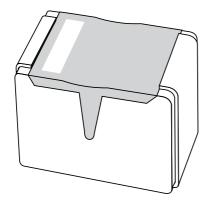
DISCRETE SEMICONDUCTORS

DATA SHEET



BAS216High-speed switching diode

Product data sheet Supersedes data of 1999 Apr 22 2002 May 28



High-speed switching diode

BAS216

FEATURES

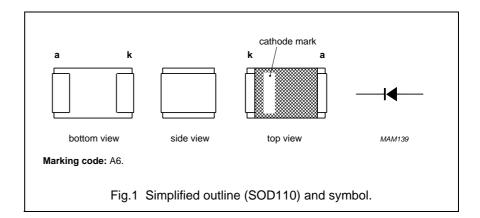
- Small ceramic SMD package
- High switching speed: max. 4 ns
- Continuous reverse voltage: max. 75 V
- Repetitive peak reverse voltage: max. 85 V
- Repetitive peak forward current: max. 500 mA.

APPLICATIONS

 High-speed switching in e.g. surface mounted circuits.

DESCRIPTION

The BAS216 is a high-speed switching diode fabricated in planar technology, and encapsulated in the SOD110 very small rectangular ceramic SMD package.



LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V _{RRM}	repetitive peak reverse voltage		_	85	V
V _R	continuous reverse voltage		_	75	V
IF	continuous forward current	note 1	_	250	mA
I _{FRM}	repetitive peak forward current		_	500	mA
I _{FSM}	non-repetitive peak forward current	square wave; T _j = 25 °C prior to surge; see Fig.4			
		t = 1 μs t = 1 ms	_	4	A
		t = 1 s	_	0.5	A
P _{tot}	total power dissipation	T _{amb} = 25 °C; see Fig.2; note 1	_	400	mW
T _{stg}	storage temperature		-65	+150	°C
T _j	junction temperature		_	150	°C

Note

1. Device mounted on an FR4 printed-circuit board.

High-speed switching diode

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ELECTRICAL CHARACTERISTICS

 $T_j = 25$ °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V _F	forward voltage	see Fig.3			
		I _F = 1 mA	_	715	mV
		I _F = 10 mA	_	855	mV
		I _F = 50 mA	_	1	V
		I _F = 150 mA	_	1.25	V
I _R	reverse current	see Fig.5			
		V _R = 25 V	_	30	nA
		V _R = 75 V	_	1	μΑ
		V _R = 25 V; T _j = 150 °C	_	30	μΑ
		V _R = 75 V; T _j = 150 °C	_	50	μΑ
C _d	diode capacitance	f = 1 MHz; V _R = 0; see Fig.6	_	1.5	pF
t _{rr}	reverse recovery time	when switched from I _F = 10 mA to	_	4	ns
		$I_R = 10 \text{ mA}$; $R_L = 100 \Omega$; measured			
		at I _R = 1 mA; see Fig.7			
V_{fr}	forward recovery voltage	when switched from $I_F = 10 \text{ mA}$;	_	1.75	V
		$t_r = 20 \text{ ns}$; see Fig.8			

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R _{th j-tp}	thermal resistance from junction to tie-point		200	K/W
R _{th j-a}	thermal resistance from junction to ambient	note 1	315	K/W

Note

1. Device mounted on an FR4 printed-circuit board.

High-speed switching diode

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GRAPHICAL DATA

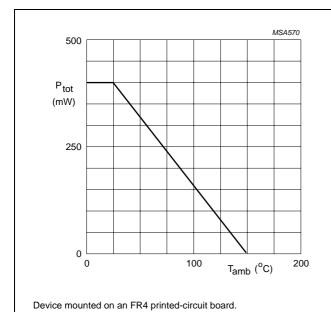
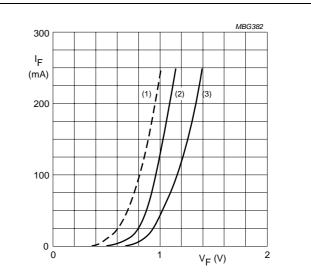


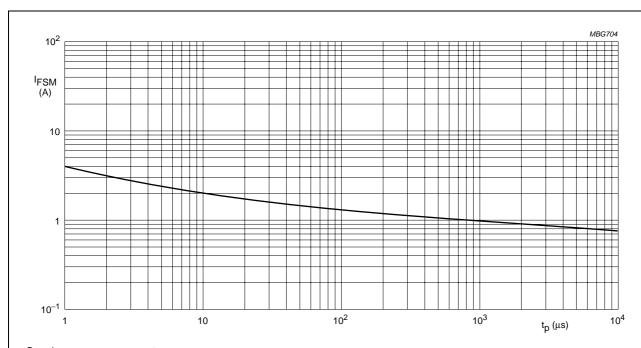
Fig.2 Maximum permissible total power dissipation as a function of ambient

temperature.



