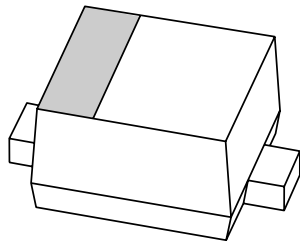


# DATA SHEET



## **BAP65-01** Silicon PIN diode

Preliminary specification

2001 Nov 01

# Silicon PIN diode

# BAP65-01

### FEATURES

- High voltage, current controlled
- RF resistor for RF switches
- Low diode capacitance
- Low diode forward resistance (low loss)
- Very low series inductance.

### APPLICATIONS

- RF attenuators and switches
- Bandswitch for TV tuners
- Series diode for mobile communication transmit/receive switch.

### DESCRIPTION

Planar PIN diode in a SOD723A ultra small SMD plastic package.

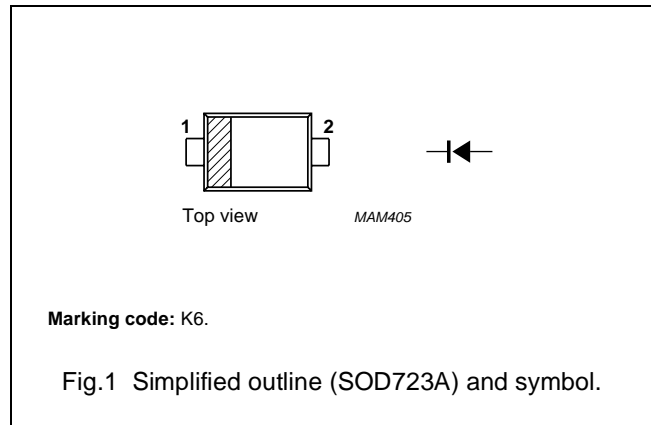
### LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_R$	continuous reverse voltage		–	30	V
$I_F$	continuous forward current		–	100	mA
$P_{tot}$	total power dissipation	$T_s \leq 90 \text{ }^\circ\text{C}$	–	315	mW
$T_{stg}$	storage temperature		–65	+150	$^\circ\text{C}$
$T_j$	junction temperature		–65	+150	$^\circ\text{C}$

### PINNING

PIN	DESCRIPTION
1	cathode
2	anode



## Silicon PIN diode

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**ELECTRICAL CHARACTERISTICS**T<sub>j</sub> = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
V <sub>F</sub>	forward voltage	I <sub>F</sub> = 50 mA	0.9	1.1	V
I <sub>R</sub>	reverse leakage current	V <sub>R</sub> = 20 V	–	20	nA
C <sub>d</sub>	diode capacitance	V <sub>R</sub> = 0 V; f = 1 MHz	0.61	–	pF
		V <sub>R</sub> = 1 V; f = 1 MHz	0.48	0.9	pF
		V <sub>R</sub> = 3 V; f = 1 MHz	0.43	0.8	pF
		V <sub>R</sub> = 20 V; f = 1 MHz	0.375	–	pF
r <sub>D</sub>	diode forward resistance	I <sub>F</sub> = 1 mA; f = 100 MHz	1.0	–	Ω
		I <sub>F</sub> = 5 mA; f = 100 MHz; note 1	0.6	0.95	Ω
		I <sub>F</sub> = 10 mA; f = 100 MHz; note 1	0.5	0.9	Ω
		I <sub>F</sub> = 100 mA; f = 100 MHz	0.3	–	Ω
S <sub>21</sub>   <sup>2</sup>	isolation	V <sub>R</sub> = 0; f = 900 MHz	9.4	–	dB
		V <sub>R</sub> = 0; f = 1800 MHz	5.5	–	dB
		V <sub>R</sub> = 0; f = 2450 MHz	4.1	–	dB
S <sub>21</sub>   <sup>2</sup>	insertion loss	I <sub>F</sub> = 1 mA; f = 900 MHz	0.10	–	dB
		I <sub>F</sub> = 1 mA; f = 1800 MHz	0.12	–	dB
		I <sub>F</sub> = 1 mA; f = 2450 MHz	0.15	–	dB
S <sub>21</sub>   <sup>2</sup>	insertion loss	I <sub>F</sub> = 5 mA; f = 900 MHz	0.08	–	dB
		I <sub>F</sub> = 5 mA; f = 1800 MHz	0.10	–	dB
		I <sub>F</sub> = 5 mA; f = 2450 MHz	0.12	–	dB
S <sub>21</sub>   <sup>2</sup>	insertion loss	I <sub>F</sub> = 10 mA; f = 900 MHz	0.06	–	dB
		I <sub>F</sub> = 10 mA; f = 1800 MHz	0.09	–	dB
		I <sub>F</sub> = 10 mA; f = 2450 MHz	0.11	–	dB
S <sub>21</sub>   <sup>2</sup>	insertion loss	I <sub>F</sub> = 100 mA; f = 900 MHz	0.05	–	dB
		I <sub>F</sub> = 100 mA; f = 1800 MHz	0.08	–	dB
		I <sub>F</sub> = 100 mA; f = 2450 MHz	0.10	–	dB
τ <sub>L</sub>	charge carrier life time	when switched from I <sub>F</sub> = 10 mA to I <sub>R</sub> = 6 mA; R <sub>L</sub> = 100 Ω; measured at I <sub>R</sub> = 3 mA	0.17	–	μs
L <sub>S</sub>	series inductance	I <sub>F</sub> = 100 mA; f = 100 MHz	0.6	–	nH

