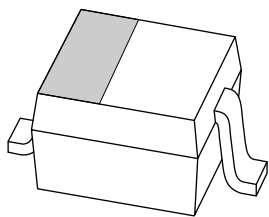


DATA SHEET



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

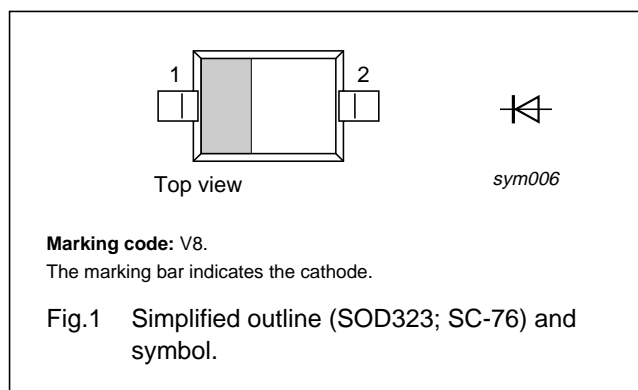
- RF attenuators and switches.

DESCRIPTION

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

PINNING

PIN	DESCRIPTION
1	cathode
2	anode



ORDERING INFORMATION

TYPE 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

BAP1321-03

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	$f = 100\text{ MHz}; \text{note 1}$			
		$I_F = 0.5\text{ mA}$	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.

