



# BAP63-02

Silicon PIN diode

Rev. 04 — 8 January 2008

Product data sheet

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NXP Semiconductors

# Silicon PIN diode

# BAP63-02

## FEATURES

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

## APPLICATIONS

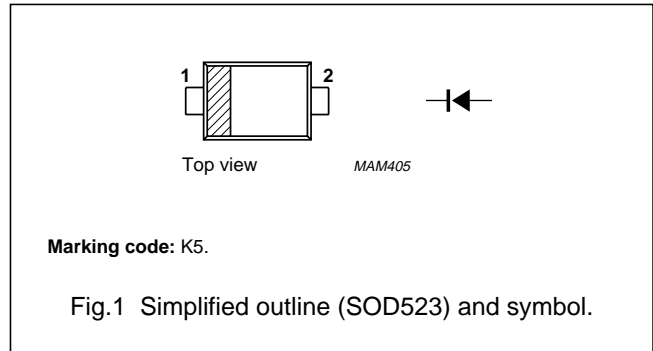
- RF attenuators and switches.

## DESCRIPTION

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

## PINNING

PIN	DESCRIPTION
1	cathode
2	anode



## LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_R$	continuous reverse voltage		–	50	V
$I_F$	continuous forward current		–	100	mA
$P_{tot}$	total power dissipation	$T_s \leq 90\text{ }^\circ\text{C}$	–	715	mW
$T_{stg}$	storage temperature		–65	+150	$^\circ\text{C}$
$T_j$	junction temperature		–65	+150	$^\circ\text{C}$

## Silicon PIN diode

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**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	0.95	1.1	V
I <sub>R</sub>	reverse leakage current	V <sub>R</sub> = 35 V	–	10	nA
C <sub>d</sub>	diode capacitance	V <sub>R</sub> = 0; f = 1 MHz	0.36	–	pF
		V <sub>R</sub> = 1 V; f = 1 MHz	0.32	–	pF
		V <sub>R</sub> = 20 V; f = 1 MHz	0.25	0.32	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	15.6	–	dB
		V <sub>R</sub> = 0; f = 1800 MHz	10.3	–	dB
		V <sub>R</sub> = 0; f = 2450 MHz	8.3	–	dB
S <sub>21</sub>   <sup>2</sup>	insertion loss	I <sub>F</sub> = 0.5 mA; f = 900 MHz	0.19	–	dB
		I <sub>F</sub> = 0.5 mA; f = 1800 MHz	0.24	–	dB
		I <sub>F</sub> = 0.5 mA; f = 2450 MHz	0.28	–	dB
S <sub>21</sub>   <sup>2</sup>	insertion loss	I <sub>F</sub> = 1 mA; f = 900 MHz	0.16	–	dB
		I <sub>F</sub> = 1 mA; f = 1800 MHz	0.20	–	dB
		I <sub>F</sub> = 1 mA; f = 2450 MHz	0.25	–	dB
S <sub>21</sub>   <sup>2</sup>	insertion loss	I <sub>F</sub> = 10 mA; f = 900 MHz	0.10	–	dB
		I <sub>F</sub> = 10 mA; f = 1800 MHz	0.16	–	dB
		I <sub>F</sub> = 10 mA; f = 2450 MHz	0.20	–	dB
S <sub>21</sub>   <sup>2</sup>	insertion loss	I <sub>F</sub> = 100 mA; f = 900 MHz	0.09	–	dB
		I <sub>F</sub> = 100 mA; f = 1800 MHz	0.14	–	dB
		I <sub>F</sub> = 100 mA; f = 2450 MHz	0.18	–	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	0.6	–	nH

