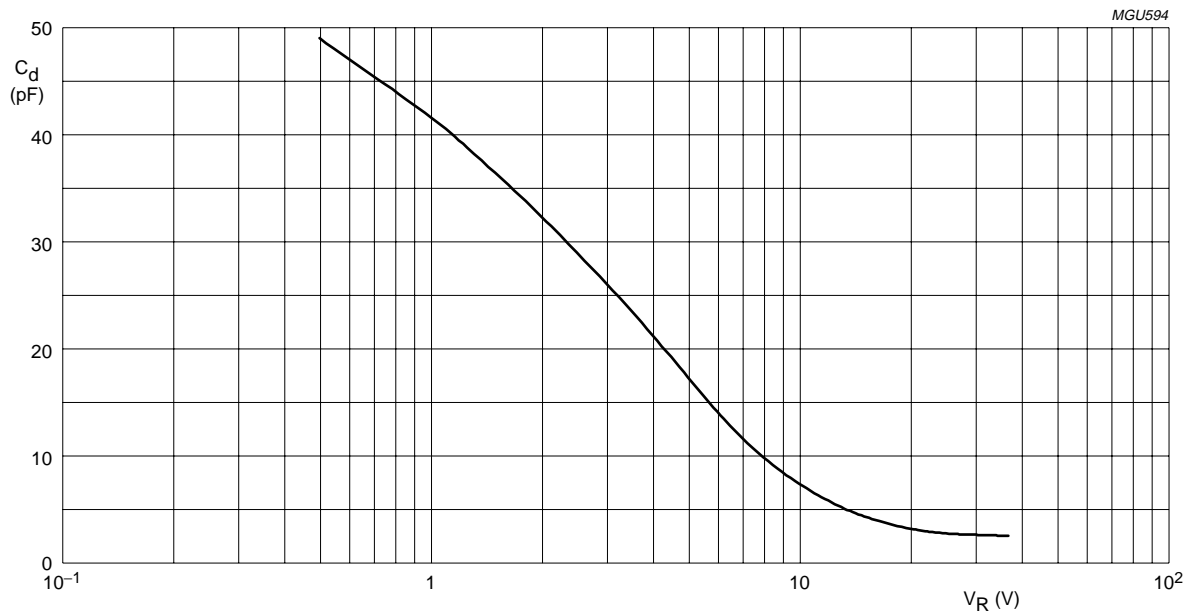
## CHARACTERISTICS

 $T_j = 25\text{ °C}$  unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$I_R$	reverse current	$V_R = 30\text{ V}$ ; see Fig.3	–	–	10	nA
		$V_R = 30\text{ V}$ ; $T_j = 85\text{ °C}$ ; see Fig.3	–	–	200	nA
$r_s$	diode series resistance	$f = 470\text{ MHz}$ ; $V_R = 5\text{ V}$	–	–	0.75	$\Omega$
$C_d$	diode capacitance	$V_R = 1\text{ V}$ ; $f = 1\text{ MHz}$ ; see Figs 2 and 4	37.5	–	43.8	pF
		$V_R = 2\text{ V}$ ; $f = 1\text{ MHz}$ ; see Figs 2 and 4	29.3	–	34.2	pF
		$V_R = 25\text{ V}$ ; $f = 1\text{ MHz}$ ; see Figs 2 and 4	2.57	–	2.92	pF
		$V_R = 28\text{ V}$ ; $f = 1\text{ MHz}$ ; see Figs 2 and 4	2.42	–	2.76	pF
$\frac{C_{d(2V)}}{C_{d(25V)}}$	capacitance ratio	$f = 1\text{ MHz}$	11	–	–	
$\frac{C_{d(1V)}}{C_{d(28V)}}$	capacitance ratio	$f = 1\text{ MHz}$	14.85	–	–	
$\frac{\Delta C_d}{C_d}$	capacitance matching	$V_R = 2\text{ to }25\text{ V}$ ; in a sequence of 15 diodes (gliding)	–	–	2	%

VHF variable capacitance diode

BB157



$f = 1\text{ MHz}; T_j = 25\text{ }^{\circ}\text{C}.$

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

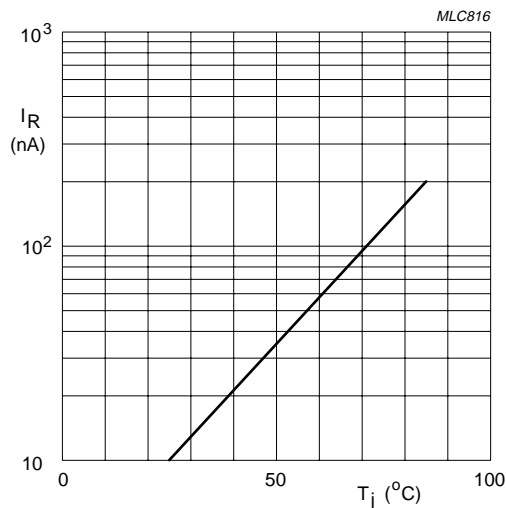


Fig.3 Reverse current as a function of junction temperature; maximum values.

