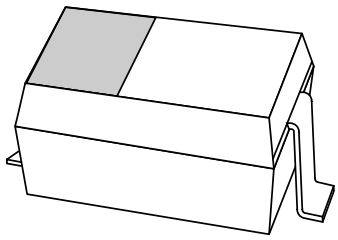
DATA SHEET



BB157
VHF variable capacitance diode

Product specification
Supersedes data of 2002 Feb 06

2002 Mar 05

Philips
Semiconductors

PHILIPS

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

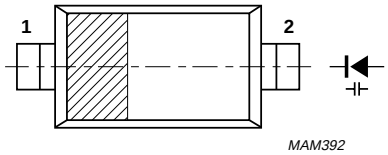
The BB157 is a variable capacitance diode, fabricated in planar technology and encapsulated in the SOD323 (SC-76) very small plastic SMD package. The excellent matching performance is achieved by gliding matching and a Direct Matching Assembly (DMA) procedure.

MARKING

TYPE NUMBER	MARKING CODE
BB157	PG

PINNING

PIN	DESCRIPTION
1	cathode
2	anode



The marking bar indicates the cathode.

Fig.1 Simplified outline SOD323 (SC76) and symbol.

LIMITING VALUES

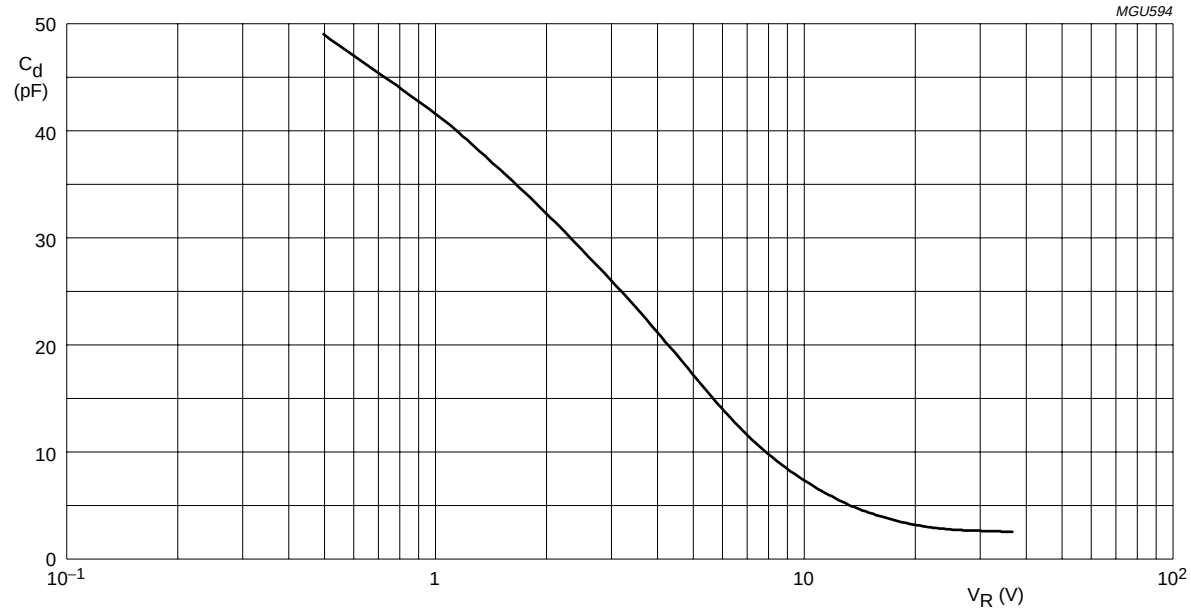
In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_R	continuous reverse voltage		–	30	V
V_{RM}	peak reverse voltage	in series with a 10 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 = 1 V; f = 1 MHz; see Figs 2 and 4	37.5	–	43.8	pF
		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
		V_R = 28 V; f = 1 MHz; see Figs 2 and 4	2.42	–	2.76	pF
$\frac{C_{d(2V)}}{C_{d(25V)}}$	capacitance ratio	f = 1 MHz	11	–	–	
$\frac{C_{d(1V)}}{C_{d(28V)}}$	capacitance ratio	f = 1 MHz	14.85	–	–	
$\frac{\Delta C_d}{C_d}$	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.