- (1) T_i = 150 °C; typical values.
- (2) $T_j = 25 \,^{\circ}\text{C}$; typical values.
- (3) $T_j = 25$ °C; maximum values.

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



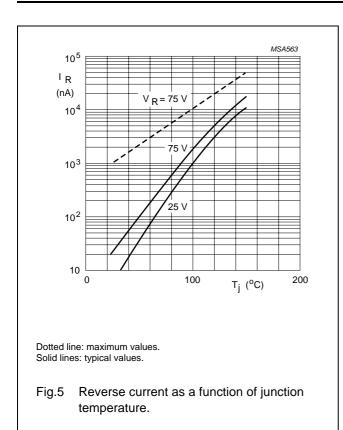
Based on square wave currents.

 T_j = 25 °C prior to surge.

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

High-speed switching diode

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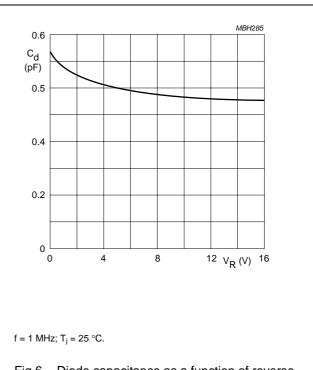
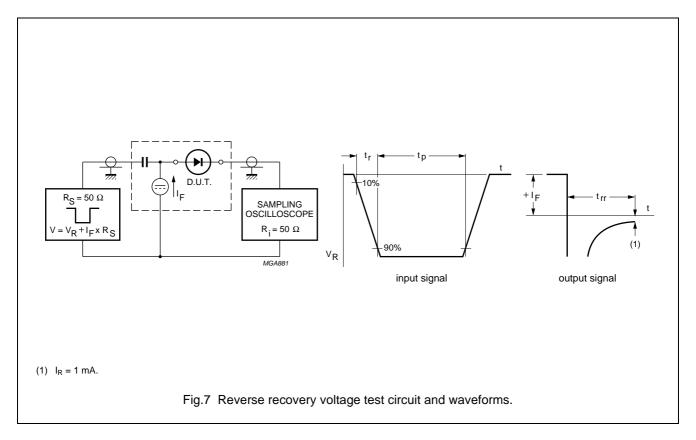
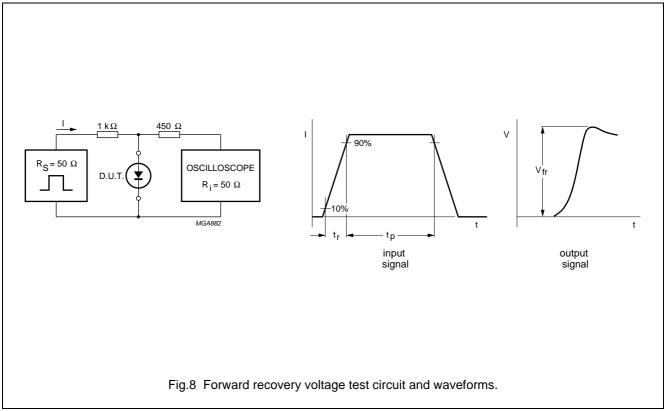


Fig.6 Diode capacitance as a function of reverse voltage; typical values.

High-speed switching diode

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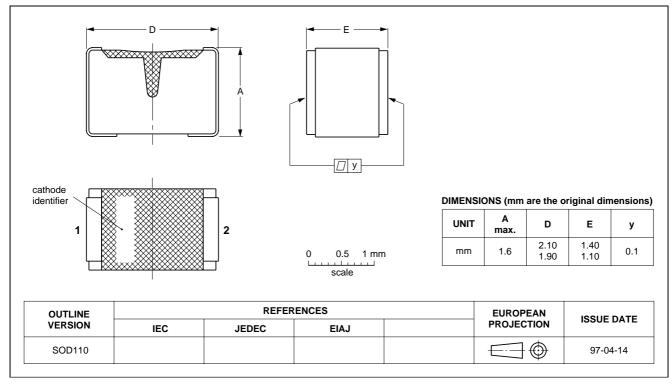
High-speed switching diode

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PACKAGE OUTLINE

Very small ceramic rectangular surface mounted package

SOD110



High-speed switching diode

BAS216

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.

Notes

- 1. Please consult the most recently issued document before initiating or completing a design.
- The product status of device(s) described in this document may have changed since this document was published
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