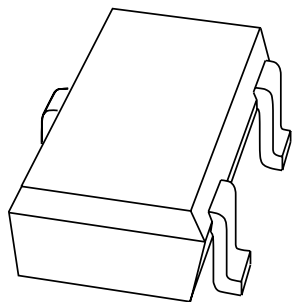


# DATA SHEET



## **BAP63-05W** Silicon PIN diode

Product specification  
Supersedes data of 2001 Apr 04

2001 May 18

# Silicon PIN diode

# BAP63-05W

## FEATURES

- High speed switching for RF signals
- Low diode capacitance
- Low diode forward resistance
- Low series inductance
- For applications up to 3 GHz.

## APPLICATIONS

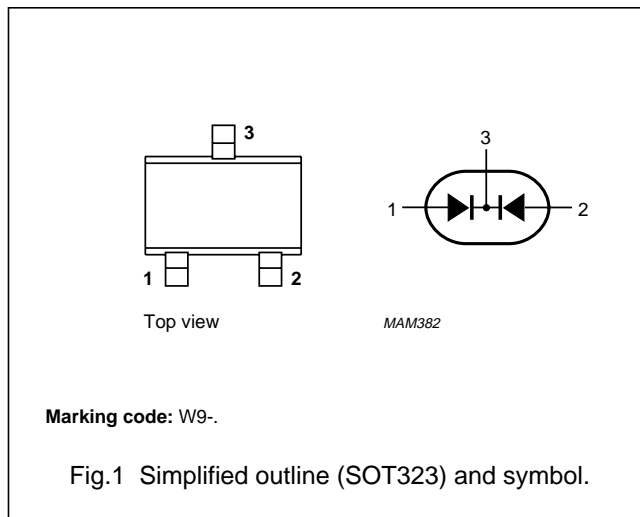
- RF attenuators and switches.

## DESCRIPTION

Two planar PIN diodes in common cathode configuration in a SOT323 small SMD plastic package.

## PINNING

PIN	DESCRIPTION
1	anode (a1)
2	anode (a2)
3	common cathode



## LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
<b>Per diode</b>					
$V_R$	continuous reverse voltage		–	50	V
$I_F$	continuous forward current		–	100	mA
$P_{tot}$	total power dissipation	$T_s \leq 90\text{ °C}$	–	240	mW
$T_{stg}$	storage temperature		–65	+150	°C
$T_j$	junction temperature		–65	+150	°C

## Silicon PIN diode

## BAP63-05W

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

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
<b>Per diode</b>					
V <sub>F</sub>	forward voltage	I <sub>F</sub> = 50 mA	0.95	1.1	V
I <sub>R</sub>	reverse current	V <sub>R</sub> = 35 V	–	10	nA
C <sub>d</sub>	diode capacitance	V <sub>R</sub> = 0; f = 1 MHz	0.4	–	pF
		V <sub>R</sub> = 1 V; f = 1 MHz	0.35	–	pF
		V <sub>R</sub> = 20 V; f = 1 MHz	0.3	0.35	pF
r <sub>D</sub>	diode forward resistance	I <sub>F</sub> = 0.5 mA; f = 100 MHz; note 1	2.5	3.5	Ω
		I <sub>F</sub> = 1 mA; f = 100 MHz; note 1	1.95	3	Ω
		I <sub>F</sub> = 10 mA; f = 100 MHz; note 1	1.17	1.8	Ω
		I <sub>F</sub> = 100 mA; f = 100 MHz; note 1	0.9	1.5	Ω
S <sub>21</sub>   <sup>2</sup>	isolation	V <sub>R</sub> = 0; f = 900 MHz	14.5	–	dB
		V <sub>R</sub> = 0; f = 1800 MHz	9.5	–	dB
		V <sub>R</sub> = 0; f = 2450 MHz	7.0	–	dB
S <sub>21</sub>   <sup>2</sup>	insertion loss	I <sub>F</sub> = 0.5 mA; f = 900 MHz	0.23	–	dB
		I <sub>F</sub> = 0.5 mA; f = 1800 MHz	0.27	–	dB
		I <sub>F</sub> = 0.5 mA; f = 2450 MHz	0.33	–	dB
S <sub>21</sub>   <sup>2</sup>	insertion loss	I <sub>F</sub> = 1 mA; f = 900 MHz	0.19	–	dB
		I <sub>F</sub> = 1 mA; f = 1800 MHz	0.24	–	dB
		I <sub>F</sub> = 1 mA; f = 2450 MHz	0.30	–	dB
S <sub>21</sub>   <sup>2</sup>	insertion loss	I <sub>F</sub> = 10 mA; f = 900 MHz	0.14	–	dB
		I <sub>F</sub> = 10 mA; f = 1800 MHz	0.19	–	dB
		I <sub>F</sub> = 10 mA; f = 2450 MHz	0.25	–	dB
S <sub>21</sub>   <sup>2</sup>	insertion loss	I <sub>F</sub> = 100 mA; f = 900 MHz	0.11	–	dB
		I <sub>F</sub> = 100 mA; f = 1800 MHz	0.17	–	dB
		I <sub>F</sub> = 100 mA; f = 2450 MHz	0.23	–	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	310	–	ns
L <sub>S</sub>	series inductance	I <sub>F</sub> = 100 mA; f = 100 MHz	1.5	–	nH

