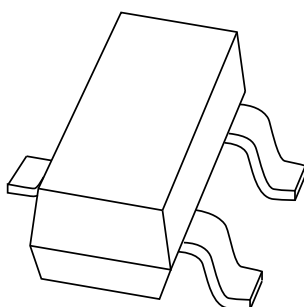


# DATA SHEET



## **BAP65-05** Silicon PIN diode

Product specification

2001 May 07



## Silicon PIN diode

## BAP65-05

## FEATURES

- Two elements in common cathode configuration
- High voltage, current controlled
- RF resistor for RF switches
- Low diode capacitance
- Low diode forward resistance (low loss).

## APPLICATIONS

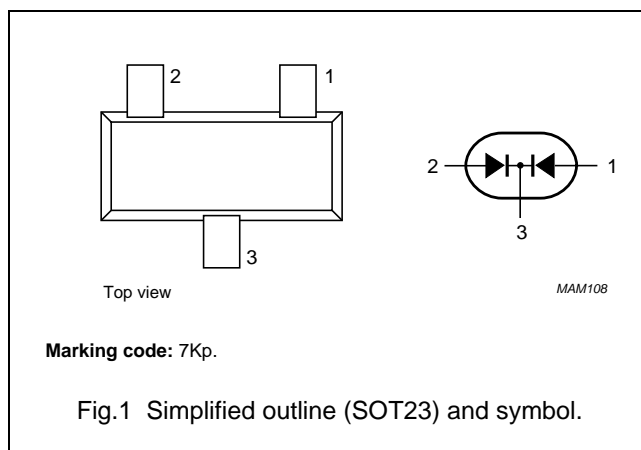
- RF attenuators and switches
- Bandswitch for TV tuners
- Series diode for mobile communication transmit-receive switch.

## DESCRIPTION

Tow planar PIN diodes in a SOT23 small SMD plastic package.

## PINNING

PIN	DESCRIPTION
1	anode (a <sub>1</sub> )
2	anode (a <sub>2</sub> )
3	common cathode



## LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
<b>Per diode</b>					
V <sub>R</sub>	continuous reverse voltage		–	30	V
I <sub>F</sub>	continuous forward current		–	100	mA
P <sub>tot</sub>	total power dissipation	T <sub>s</sub> ≤ 90 °C	–	250	mW
T <sub>stg</sub>	storage temperature		–65	+150	°C
T <sub>j</sub>	junction temperature		–65	+150	°C

## Silicon PIN diode

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

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
<b>Per diode</b>					
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	0.7	–	pF
		V <sub>R</sub> = 1 V; f = 1 MHz	0.575	0.9	pF
		V <sub>R</sub> = 3 V; f = 1 MHz	0.525	0.8	pF
		V <sub>R</sub> = 20 V; f = 1 MHz	0.425	–	pF
r <sub>D</sub>	diode forward resistance	I <sub>F</sub> = 1 mA; f = 100 MHz	1	–	Ω
		I <sub>F</sub> = 5 mA; f = 100 MHz; note 1	0.65	0.95	Ω
		I <sub>F</sub> = 10 mA; f = 100 MHz; note 1	0.56	0.9	Ω
		I <sub>F</sub> = 100 mA; f = 100 MHz	0.35	–	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	4.8	–	dB
		V <sub>R</sub> = 0; f = 2450 MHz	3.1	–	dB
s <sub>21</sub>   <sup>2</sup>	insertion loss	I <sub>F</sub> = 1 mA; f = 900 MHz	0.1	–	dB
		I <sub>F</sub> = 1 mA; f = 1800 MHz	0.18	–	dB
		I <sub>F</sub> = 1 mA; f = 2450 MHz	0.28	–	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	0.16	–	dB
		I <sub>F</sub> = 5 mA; f = 2450 MHz	0.26	–	dB
s <sub>21</sub>   <sup>2</sup>	insertion loss	I <sub>F</sub> = 10 mA; f = 900 MHz	0.07	–	dB
		I <sub>F</sub> = 10 mA; f = 1800 MHz	0.15	–	dB
		I <sub>F</sub> = 10 mA; f = 2450 MHz	0.25	–	dB
s <sub>21</sub>   <sup>2</sup>	insertion loss	I <sub>F</sub> = 100 mA; f = 900 MHz	0.06	–	dB
		I <sub>F</sub> = 100 mA; f = 1800 MHz	0.14	–	dB
		I <sub>F</sub> = 100 mA; f = 2450 MHz	0.24	–	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	1.4	–	nH