**Note**

1. Guaranteed on AQL basis: inspection level S4, AQL 1.0.

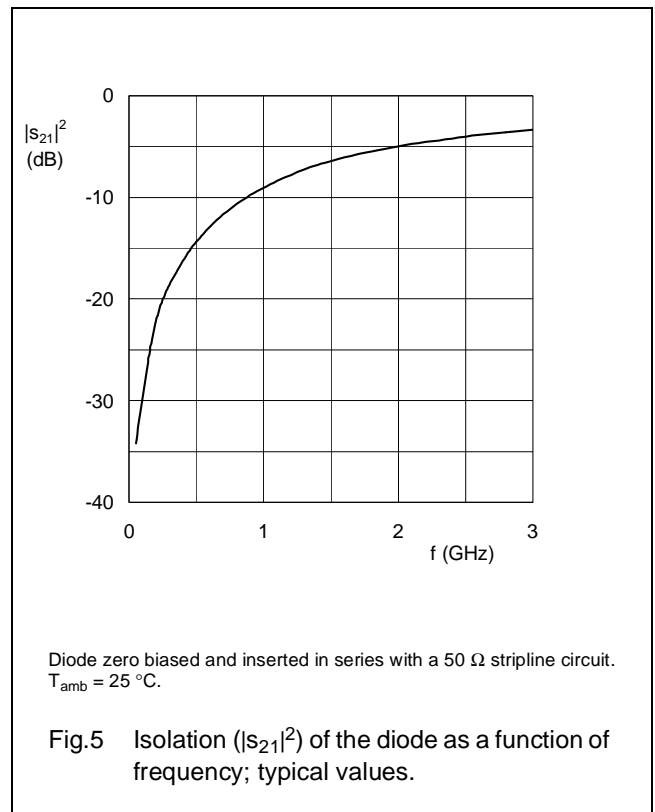
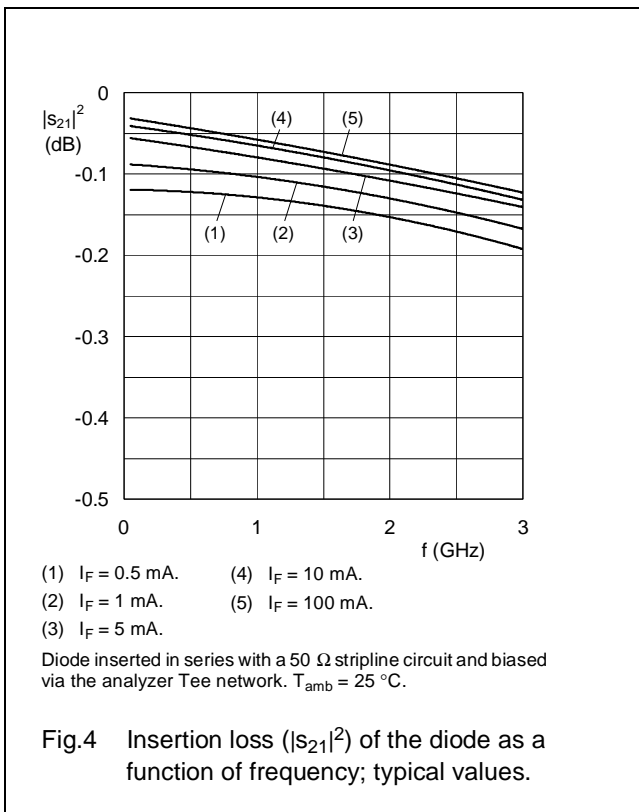
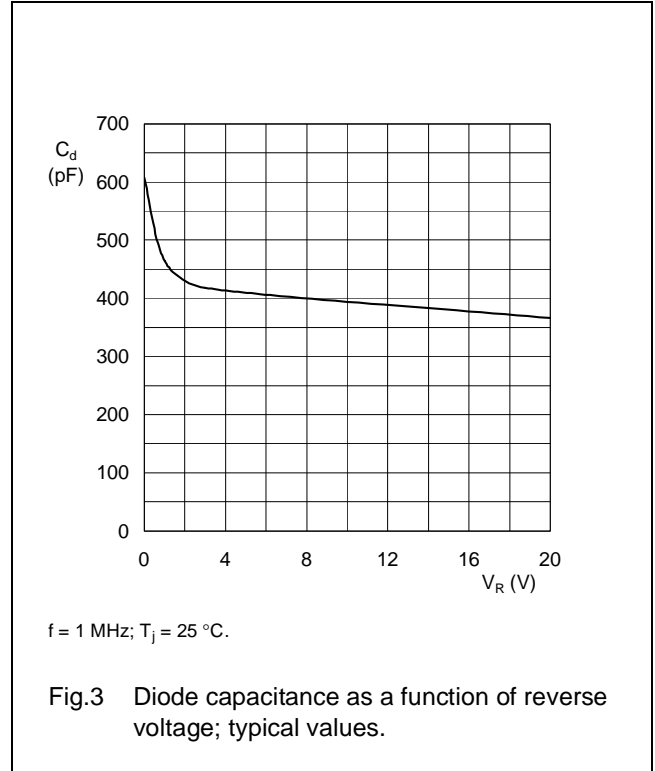
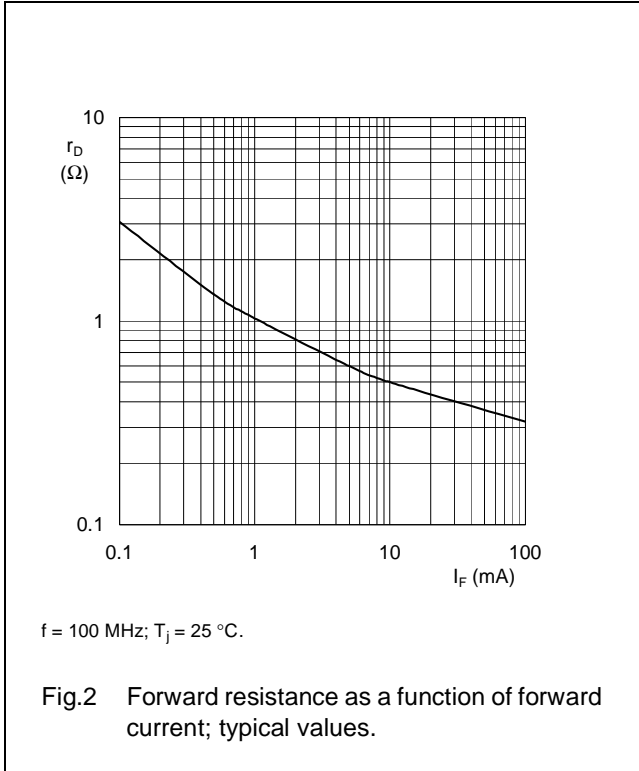
**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	VALUE	UNIT
R <sub>th j-s</sub>	thermal resistance from junction to soldering point	190	K/W

