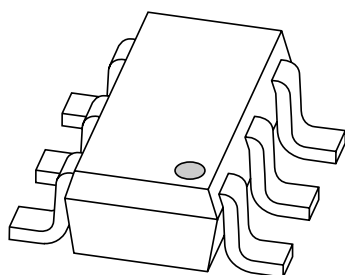


DATA SHEET



BAS21VD

High-voltage switching diode array

Product specification

2003 Jul 02

High-voltage switching diode array

BAS21VD

FEATURES

- Small plastic SMD package
- Switching speed: max. 50 ns
- Continuous reverse voltage: max. 200 V
- Repetitive peak reverse voltage: max. 250 V
- Repetitive peak forward current: max. 1 A.

APPLICATIONS

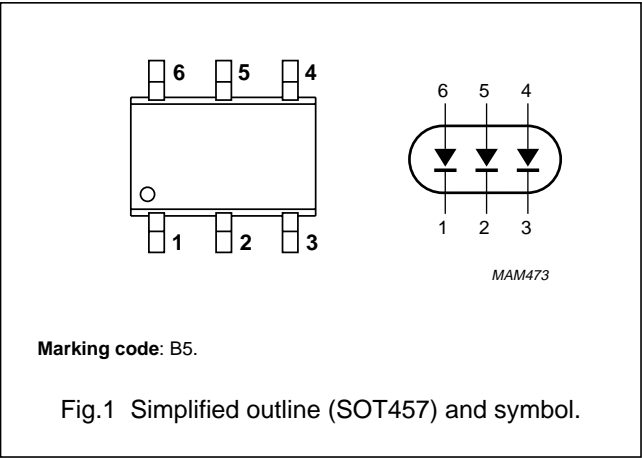
- High-voltage switching in surface mounted circuits
- Automotive
- Communication.

DESCRIPTION

The BAS21VD is a high-voltage diode array fabricated in planar technology and encapsulated in a small SOT457 plastic SMD package.

PINNING

PIN	DESCRIPTION
1	cathode (k1)
2	cathode (k2)
3	cathode (k3)
4	anode (a3)
5	anode (a2)
6	anode (a1)



LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
Per diode					
V_{RRM}	repetitive peak reverse voltage		–	250	V
V_R	continuous reverse voltage		–	200	V
I_F	continuous forward current	note 1; see Fig.2	–	200	mA
I_{FRM}	repetitive peak forward current	$t = 1\text{ ms}$; $\delta = 25\%$	–	1	A
I_{FSM}	non-repetitive peak forward current	square wave; $T_j = 25\text{ }^{\circ}\text{C}$ prior to surge; see Fig.4			
		$t = 10\text{ }\mu\text{s}$	–	16	A
		$t = 100\text{ }\mu\text{s}$	–	8	A
		$t = 10\text{ ms}$	–	2	A
P_{tot}	total power dissipation	$T_{amb} = 25\text{ }^{\circ}\text{C}$; note 1	–	250	mW
T_{stg}	storage temperature		–65	+150	$^{\circ}\text{C}$
T_j	junction temperature		–	150	$^{\circ}\text{C}$

Note

1. Pulse test: $t_p = 300\text{ }\mu\text{s}$; $\delta = 0.02$.

High-voltage switching diode array

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ELECTRICAL CHARACTERISTICS

$T_{amb} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MAX.	TYP.	UNIT
Per diode					
V_F	forward voltage	see Fig.3 $I_F = 100\text{ mA}$	–	1	V
		$I_F = 200\text{ mA}$	–	1.25	V
I_R	reverse current	$V_R = 200\text{ V}$; note 1; see Fig.5	25	100	nA
		$V_R = 200\text{ V}$; $T_j = 150\text{ }^{\circ}\text{C}$; note 1	–	100	μA
C_d	diode capacitance	$f = 1\text{ MHz}$; $V_R = 0$; see Fig.6	0.6	5	pF
t_{rr}	reverse recovery time	when switched from $I_F = 30\text{ mA}$ to $I_R = 30\text{ mA}$; $R_L = 100\text{ }\Omega$; measured at $I_R = 3\text{ mA}$; see Fig.8	16	50	ns

