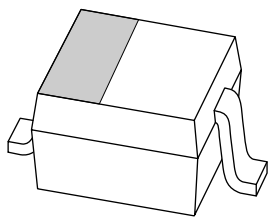


DATA SHEET



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

Top view

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

$T_j = 25\text{ °C}$ 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	$V_R = 60\text{ V}$	–	100	nA
C_d	diode capacitance	$V_R = 0; f = 1\text{ MHz}$	0.4	–	pF
		$V_R = 1\text{ V}; f = 1\text{ MHz}$	0.35	0.45	pF
		$V_R = 20\text{ V}; f = 1\text{ MHz}$	0.25	0.32	pF
r_D	diode forward resistance	$f = 100\text{ MHz}$; note 1			
		$I_F = 0.5\text{ mA}$	3.4	5.0	Ω
		$I_F = 1\text{ mA}$	2.4	3.6	Ω
		$I_F = 10\text{ mA}$	1.2	1.8	Ω
		$I_F = 100\text{ mA}$	0.85	1.3	Ω
$ S_{21} ^2$	isolation	$V_R = 0; f = 900\text{ MHz}$	16.6	–	dB
		$V_R = 0; f = 1800\text{ MHz}$	11.6	–	dB
		$V_R = 0; f = 2450\text{ MHz}$	9.2	–	dB
$ S_{21} ^2$	insertion loss	$I_F = 0.5\text{ mA}; f = 900\text{ MHz}$	0.26	–	dB
		$I_F = 0.5\text{ mA}; f = 1800\text{ MHz}$	0.35	–	dB
		$I_F = 0.5\text{ mA}; f = 2450\text{ MHz}$	0.44	–	dB
$ S_{21} ^2$	insertion loss	$I_F = 1\text{ mA}; f = 900\text{ MHz}$	0.20	–	dB
		$I_F = 1\text{ mA}; f = 1800\text{ MHz}$	0.29	–	dB
		$I_F = 1\text{ mA}; f = 2450\text{ MHz}$	0.38	–	dB
$ S_{21} ^2$	insertion loss	$I_F = 10\text{ mA}; f = 900\text{ MHz}$	0.13	–	dB
		$I_F = 10\text{ mA}; f = 1800\text{ MHz}$	0.22	–	dB
		$I_F = 10\text{ mA}; f = 2450\text{ MHz}$	0.32	–	dB
$ S_{21} ^2$	insertion loss	$I_F = 100\text{ mA}; f = 900\text{ MHz}$	0.10	–	dB
		$I_F = 100\text{ mA}; f = 1800\text{ MHz}$	0.20	–	dB
		$I_F = 100\text{ mA}; f = 2450\text{ MHz}$	0.29	–	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 $I_R = 3\text{ mA}$	0.5	–	μs
L_S	series inductance	$I_F = 100\text{ mA}; f = 100\text{ MHz}$	1.5	–	nH

