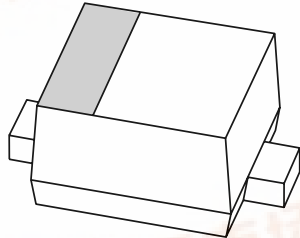


DISCRETE SEMICONDUCTORS

DATA SHEET



BAP63-02 **Silicon PIN diode**

Product specification
Supersedes data of 2001 Apr 04

2001 May 18

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

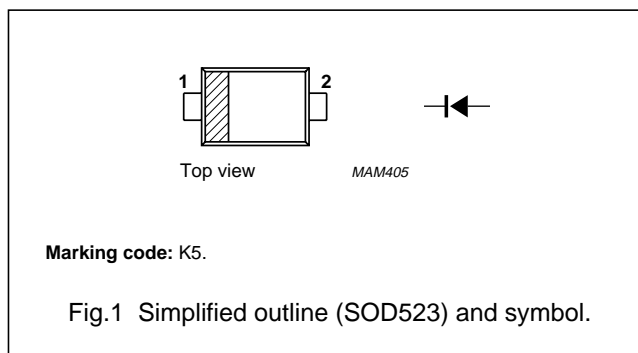
- RF attenuators and switches.

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

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

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
V_F	forward voltage	$I_F = 50\text{ mA}$	0.95	1.1	V
I_R	reverse leakage current	$V_R = 35\text{ V}$	–	10	nA
C_d	diode capacitance	$V_R = 0; f = 1\text{ MHz}$	0.36	–	pF
		$V_R = 1\text{ V}; f = 1\text{ MHz}$	0.32	–	pF
		$V_R = 20\text{ V}; f = 1\text{ MHz}$	0.25	0.32	pF
r_D	diode forward resistance	$I_F = 0.5\text{ mA}; f = 100\text{ MHz}; \text{note 1}$	2.5	3.5	Ω
		$I_F = 1\text{ mA}; f = 100\text{ MHz}; \text{note 1}$	1.95	3	Ω
		$I_F = 10\text{ mA}; f = 100\text{ MHz}; \text{note 1}$	1.17	1.8	Ω
		$I_F = 100\text{ mA}; f = 100\text{ MHz}; \text{note 1}$	0.9	1.5	Ω
$ s_{21} ^2$	isolation	$V_R = 0; f = 900\text{ MHz}$	15.6	–	dB
		$V_R = 0; f = 1800\text{ MHz}$	10.3	–	dB
		$V_R = 0; f = 2450\text{ MHz}$	8.3	–	dB
$ s_{21} ^2$	insertion loss	$I_F = 0.5\text{ mA}; f = 900\text{ MHz}$	0.19	–	dB
		$I_F = 0.5\text{ mA}; f = 1800\text{ MHz}$	0.24	–	dB
		$I_F = 0.5\text{ mA}; f = 2450\text{ MHz}$	0.28	–	dB
$ s_{21} ^2$	insertion loss	$I_F = 1\text{ mA}; f = 900\text{ MHz}$	0.16	–	dB
		$I_F = 1\text{ mA}; f = 1800\text{ MHz}$	0.20	–	dB
		$I_F = 1\text{ mA}; f = 2450\text{ MHz}$	0.25	–	dB
$ s_{21} ^2$	insertion loss	$I_F = 10\text{ mA}; f = 900\text{ MHz}$	0.10	–	dB
		$I_F = 10\text{ mA}; f = 1800\text{ MHz}$	0.16	–	dB
		$I_F = 10\text{ mA}; f = 2450\text{ MHz}$	0.20	–	dB
$ s_{21} ^2$	insertion loss	$I_F = 100\text{ mA}; f = 900\text{ MHz}$	0.09	–	dB
		$I_F = 100\text{ mA}; f = 1800\text{ MHz}$	0.14	–	dB
		$I_F = 100\text{ mA}; f = 2450\text{ MHz}$	0.18	–	dB
τ_L	charge carrier life time	when switched from $I_F = 10\text{ mA}$ to $I_R = 6\text{ mA}; R_L = 100\ \Omega$; measured at $I_R = 3\text{ mA}$	310	–	ns
L_S	series inductance	$I_F = 100\text{ mA}; f = 100\text{ MHz}$	0.6	–	nH

