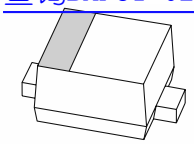

BAP51-02

General purpose PIN diode

Rev. 03 — 2 January 2008 Product data sheet

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NXP Semiconductors

General purpose PIN diode BAP51-02

FEATURES

- Low diode capacitance
- Low diode forward resistance.

APPLICATIONS

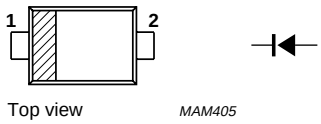
- General RF applications.

DESCRIPTION

General purpose PIN diode in a SOD523 ultra small SMD plastic package.

PINNING

PIN	DESCRIPTION
1	cathode
2	anode



Marking code: K1.

Fig.1 Simplified outline (SOD523) 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		–	60	V
I_F	continuous forward current		–	50	mA
P_{tot}	total power dissipation	T_s = 90 °C	–	715	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–65	+150	°C

ELECTRICAL CHARACTERISTICS

T_j = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	forward voltage	I_F = 50 mA	–	0.95	1.1	V
V_R	reverse voltage	I_R = 10 μA	50	–	–	V
I_R	reverse current	V_R = 50 V	–	–	100	nA
C_d	diode capacitance	V_R = 0; f = 1 MHz	–	0.4	–	pF
		V_R = 1 V; f = 1 MHz	–	0.3	0.55	pF
		V_R = 5 V; f = 1 MHz	–	0.2	0.35	pF
r_D	diode forward resistance	I_F = 0.5 mA; f = 100 MHz; note 1	–	5.5	9	Ω
		I_F = 1 mA; f = 100 MHz; note 1	–	3.6	6.5	Ω
		I_F = 10 mA; f = 100 MHz; note 1	–	1.5	2.5	Ω

Note

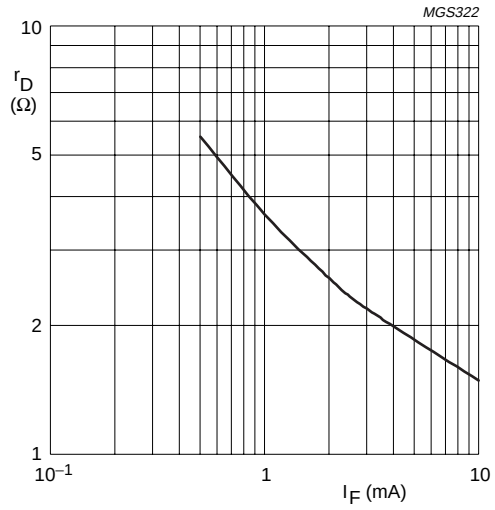
1. Guaranteed on AQL basis: inspection level S4, AQL 1.0.

THERMAL CHARACTERISTICS

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

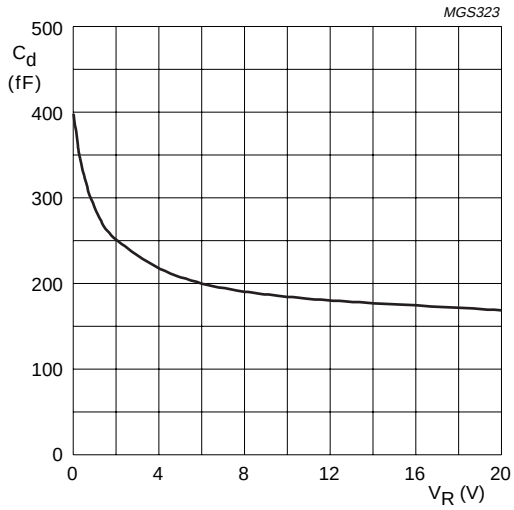
General purpose PIN diode BAP51-02

GRAPHICAL DATA



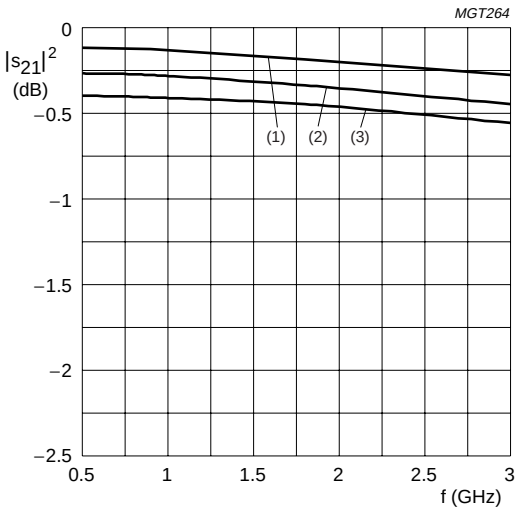
f = 100 MHz; T_j = 25 °C.

