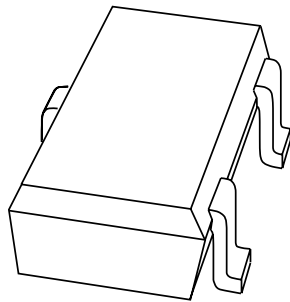


# DATA SHEET



## **BAP51-05W** General purpose PIN diode

Product specification

2001 Jan 23

# General purpose PIN diode

# BAP51-05W

### FEATURES

- Two elements in common cathode configuration in a small SMD plastic package
- Low diode capacitance
- Low diode forward resistance.

### APPLICATIONS

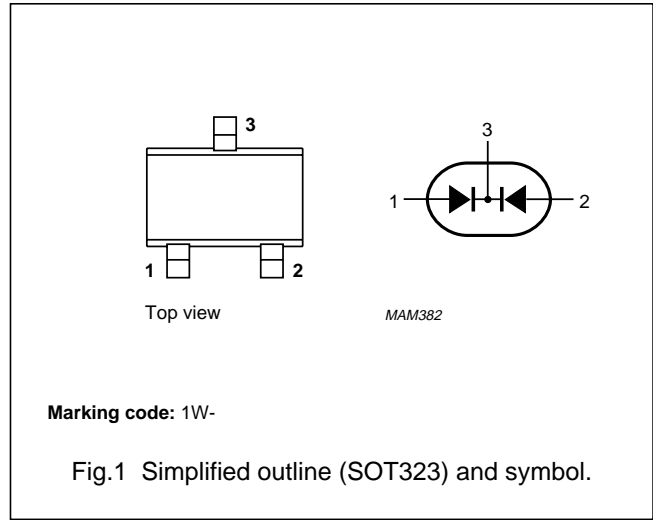
- General RF applications.

### DESCRIPTION

Two planar PIN diodes in common cathode configuration in a SOT323 small SMD plastic package.

### PINNING

PIN	DESCRIPTION
1	anode (a1)
2	anode (a2)
3	common cathode



### 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		–	50	V
$I_F$	continuous forward current		–	50	mA
$P_{tot}$	total power dissipation	$T_s = 90\text{ °C}$	–	240	mW
$T_{stg}$	storage temperature		–65	+150	°C
$T_j$	junction temperature		–65	+150	°C

## General purpose PIN diode

BAP51-05W

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
<b>Per diode</b>						
$V_F$	forward voltage	$I_F = 50\text{ mA}$	–	0.95	1.1	V
$V_R$	reverse voltage	$I_R = 10\text{ }\mu\text{A}$	50	–	–	V
$I_R$	reverse current	$V_R = 50\text{ V}$	–	–	100	nA
$C_d$	diode capacitance	$V_R = 0$ ; $f = 1\text{ MHz}$	–	0.4	–	pF
		$V_R = 1\text{ V}$ ; $f = 1\text{ MHz}$	–	0.3	0.55	pF
		$V_R = 5\text{ V}$ ; $f = 1\text{ MHz}$	–	0.2	0.35	pF
$r_D$	diode forward resistance	$I_F = 0.5\text{ mA}$ ; $f = 100\text{ MHz}$ ; note 1	–	5.5	9	$\Omega$
		$I_F = 1\text{ mA}$ ; $f = 100\text{ MHz}$ ; note 1	–	3.6	6.5	$\Omega$
		$I_F = 10\text{ mA}$ ; $f = 100\text{ MHz}$ ; note 1	–	1.5	2.5	$\Omega$
$\tau_L$	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 $I_R = 3\text{ mA}$	–	550	–	ns
$L_S$	series inductance	$I_F = 10\text{ mA}$ ; $f = 100\text{ MHz}$	–	1.6	–	nH

