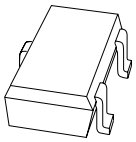


BAP70-04W

Silicon PIN diode

Rev. 02 — 3 April 2007 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

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

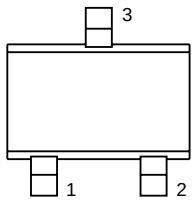
1.3 Applications

- RF attenuators and switches

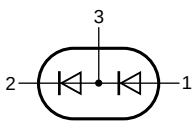
2. Pinning information

Table 1. Pinning

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



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

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 °C	-	260	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–65	+150	°C

6. Thermal characteristics

Table 5. Thermal characteristics

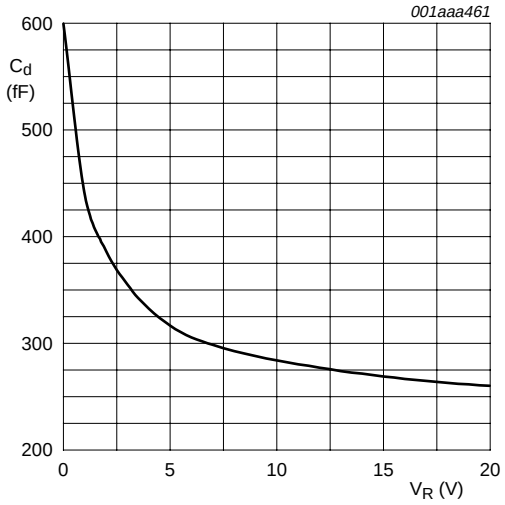
Symbol	Parameter	Conditions	Typ	Unit
$R_{th(j-s)}$	thermal resistance from junction to soldering point		230	K/W

7. Characteristics

Table 6. Characteristics

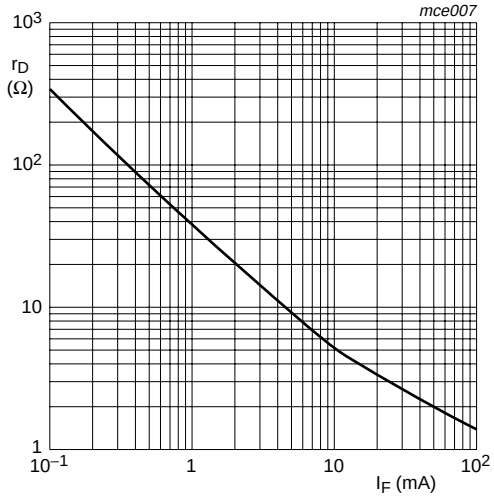
T_{amb} = 25 °C unless otherwise specified.

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	-	-	100	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
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

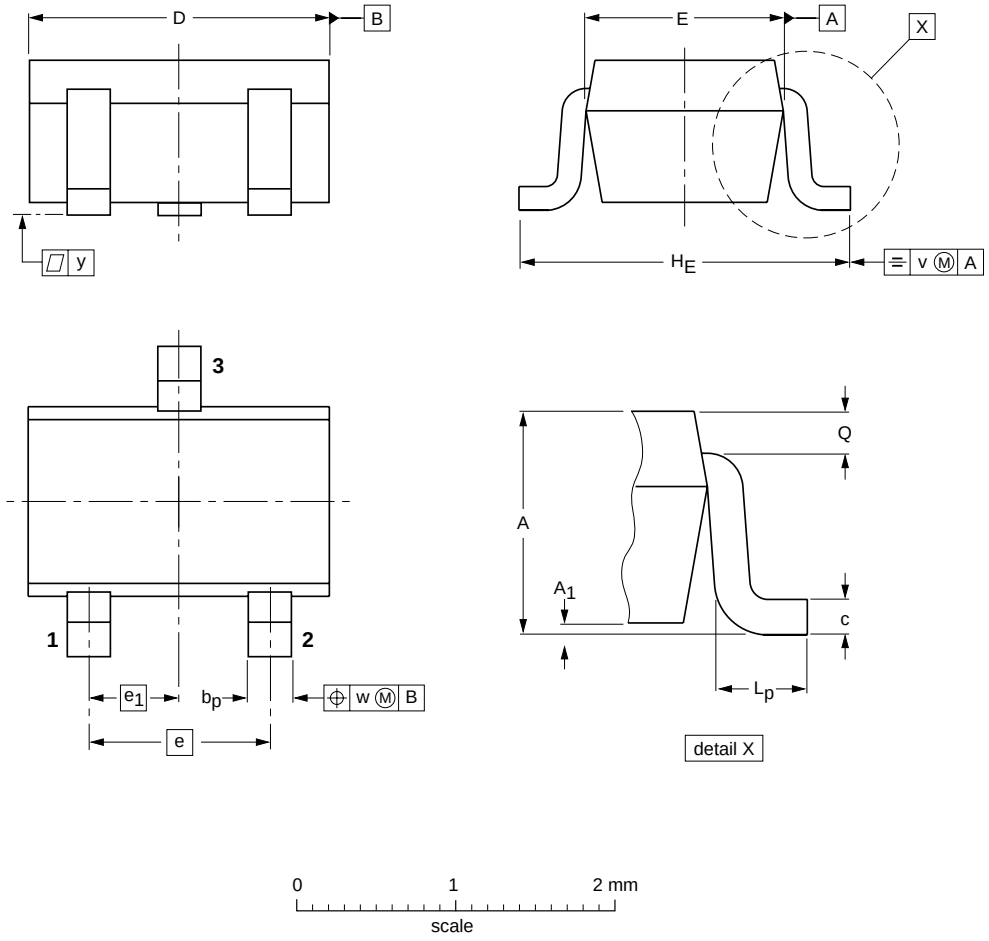


f = 100 MHz; T_j = 25 °C

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	JEITA			
SOT323			SC-70			~~04-11-04~~ 06-03-16

Fig 3. Package outline SOT323

9. Revision history

Table 7. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BAP70-04W_2	20070403	Product data sheet	-	BAP70-04W_1
Modifications:	• The format of this data sheet has been redesigned to comply with the new identity guidelines of NXP Semiconductors. • Legal texts have been adapted to the new company name where appropriate. • Table 6: changed max value of reverse current from 20 nA to 100 nA.			
BAP70-04W_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".

[3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL http://www.nxp.com.

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