Fig.2 Forward resistance as a function of forward current; typical values.



f = 1 MHz; T_j = 25 °C.

Fig.3 Diode capacitance as a function of reverse voltage; typical values.

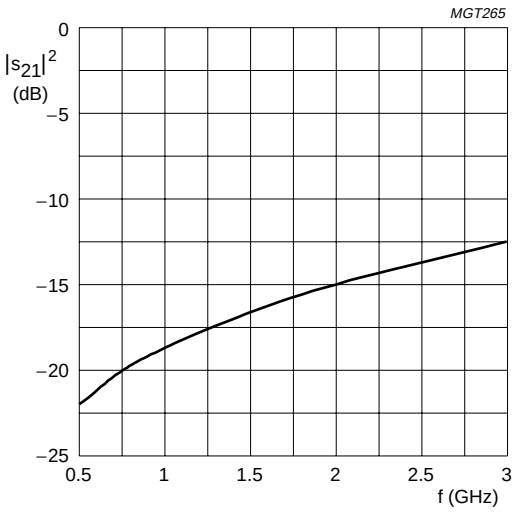


(1) I_F = 10 mA. (2) I_F = 1 mA. (3) I_F = 0.5 mA.

Diode inserted in series with a 50 Ω stripline circuit and biased via the analyzer Tee network.

T_{amb} = 25 °C.

Fig.4 Insertion loss ($|s_{21}|^2$) of the diode as a function of frequency; typical values.



Diode zero biased and inserted in series with a 50 Ω stripline circuit.

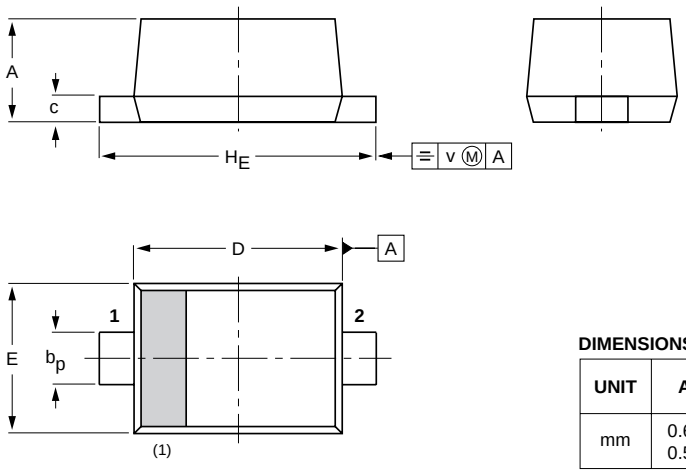
T_{amb} = 25 °C.

Fig.5 Isolation ($|s_{21}|^2$) of the diode as a function of frequency; typical values.

General purpose PIN diode BAP51-02

PACKAGE OUTLINE

Plastic surface-mounted package; 2 leads **SOD523**



DIMENSIONS (mm are the original dimensions)

UNIT	A	b_p	c	D	E	H_E	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			~~02-12-13~~ 06-03-16

Legal information

Data sheet status

Document status[1][2]	Product status[3]	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".

[3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL http://www.nxp.com.

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Revision history

Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BAP51-02_N_3	20080102	Product data sheet	-	BAP51-02_2
Modifications:	• Package outline drawing on page 4 changed			
BAP51-02_2 (9397 750 07151)	20000706	Product specification	-	BAP51-02_N_1
BAP51-02_N_1 (9397 750 06152)	19990628	Preliminary specification	-	-

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Date of release: 2 January 2008
Document identifier: BAP51-02_N_3