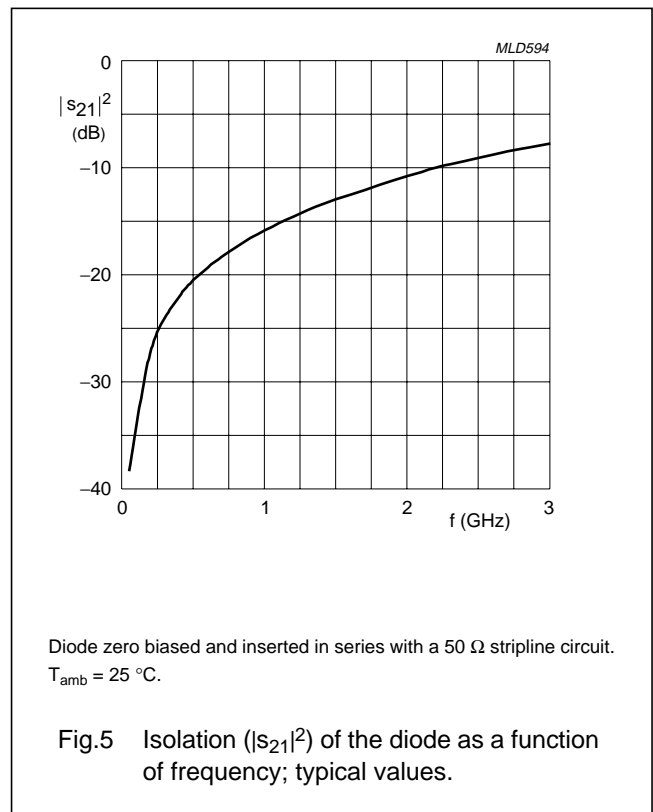
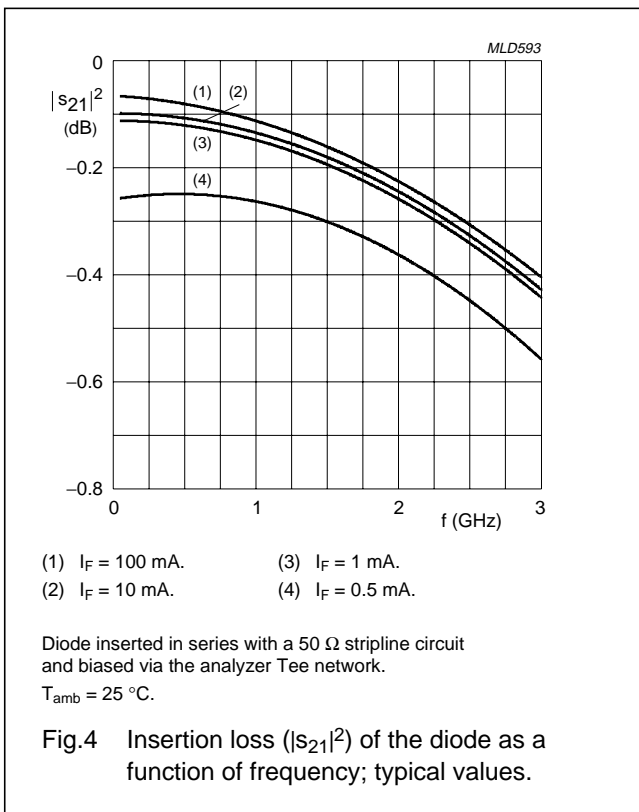
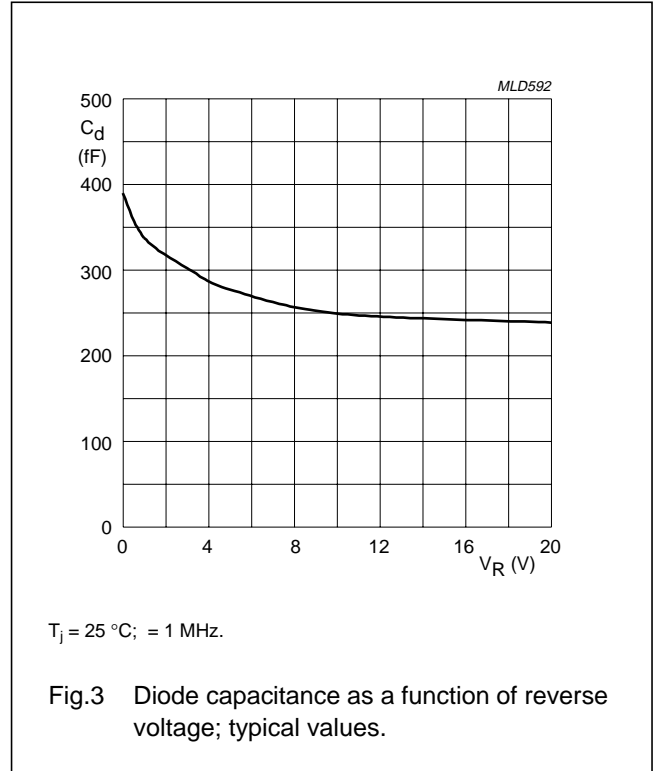
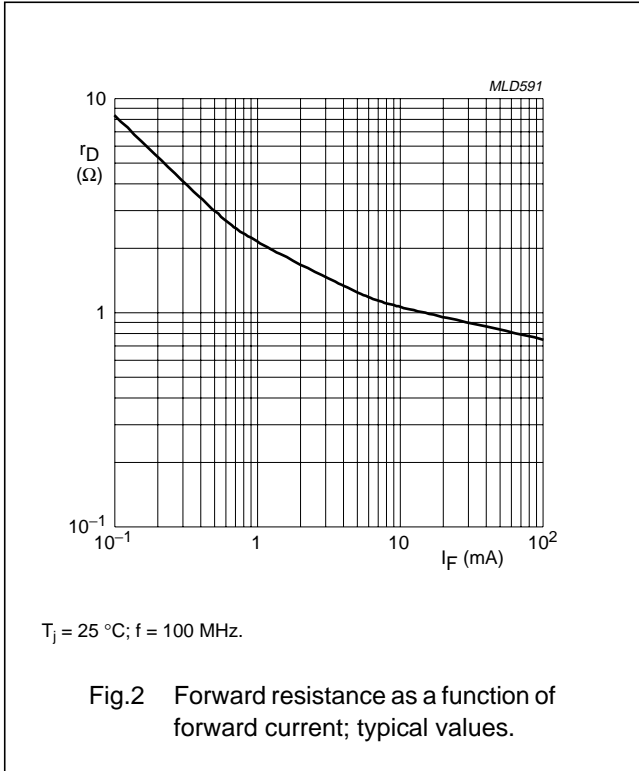
THERMAL CHARACTERISTICS

