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# BAP70-04W

Silicon PIN diode

Rev. 4 — 16 April 2014

Product data sheet

## 1. Product profile

### 1.1 General description

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

### 1.2 Features and benefits

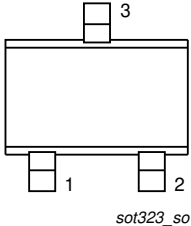
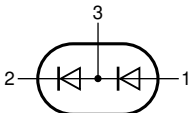
- High voltage current control RF resistor for RF attenuators
- Low diode capacitance
- Low series inductance

### 1.3 Applications

- RF attenuators and switches

## 2. Pinning information

Table 1. 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 codes

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

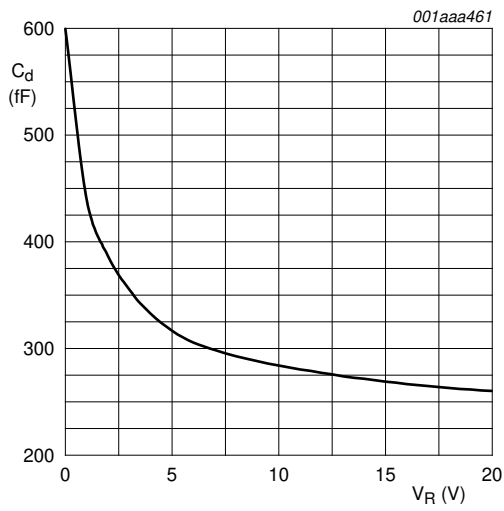
Symbol	Parameter	Conditions	Typ	Unit
$R_{th(j-s)}$	thermal resistance from junction to soldering point		230	K/W

## 7. Characteristics

Table 6. Characteristics

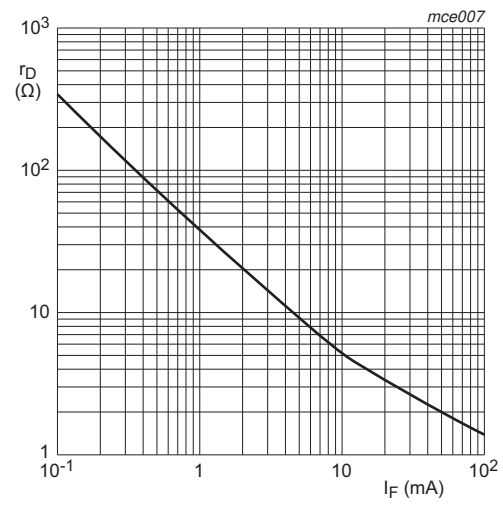
$T_{amb} = 25\text{ °C}$  unless otherwise specified.

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	$V_R = 50\text{ V}$	-	-	100	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
$r_D$	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 $I_R = 6\text{ mA}$ ; $R_L = 100\text{ }\Omega$ ; measured at $I_R = 3\text{ mA}$	-	1.25	-	$\mu\text{s}$
$L_S$	series inductance	$I_F = 100\text{ mA}$ ; $f = 100\text{ MHz}$	-	1.4	-	nH



