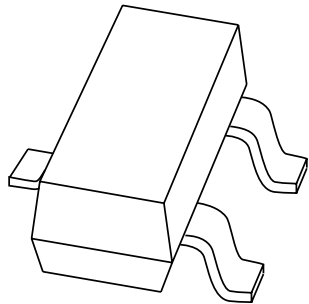


DATA SHEET



BAP1321-04 Silicon PIN diode

Product specification

2001 Apr 17

Silicon PIN diode

BAP1321-04

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

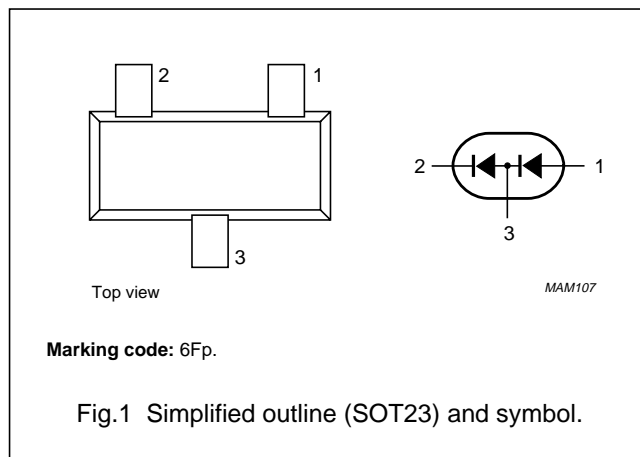
- RF attenuators and switches.

DESCRIPTION

Two planar PIN diodes in series configuration in a SOT23 small SMD plastic package.

PINNING

PIN	DESCRIPTION
1	anode
2	cathode
3	common connection



LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
Per diode					
V_R	continuous reverse voltage		–	60	V
I_F	continuous forward current		–	100	mA
P_{tot}	total power dissipation	$T_s \leq 90\text{ °C}$	–	250	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–65	+150	°C

Silicon PIN diode

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ELECTRICAL CHARACTERISTICS $T_j = 25\text{ °C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
Per diode					
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	$V_R = 0; f = 1\text{ MHz}$	0.42	–	pF
		$V_R = 1\text{ V}; f = 1\text{ MHz}$	0.375	0.45	pF
		$V_R = 20\text{ V}; f = 1\text{ MHz}$	0.275	0.325	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	$V_R = 0; f = 900\text{ MHz}$	15.7	–	dB
		$V_R = 0; f = 1800\text{ MHz}$	10.5	–	dB
		$V_R = 0; f = 2450\text{ MHz}$	7.9	–	dB
$ S_{21} ^2$	insertion loss	$I_F = 0.5\text{ mA}; f = 900\text{ MHz}$	0.27	–	dB
		$I_F = 0.5\text{ mA}; f = 1800\text{ MHz}$	0.35	–	dB
		$I_F = 0.5\text{ mA}; f = 2450\text{ MHz}$	0.43	–	dB
$ S_{21} ^2$	insertion loss	$I_F = 1\text{ mA}; f = 900\text{ MHz}$	0.21	–	dB
		$I_F = 1\text{ mA}; f = 1800\text{ MHz}$	0.29	–	dB
		$I_F = 1\text{ mA}; f = 2450\text{ MHz}$	0.37	–	dB
$ S_{21} ^2$	insertion loss	$I_F = 10\text{ mA}; f = 900\text{ MHz}$	0.14	–	dB
		$I_F = 10\text{ mA}; f = 1800\text{ MHz}$	0.21	–	dB
		$I_F = 10\text{ mA}; f = 2450\text{ MHz}$	0.29	–	dB
$ S_{21} ^2$	insertion loss	$I_F = 100\text{ mA}; f = 900\text{ MHz}$	0.10	–	dB
		$I_F = 100\text{ mA}; f = 1800\text{ MHz}$	0.18	–	dB
		$I_F = 100\text{ mA}; f = 2450\text{ MHz}$	0.26	–	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	$I_F = 100\text{ mA}; f = 100\text{ MHz}$	1.4	–	nH