**Note**

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

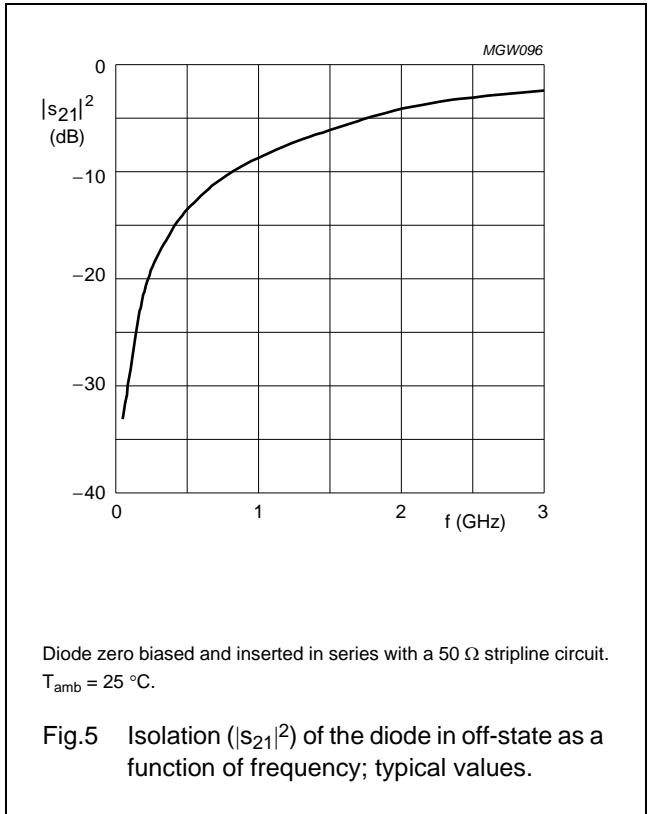
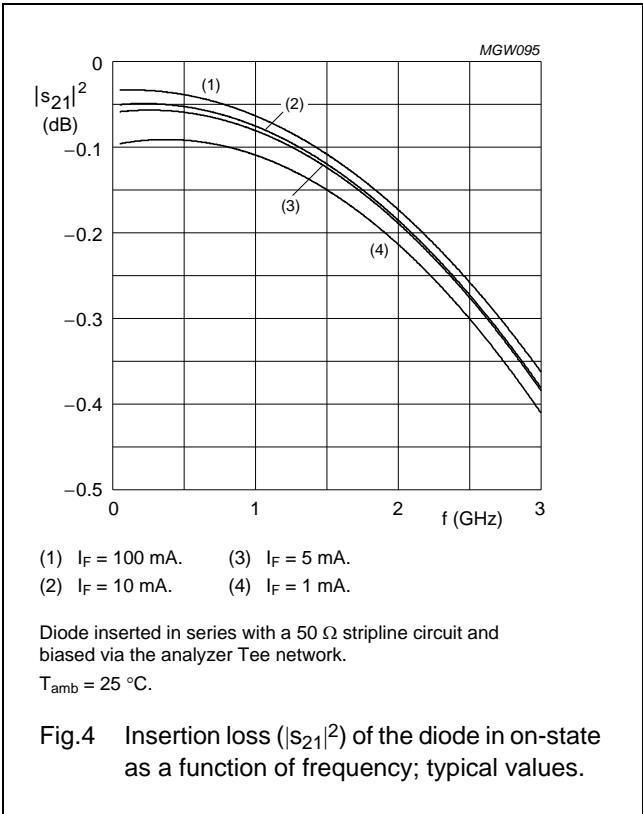
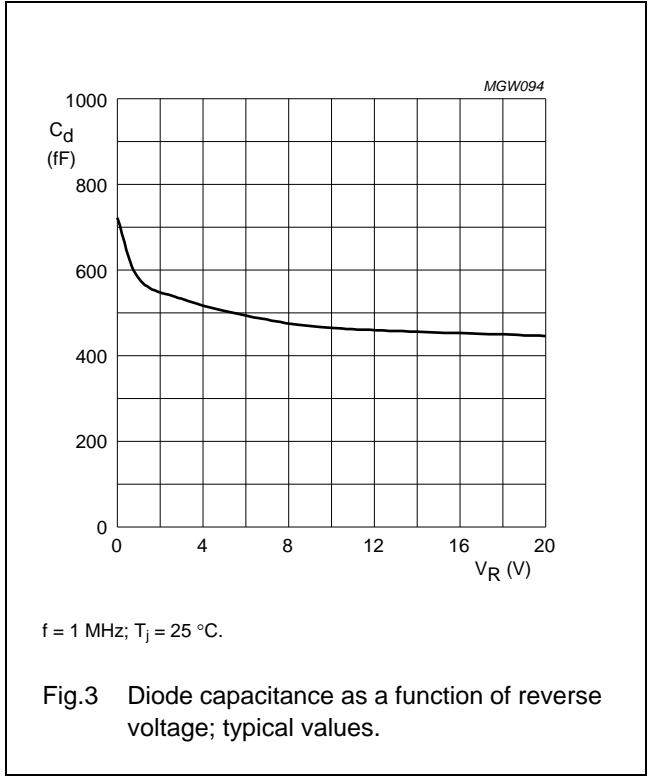
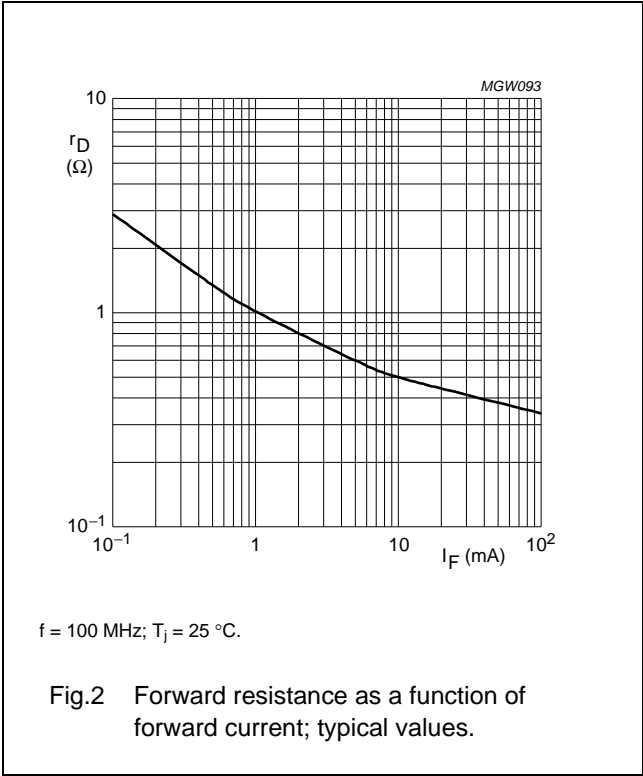
**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	VALUE	UNIT
R <sub>th j-s</sub>	thermal resistance from junction to soldering point	220	K/W