Silicon PIN diode

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GRAPHICAL DATA



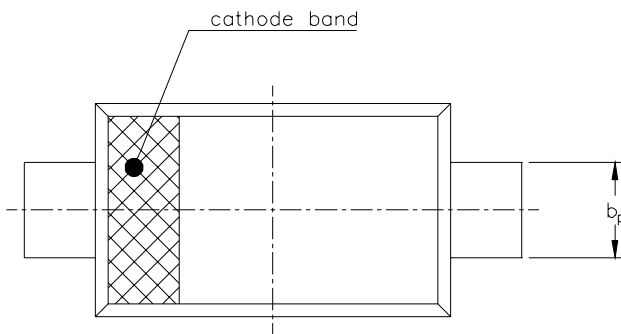
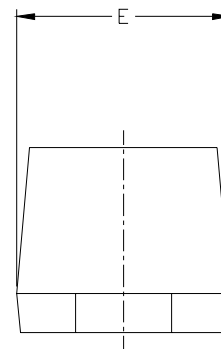
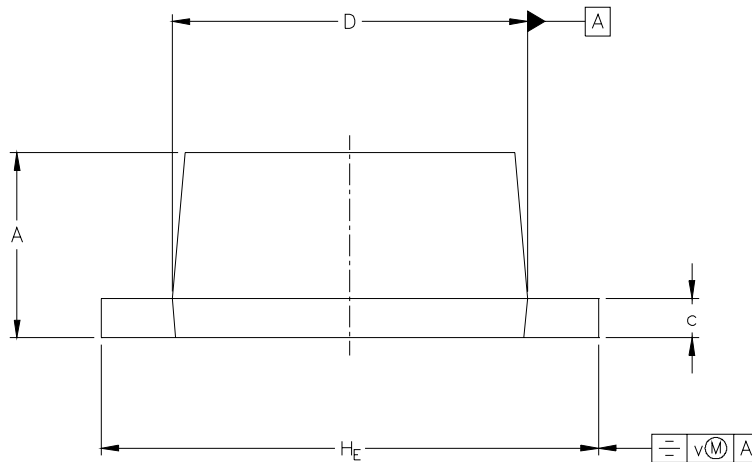
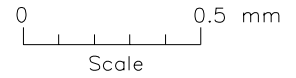
Silicon PIN diode

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PACKAGE OUTLINE

SOD723A

Plastic surface mounted package; 2 leads



UNIT	A	$b_p$	c	D	E	$H_E$	v
mm	0.49 0.55	0.25 0.32	0.08 0.15	0.95 1.05	0.55 0.65	1.35 1.45	0.1

PACKAGE OUTLINE VERSION	REFERENCES			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ		
SOD723A PUBLICATION DRAWING					01-09-06

UNDER DEVELOPMENT

## Silicon PIN diode

BAP65-01

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DATA SHEET STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	DEFINITIONS
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