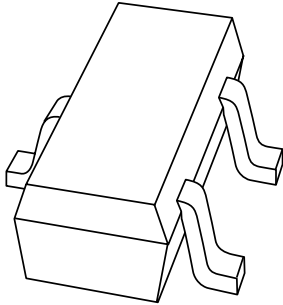


DATA SHEET



BAV70T High-speed double diode

Product specification
Supersedes data of 1997 Dec 19

2004 Feb 04

High-speed double diode

BAV70T

FEATURES

- Very small plastic SMD package
- High switching speed: max. 4 ns
- Continuous reverse voltage: max. 100V
- Repetitive peak reverse voltage: max. 100 V
- Repetitive peak forward current: max. 500 mA.

APPLICATIONS

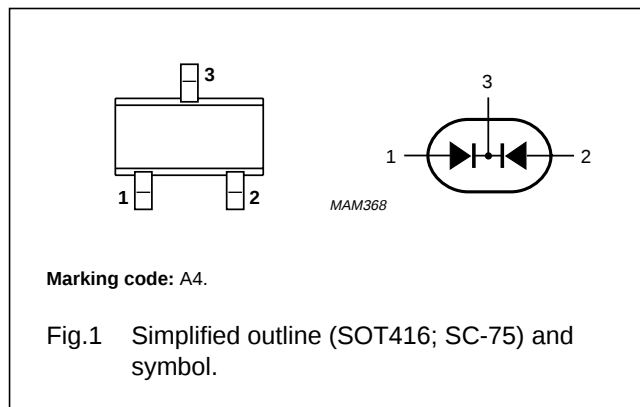
- High-speed switching in e.g. surface mounted circuits.

DESCRIPTION

Two high-speed switching diodes in a common cathode configuration, fabricated in planar technology, in a very small rectangular SMD SOT416 (SC-75) package.

PINNING

PIN	DESCRIPTION
1	anode 1
2	anode 2
3	common cathode



ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
BAV70T	–	plastic surface mounted package; 3 leads	SOT416

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
Per diode (unless otherwise specified)					
V_{RRM}	repetitive peak reverse voltage		–	100	V
V_R	continuous reverse voltage		–	100	V
I_F	continuous forward current	$T_s = 90\text{ °C}$; see Fig.2 single diode loaded	–	150	mA
		both diodes loaded	–	75	mA
I_{FRM}	repetitive peak forward current		–	500	mA
I_{FSM}	non-repetitive peak forward current	square wave; $T_j = 25\text{ °C}$ prior to surge; see Fig.4			
		$t = 1\text{ }\mu\text{s}$	–	4	A
		$t = 1\text{ ms}$	–	1	A
		$t = 1\text{ s}$	–	0.5	A
P_{tot}	total power dissipation	$T_s = 90\text{ °C}$; one diode loaded	–	170	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	+150	°C

High-speed double diode

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CHARACTERISTICS

$T_j = 25\text{ °C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
Per diode				
V_F	forward voltage	see Fig.3 $I_F = 1\text{ mA}$ $I_F = 10\text{ mA}$ $I_F = 50\text{ mA}$ $I_F = 150\text{ mA}$	0.715 0.855 1 1.25	V V V V
I_R	reverse current	see Fig.5 $V_R = 25\text{ V}$ $V_R = 75\text{ V}$ $V_R = 25\text{ V}; T_j = 150\text{ °C}$ $V_R = 75\text{ V}; T_j = 150\text{ °C}$	30 2 60 100	nA μA μA μA
C_d	diode capacitance	$V_R = 0$; $f = 1\text{ MHz}$; see Fig.6	1.5	pF
t_{rr}	reverse recovery time	switching from $I_F = 10\text{ mA}$ to $I_R = 10\text{ mA}$; $R_L = 100\text{ }\Omega$; measured at $I_R = 1\text{ mA}$; see Fig.7	4	ns
V_{fr}	forward recovery voltage	switched to $I_F = 10\text{ mA}$; $t_r = 20\text{ ns}$; see Fig.8	1.75	V

