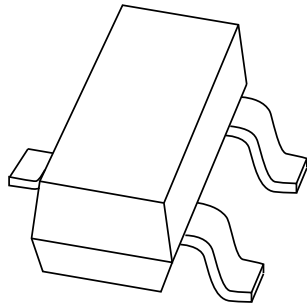


# DATA SHEET



## **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

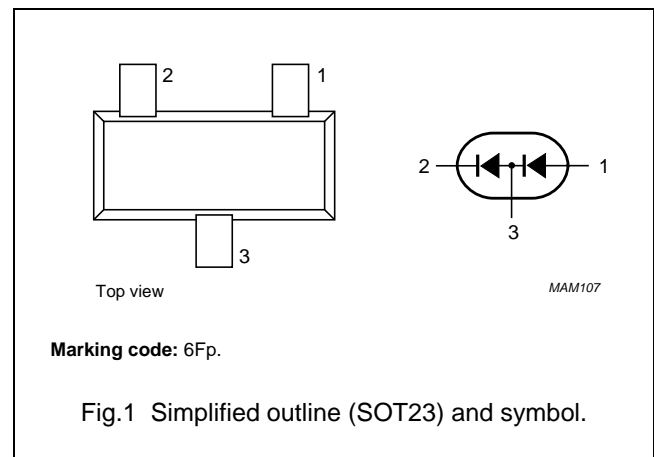
- RF attenuators and switches.

### 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
<b>Per diode</b>					
$V_R$	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
<b>Per diode</b>					
$V_F$	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	$\Omega$
		$I_F = 1\text{ mA}$	2.4	3.6	$\Omega$
		$I_F = 10\text{ mA}$	1.2	1.8	$\Omega$
$ 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
$\tau_L$	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	–	$\mu\text{s}$
$L_S$	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.