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

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



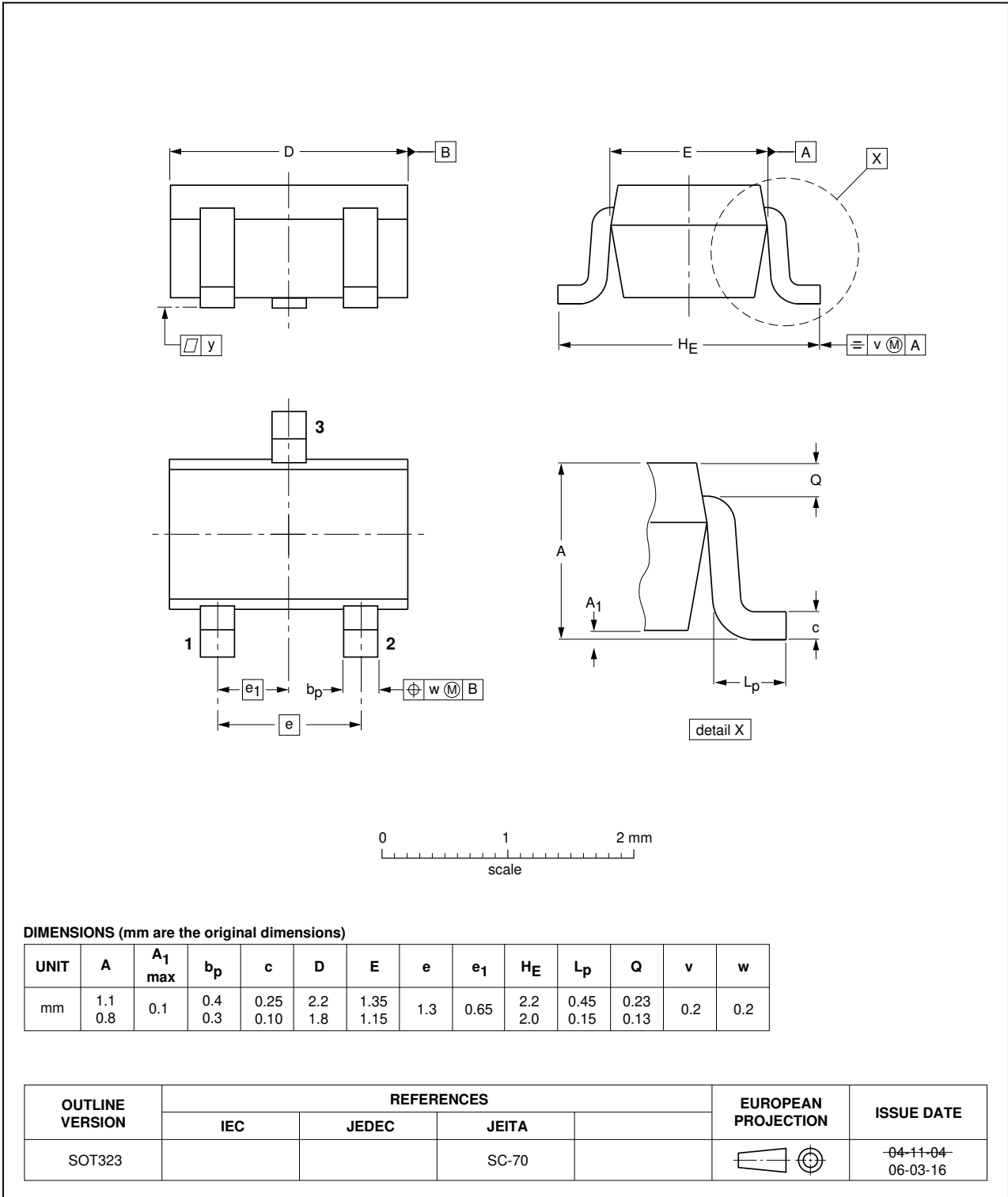
$f = 100 \text{ MHz}; T_j = 25 \text{ }^\circ\text{C}$

**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 SOT323**

## 9. Revision history

Table 7. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BAP70-04W v.4	20140416	Product data sheet	-	BAP70-04W v.3
Modifications:	• Rollback to previous version			
BAP70-04W v.3	20140128	Product data sheet	-	BAP70-04W v.2
BAP70-04W v.2	20070403	Product data sheet	-	BAP70-04W v.1
BAP70-04W v.1 (9397 750 12557)	20040305	Product data	-	

## 10. Legal information

### 10.1 Data sheet status

Document status <sup>[1][2]</sup>	Product status <sup>[3]</sup>	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

[1] Please consult the most recently issued document before initiating or completing a design.

[2] The term 'short data sheet' is explained in section "Definitions".

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Date of release: 16 April 2014

Document identifier: BAP70-04W