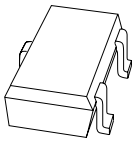


BAP70-04W

Silicon PIN diode

Rev. 01 — 5 March 2004 Product data

1. Product profile

1.1 General description

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

1.2 Features

- High voltage current control RF resistor for RF attenuators
- Low diode capacitance
- Low series inductance.

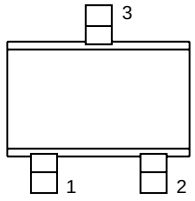
1.3 Applications

- RF attenuators and switches.

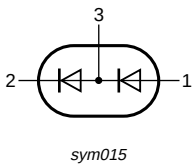
2. Pinning information

Table 1: Discrete pinning

Pin	Description	Simplified outline	Symbol
1	anode		
2	cathode		
3	common connection		



sot323_so



sym015

3. Ordering information

Table 2: Ordering information

Type number	Package		
	Name	Description	Version
BAP70-04W	-	plastic surface mounted package; 3 leads	SOT323

PHILIPS

4. Marking

Table 3: Marking

Type number	Marking code
BAP70-04W	1Np

5. Limiting values

Table 4: 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		-	50	V
I_F	continuous forward current		-	100	mA
P_{tot}	total power dissipation	T_s = 90 °C	-	260	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–65	+150	°C

6. Thermal characteristics

Table 5: Thermal characteristics

Symbol	Parameter	Conditions	Typ	Unit
$R_{th(j-s)}$	thermal resistance from junction to soldering point		230	K/W

7. Characteristics

Table 6: Characteristics

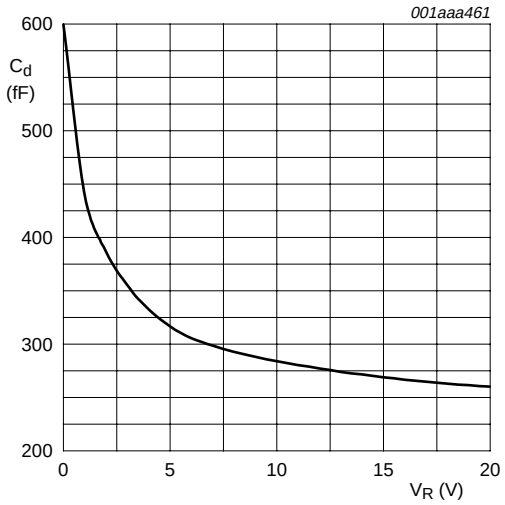
T_{amb} = 25 °C unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Per diode						
V_F	forward voltage	I_F = 50 mA		0.95	1.1	V
I_R	reverse current	V_R = 50 V		-	20	nA
C_d	diode capacitance	see Figure 1; f = 1 MHz;				
		V_R = 0 V		600	-	fF
		V_R = 1 V		430	-	fF
		V_R = 20 V		250	300	fF

Table 6: Characteristics *...continued*

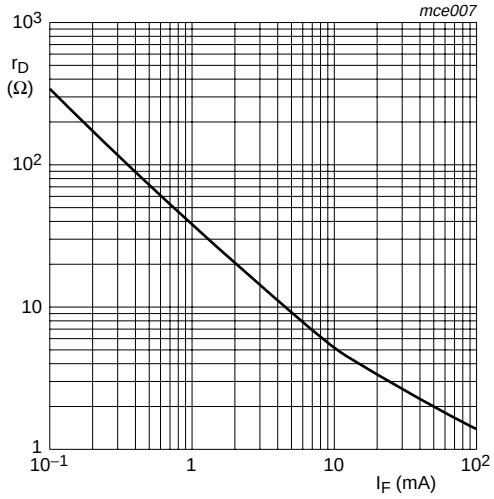
T_{amb} = 25 °C unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
r_D	diode forward resistance	see Figure 2; f = 100 MHz;				
		I_F = 0.5 mA		77	100	Ω
		I_F = 1 mA		40	50	Ω
		I_F = 10 mA		5.4	7	Ω
		I_F = 100 mA		1.4	1.9	Ω
τ_L	charge carrier life time	when switched from I_F = 10 mA to I_R = 6 mA; R_L = 100 Ω; measured at I_R = 3 mA		1.25	-	µs
L_S	series inductance	I_F = 100 mA; f = 100 MHz		1.4	-	nH



f = 1 MHz; T_j = 25 °C.

