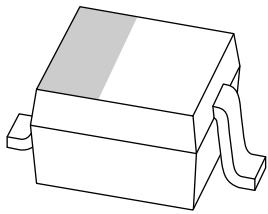


# DATA SHEET



## **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

**Marking code:** V8.  
The marking bar indicates the cathode.

Fig.1 Simplified outline (SOD323; SC-76) and symbol.

### ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	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	$T_s \leq 90\text{ °C}$	-	500	mW
$T_{stg}$	storage temperature		-65	+150	°C
$T_j$	junction temperature		-65	+150	°C

## Silicon PIN diode

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**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> = 60 V	–	100	nA
C <sub>d</sub>	diode capacitance	V <sub>R</sub> = 0; f = 1 MHz	0.4	–	pF
		V <sub>R</sub> = 1 V; f = 1 MHz	0.35	0.45	pF
		V <sub>R</sub> = 20 V; f = 1 MHz	0.25	0.32	pF
r <sub>D</sub>	diode forward resistance	f = 100 MHz; note 1			
		I <sub>F</sub> = 0.5 mA	3.4	5.0	Ω
		I <sub>F</sub> = 1 mA	2.4	3.6	Ω
		I <sub>F</sub> = 10 mA	1.2	1.8	Ω
s <sub>21</sub>   <sup>2</sup>	isolation	V <sub>R</sub> = 0; f = 900 MHz	16.6	–	dB
		V <sub>R</sub> = 0; f = 1800 MHz	11.6	–	dB
		V <sub>R</sub> = 0; f = 2450 MHz	9.2	–	dB
s <sub>21</sub>   <sup>2</sup>	insertion loss	I <sub>F</sub> = 0.5 mA; f = 900 MHz	0.26	–	dB
		I <sub>F</sub> = 0.5 mA; f = 1800 MHz	0.35	–	dB
		I <sub>F</sub> = 0.5 mA; f = 2450 MHz	0.44	–	dB
s <sub>21</sub>   <sup>2</sup>	insertion loss	I <sub>F</sub> = 1 mA; f = 900 MHz	0.20	–	dB
		I <sub>F</sub> = 1 mA; f = 1800 MHz	0.29	–	dB
		I <sub>F</sub> = 1 mA; f = 2450 MHz	0.38	–	dB
s <sub>21</sub>   <sup>2</sup>	insertion loss	I <sub>F</sub> = 10 mA; f = 900 MHz	0.13	–	dB
		I <sub>F</sub> = 10 mA; f = 1800 MHz	0.22	–	dB
		I <sub>F</sub> = 10 mA; f = 2450 MHz	0.32	–	dB
s <sub>21</sub>   <sup>2</sup>	insertion loss	I <sub>F</sub> = 100 mA; f = 900 MHz	0.10	–	dB
		I <sub>F</sub> = 100 mA; f = 1800 MHz	0.20	–	dB
		I <sub>F</sub> = 100 mA; f = 2450 MHz	0.29	–	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	0.5	–	μs
L <sub>S</sub>	series inductance	I <sub>F</sub> = 100 mA; f = 100 MHz	1.5	–	nH