**Note**

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

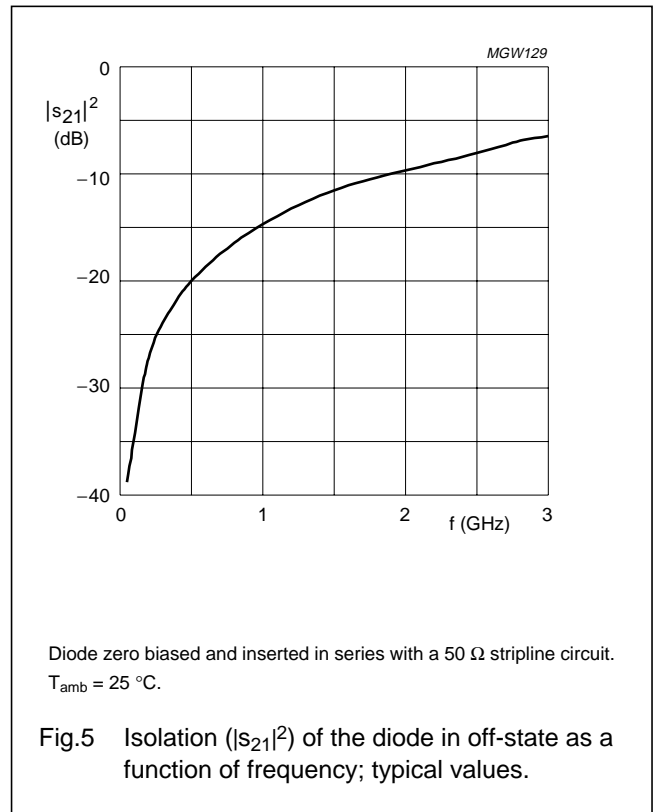
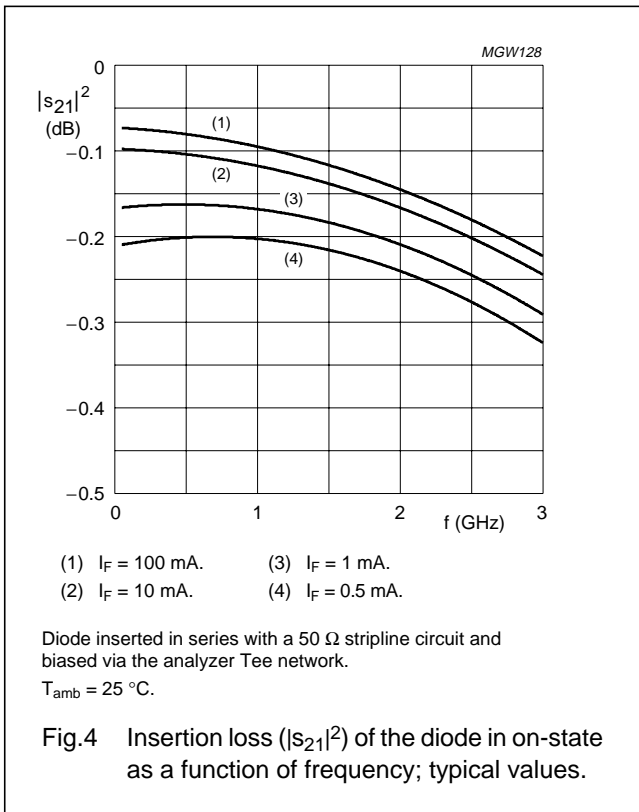
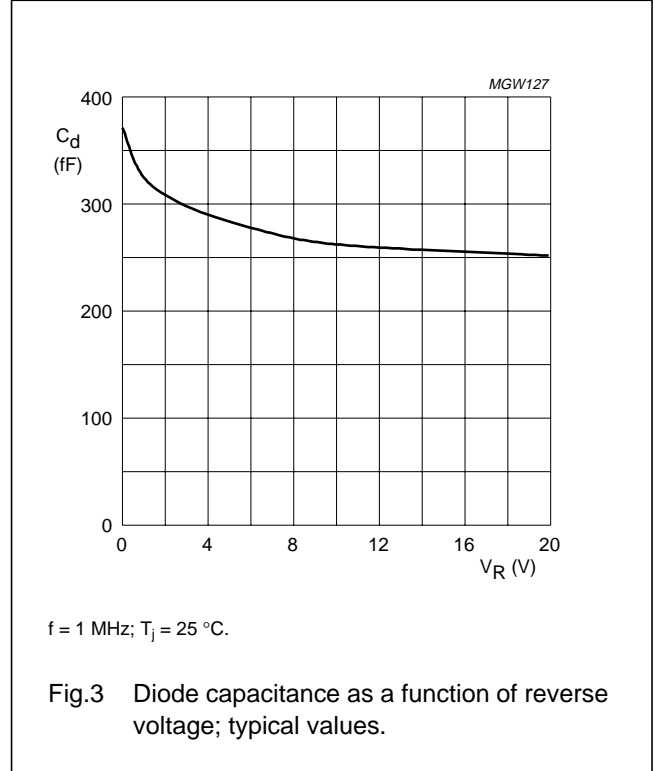
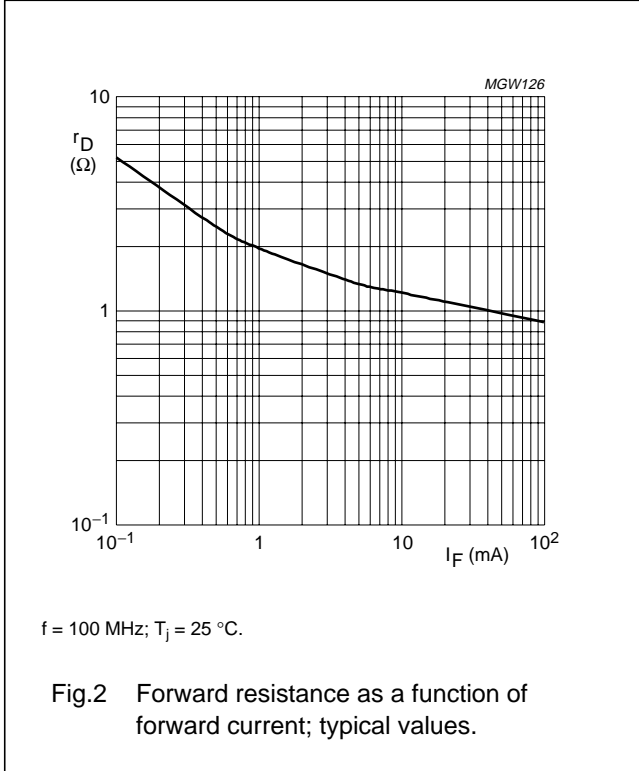
**THERMAL CHARACTERISTICS**

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

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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	0.65 0.58	0.34 0.26	0.17 0.11	1.25 1.15	0.85 0.75	1.65 1.55	0.1

**Note**  
1. The marking bar indicates the cathode.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOD523			SC-79			<del>02-12-13</del> 06-03-16

## Legal information

### Data sheet status

Document status <sup>[1][2]</sup>	Product status <sup>[3]</sup>	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

[1] Please consult the most recently issued document before initiating or completing a design.

[2] The term 'short data sheet' is explained in section "Definitions".

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## Revision history

### Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BAP63-02_N_4	20080108	Product data sheet	-	BAP63-02_3
Modifications:	• Package outline drawing on page 5 changed			
BAP63-02_3 (9397 750 08261)	20010518	Product specification	-	BAP63-02_N_2
BAP63-02_N_2 (9397 750 08141)	20010320	Preliminary specification	-	BAP63-02_N_1
BAP63-02_N_1 (9397 750 08051)	20010220	Preliminary specification	-	-

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