Note

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

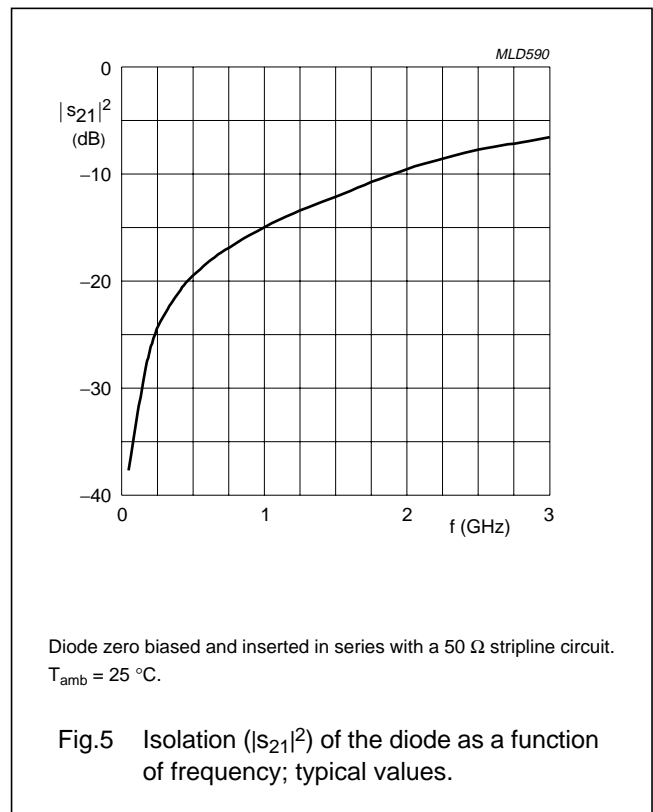
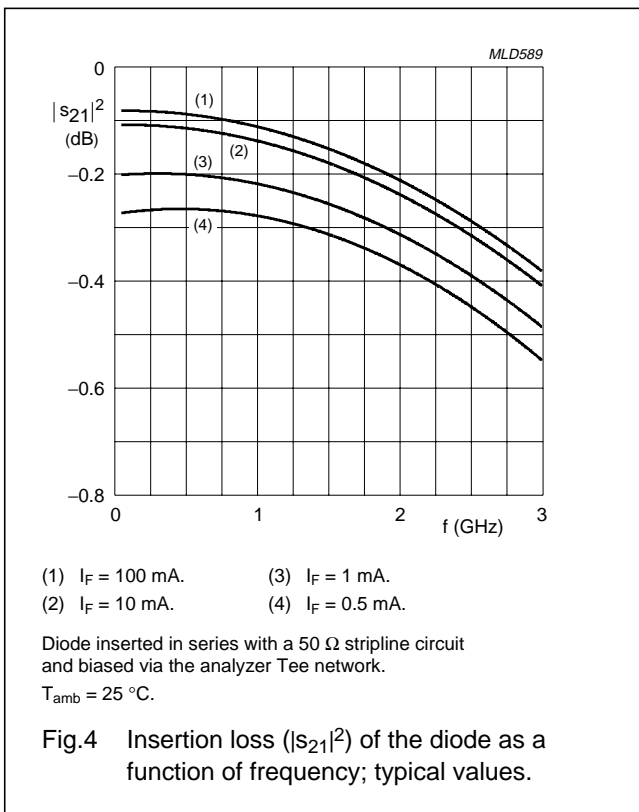
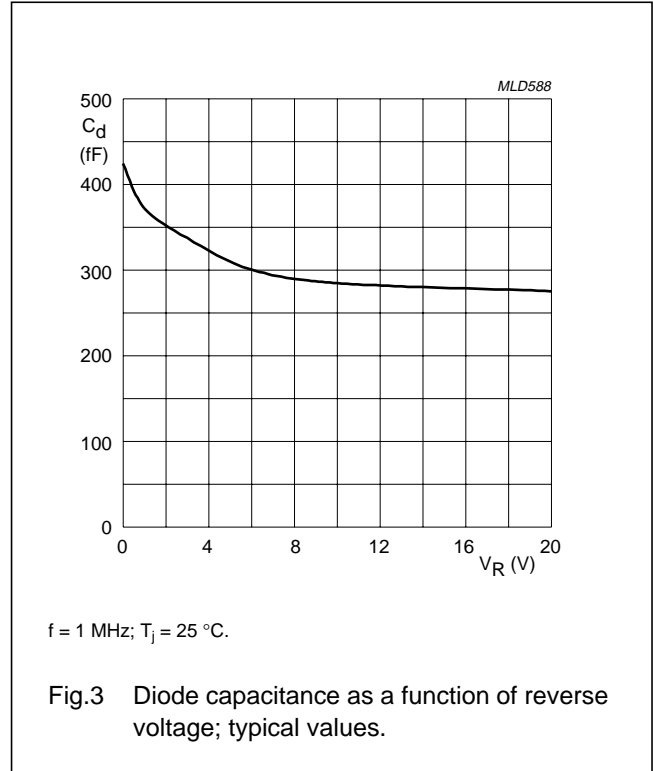
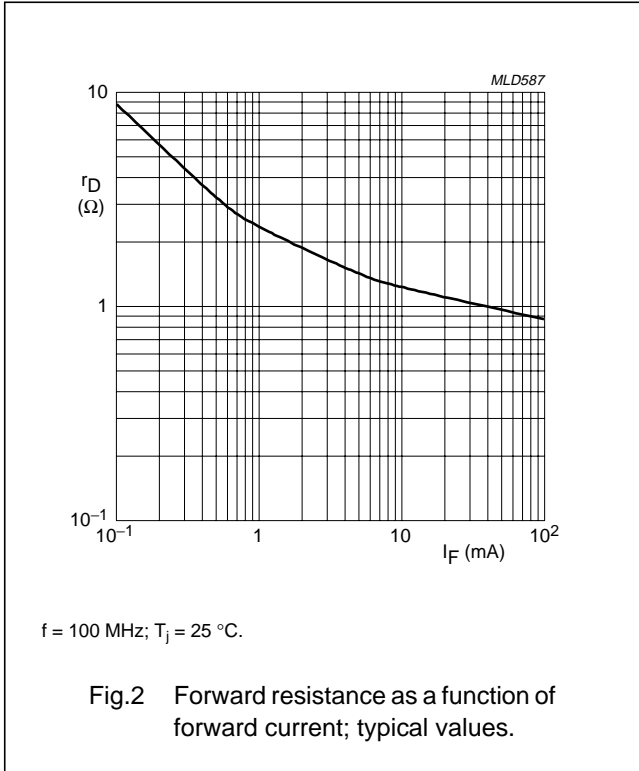
THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	VALUE	UNIT
$R_{th\ j-s}$	thermal resistance from junction to soldering point	220	K/W