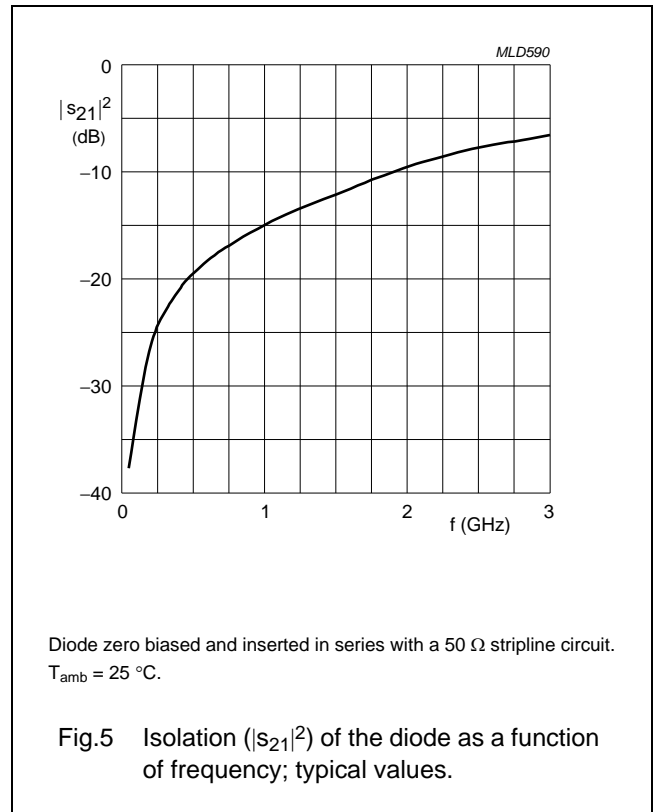
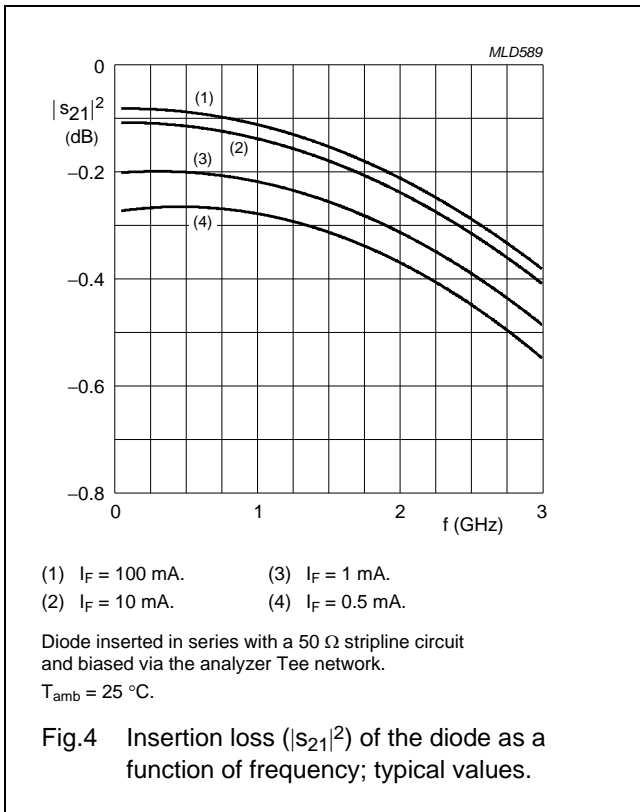
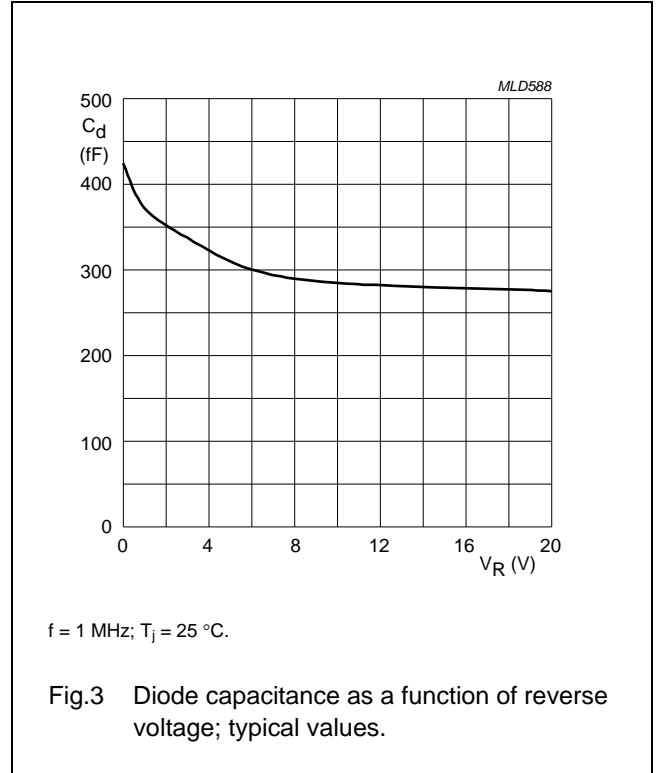
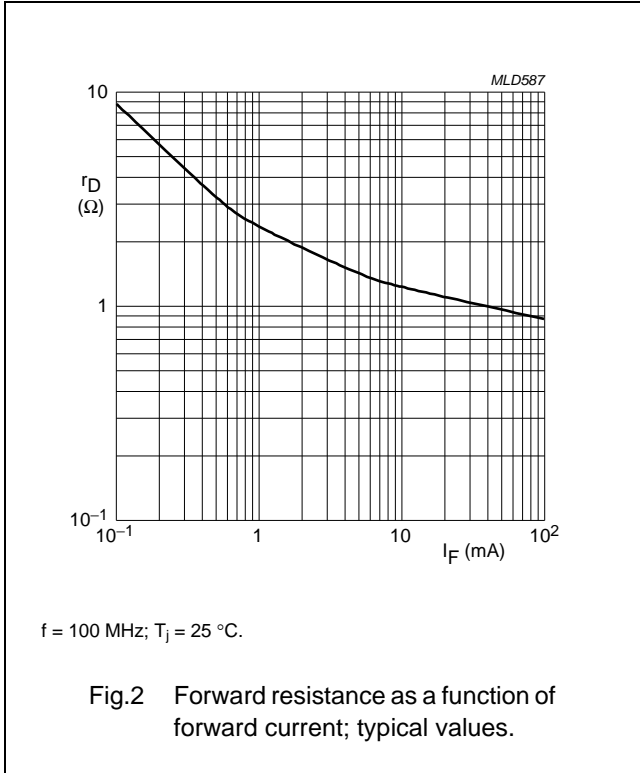
**THERMAL CHARACTERISTICS**