**Note**

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

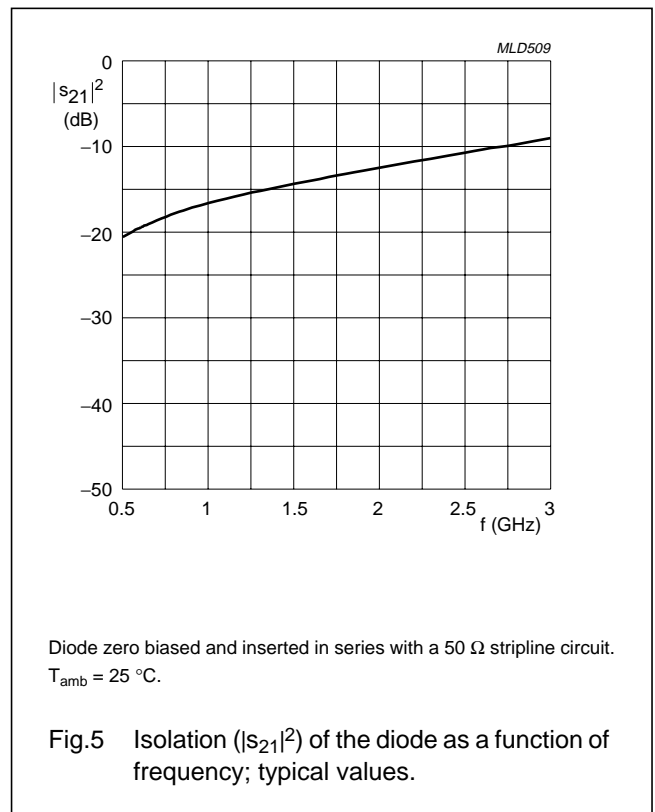
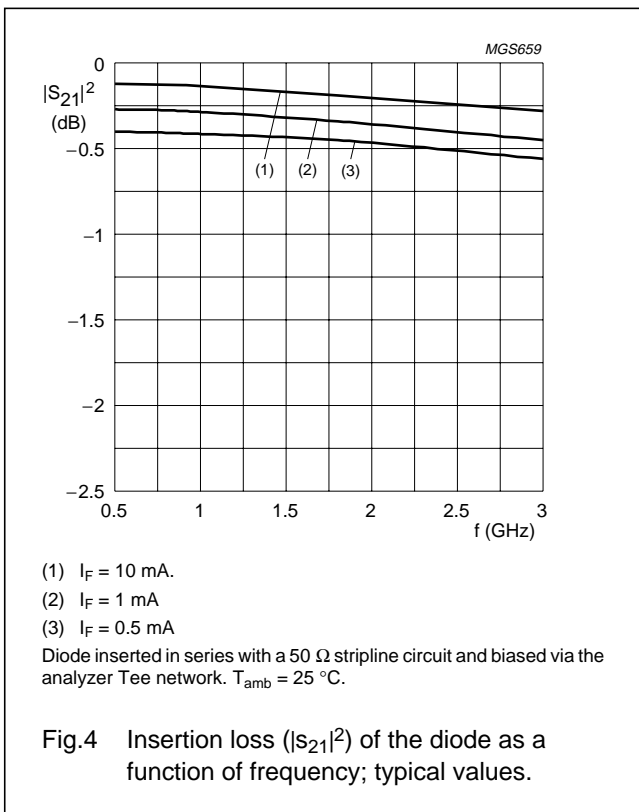
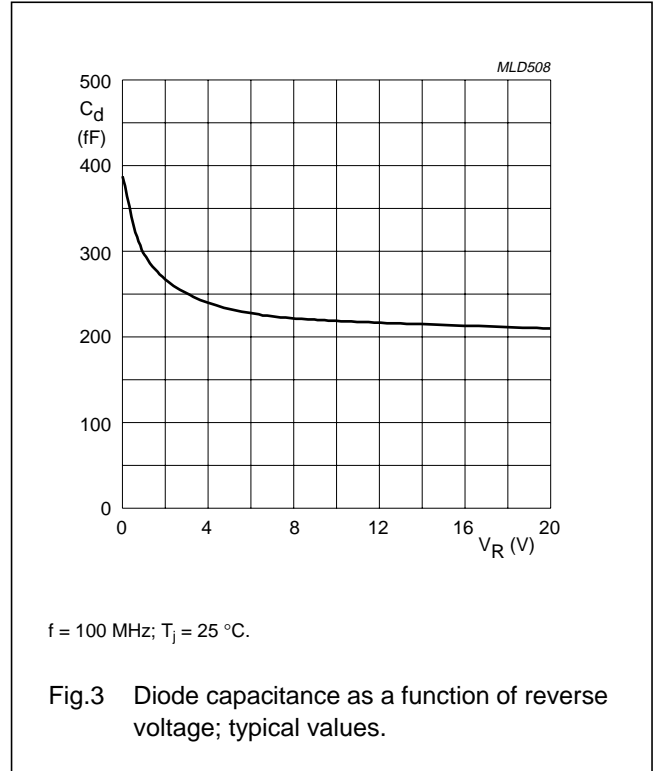
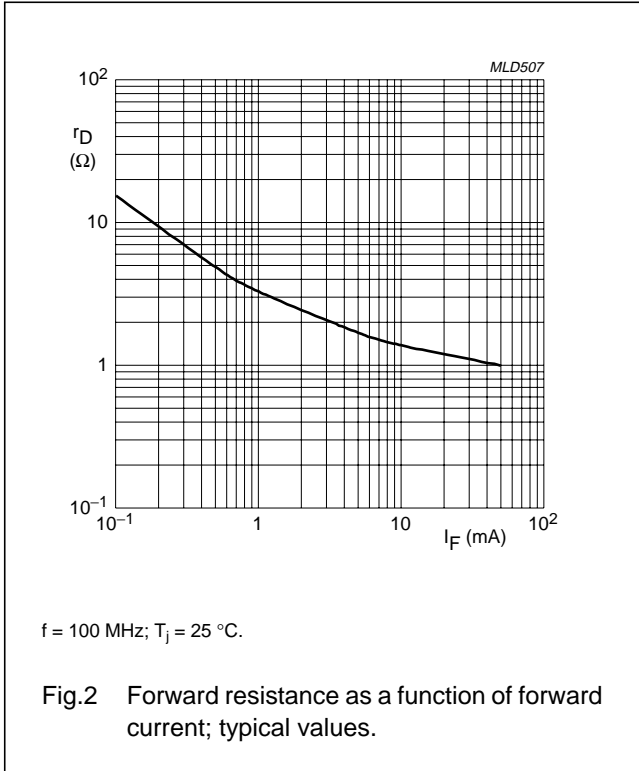
**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	VALUE	UNIT
$R_{th\ j-s}$	thermal resistance from junction to soldering point	250	K/W