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

Silicon PIN diode

BAP1321-03

GRAPHICAL DATA



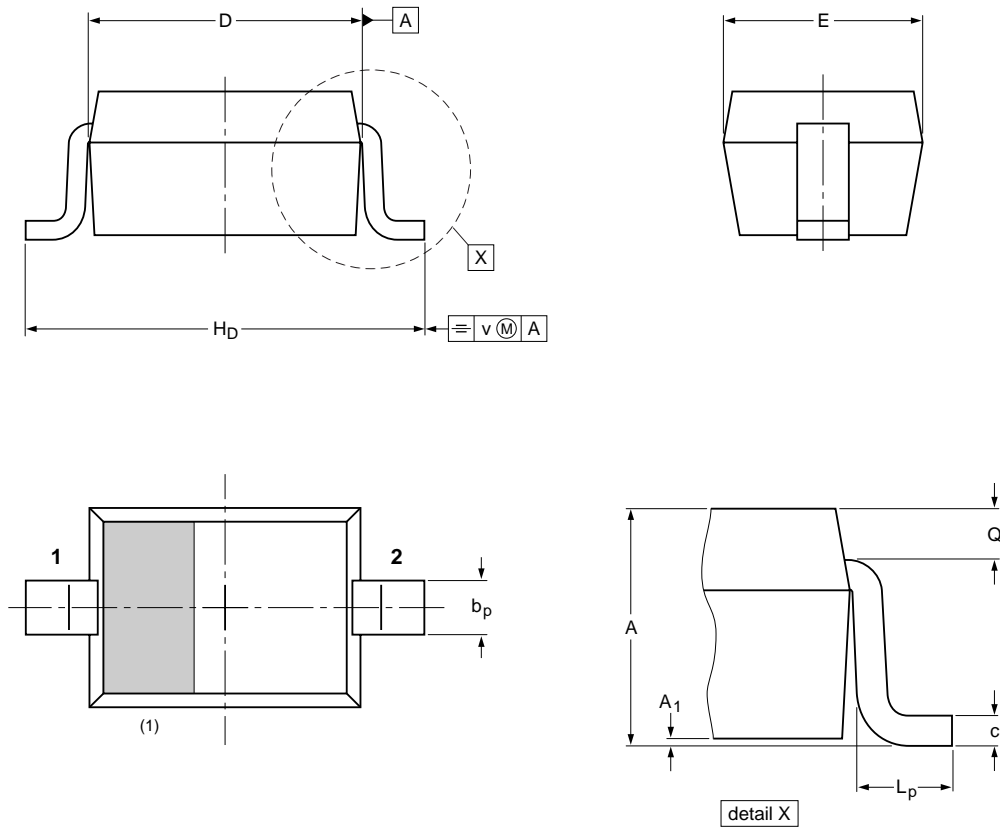
Silicon PIN diode

BAP1321-03

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

BAP1321-03

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.
II	Preliminary data	Qualification	This data sheet contains data from the preliminary specification. Supplementary data will be published at a later date. Philips Semiconductors reserves the right to change the specification without notice, in order to improve the design and supply the best possible product.
III	Product data	Production	This data sheet contains data from the product specification. Philips Semiconductors reserves the right to make changes at any time in order to improve the design, manufacturing and supply. Relevant changes will be communicated via a Customer Product/Process Change Notification (CPCN).

Notes

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3. For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

DEFINITIONS

Short-form specification — The data in a short-form specification is extracted from a full data sheet with the same type number and title. For detailed information see the relevant data sheet or data handbook.

Limiting values definition — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.

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