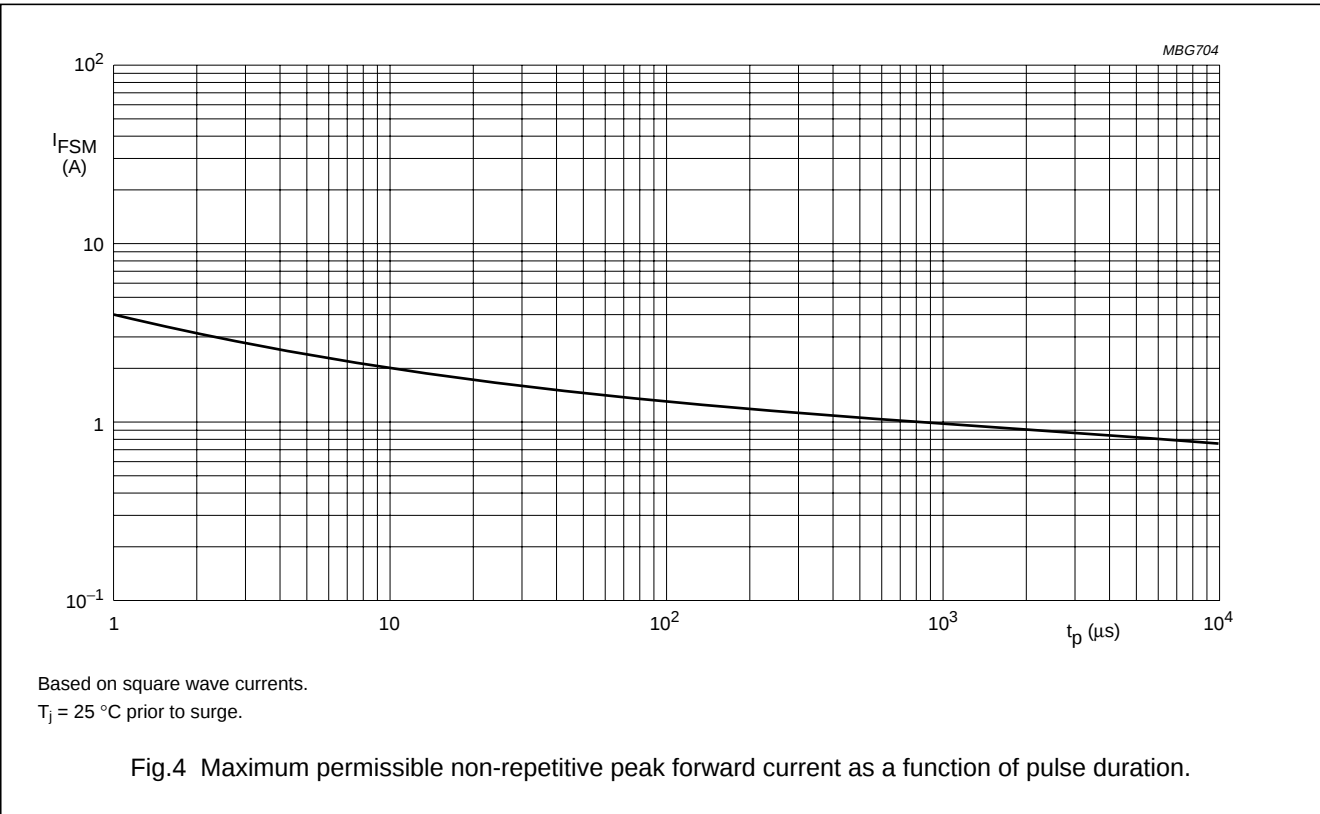
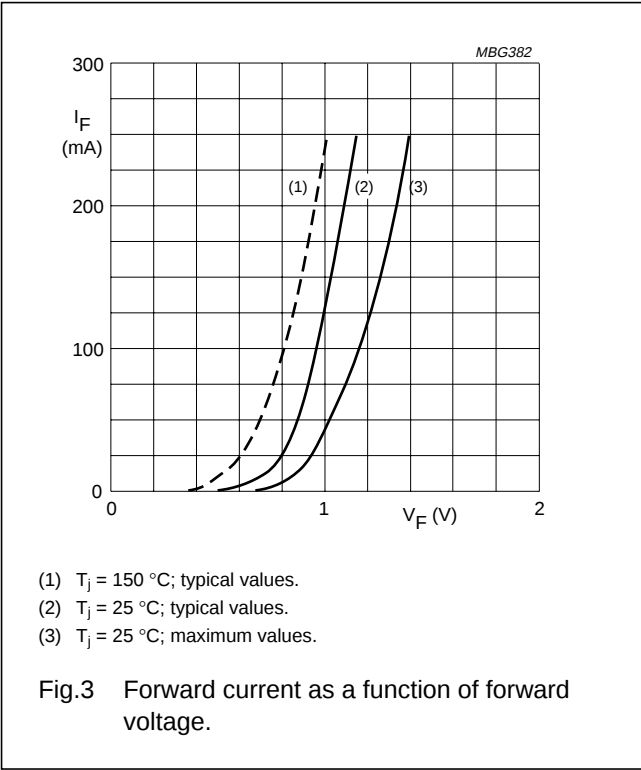
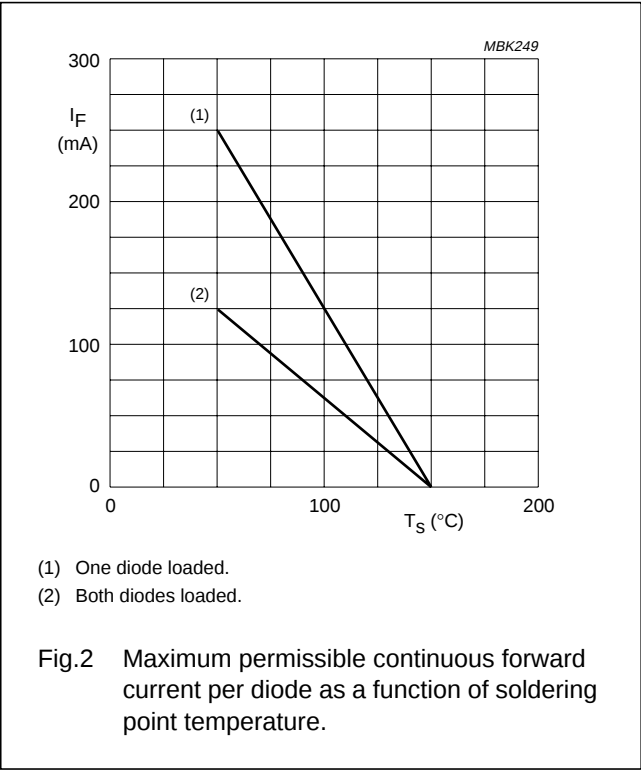
THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th(j-s)}$	thermal resistance from junction to soldering point	one diode loaded	350	K/W

