

# 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

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## 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
<b>Per diode</b>					
$V_R$	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

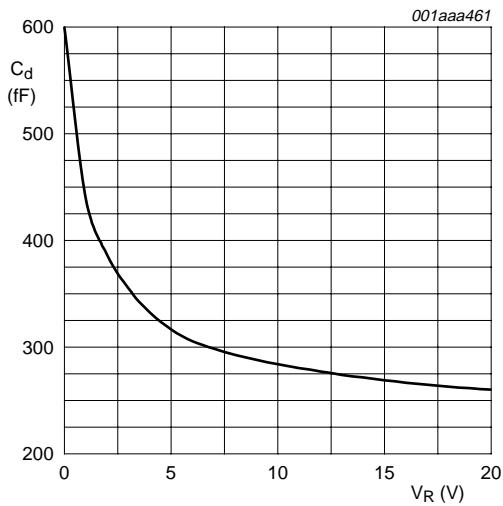
**Table 6: Characteristics**

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Per diode</b>						
$V_F$	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 <a href="#">Figure 1</a> ; $f = 1\text{ MHz}$ ;				
		$V_R = 0\text{ V}$		600	-	fF
		$V_R = 1\text{ V}$		430	-	fF
		$V_R = 20\text{ V}$		250	300	fF

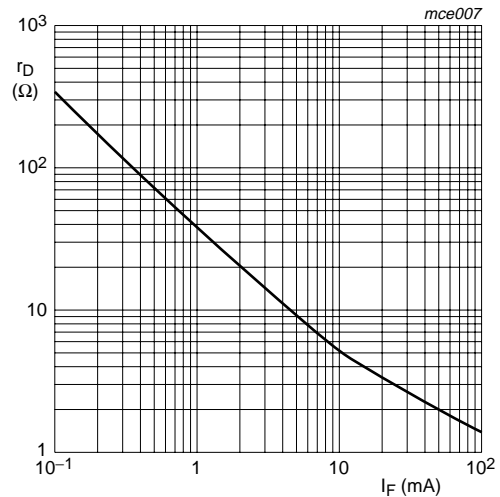
**Table 6: Characteristics ...continued**  
*T<sub>amb</sub> = 25 °C unless otherwise specified.*

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$r_D$	diode forward resistance	see <a href="#">Figure 2</a> ; $f = 100 \text{ MHz}$ ;				
		$I_F = 0.5 \text{ mA}$		77	100	$\Omega$
		$I_F = 1 \text{ mA}$		40	50	$\Omega$
		$I_F = 10 \text{ mA}$		5.4	7	$\Omega$
		$I_F = 100 \text{ mA}$		1.4	1.9	$\Omega$
$\tau_L$	charge carrier life time	when switched from $I_F = 10 \text{ mA}$ to $I_R = 6 \text{ mA}$ ; $R_L = 100 \Omega$ ; measured at $I_R = 3 \text{ mA}$		1.25	-	$\mu\text{s}$
$L_S$	series inductance	$I_F = 100 \text{ mA}$ ; $f = 100 \text{ MHz}$		1.4	-	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

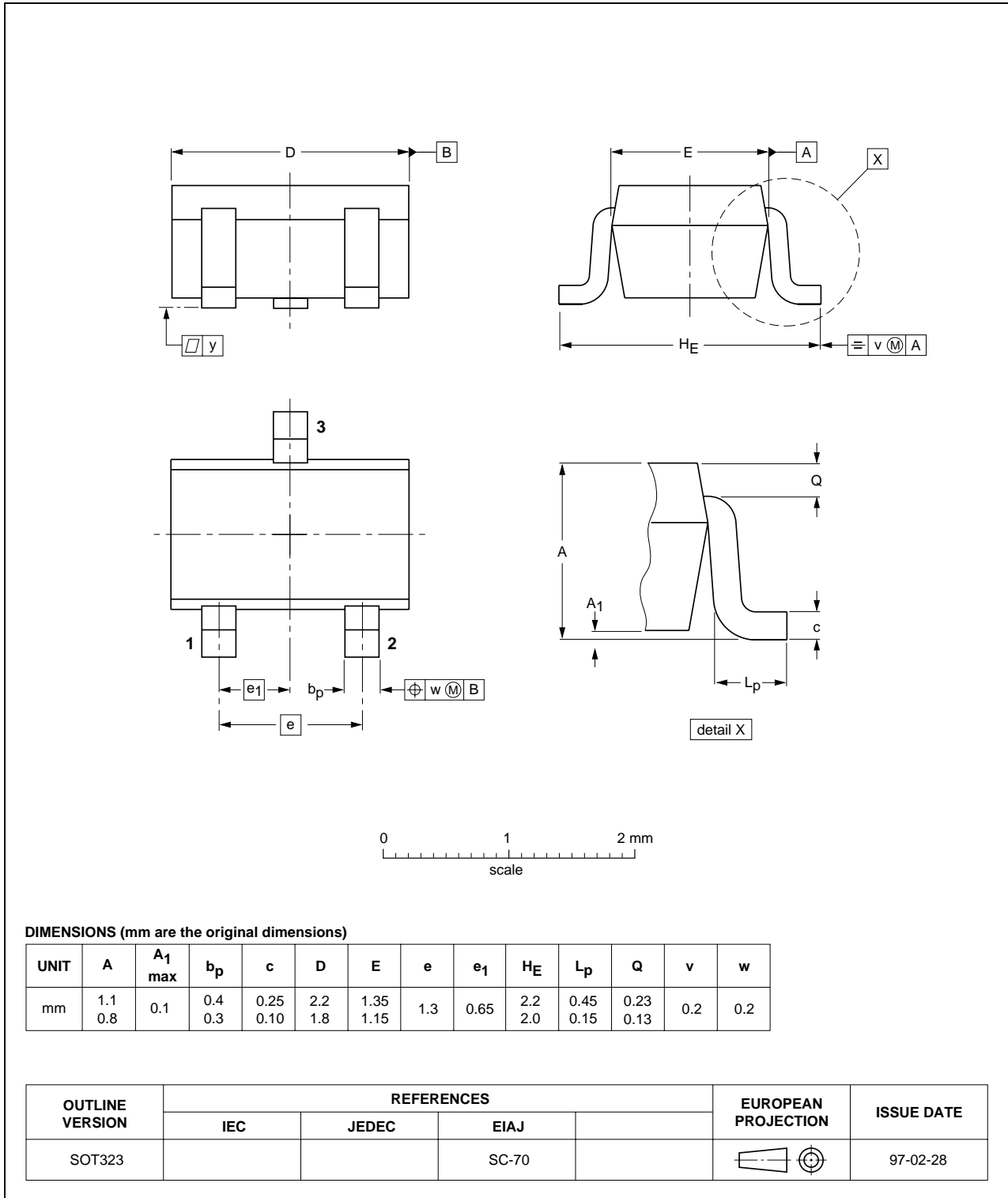


Fig 3. Package outline.

## 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 <sup>[1]</sup>	Product status <sup>[2]</sup> <sup>[3]</sup>	Definition
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