Note

1. Pulse test: $t_p = 300\text{ }\mu\text{s}$; $\delta = 0.02$.

THERMAL CHARACTERISTICS

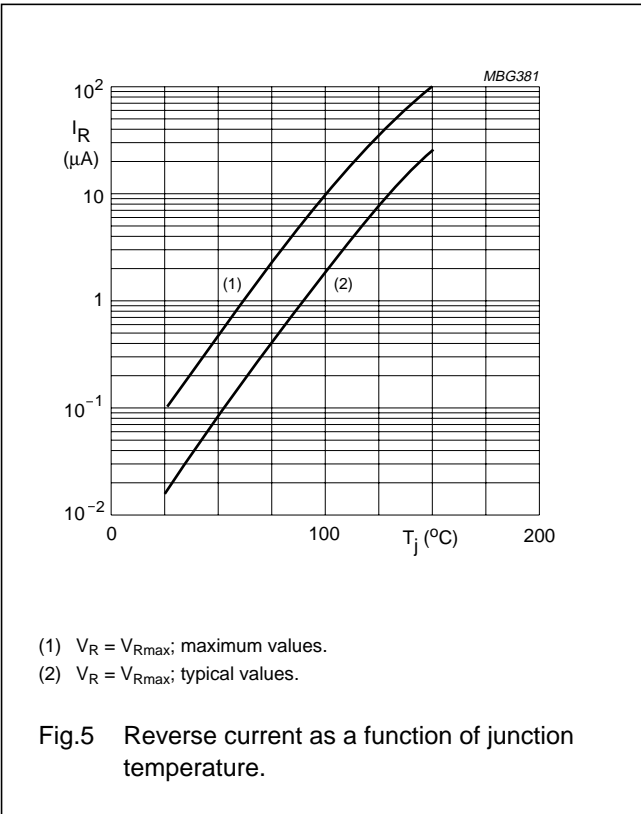
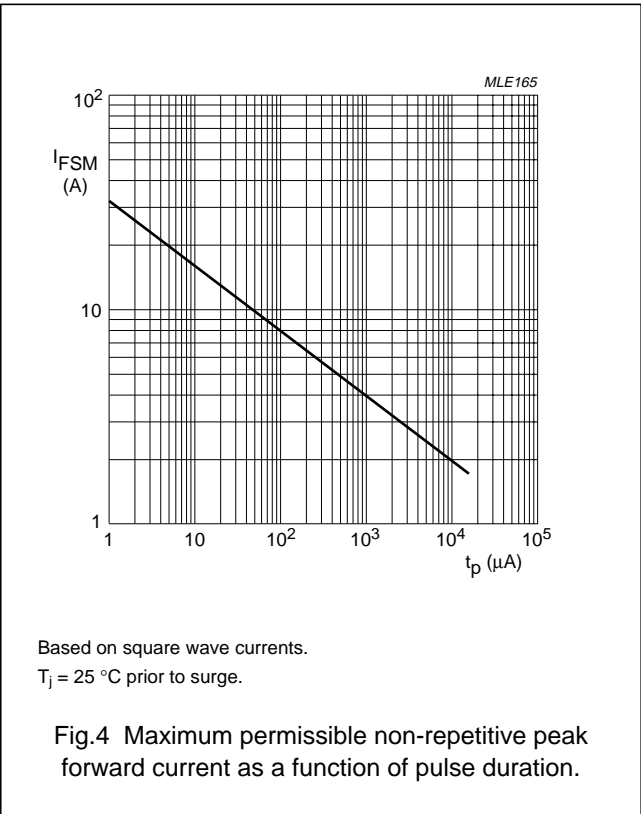
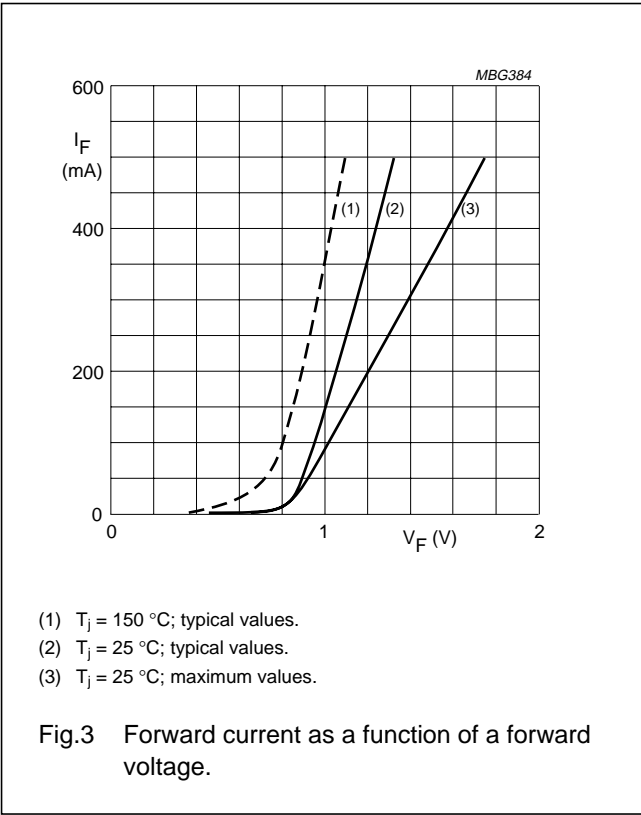
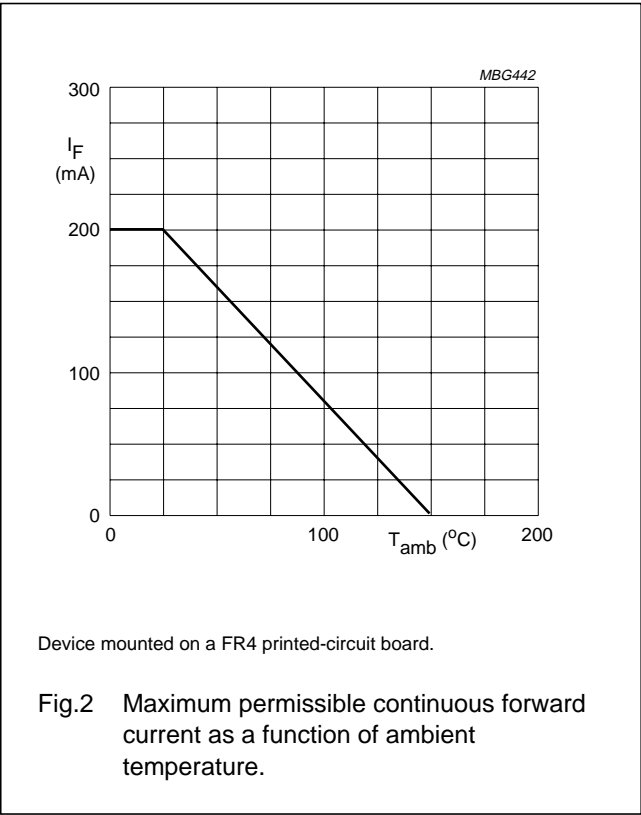
SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	208	K/W

