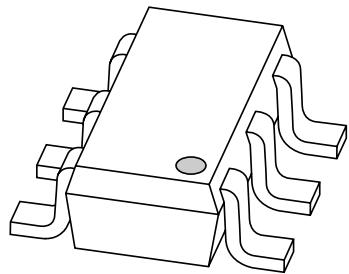


DATA SHEET



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

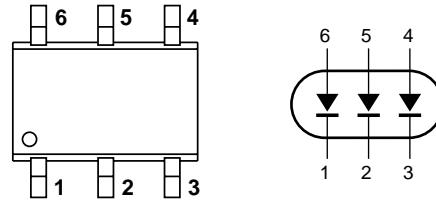
- High-voltage switching in surface mounted circuits
- Automotive
- Communication.

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)



MAM473

Marking code: B5.

Fig.1 Simplified outline (SOT457) and symbol.

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; $T_j = 25^\circ\text{C}$ prior to surge; see Fig.4 $t = 10 \mu\text{s}$ $t = 100 \mu\text{s}$ $t = 10 \text{ ms}$			
P_{tot}	total power dissipation	$T_{\text{amb}} = 25^\circ\text{C}$; note 1	–	250	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C

Note

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

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ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MAX.	TYP.	UNIT
Per diode					
V_F	forward voltage	see Fig.3 $I_F = 100 \text{ mA}$ $I_F = 200 \text{ mA}$	— —	1 1.25	V V
I_R	reverse current	$V_R = 200 \text{ V}$; note 1; see Fig.5	25	100	nA
		$V_R = 200 \text{ V}$; $T_j = 150^\circ C$; 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 $I_R = 30 \text{ mA}$; $R_L = 100 \Omega$; measured at $I_R = 3 \text{ mA}$; see Fig.8	16	50	ns

Note

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

THERMAL CHARACTERISTICS

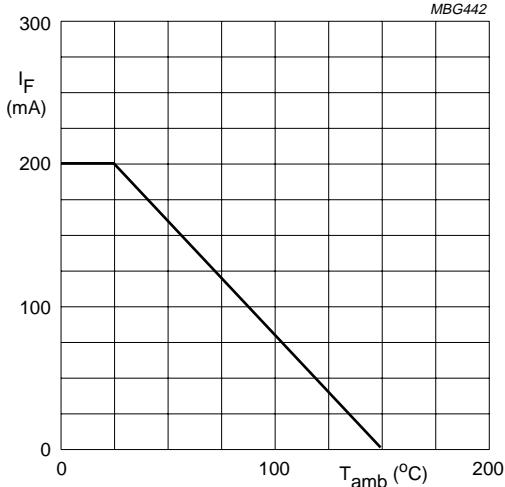
SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th j-a}$	thermal resistance from junction to ambient	note 1	208	K/W

Note

1. Refer to SOT457 standard mounting conditions.

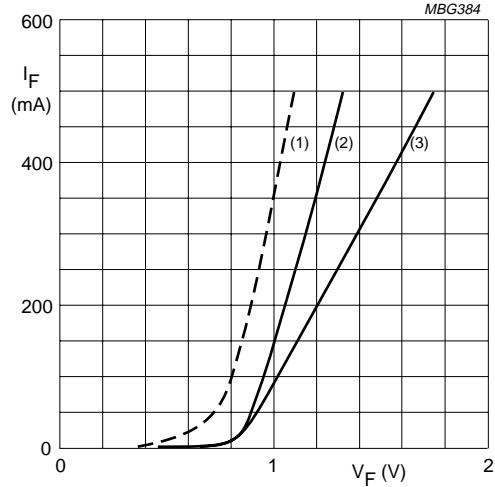
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Device mounted on a FR4 printed-circuit board.

Fig.2 Maximum permissible continuous forward current as a function of ambient temperature.

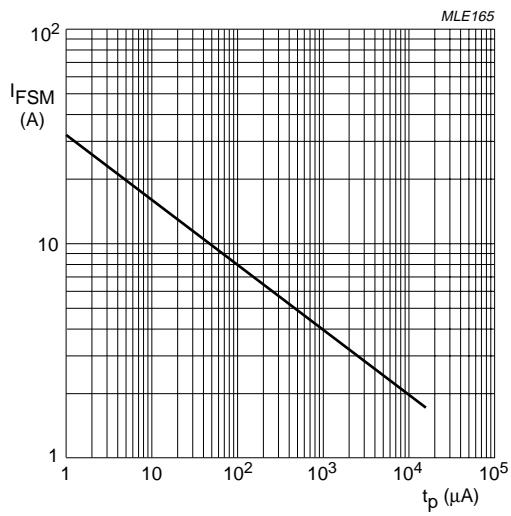


(1) $T_j = 150$ °C; typical values.