**Note**

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

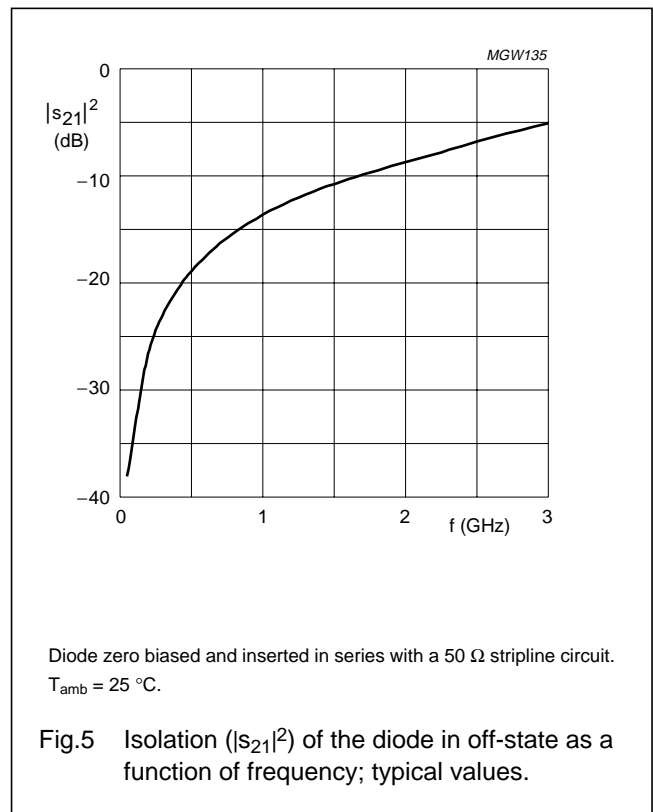
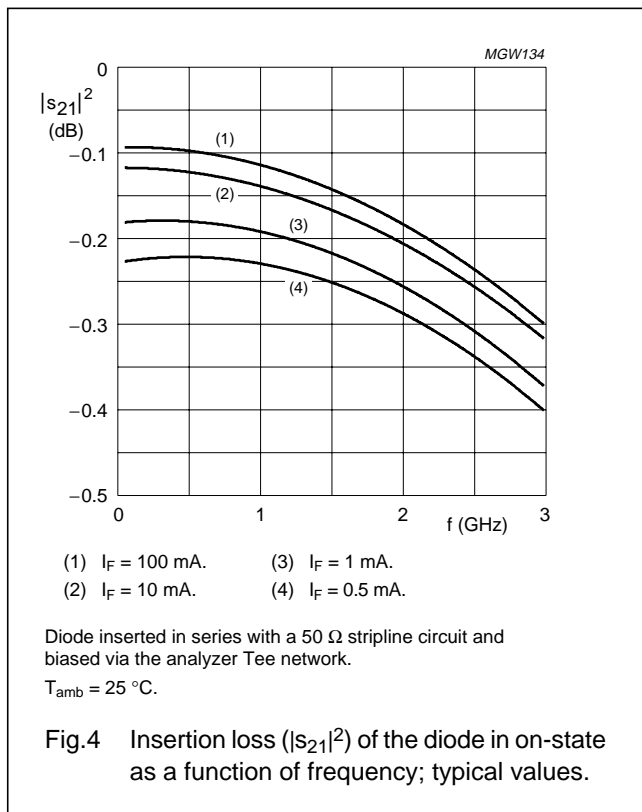
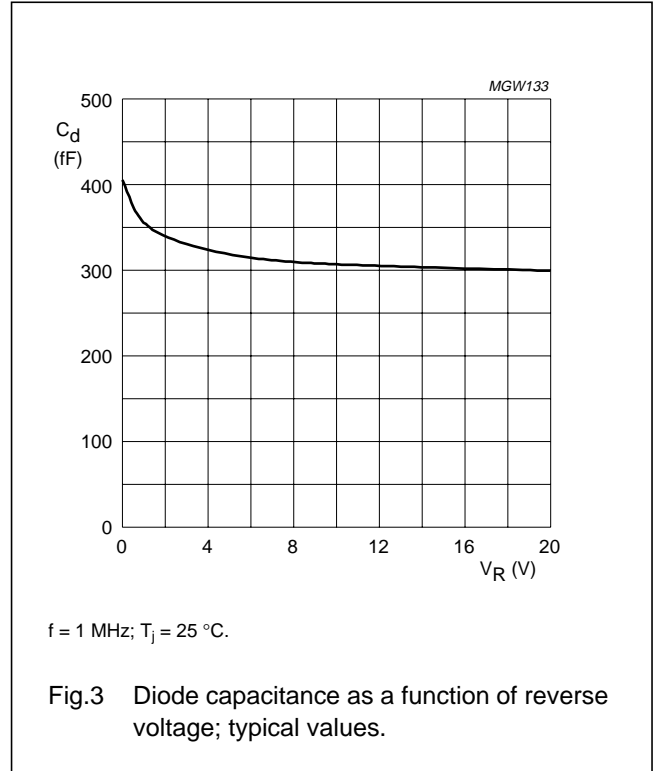
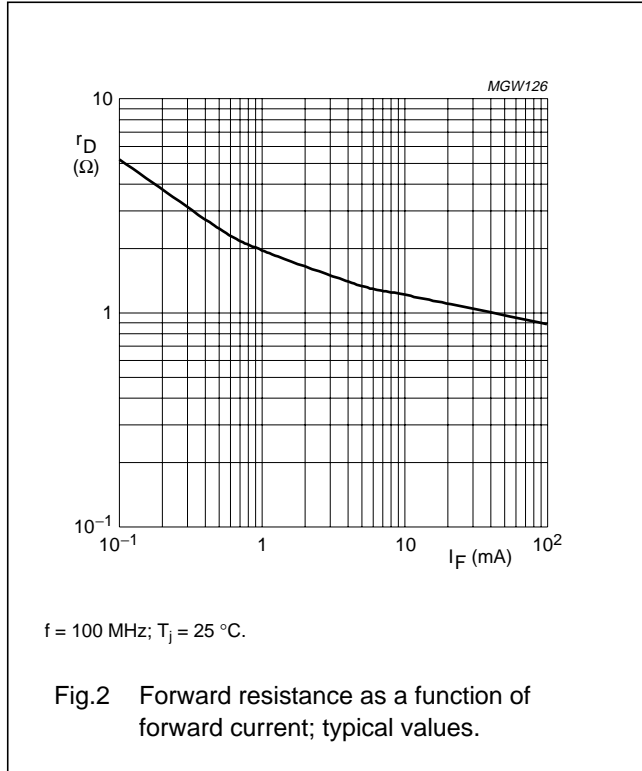
**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	VALUE	UNIT
R <sub>th j-s</sub>	thermal resistance from junction to soldering point	250	K/W