High-speed double diode

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GRAPHICAL DATA



High-speed double diode

BAV70T

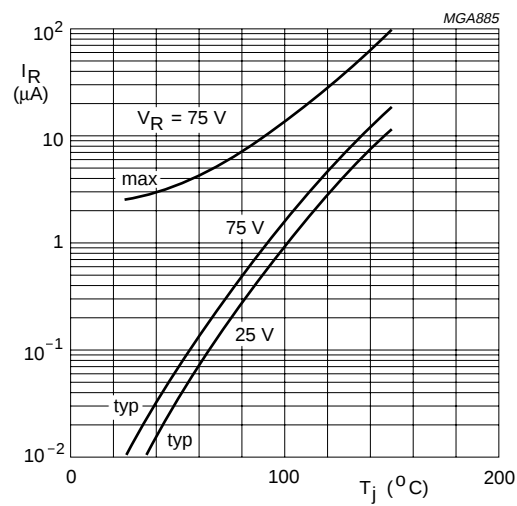
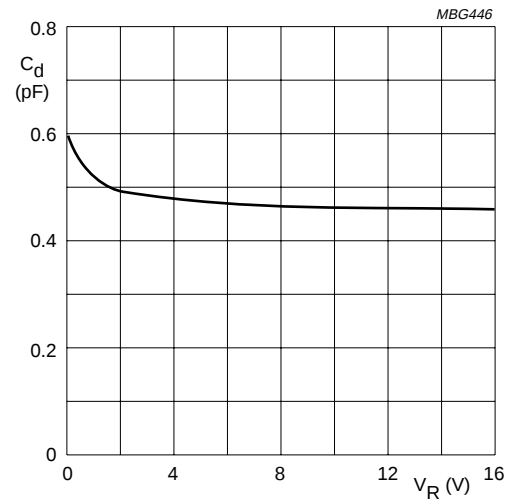


Fig.5 Reverse current as a function of junction temperature.

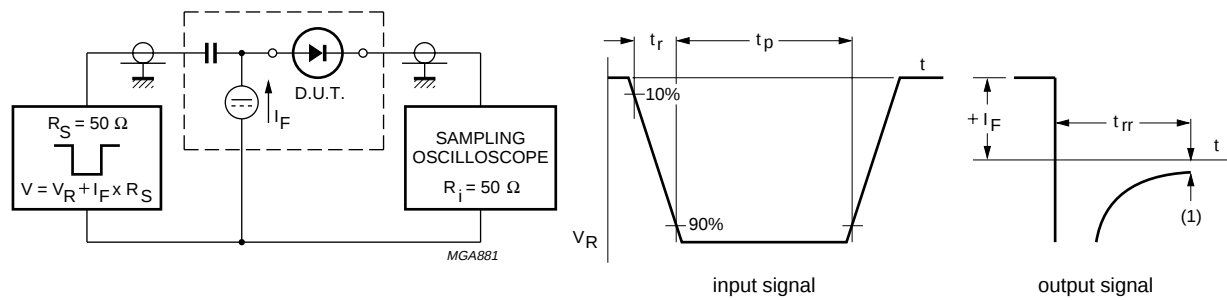


$f = 1 \text{ MHz}$; $T_j = 25^{\circ}C$.

