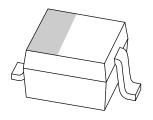
DISCRETE SEMICONDUCTORS

DATA SHEET



BAP1321-03 Silicon PIN diode

Product specification
Supersedes data of 2001 May 11

2004 Feb 17



Silicon PIN diode BAP1321-03

FEATURES

- High voltage, current controlled
- RF resistor for RF attenuators and switches
- Low diode capacitance
- Low diode forward resistance
- Very low series inductance
- For applications up to 3 GHz.

APPLICATIONS

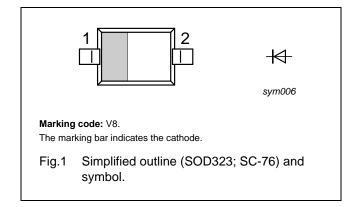
• RF attenuators and switches.

DESCRIPTION

Planar PIN diode in a SOD323 (SC-76) ultra small SMD plastic package.

PINNING

PIN	DESCRIPTION
1	cathode
2	anode



ORDERING INFORMATION

TYPE		PACKAGE				
NUMBER	NAME	DESCRIPTION	VERSION			
BAP1321-03	_	plastic surface mounted package; 2 leads	SOD323			

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		_	100	mA
P _{tot}	total power dissipation	T _s ≤ 90 °C	_	500	mW
T _{stg}	storage temperature		-65	+150	°C
Tj	junction temperature		-65	+150	°C

Silicon PIN diode BAP1321-03

CHARACTERISTICS

 $T_j = 25$ °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
V _F	forward voltage	I _F = 50 mA	0.95	1.1	V
I _R	reverse leakage current	V _R = 60 V	_	100	nA
C _d	diode capacitance	V _R = 0; f = 1 MHz	0.4	_	pF
		V _R = 1 V; f = 1 MHz	0.35	0.45	pF
		V _R = 20 V; f = 1 MHz	0.25	0.32	pF
r _D	diode forward resistance	f = 100 MHz; note 1			
		$I_F = 0.5 \text{ mA}$	3.4	5.0	Ω
		I _F = 1 mA	2.4	3.6	Ω
		I _F = 10 mA	1.2	1.8	Ω
		I _F = 100 mA	0.85	1.3	Ω
$ s_{21} ^2$	isolation	V _R = 0; f = 900 MHz	16.6	_	dB
		V _R = 0; f = 1800 MHz	11.6	_	dB
		V _R = 0; f = 2450 MHz	9.2	_	dB
$ s_{21} ^2$	insertion loss	I _F = 0.5 mA; f = 900 MHz	0.26	_	dB
		I _F = 0.5 mA; f = 1800 MHz	0.35	_	dB
		I _F = 0.5 mA; f = 2450 MHz	0.44	_	dB
$ s_{21} ^2$	insertion loss	I _F = 1 mA; f = 900 MHz	0.20	_	dB
		I _F = 1 mA; f = 1800 MHz	0.29	_	dB
		I _F = 1 mA; f = 2450 MHz	0.38	_	dB
$ s_{21} ^2$	insertion loss	I _F = 10 mA; f = 900 MHz	0.13	_	dB
		I _F = 10 mA; f = 1800 MHz	0.22	_	dB
		I _F = 10 mA; f = 2450 MHz	0.32	_	dB
$ s_{21} ^2$	insertion loss	I _F = 100 mA; f = 900 MHz	0.10	_	dB
		$I_F = 100 \text{ mA}$; $f = 1800 \text{ MHz}$	0.20	_	dB
		I _F = 100 mA; f = 2450 MHz	0.29	_	dB
τ∟	charge carrier life time	when switched from I_F = 10 mA to I_R = 6 mA; R_L = 100 Ω ; measured at I_R = 3 mA	0.5	_	μS
L _S	series inductance	I _F = 100 mA; f = 100 MHz	1.5	_	nH

Note

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	VALUE	UNIT
$R_{th(j-s)}$	thermal resistance from junction to soldering point	120	K/W

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

Silicon PIN diode BAP1321-03

GRAPHICAL DATA

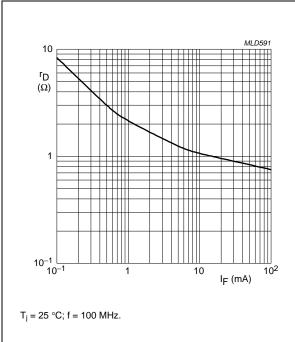


Fig.2 Forward resistance as a function of forward current; typical values.

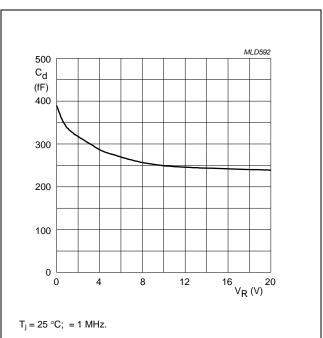
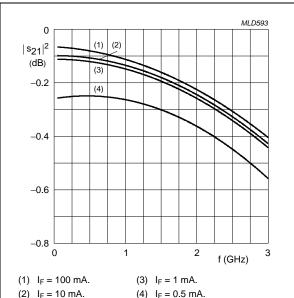


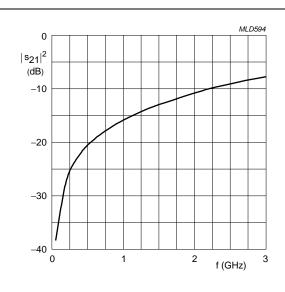
Fig.3 Diode capacitance as a function of reverse voltage; typical values.



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

 $T_{amb} = 25 \, ^{\circ}C.$

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. $T_{amb} = 25 \, ^{\circ}C.$

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

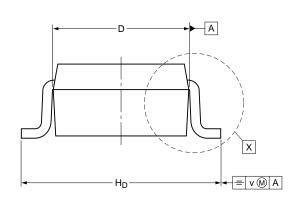
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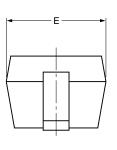
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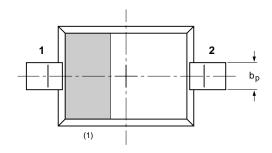
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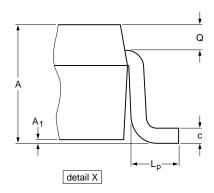
PACKAGE OUTLINE

Plastic surface-mounted package; 2 leads SOD323











DIMENSIONS (mm are the original dimensions)

UNIT	Α	A ₁ max	bp	С	D	E	H _D	Lp	Q	v
mm	1.1 0.8	0.05	0.40 0.25	0.25 0.10	1.8 1.6	1.35 1.15	2.7 2.3	0.45 0.15		0.2

Note

1. The marking bar indicates the cathode

OUTLINE		REFER	ENCES	EUROPEAN	ISSUE DATE	
VERSION	IEC	JEDEC	JEITA		PROJECTION	ISSUE DATE
SOD323			SC-76			-03-12-17- 06-03-16

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DATA SHEET STATUS

DOCUMENT STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾	DEFINITION
Objective data sheet	Development	This document contains data from the objective specification for product development.
Preliminary data sheet	Qualification	This document contains data from the preliminary specification.
Product data sheet	Production	This document contains the product specification.

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Customer notification

This data sheet was changed to reflect the new company name NXP Semiconductors, including new legal definitions and disclaimers. No changes were made to the technical content, except for package outline drawings which were updated to the latest version.

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