Note

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

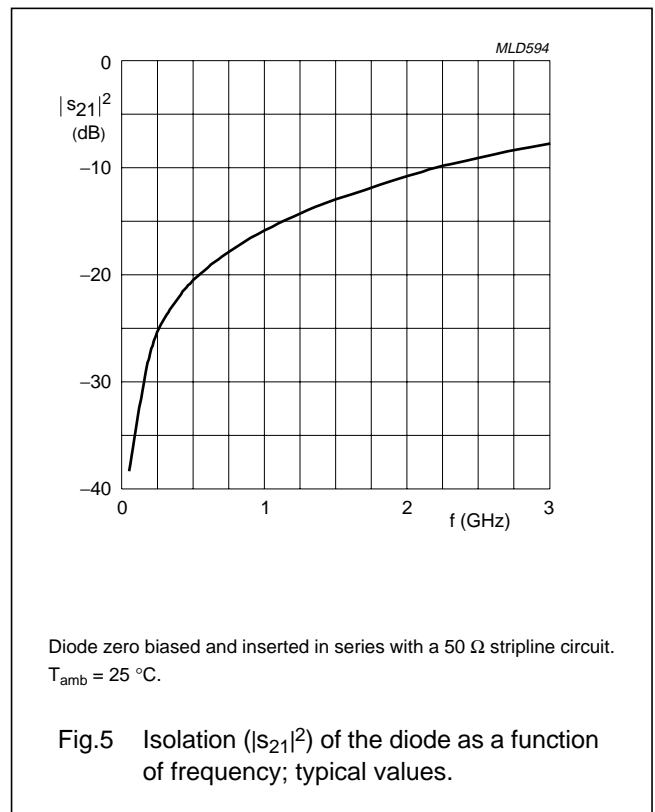
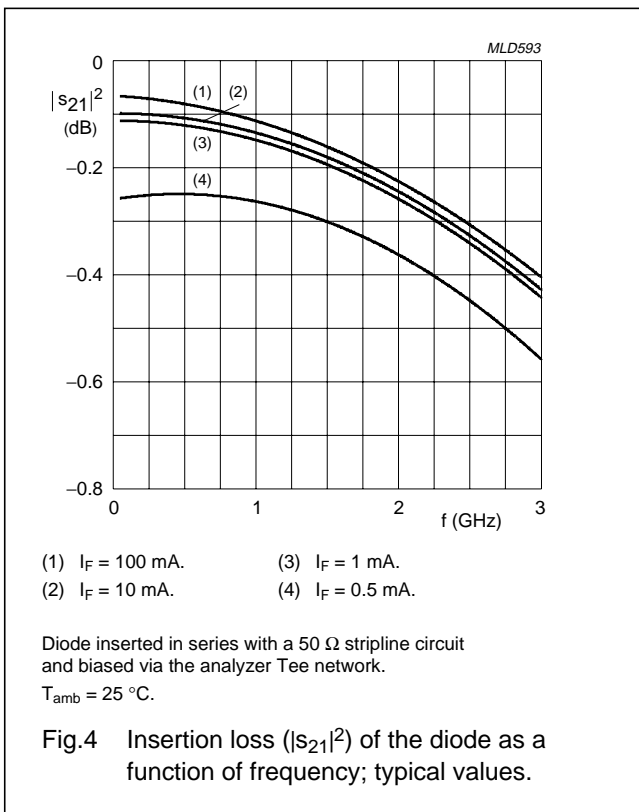
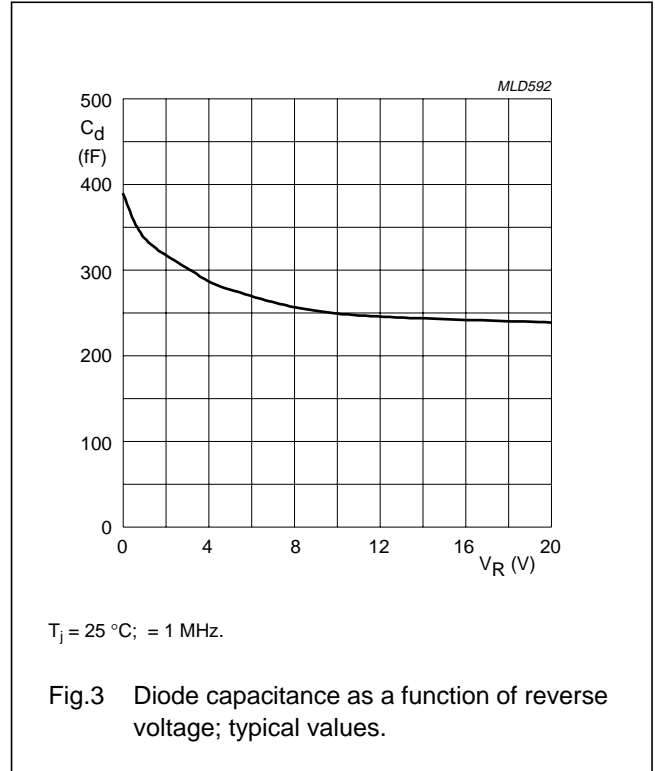
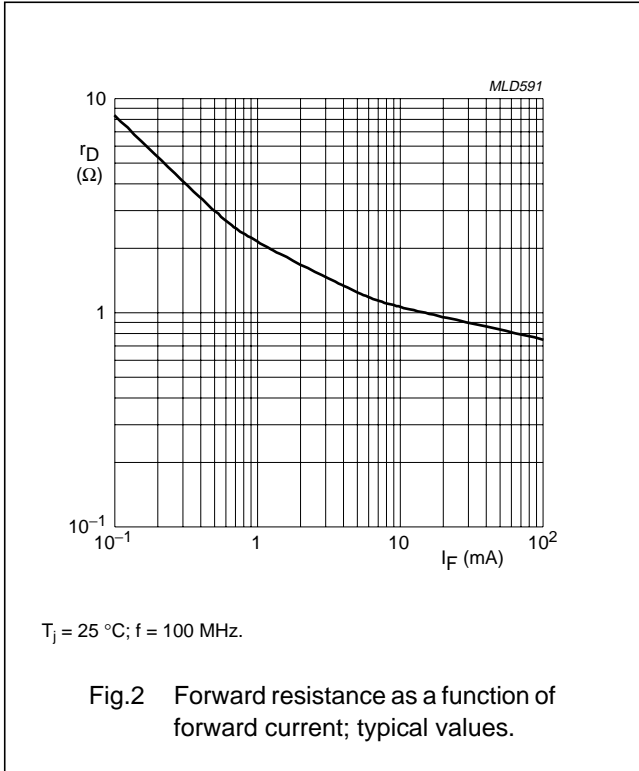
THERMAL CHARACTERISTICS

