

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	 sot323_so	 sym015
2	cathode		
3	common connection		

3. Ordering information

Table 2: Ordering information

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

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	$T_s = 90\text{ °C}$	-	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

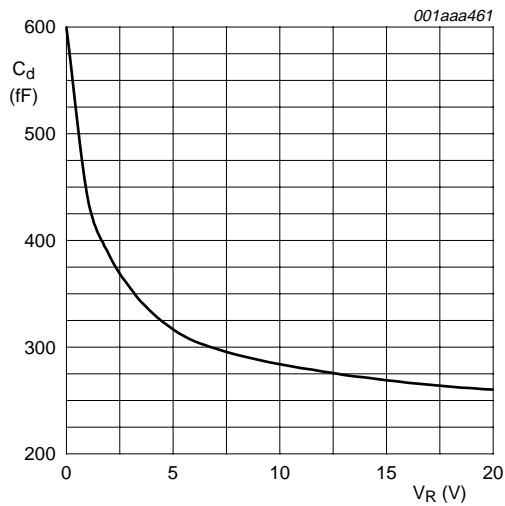
Table 6: Characteristics

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

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

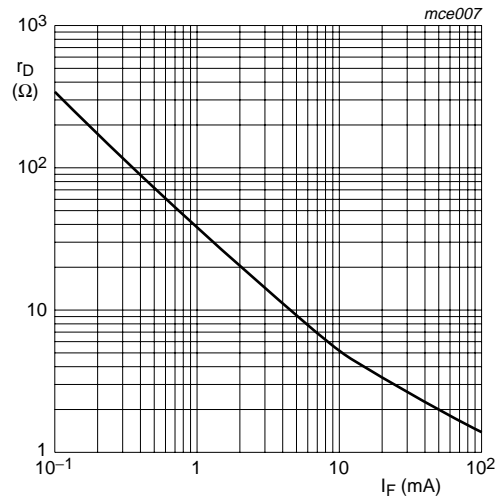
Table 6: Characteristics ...continued
 $T_{amb} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
r_D	diode forward resistance	see Figure 2 ; $f = 100\text{ MHz}$;				
		$I_F = 0.5\text{ mA}$		77	100	Ω
		$I_F = 1\text{ mA}$		40	50	Ω
		$I_F = 10\text{ mA}$		5.4	7	Ω
		$I_F = 100\text{ mA}$		1.4	1.9	Ω
τ_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	-	μs
L_S	series inductance	$I_F = 100\text{ mA}$; $f = 100\text{ MHz}$		1.4	-	nH



$f = 1\text{ MHz}$; $T_j = 25\text{ }^{\circ}\text{C}$.

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



$f = 100\text{ MHz}$; $T_j = 25\text{ }^{\circ}\text{C}$.

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

8. Package outline

Plastic surface mounted package; 3 leads

SOT323

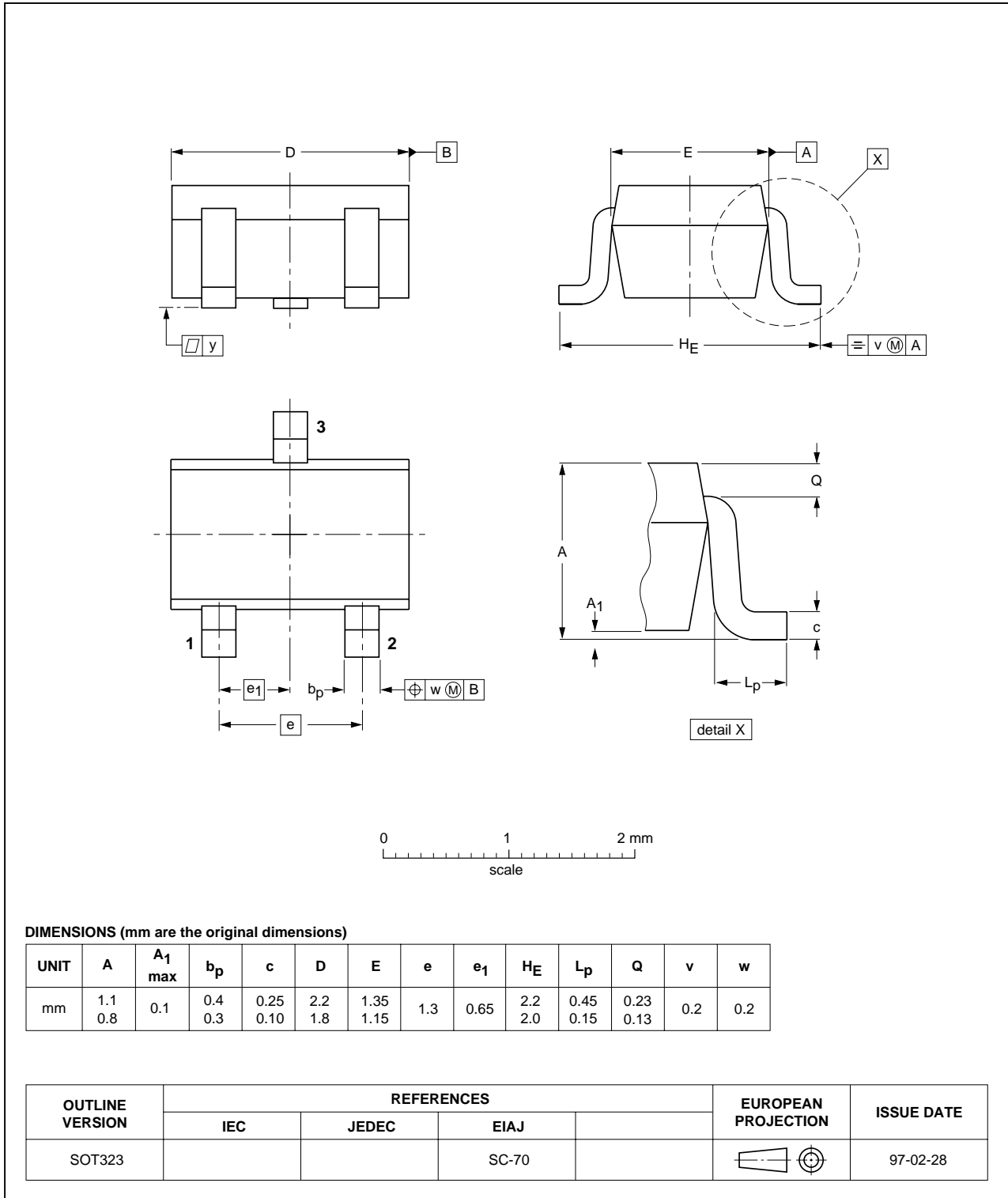


Fig 3. Package outline.

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.
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14. Contents

1	Product profile	1
1.1	General description	1
1.2	Features	1
1.3	Applications	1
2	Pinning information	1
3	Ordering information	1
4	Marking	2
5	Limiting values	2
6	Thermal characteristics	2
7	Characteristics	2
8	Package outline	4
9	Revision history	5
10	Data sheet status	6
11	Definitions	6
12	Disclaimers	6
13	Contact information	6



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