

BAP70-03

Silicon PIN diode

Rev. 05 — 27 March 2007

Product data sheet

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NXP Semiconductors

Silicon PIN diode

BAP70-03

FEATURES

- High voltage, current controlled RF resistor for attenuators
- Low diode capacitance
- Very low series inductance.

APPLICATIONS

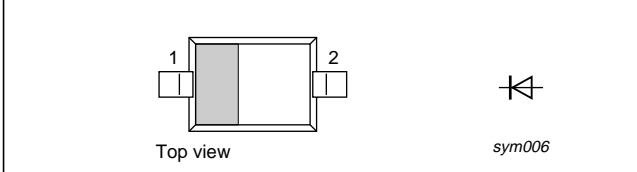
- RF attenuators
- (SAT)TV
- Car radio.

DESCRIPTION

Planar PIN diode in a SOD323 (SC-76) small SMD plastic package.

PINNING

PIN	DESCRIPTION
1	cathode
2	anode



Top view

sym006

Marking code: A9.
The marking bar indicates the cathode.

Fig.1 Simplified outline (SOD323; SC-76) and symbol.

ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
BAP70-03	–	plastic surface mounted package; 2 leads	SOD323

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_R	continuous reverse voltage		–	50	V
I_F	continuous forward current		–	100	mA
P_{tot}	total power dissipation	$T_s = 90\text{ °C}$	–	500	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–65	+150	°C

Silicon PIN diode

BAP70-03

CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
V_F	forward voltage	$I_F = 50\text{ mA}$	0.9	1.1	V
I_R	reverse leakage current	$V_R = 50\text{ V}$	–	100	nA
C_d	diode capacitance	$V_R = 0\text{ V}; f = 1\text{ MHz}$	570	–	fF
		$V_R = 1\text{ V}; f = 1\text{ MHz}$	400	–	fF
		$V_R = 5\text{ V}; f = 1\text{ MHz}$	270	–	fF
		$V_R = 20\text{ V}; f = 1\text{ MHz}$	200	250	fF
r_D	diode forward resistance	$I_F = 0.5\text{ mA}; f = 100\text{ MHz}$	77	100	Ω
		$I_F = 1\text{ mA}; f = 100\text{ MHz}$	40	50	Ω
		$I_F = 10\text{ mA}; f = 100\text{ MHz}$	5.4	7	Ω
		$I_F = 100\text{ mA}; f = 100\text{ MHz}$	1.4	1.9	Ω
τ_L	charge carrier life time	when switched from $I_F = 10\text{ mA}$ to $I_R = 6\text{ mA}; R_L = 100\ \Omega$; measured at $I_R = 3\text{ mA}$	1.25	–	μs
L_S	series inductance	$I_F = 100\text{ mA}; f = 100\text{ MHz}$	1.5	–	nH

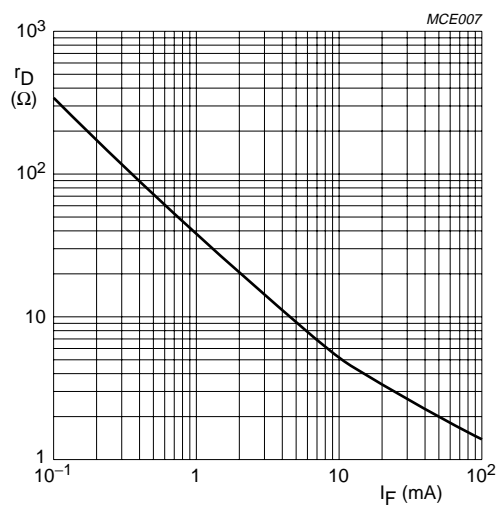
THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	VALUE	UNIT
$R_{th(j-s)}$	thermal resistance from junction to soldering point	120	K/W

Silicon PIN diode

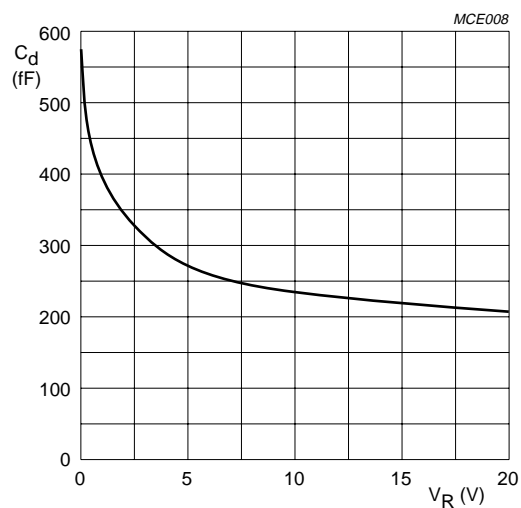
BAP70-03

GRAPHICAL DATA



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

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



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

Fig.3 Diode capacitance as a function of reverse voltage; typical values.

