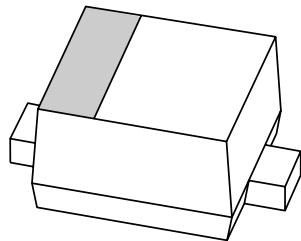


# DATA SHEET



## **BAP65-02** Silicon PIN diode

Product specification  
Supersedes data of 2001 May 07

2001 May 11

# Silicon PIN diode

# BAP65-02

## FEATURES

- High voltage, current controlled
- RF resistor for RF switches
- Low diode capacitance
- Low diode forward resistance (low loss)
- Very low series inductance.

## APPLICATIONS

- RF attenuators and switches
- Bandswitch for TV tuners
- Series diode for mobile communication transmit/receive switch.

## DESCRIPTION

Planar PIN diode in a SOD523 ultra small SMD plastic package.

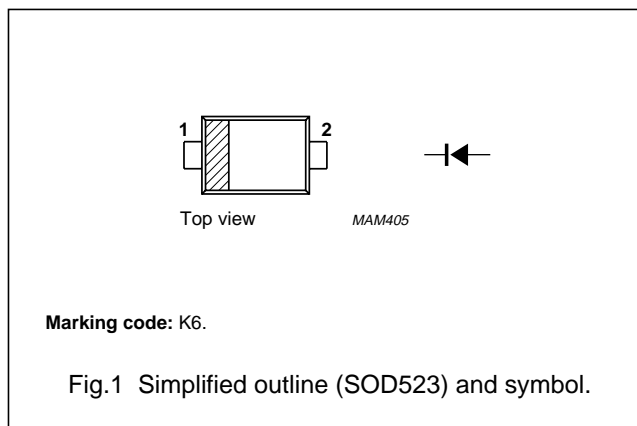
## LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_R$	continuous reverse voltage		–	30	V
$I_F$	continuous forward current		–	100	mA
$P_{tot}$	total power dissipation	$T_s \leq 90\text{ °C}$	–	715	mW
$T_{stg}$	storage temperature		–65	+150	°C
$T_j$	junction temperature		–65	+150	°C

## PINNING

PIN	DESCRIPTION
1	cathode
2	anode



## Silicon PIN diode

## BAP65-02

**ELECTRICAL CHARACTERISTICS**T<sub>j</sub> = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
V <sub>F</sub>	forward voltage	I <sub>F</sub> = 50 mA	0.9	1.1	V
I <sub>R</sub>	reverse leakage current	V <sub>R</sub> = 20 V	–	20	nA
C <sub>d</sub>	diode capacitance	V <sub>R</sub> = 0 V; f = 1 MHz	0.65	–	pF
		V <sub>R</sub> = 1 V; f = 1 MHz	0.55	0.9	pF
		V <sub>R</sub> = 3 V; f = 1 MHz	0.5	0.8	pF
		V <sub>R</sub> = 20 V; f = 1 MHz	0.375	–	pF
r <sub>D</sub>	diode forward resistance	I <sub>F</sub> = 1 mA; f = 100 MHz	1	–	Ω
		I <sub>F</sub> = 5 mA; f = 100 MHz; note 1	0.65	0.95	Ω
		I <sub>F</sub> = 10 mA; f = 100 MHz; note 1	0.56	0.9	Ω
		I <sub>F</sub> = 100 mA; f = 100 MHz	0.35	–	Ω
s <sub>21</sub>   <sup>2</sup>	isolation	V <sub>R</sub> = 0; f = 900 MHz	10	–	dB
		V <sub>R</sub> = 0; f = 1800 MHz	5.8	–	dB
		V <sub>R</sub> = 0; f = 2450 MHz	4.4	–	dB
s <sub>21</sub>   <sup>2</sup>	insertion loss	I <sub>F</sub> = 1 mA; f = 900 MHz	0.11	–	dB
		I <sub>F</sub> = 1 mA; f = 1800 MHz	0.13	–	dB
		I <sub>F</sub> = 1 mA; f = 2450 MHz	0.16	–	dB
s <sub>21</sub>   <sup>2</sup>	insertion loss	I <sub>F</sub> = 5 mA; f = 900 MHz	0.08	–	dB
		I <sub>F</sub> = 5 mA; f = 1800 MHz	0.11	–	dB
		I <sub>F</sub> = 5 mA; f = 2450 MHz	0.13	–	dB
s <sub>21</sub>   <sup>2</sup>	insertion loss	I <sub>F</sub> = 10 mA; f = 900 MHz	0.07	–	dB
		I <sub>F</sub> = 10 mA; f = 1800 MHz	0.1	–	dB
		I <sub>F</sub> = 10 mA; f = 2450 MHz	0.13	–	dB
s <sub>21</sub>   <sup>2</sup>	insertion loss	I <sub>F</sub> = 100 mA; f = 900 MHz	0.07	–	dB
		I <sub>F</sub> = 100 mA; f = 1800 MHz	0.1	–	dB
		I <sub>F</sub> = 100 mA; f = 2450 MHz	0.128	–	dB
τ <sub>L</sub>	charge carrier life time	when switched from I <sub>F</sub> = 10 mA to I <sub>R</sub> = 6 mA; R <sub>L</sub> = 100 Ω; measured at I <sub>R</sub> = 3 mA	0.17	–	μs
L <sub>S</sub>	series inductance	I <sub>F</sub> = 100 mA; f = 100 MHz	0.6	–	nH