General purpose PIN diode

BAP51-05W

GRAPHICAL DATA



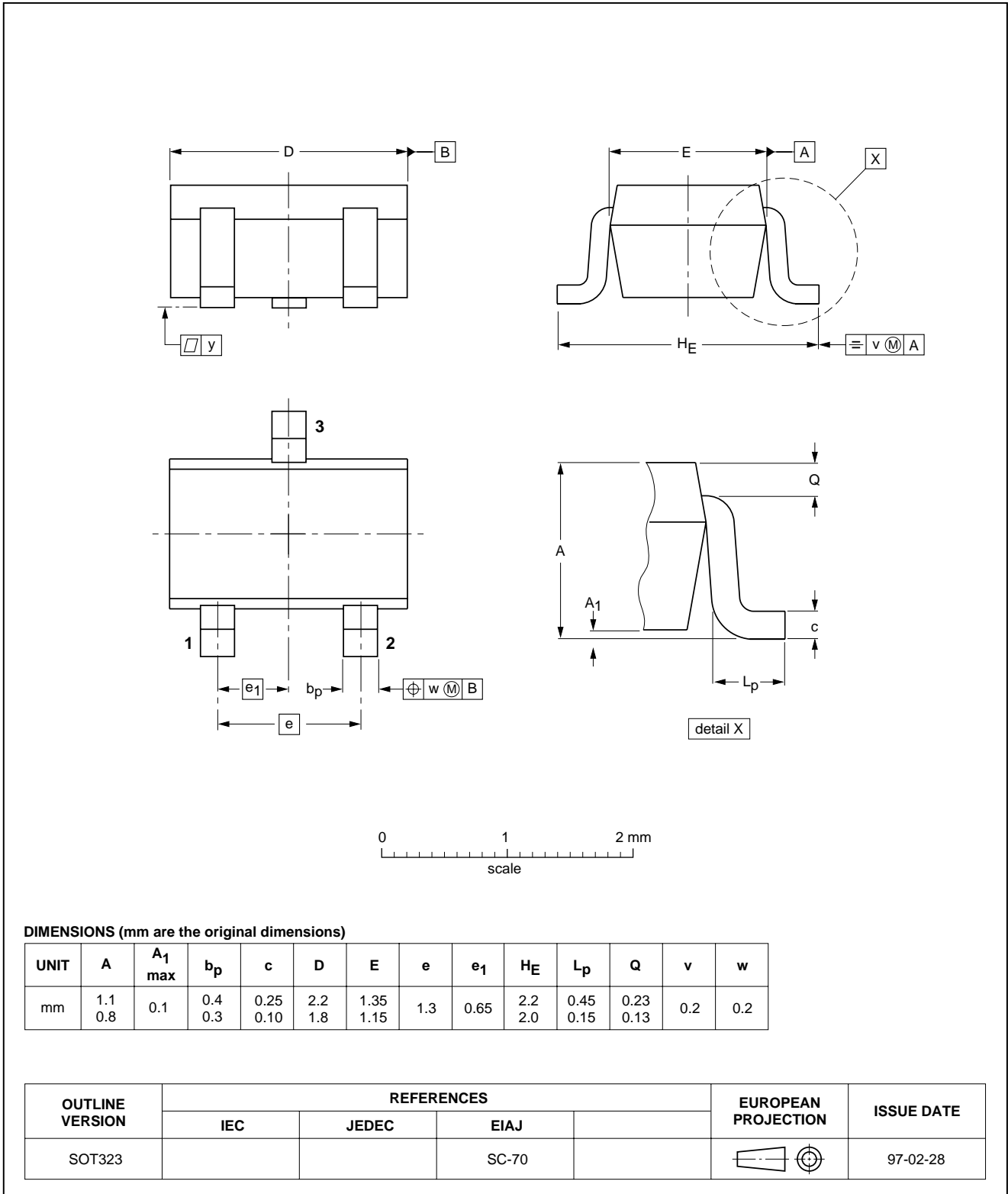
General purpose PIN diode

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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT323



General purpose PIN diode

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**DATA SHEET STATUS**

DATA SHEET STATUS	PRODUCT STATUS	DEFINITIONS <sup>(1)</sup>
Objective specification	Development	This data sheet contains the design target or goal specifications for product development. Specification may change in any manner without notice.
Preliminary specification	Qualification	This data sheet contains preliminary data, and supplementary data will be published at a later date. Philips Semiconductors reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.
Product specification	Production	This data sheet contains final specifications. Philips Semiconductors reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.

**Note**

1. Please consult the most recently issued data sheet before initiating or completing a design.

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**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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General purpose PIN diode

BAP51-05W

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