Silicon PIN diode

BAP63-05W

GRAPHICAL DATA



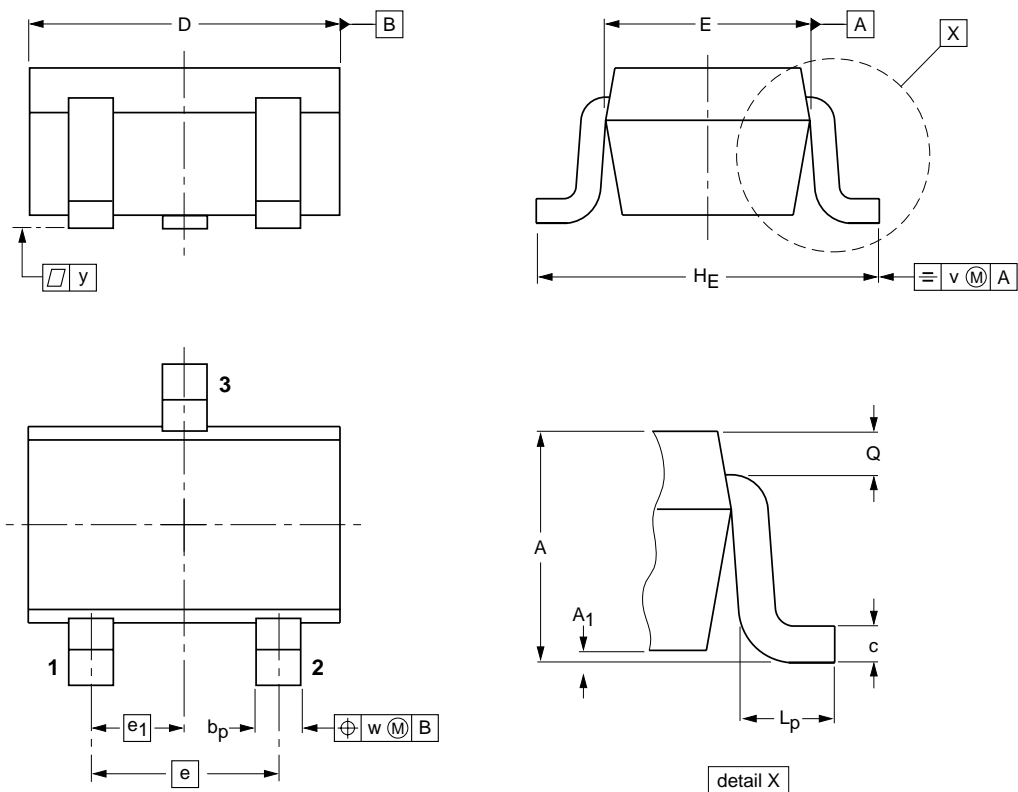
Silicon PIN diode

BAP63-05W

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT323



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub> max	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	Q	v	w
mm	1.1 0.8	0.1	0.4 0.3	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.23 0.13	0.2	0.2

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT323			SC-70			97-02-28

## Silicon PIN diode

BAP63-05W

## 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.
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Silicon PIN diode

BAP63-05W

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