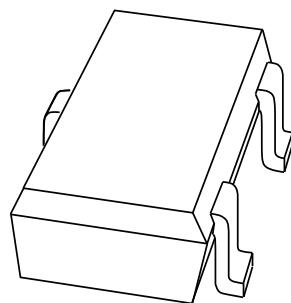


DATA SHEET



BAP51-05W General purpose PIN diode

Product specification
Supersedes data of 1999 Jul 01

2001 Jan 23



General purpose PIN diode

BAP51-05W

FEATURES

- Two elements in common cathode configuration in a small SMD plastic package
- Low diode capacitance
- Low diode forward resistance.

PINNING

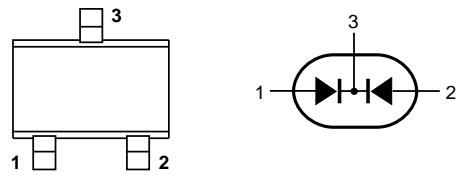
PIN	DESCRIPTION
1	anode (a1)
2	anode (a2)
3	common cathode

APPLICATIONS

- General RF applications.

DESCRIPTION

Two planar PIN diodes in common cathode configuration in a SOT323 small SMD plastic package.



Top view

MAM382

Marking code: 1W-

Fig.1 Simplified outline (SOT323) and symbol.

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		–	50	mA
P_{tot}	total power dissipation	$T_s = 90^\circ\text{C}$	–	240	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–65	+150	°C

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ELECTRICAL CHARACTERISTICS

 $T_j = 25^\circ\text{C}$ 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
V_R	reverse voltage	$I_R = 10 \mu\text{A}$	50	–	–	V
I_R	reverse current	$V_R = 50 \text{ V}$	–	–	100	nA
C_d	diode capacitance	$V_R = 0; f = 1 \text{ MHz}$	–	0.4	–	pF
		$V_R = 1 \text{ V}; f = 1 \text{ MHz}$	–	0.3	0.55	pF
		$V_R = 5 \text{ V}; f = 1 \text{ MHz}$	–	0.2	0.35	pF
r_D	diode forward resistance	$I_F = 0.5 \text{ mA}; f = 100 \text{ MHz}; \text{note 1}$	–	5.5	9	Ω
		$I_F = 1 \text{ mA}; f = 100 \text{ MHz}; \text{note 1}$	–	3.6	6.5	Ω
		$I_F = 10 \text{ mA}; f = 100 \text{ MHz}; \text{note 1}$	–	1.5	2.5	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 $I_R = 3 \text{ mA}$	–	550	–	ns
L_S	series inductance	$I_F = 10 \text{ mA}; f = 100 \text{ MHz}$	–	1.6	–	nH

Note

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

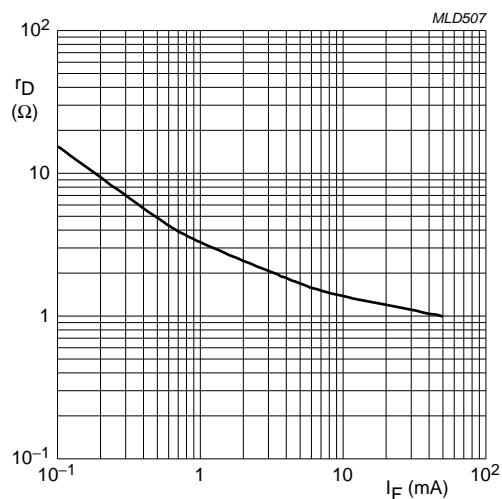
THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	VALUE	UNIT
$R_{th,j-s}$	thermal resistance from junction to soldering point	250	K/W

General purpose PIN diode

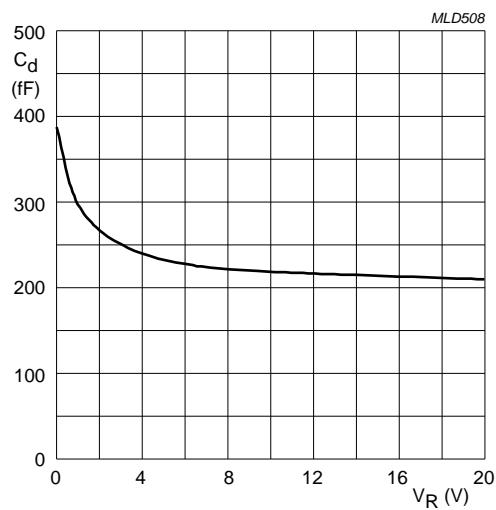
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GRAPHICAL DATA



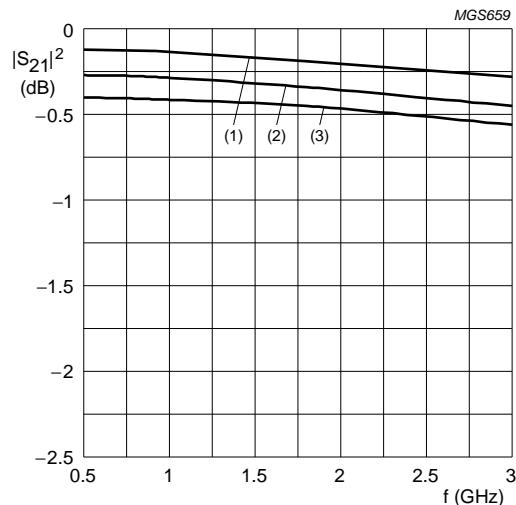
$f = 100$ MHz; $T_j = 25$ °C.