Silicon PIN diode

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GRAPHICAL DATA



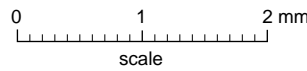
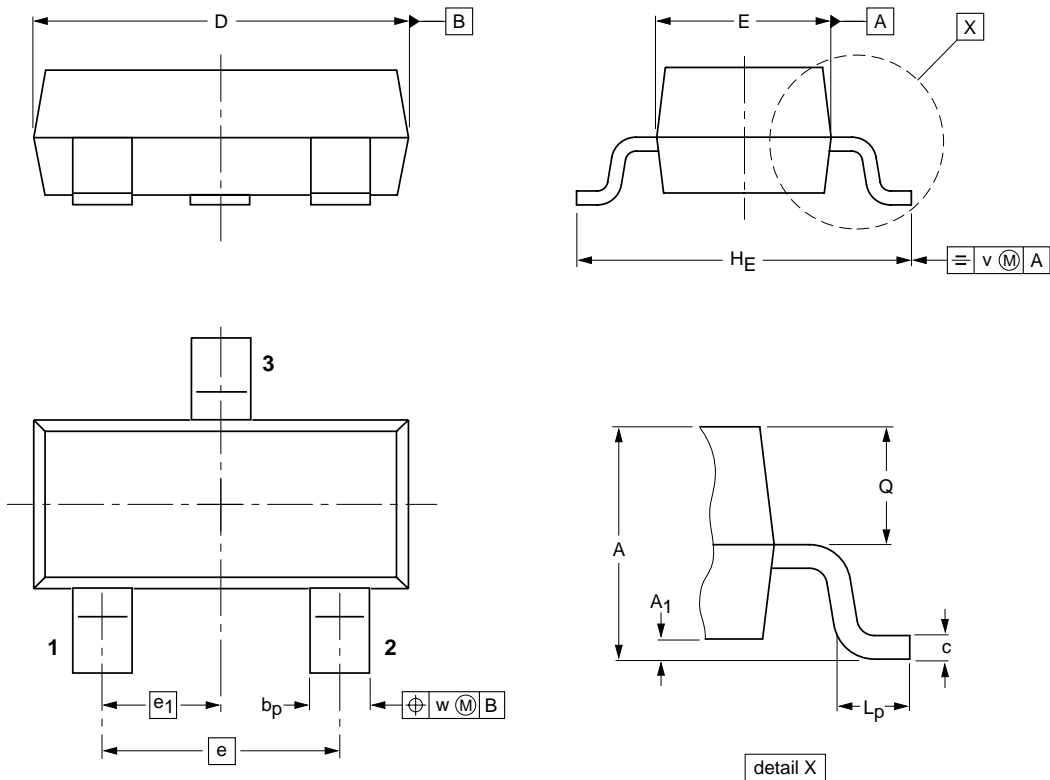
Silicon PIN diode

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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23



DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁ max.	b _p	c	D	E	e	e ₁	H _E	L _p	Q	v	w
mm	1.1 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT23		TO-236AB				97-02-28- 99-09-13

Silicon PIN diode

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DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾	DEFINITIONS
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.
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.
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