



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

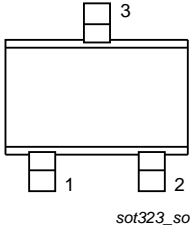
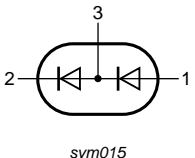
- High voltage current control RF resistor for RF attenuators
- Low diode capacitance
- Low series inductance

1.3 Applications

- RF attenuators and switches

2. Pinning information

Table 1. Pinning

Pin	Description	Simplified outline	Symbol
1	anode		
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
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

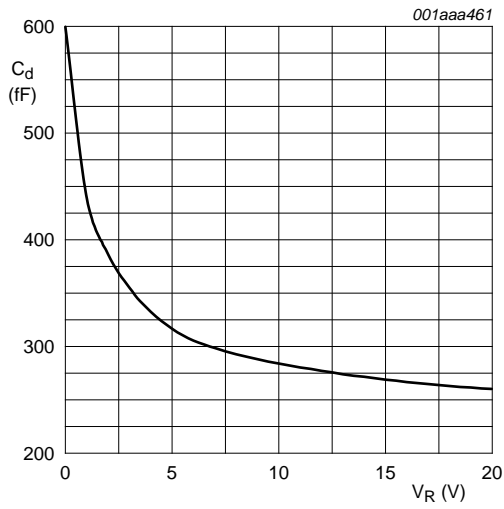
Symbol	Parameter	Conditions	Typ	Unit
$R_{th(j-s)}$	thermal resistance from junction to soldering point		230	K/W

7. Characteristics

Table 6. Characteristics

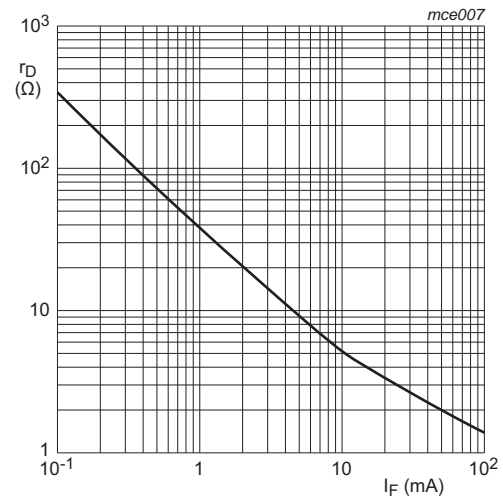
$T_{amb} = 25\text{ °C}$ unless otherwise specified.

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	$V_R = 50\text{ V}$	-	-	100	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
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

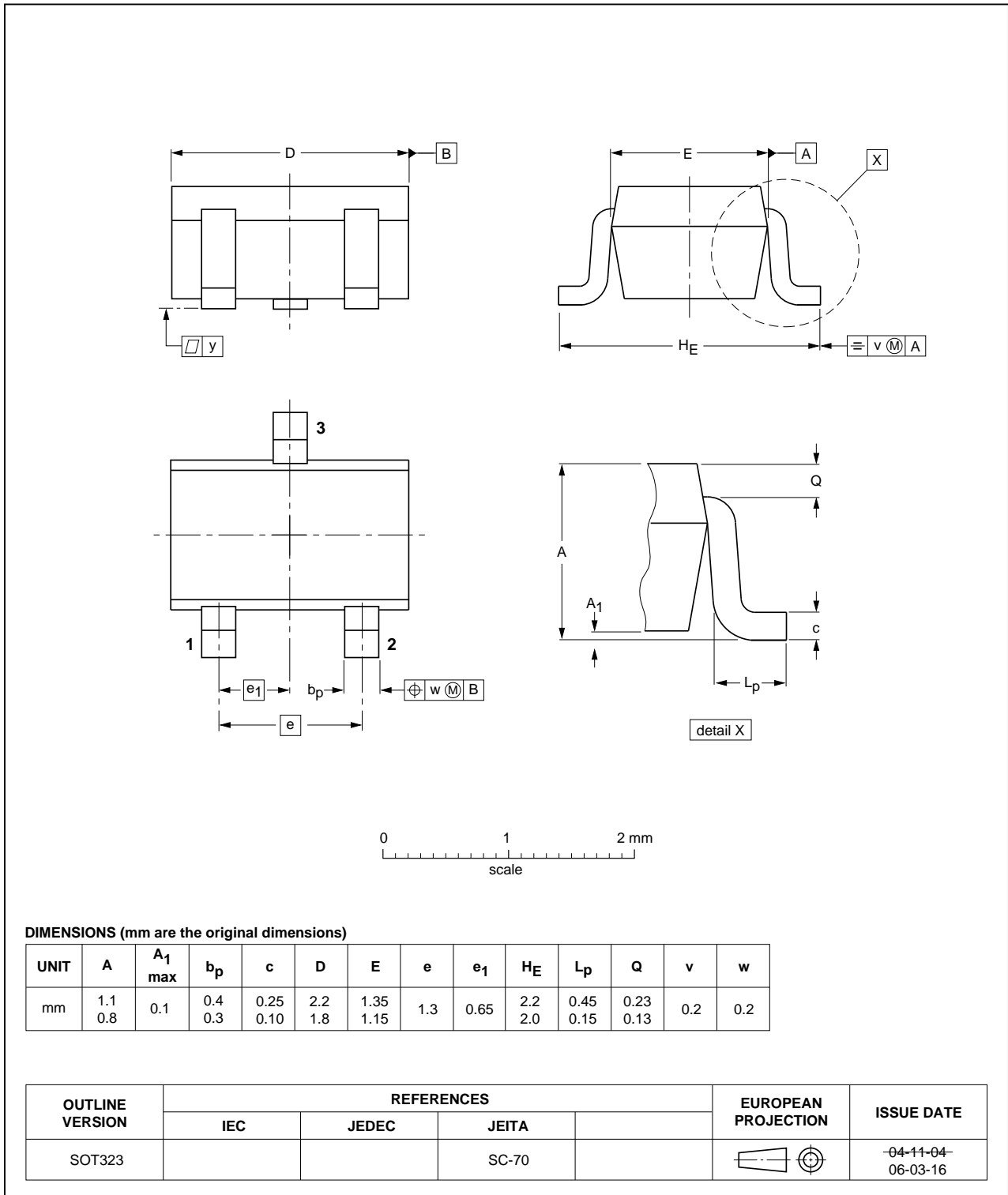


Fig 3. Package outline SOT323

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 ^{[1][2]}	Product status ^[3]	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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