

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

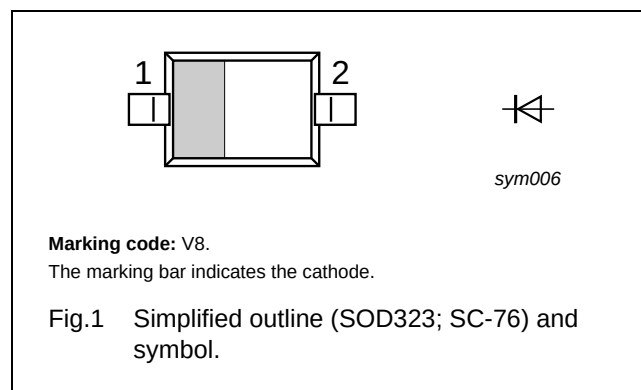
- RF attenuators and switches.

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

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CHARACTERISTICS

$T_j = 25\text{ }^{\circ}\text{C}$ 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
$ 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 $I_R = 6\text{ mA}$; $R_L = 100\text{ }\Omega$; 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.

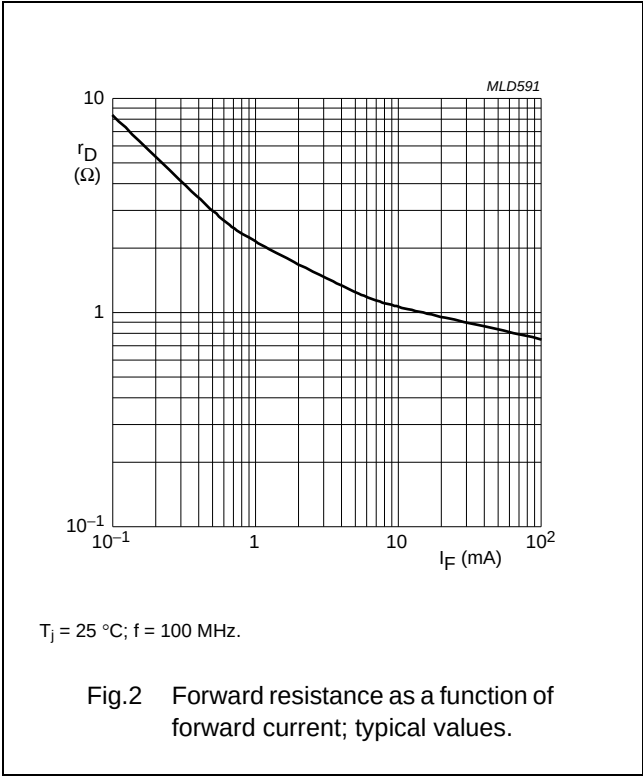
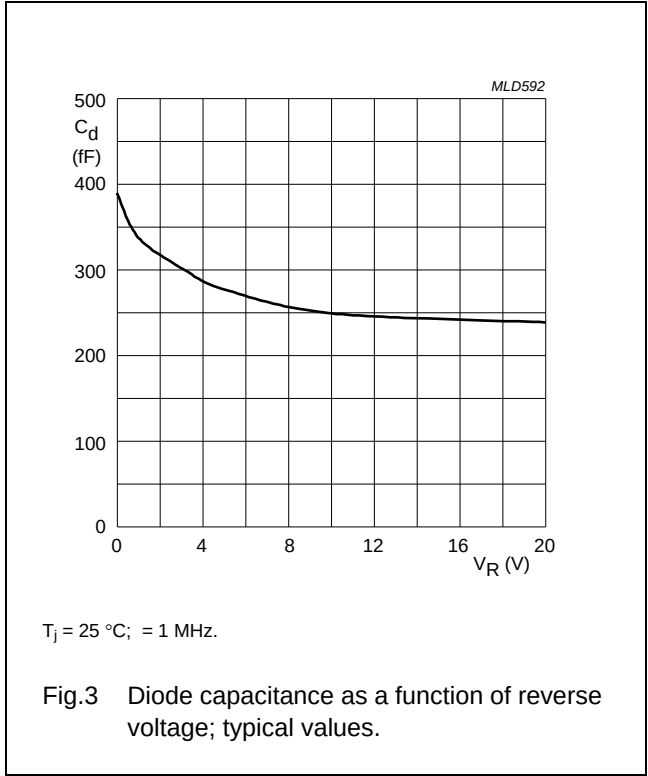
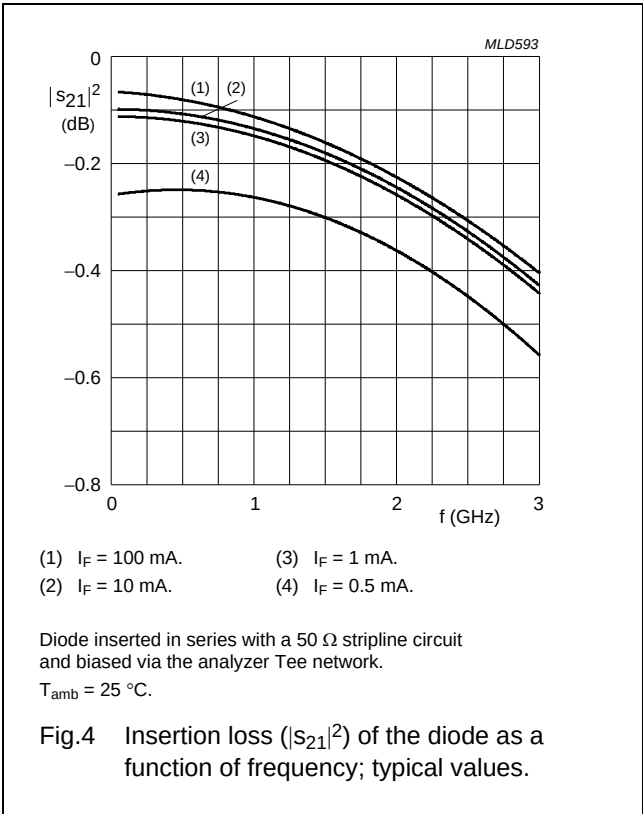
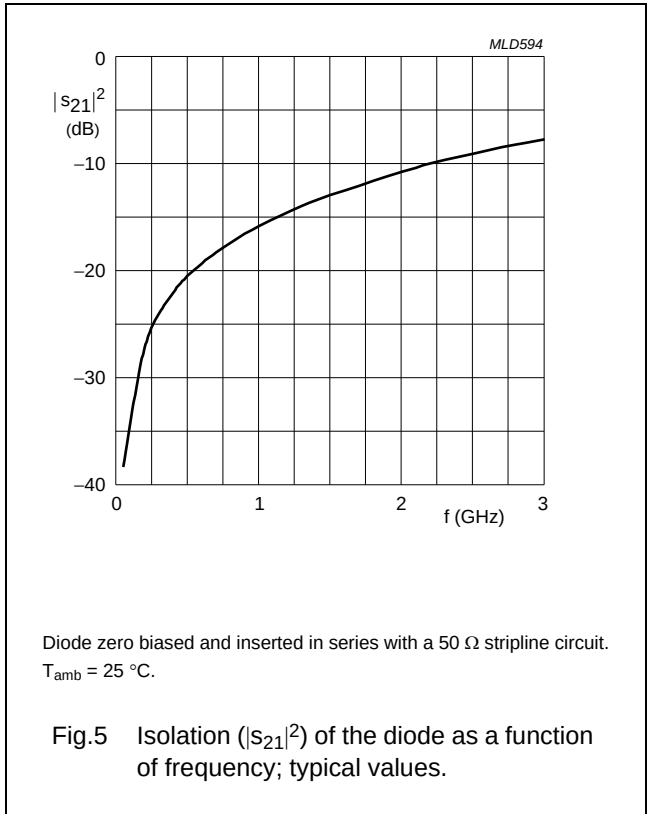
THERMAL CHARACTERISTICS