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



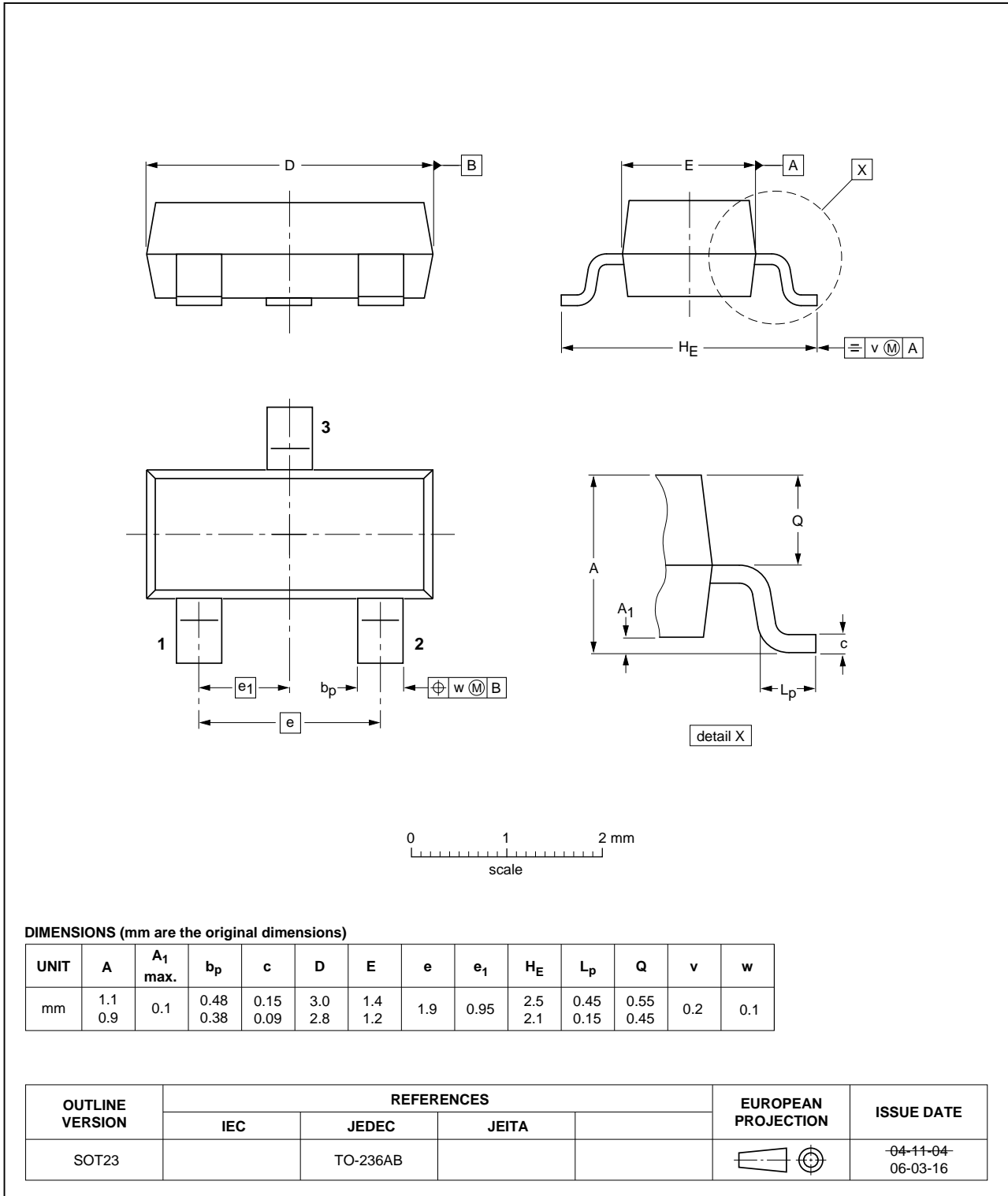
Silicon PIN diode

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PACKAGE OUTLINE

Plastic surface-mounted package; 3 leads

SOT23



## 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**

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