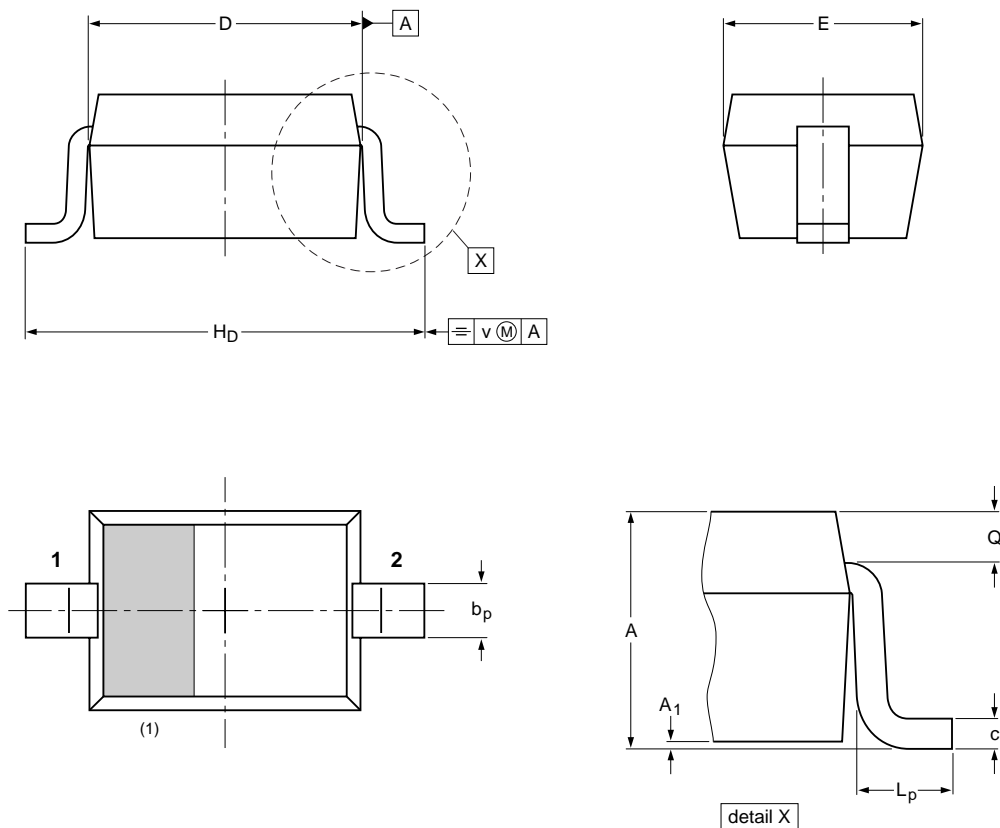
Silicon PIN diode

BAP70-03

PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SOD323



DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁ max	b _p	c	D	E	H _D	L _p	Q	v
mm	1.1 0.8	0.05	0.40 0.25	0.25 0.10	1.8 1.6	1.35 1.15	2.7 2.3	0.45 0.15	0.25 0.15	0.2

Note

1. The marking bar indicates the cathode

OUTLINE VERSION	REFERENCES			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA		
SOD323			SC-76		-99-09-13- 03-12-17

Legal information

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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Revision history

Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BAP70-03_N_5	20070327	Product data sheet	-	BAP70-03_4
Modifications:	<ul style="list-style-type: none"> • corrections made to I_R value and condition in Characteristics table 			
BAP70-03_4 (9397 750 12636)	20040210	Product specification	-	BAP70-03_3
BAP70-03_3 (9397 750 10094)	20020806	Product specification	-	BAP70-03_N_2
BAP70-03_N_2 (9397 750 10081)	20020702	Preliminary specification	-	BAP70-03_N_1
BAP70-03_N_1 (9397 750 09579)	20020402	Preliminary specification	-	-

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