**Note**

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

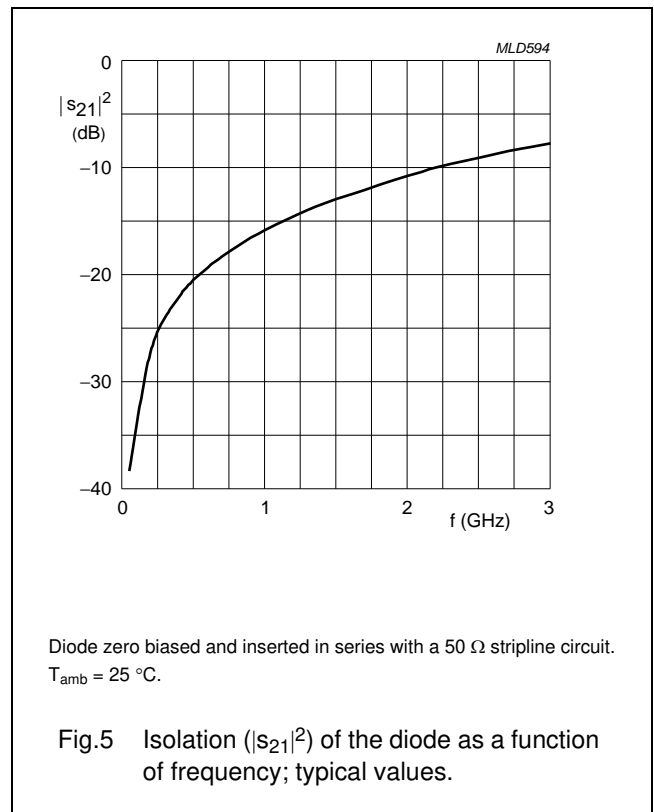
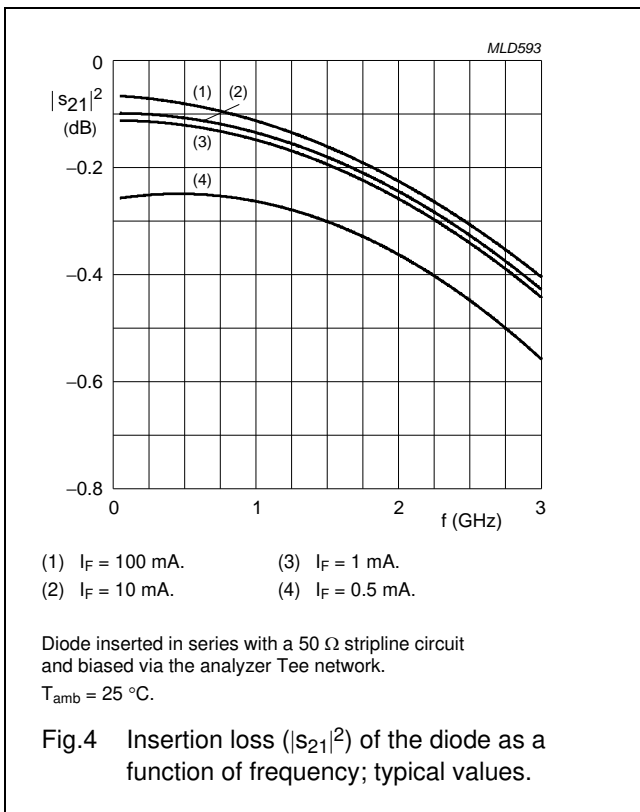
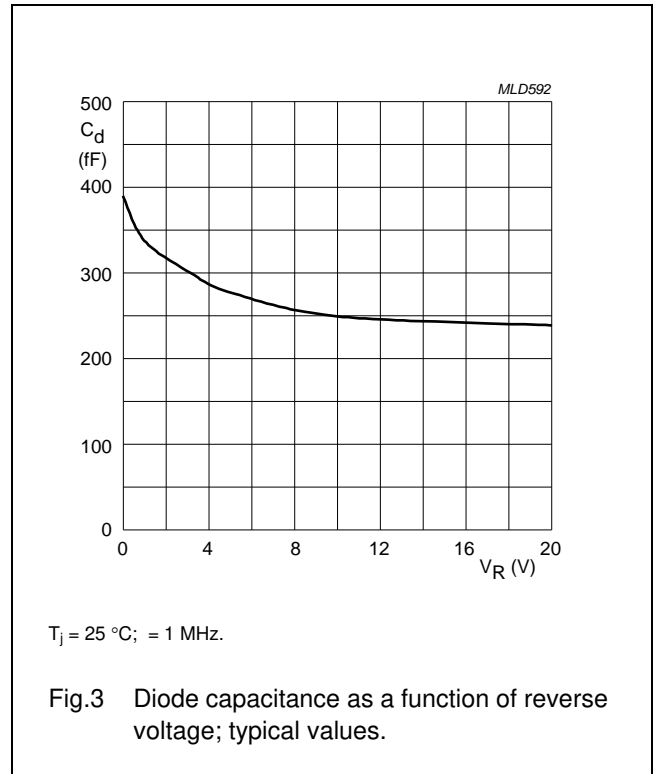
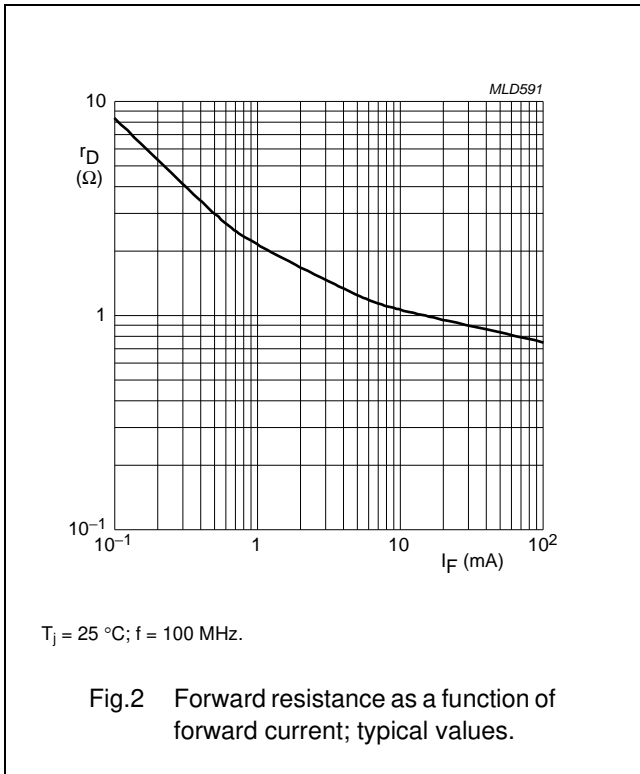
**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	VALUE	UNIT
R <sub>th(j-s)</sub>	thermal resistance from junction to soldering point	120	K/W