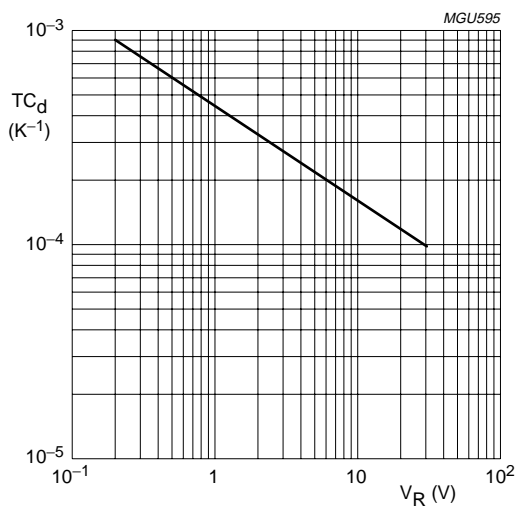


Fig.4 Temperature coefficient of diode capacitance as a function of reverse voltage; typical values.

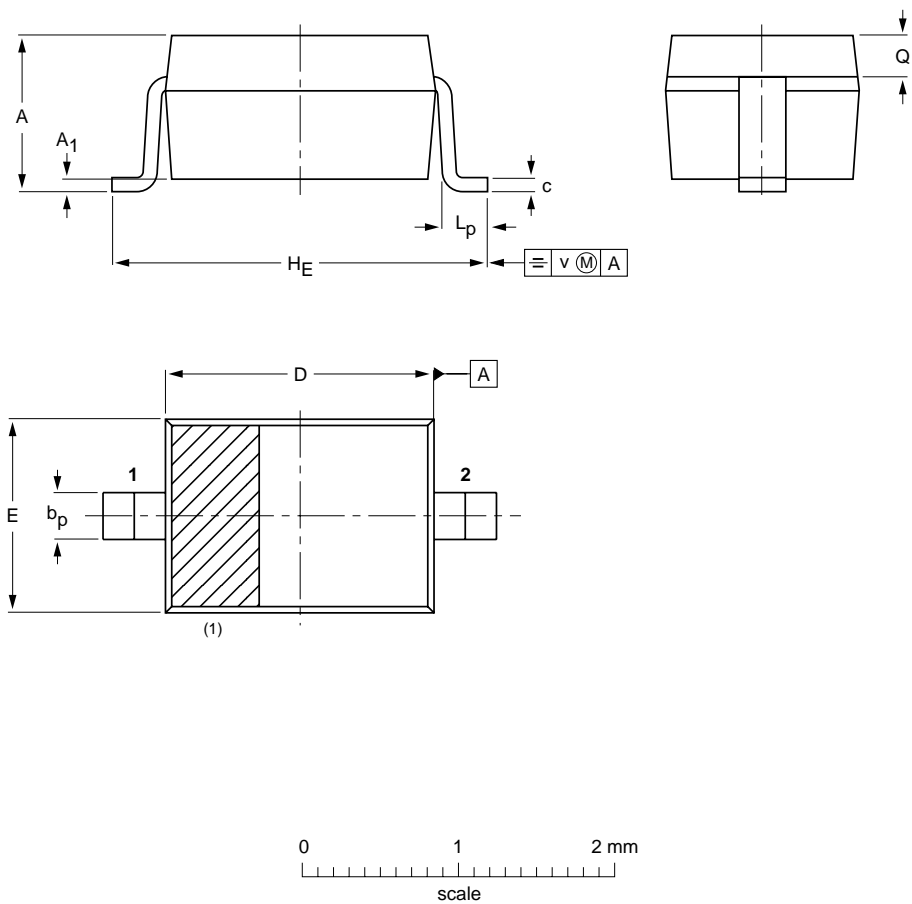
VHF variable capacitance diode

BB157

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			SC-76			<del>98-09-14</del> 99-09-13

## VHF variable capacitance diode

BB157

## DATA SHEET STATUS

DATA SHEET STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	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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VHF variable capacitance diode

BB157

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**NOTES**

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