(2) $T_j = 25$ °C; typical values.

(3) $T_j = 25$ °C; maximum values.

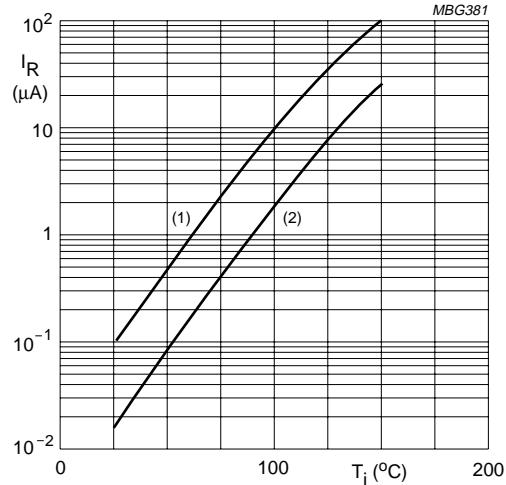
Fig.3 Forward current as a function of a forward voltage.



Based on square wave currents.

$T_j = 25$ °C prior to surge.

Fig.4 Maximum permissible non-repetitive peak forward current as a function of pulse duration.



(1) $V_R = V_{Rmax}$; maximum values.

(2) $V_R = V_{Rmax}$; typical values.

Fig.5 Reverse current as a function of junction temperature.

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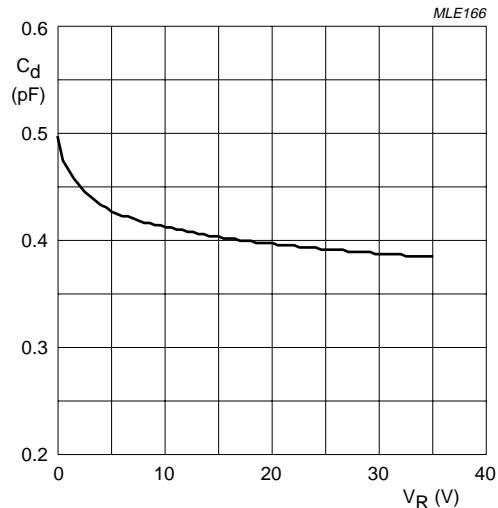
 $f = 1$ MHz; $T_j = 25$ °C.

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

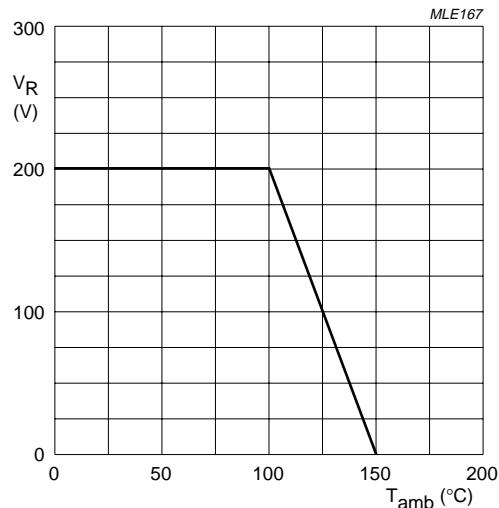


Fig.7 Maximum permissible continuous reverse voltage as a function of ambient temperature.

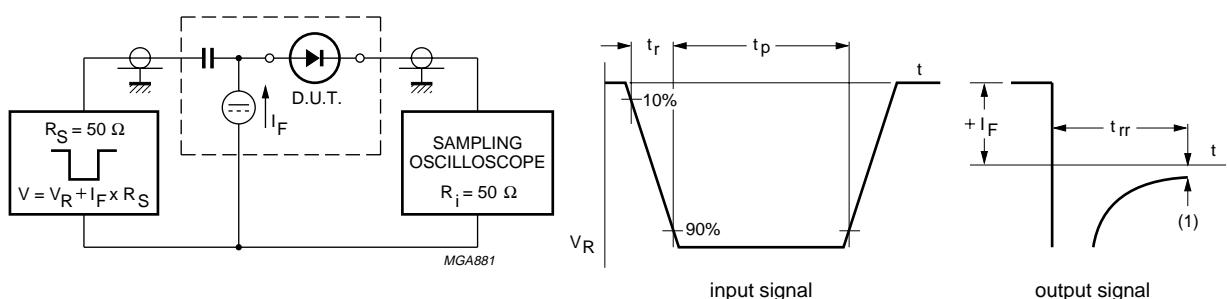
 $I_R = 3$ mA.