Silicon PIN diode

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GRAPHICAL DATA



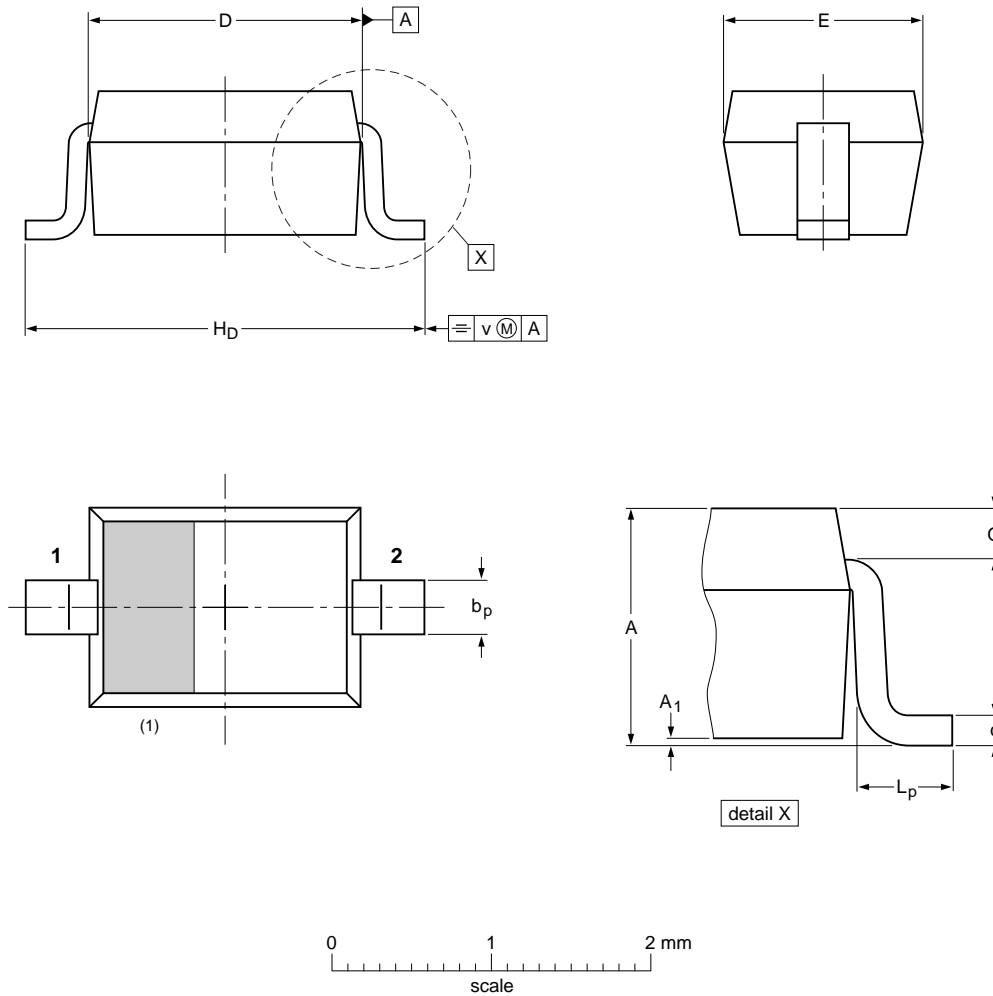
Silicon PIN diode

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PACKAGE OUTLINE

Plastic surface-mounted package; 2 leads

SOD323



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub> max	b <sub>p</sub>	c	D	E	H <sub>D</sub>	L <sub>p</sub>	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	0.25 0.15	0.2

Note

1. The marking bar indicates the cathode

OUTLINE VERSION	REFERENCES			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA		
SOD323			SC-76		<del>03-12-17</del> 06-03-16

## Silicon PIN diode

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## DATA SHEET STATUS

DOCUMENT STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	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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## Silicon PIN diode

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## **Contact information**

For additional information please visit: <http://www.nxp.com>

For sales offices addresses send e-mail to: [salesaddresses@nxp.com](mailto:salesaddresses@nxp.com)

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