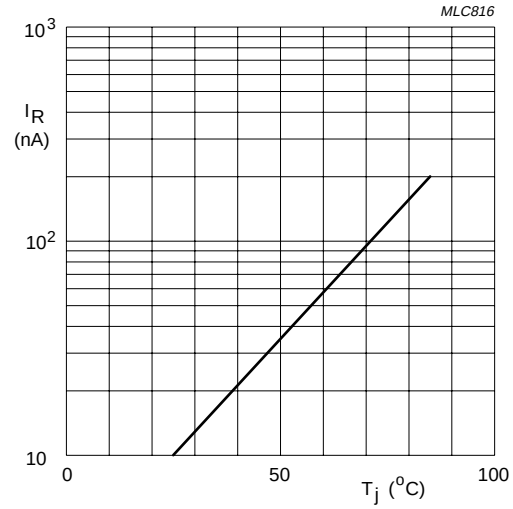


Fig.3 Reverse current as a function of junction temperature; maximum values.

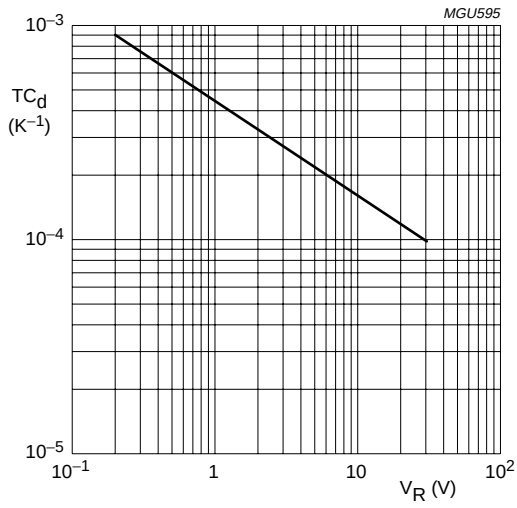
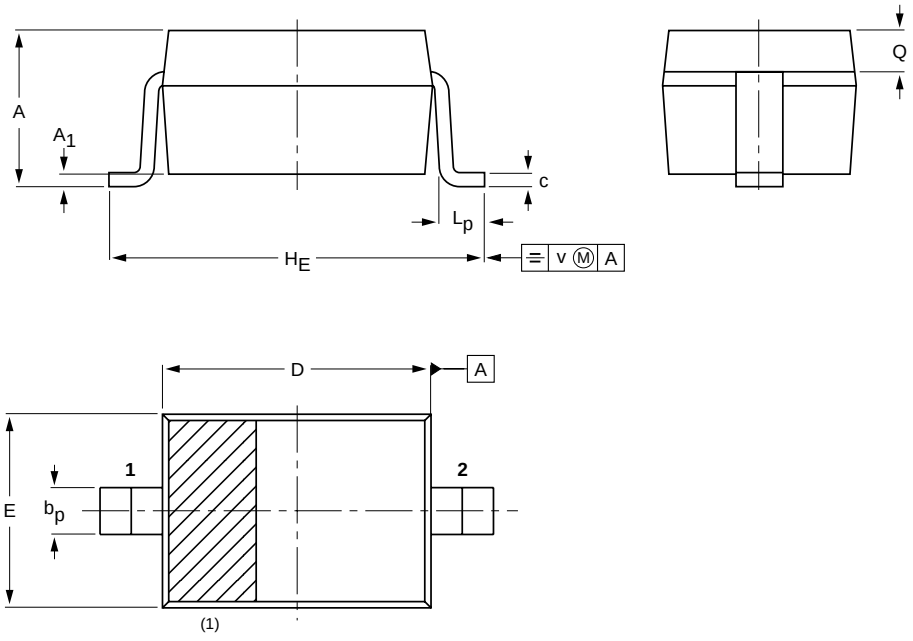
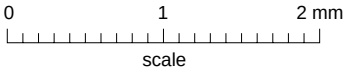


Fig.4 Temperature coefficient of diode capacitance as a function of reverse voltage; typical values.

PACKAGE OUTLINE

Plastic surface mounted package; 2 leads **SOD323**





DIMENSIONS (mm are the original dimensions)

UNIT	A	A_1 max.	b_p	c	D	E	H_E	L_p	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			~~98-09-14~~ 99-09-13

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.
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