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

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GRAPHICAL DATA



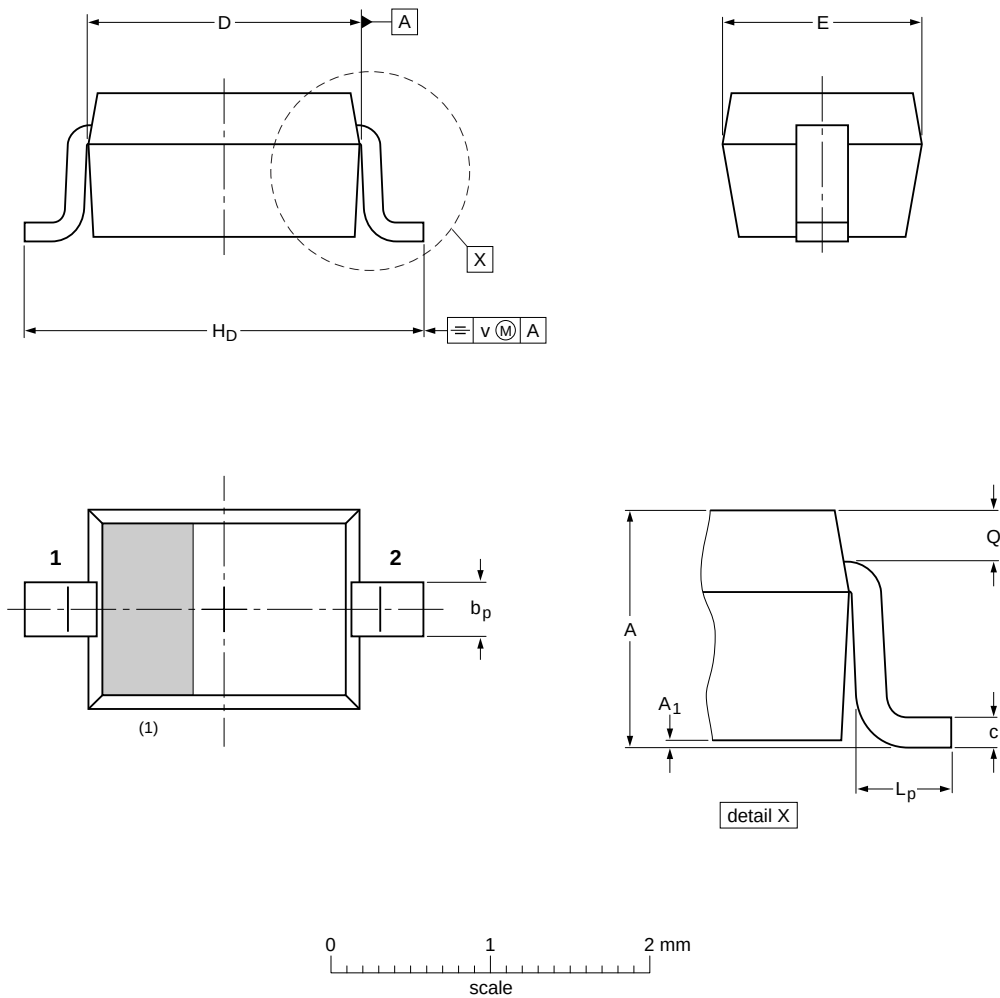
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PACKAGE OUTLINE

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			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.

Contact information

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