**Note**

1. Guaranteed on AQL basis: inspection level S4, AQL 1.0.

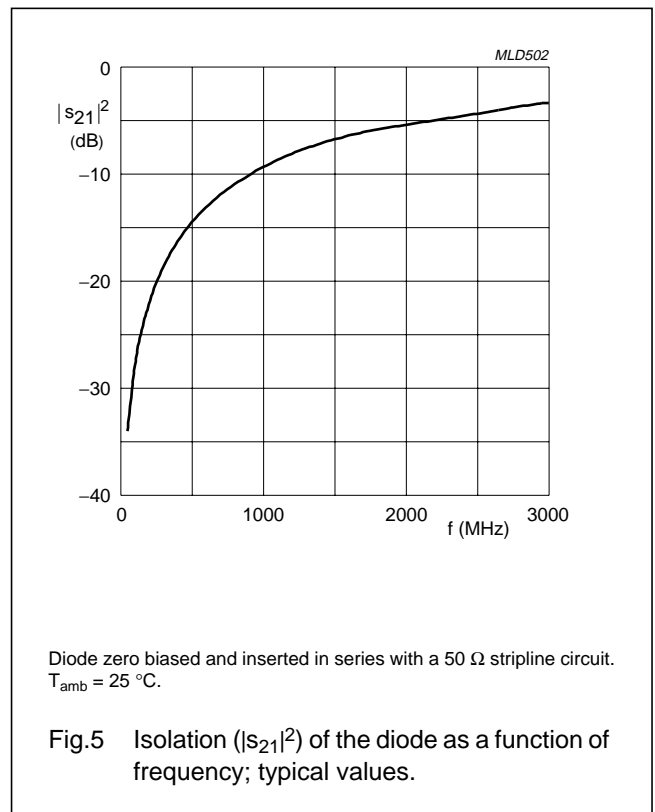
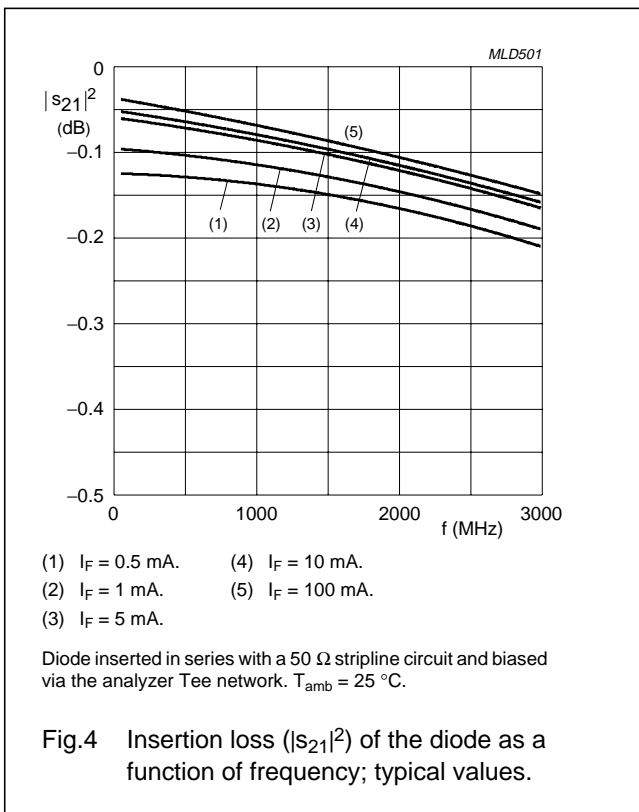
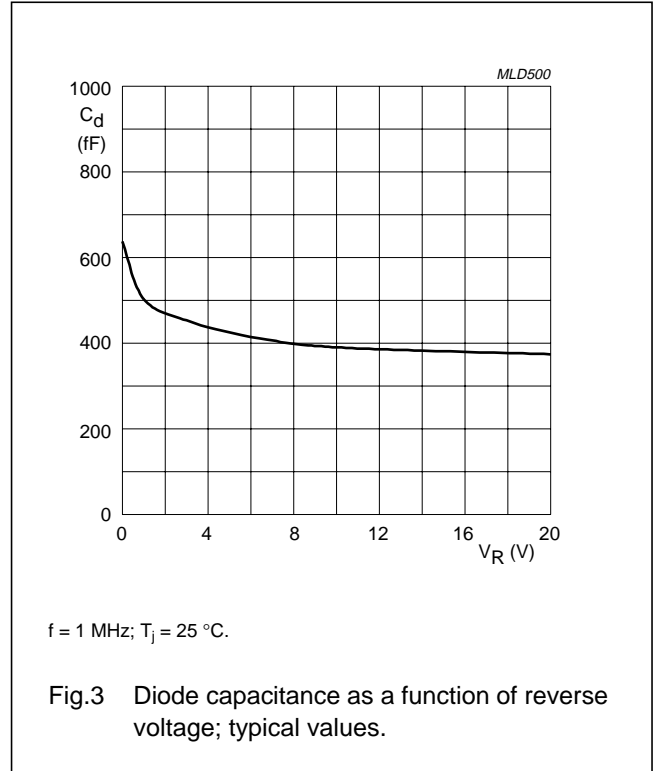
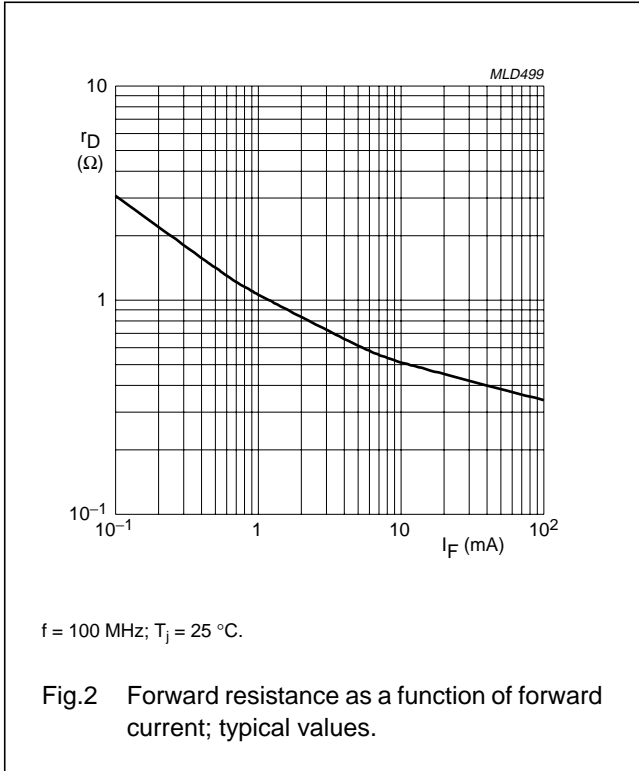
**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	VALUE	UNIT
R <sub>th j-s</sub>	thermal resistance from junction to soldering point	85	K/W

Silicon PIN diode

BAP65-02

GRAPHICAL DATA



Silicon PIN diode

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PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SOD523

**DIMENSIONS (mm are the original dimensions)**

UNIT	A	bp	c	D	E	HE	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

## Silicon PIN diode

BAP65-02

## DATA SHEET STATUS

DATA SHEET STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	DEFINITIONS
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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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Silicon PIN diode

BAP65-02

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