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



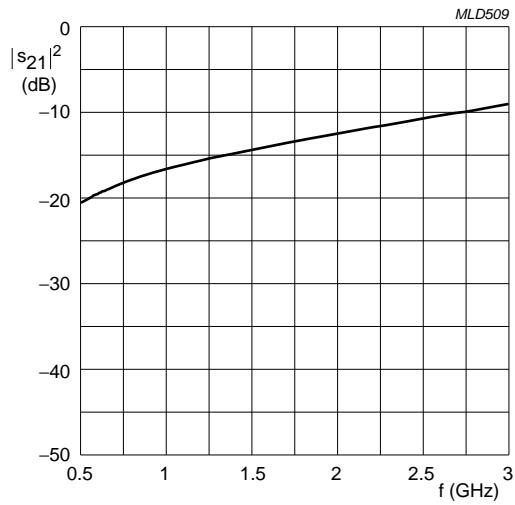
$f = 100$ MHz; $T_j = 25$ °C.

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



Diode inserted in series with a $50\ \Omega$ stripline circuit and biased via the analyzer Tee network. $T_{amb} = 25$ °C.

Fig.4 Insertion loss ($|s_{21}|^2$) of the diode as a function of frequency; typical values.



Diode zero biased and inserted in series with a $50\ \Omega$ stripline circuit. $T_{amb} = 25$ °C.

Fig.5 Isolation ($|s_{21}|^2$) of the diode as a function of frequency; typical values.

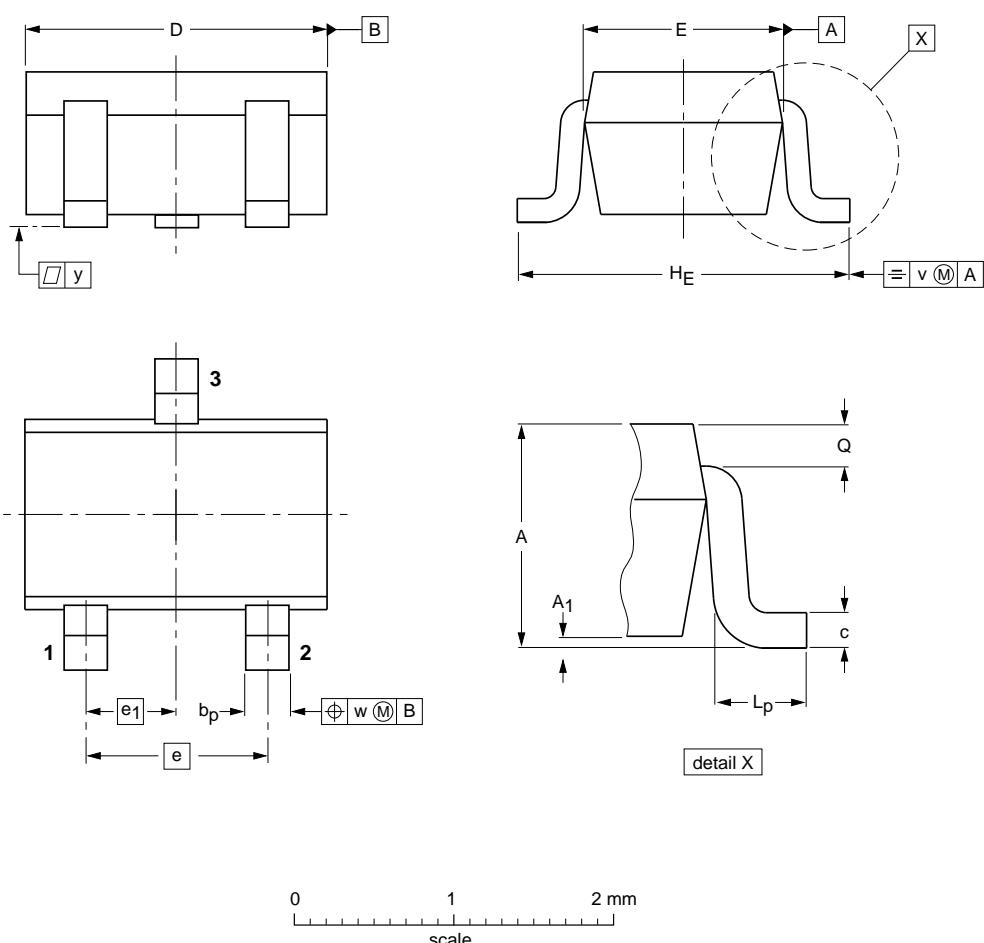
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PACKAGE OUTLINE

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

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DATA SHEET STATUS

DOCUMENT STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾	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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General purpose PIN diode

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Contact information

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