Note

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

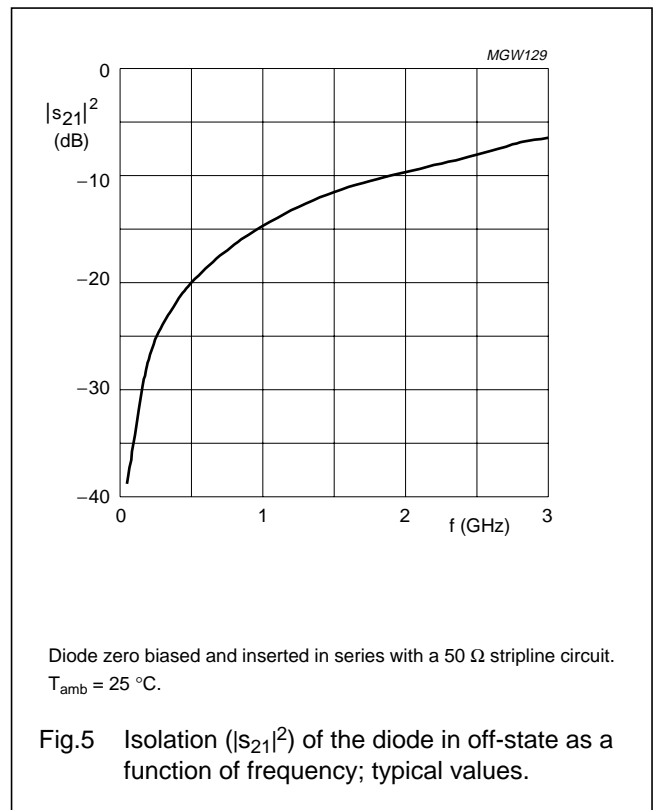
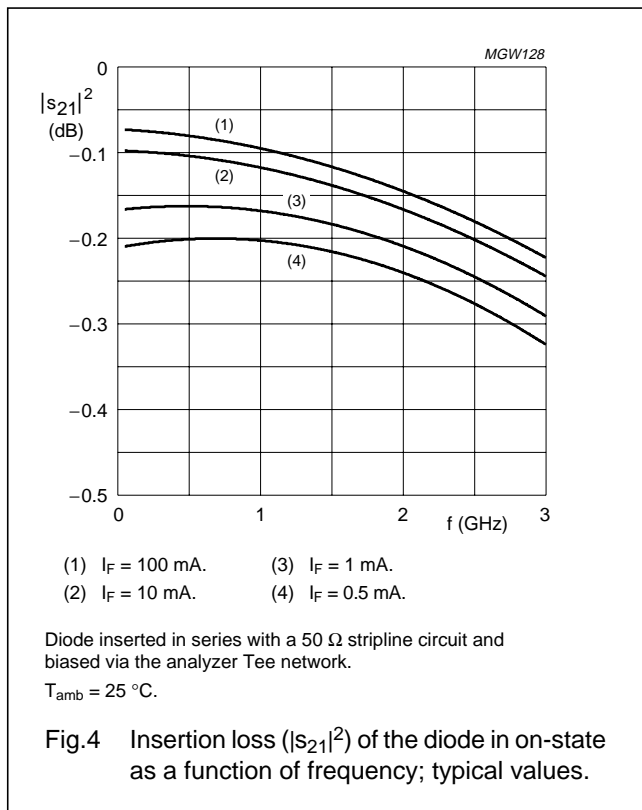
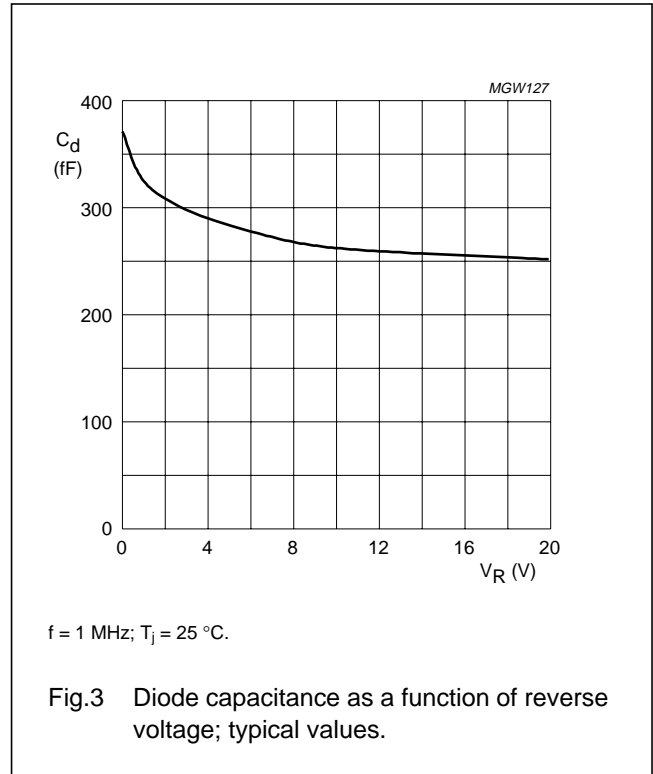
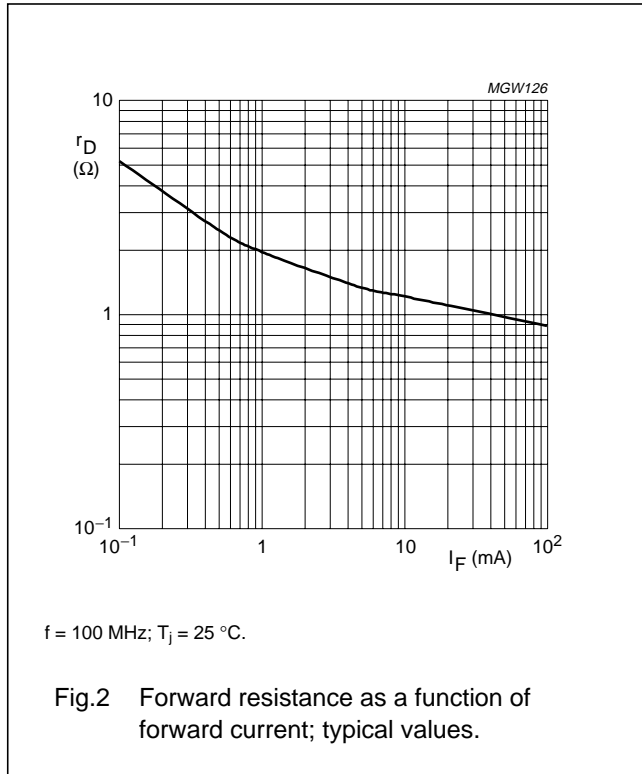
THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	VALUE	UNIT
$R_{th\ j-s}$	thermal resistance from junction to soldering point	85	K/W

Silicon PIN diode

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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	0.7 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

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2. The product status of the device(s) described in this data sheet may have changed since this data sheet was published. The latest information is available on the Internet at URL <http://www.semiconductors.philips.com>.

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Silicon PIN diode

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