Fig 1. Diode capacitance as a function of reverse voltage; typical values.

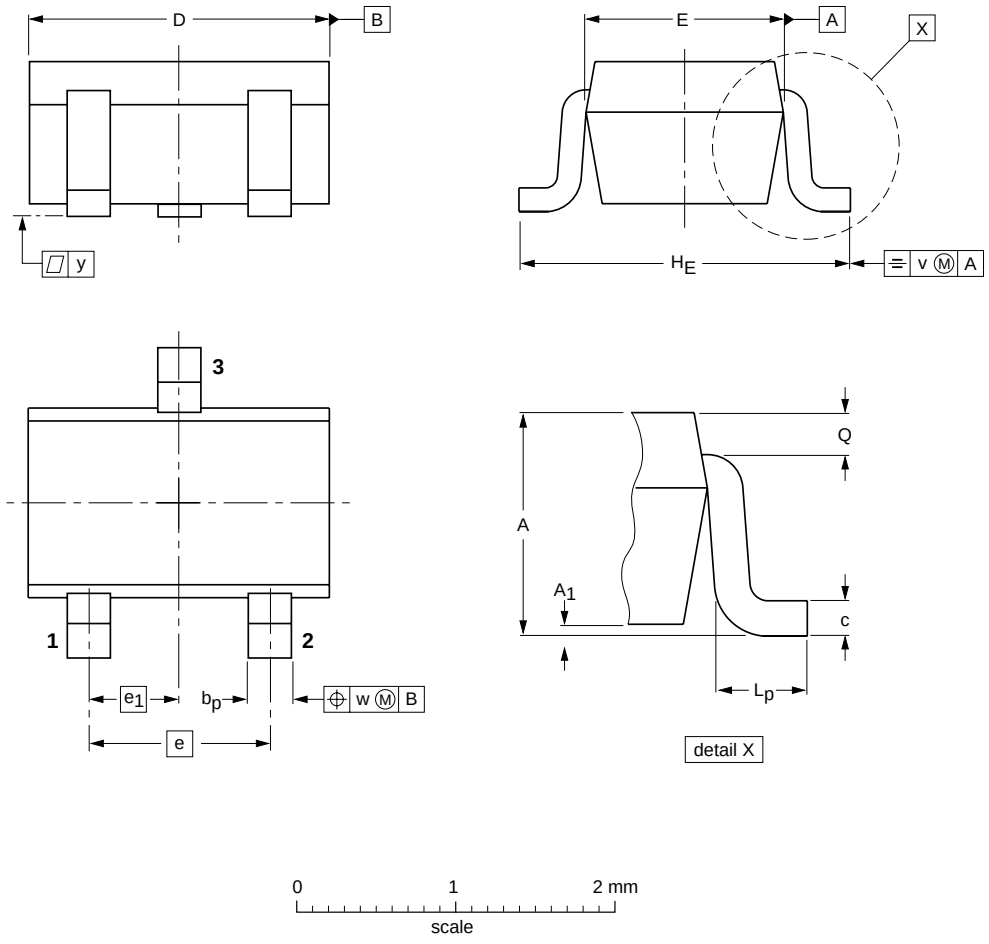


f = 100 MHz; T_j = 25 °C.

Fig 2. Forward resistance as a function of forward current; typical values.

8. Package outline

Plastic surface mounted package; 3 leads **SOT323**



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 0.8	0.1	0.4 0.3	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.23 0.13	0.2	0.2

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT323			SC-70			97-02-28

Fig 3. Package outline.

9. Revision history

Table 7: Revision history

Document ID	Release date	Data sheet status	Change notice	Order number	Supersedes
BAP70-04W_1	20040305	Product data	-	9397 750 12557	-

10. Data sheet status

Level	Data sheet status [1]	Product status [2] [3]	Definition
I	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.
II	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.
III	Product data	Production	This data sheet contains data from the product specification. Philips Semiconductors reserves the right to make changes at any time in order to improve the design, manufacturing and supply. Relevant changes will be communicated via a Customer Product/Process Change Notification (CPCN).

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[2] The product status of the device(s) described in this data sheet may have changed since this data sheet was published. The latest information is available on the Internet at URL http://www.semiconductors.philips.com.

[3] For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

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Short-form specification — The data in a short-form specification is extracted from a full data sheet with the same type number and title. For detailed information see the relevant data sheet or data handbook.

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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14. Contents

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