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

Silicon PIN diode

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GRAPHICAL DATA



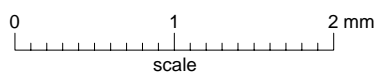
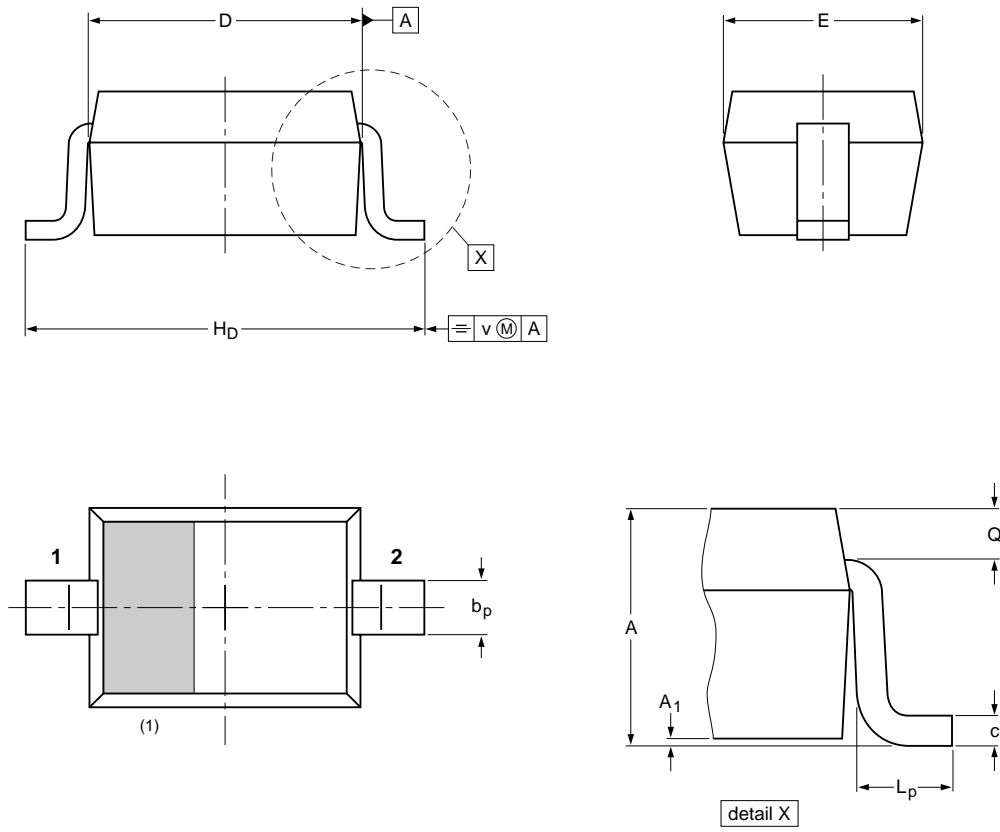
Silicon PIN diode

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PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SOD323



DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁ max	b _p	c	D	E	H _D	L _p	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			99-09-13 03-12-17

Silicon PIN diode

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DATA SHEET STATUS

LEVEL	DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾⁽³⁾	DEFINITION
I	Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
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