Note

1. Refer to SOT457 standard mounting conditions.

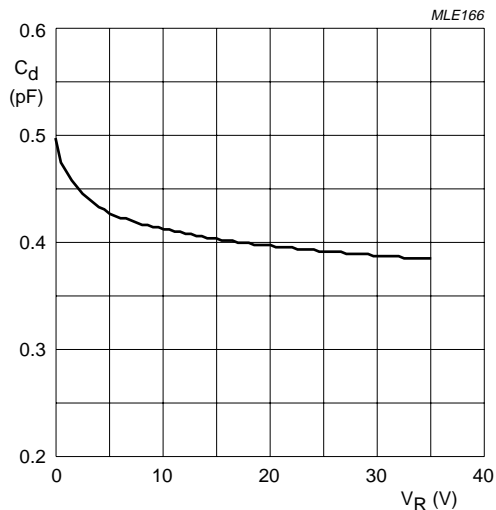
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$f = 1\text{ MHz}$; $T_j = 25\text{ }^\circ\text{C}$.

Fig.6 Diode capacitance as a function of reverse voltage; typical values.

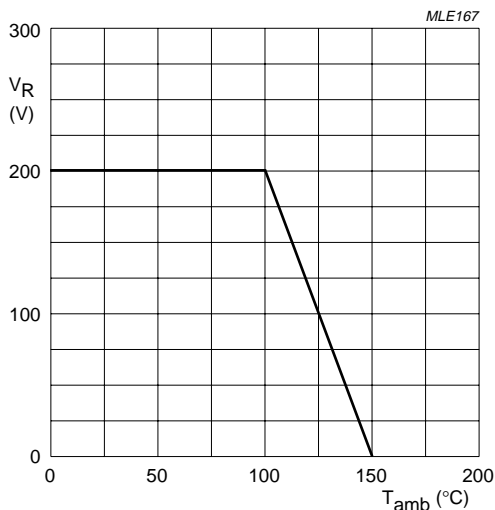
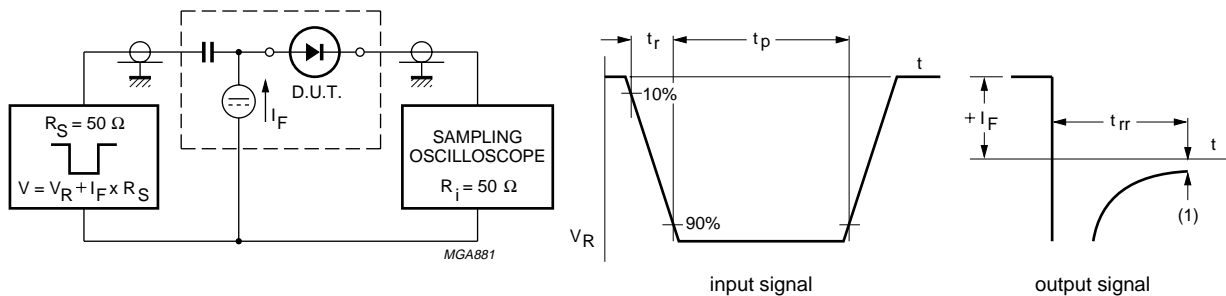


Fig.7 Maximum permissible continuous reverse voltage as a function of ambient temperature.



