

BAP51-02

General purpose PIN diode

Rev. 03 — 2 January 2008

Product data sheet

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NXP Semiconductors

General purpose PIN diode

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FEATURES

- Low diode capacitance
- Low diode forward resistance.

APPLICATIONS

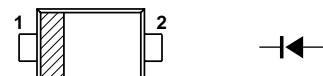
- General RF applications.

DESCRIPTION

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

PINNING

PIN	DESCRIPTION
1	cathode
2	anode



Top view MAM405

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	$T_s = 90^\circ\text{C}$	–	715	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–65	+150	°C

ELECTRICAL CHARACTERISTICS

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

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

Note

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

THERMAL CHARACTERISTICS

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

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GRAPHICAL DATA

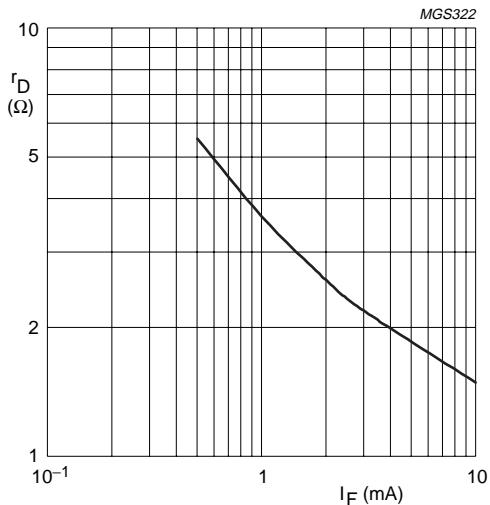
 $f = 100$ MHz; $T_j = 25$ °C.

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

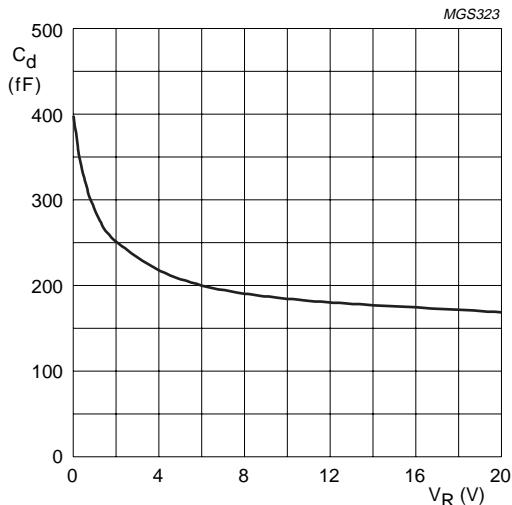
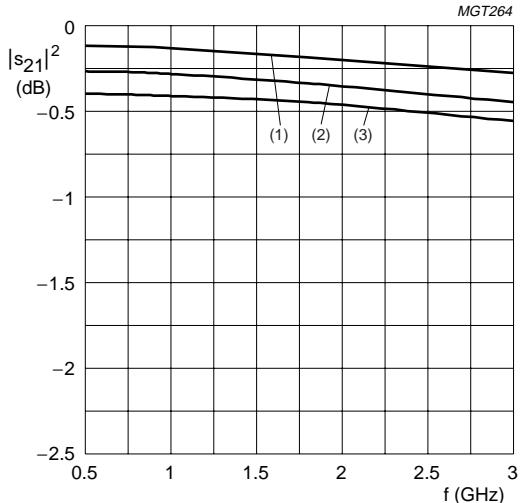
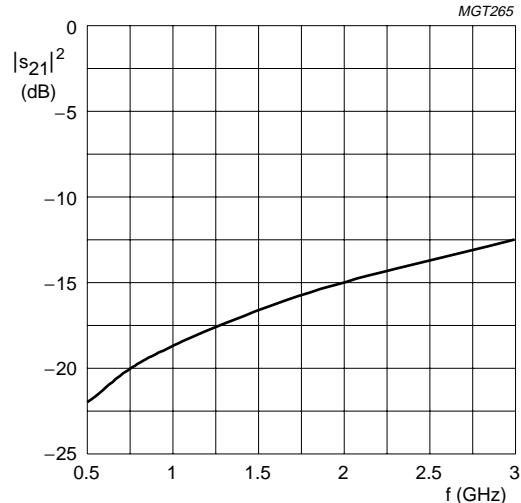
 $f = 1$ MHz; $T_j = 25$ °C.

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 $50\ \Omega$ 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 $50\ \Omega$ stripline circuit. $T_{amb} = 25$ °C.Fig.5 Isolation ($|s_{21}|^2$) of the diode as a function of frequency; typical values.

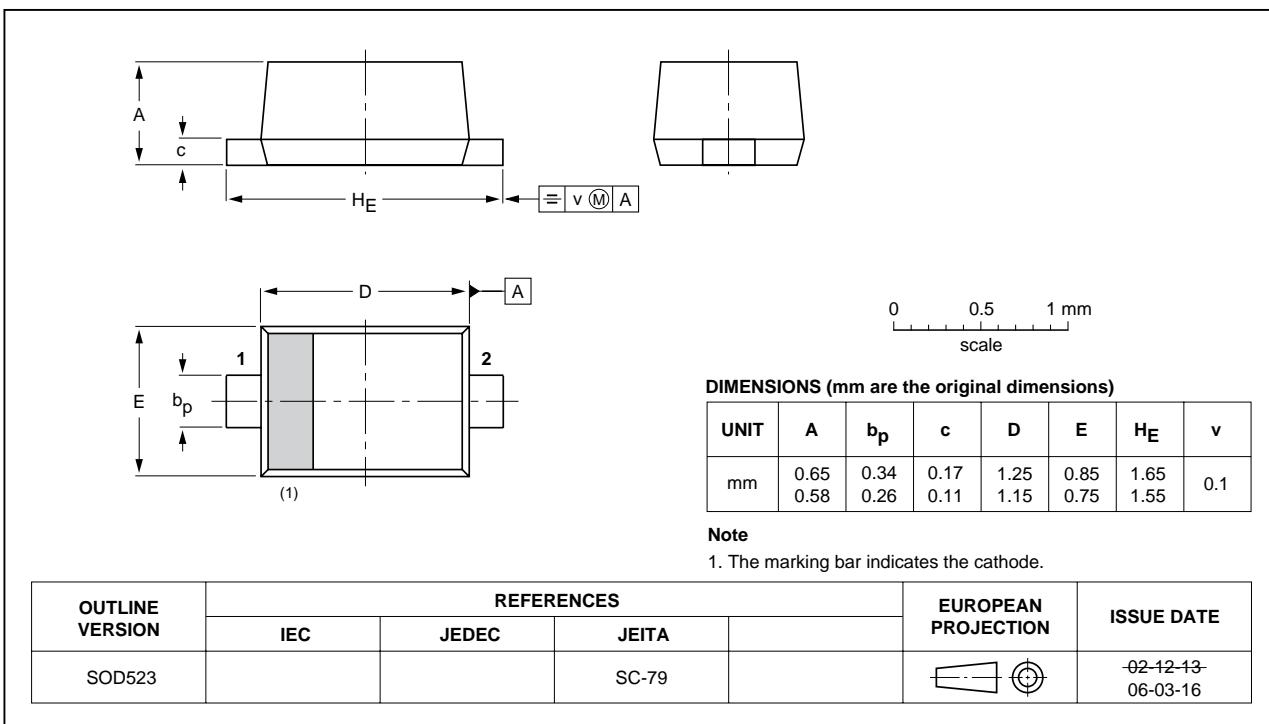
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PACKAGE OUTLINE

Plastic surface-mounted package; 2 leads

SOD523



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".

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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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