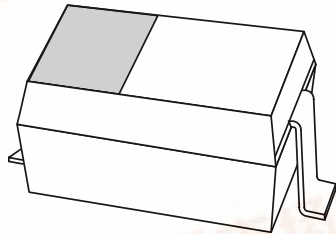


**DISCRETE SEMICONDUCTORS**

# DATA SHEET



## **BAP70-03** Silicon PIN diode

Product specification  
Supersedes data of 2002 Jul 02

2002 Aug 06

## Silicon PIN diode

## BAP70-03

## FEATURES

- High voltage, current controlled RF resistor for attenuators
- Low diode capacitance
- Very low series inductance.

## APPLICATIONS

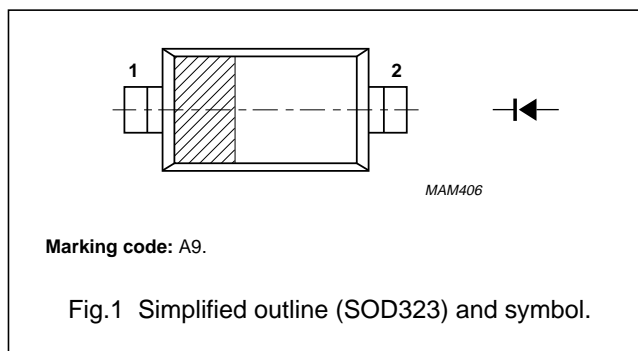
- RF attenuators
- (SAT)TV
- Car radio.

## DESCRIPTION

Planar PIN diode in a SOD323 small SMD plastic package.

## PINNING

PIN	DESCRIPTION
1	cathode
2	anode



## LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_R$	continuous reverse voltage		–	50	V
$I_F$	continuous forward current		–	100	mA
$P_{tot}$	total power dissipation	$T_s = 90\text{ }^\circ\text{C}$	–	500	mW
$T_{stg}$	storage temperature		–65	+150	$^\circ\text{C}$
$T_j$	junction temperature		–65	+150	$^\circ\text{C}$

## ELECTRICAL CHARACTERISTICS

$T_j = 25\text{ }^\circ\text{C}$  unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
$V_F$	forward voltage	$I_F = 50\text{ mA}$	0.9	1.1	V
$I_R$	reverse leakage current	$V_R = 30\text{ V}$	–	20	nA
$C_d$	diode capacitance	$V_R = 0\text{ V}; f = 1\text{ MHz}$	570	–	fF
		$V_R = 1\text{ V}; f = 1\text{ MHz}$	400	–	fF
		$V_R = 5\text{ V}; f = 1\text{ MHz}$	270	–	fF
		$V_R = 20\text{ V}; f = 1\text{ MHz}$	200	250	fF
$r_D$	diode forward resistance	$I_F = 0.5\text{ mA}; f = 100\text{ MHz}$	77	100	$\Omega$
		$I_F = 1\text{ mA}; f = 100\text{ MHz}$	40	50	$\Omega$
		$I_F = 10\text{ mA}; f = 100\text{ MHz}$	5.4	7	$\Omega$
		$I_F = 100\text{ mA}; f = 100\text{ MHz}$	1.4	1.9	$\Omega$
$\tau_L$	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 $I_R = 3\text{ mA}$	1.25	–	$\mu\text{s}$
$L_S$	series inductance	$I_F = 100\text{ mA}; f = 100\text{ MHz}$	1.5	–	nH