Silicon PIN diode

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GRAPHICAL DATA



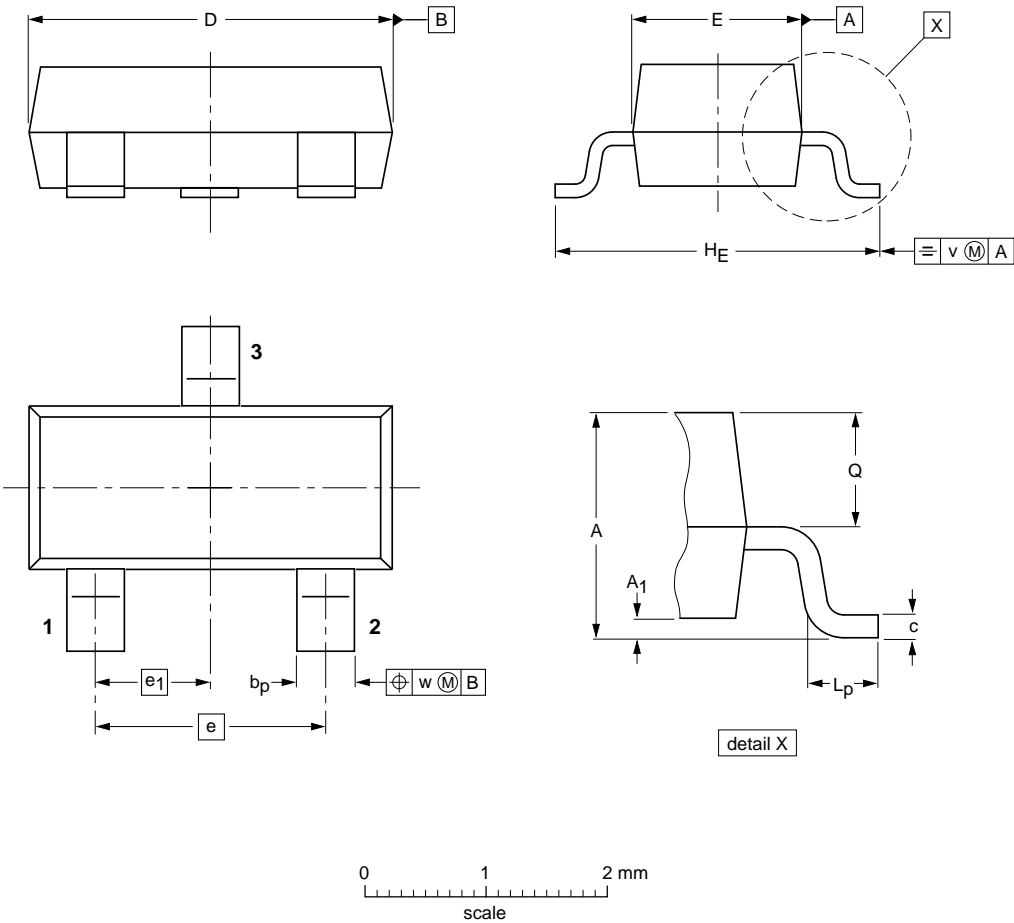
Silicon PIN diode

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PACKAGE OUTLINE

Plastic surface-mounted package; 3 leads

SOT23



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub> max.	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	Q	v	w
mm	1.1 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT23		TO-236AB				<del>04-11-04</del> 06-03-16

## Silicon PIN diode

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## DATA SHEET STATUS

DOCUMENT STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	DEFINITION
Objective data sheet	Development	This document contains data from the objective specification for product development.
Preliminary data sheet	Qualification	This document contains data from the preliminary specification.
Product data sheet	Production	This document contains the product specification.

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## Silicon PIN diode

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