$I_R = 3\text{ mA}$.

Fig.8 Reverse recovery voltage test circuit and waveforms.

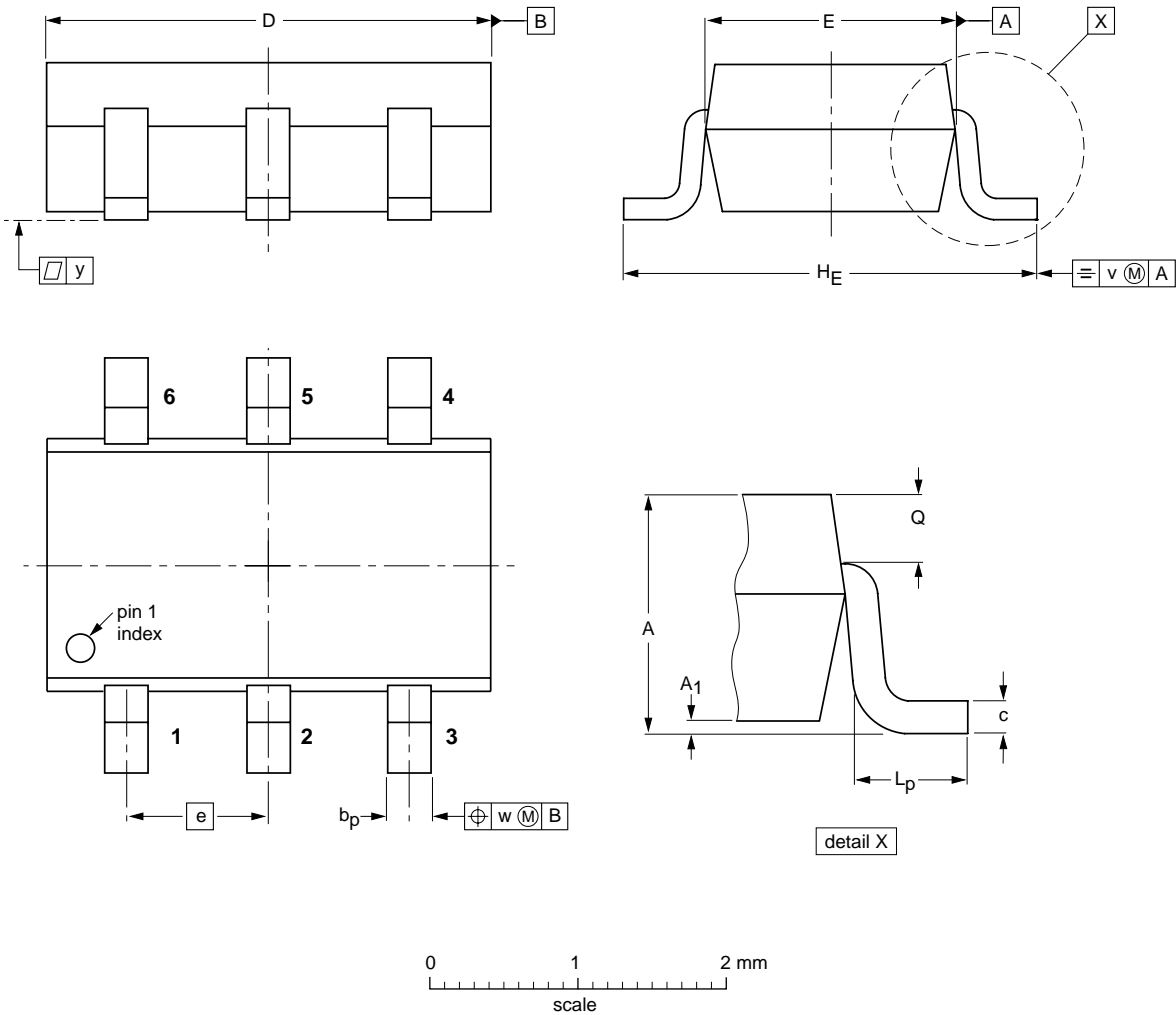
High-voltage switching diode array

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PACKAGE OUTLINE

Plastic surface mounted package; 6 leads

SOT457



DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁	b _p	c	D	E	e	H _E	L _p	Q	v	w	y
mm	1.1 0.9	0.1 0.013	0.40 0.25	0.26 0.10	3.1 2.7	1.7 1.3	0.95	3.0 2.5	0.6 0.2	0.33 0.23	0.2	0.2	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT457			SC-74			-97-02-28- 01-05-04

High-voltage switching diode array

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DATA SHEET STATUS

LEVEL	DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾⁽³⁾	DEFINITION
I	Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
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Limiting values definition — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.

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