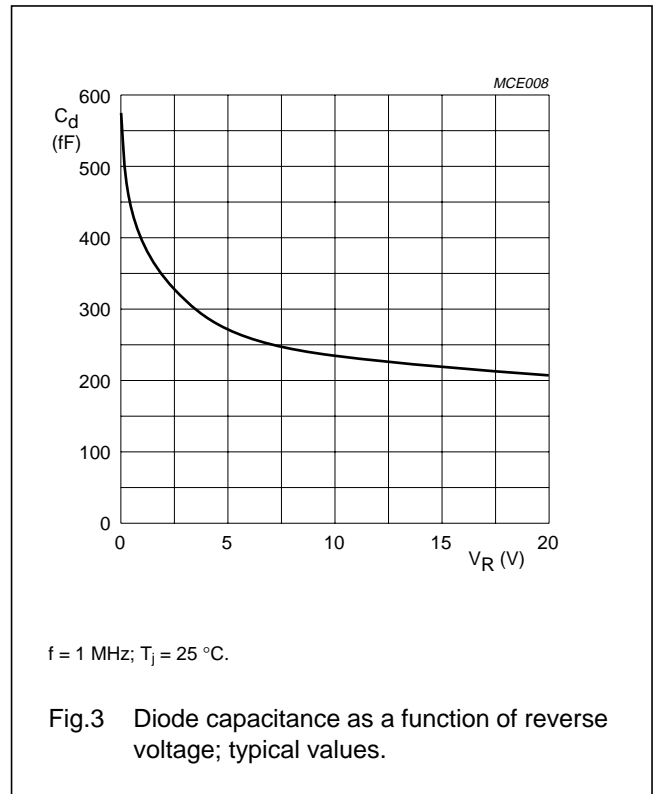
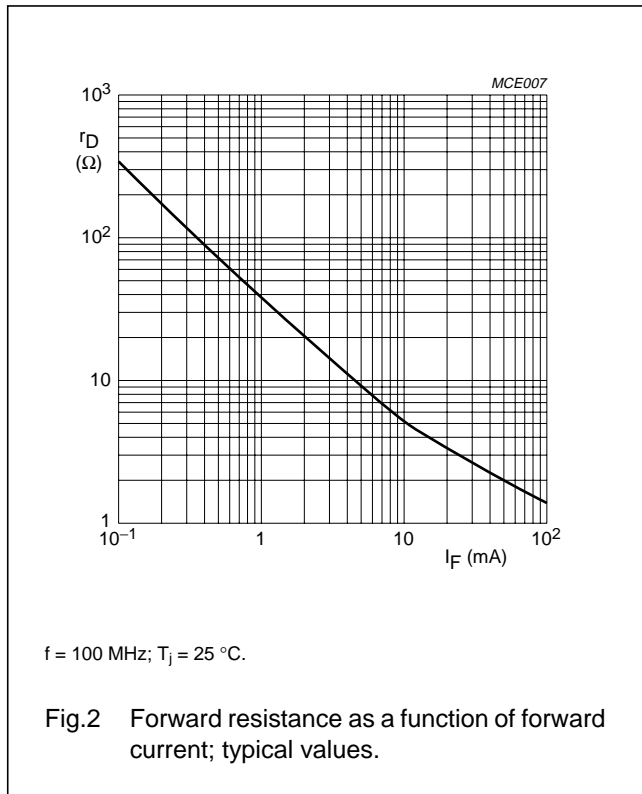
Silicon PIN diode

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THERMAL CHARACTERISTICS

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

GRAPHICAL DATA



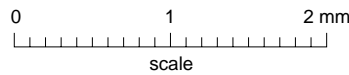
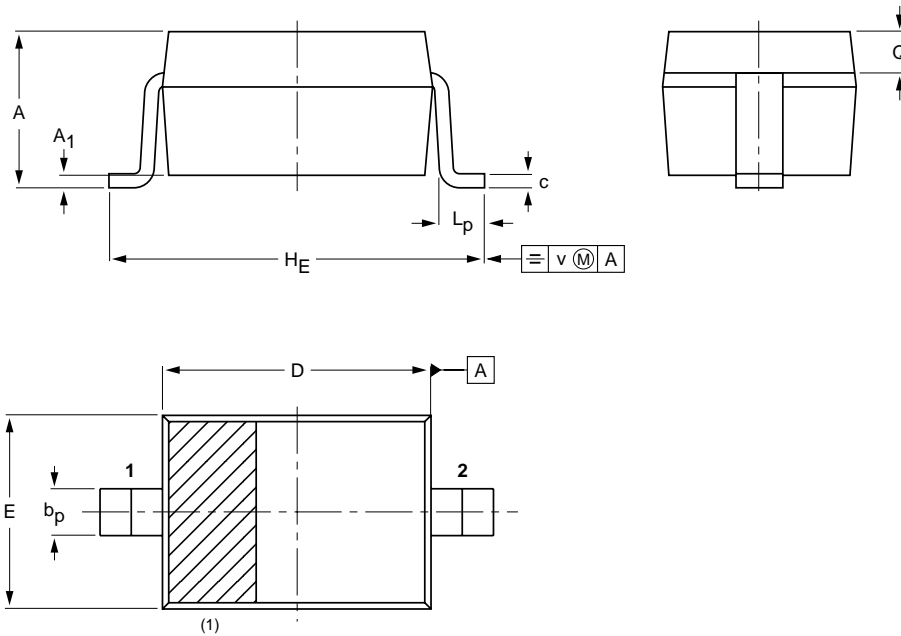
Silicon PIN diode

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PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SOD323



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub> max.	b <sub>p</sub>	c	D	E	H <sub>E</sub>	L <sub>p</sub>	Q	v
mm	1.1 0.8	+0.05 -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	EIAJ			
SOD323			SC-76			98-09-14 99-09-13

## Silicon PIN diode

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## DATA SHEET STATUS

DATA SHEET STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	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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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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Silicon PIN diode

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**NOTES**

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**NOTES**

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