Fig.8 Reverse recovery voltage test circuit and waveforms.

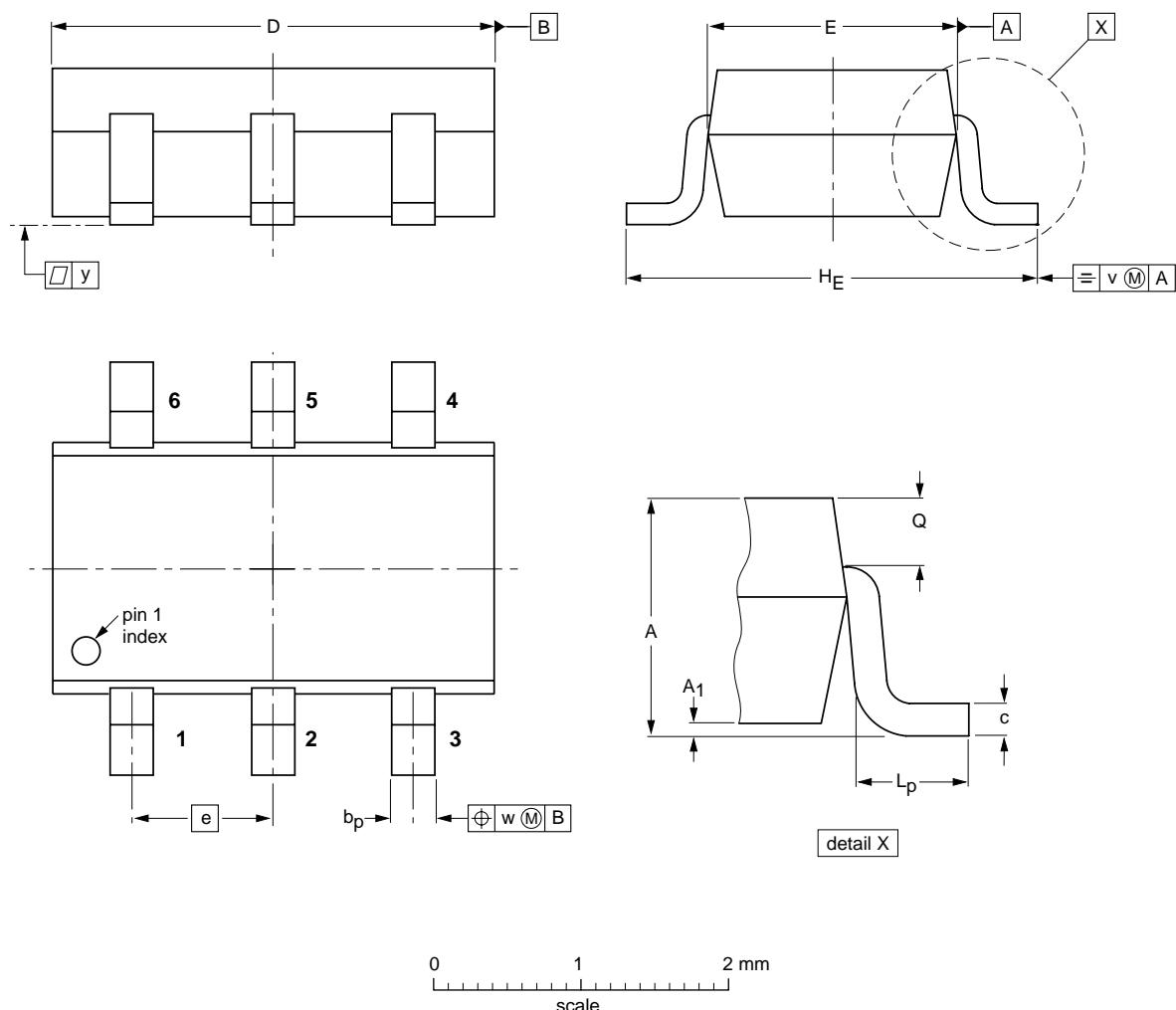
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PACKAGE OUTLINE

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	SC-74		
SOT457						-97-02-28 01-05-04

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DATA SHEET STATUS

LEVEL	DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾⁽³⁾	DEFINITION
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Printed in The Netherlands

613514/01/008

Date of release: 2003 Jul 02

Document order number: 9397 750 11417

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