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

High-speed double diode

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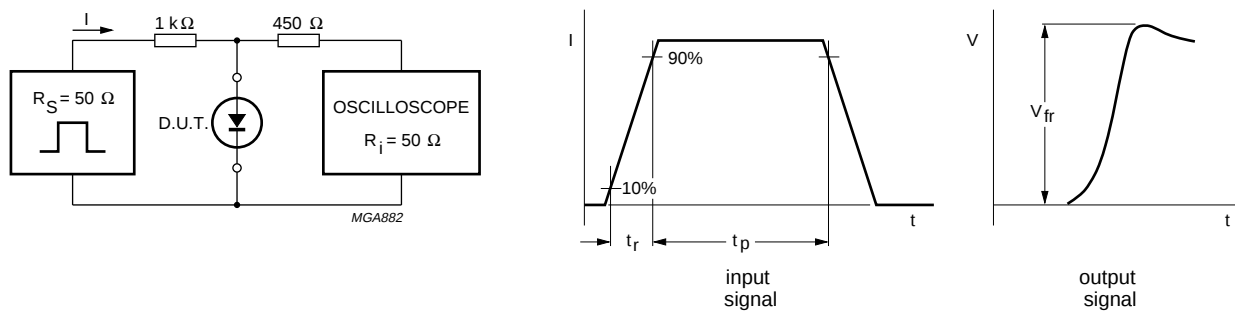


(1) $I_R = 1 \text{ mA}$.

Input signal: reverse pulse rise time $t_r = 0.6 \text{ ns}$; reverse voltage pulse duration $t_p = 100 \text{ ns}$; duty factor $\delta = 0.05$.

Oscilloscope: rise time $t_r = 0.35 \text{ ns}$.

Fig.7 Reverse recovery voltage test circuit and waveforms.



Input signal: forward pulse rise time $t_r = 20 \text{ ns}$; forward current pulse duration $t_p \geq 100 \text{ ns}$; duty factor $\delta \leq 0.005$.

Fig.8 Forward recovery voltage test circuit and waveforms.

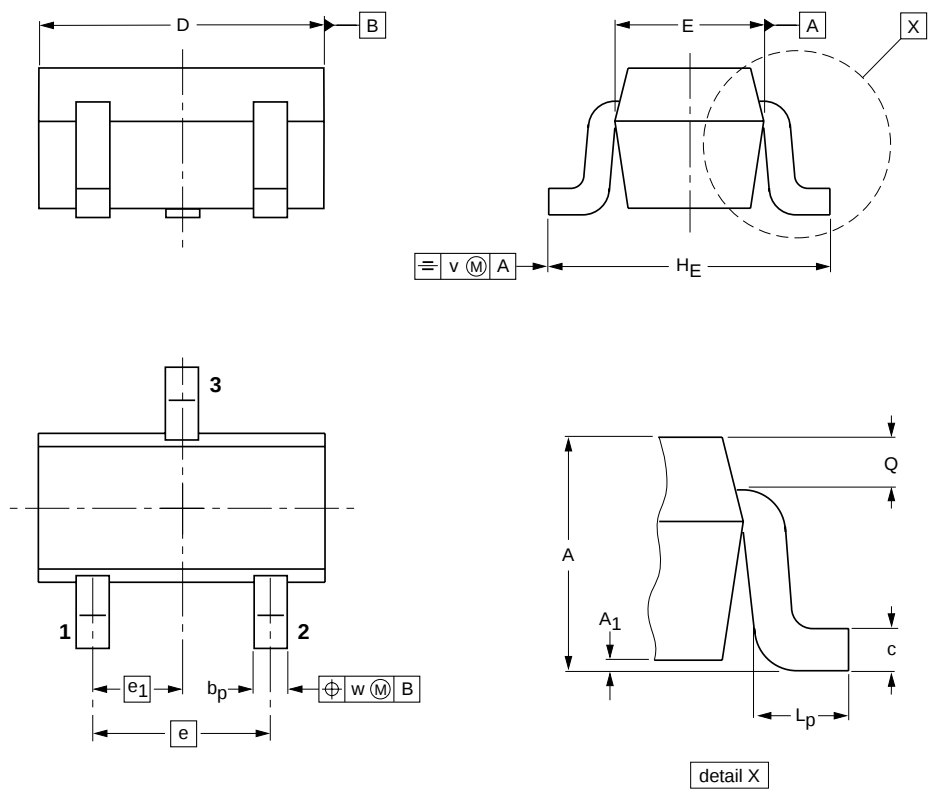
High-speed double diode

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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT416



DIMENSIONS (mm are the original dimensions)

UNIT	A	A1 max	bp	c	D	E	e	e1	HE	Lp	Q	v	w
mm	0.95 0.60	0.1	0.30 0.15	0.25 0.10	1.8 1.4	0.9 0.7	1	0.5	1.75 1.45	0.45 0.15	0.23 0.13	0.2	0.2

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT416			SC-75			97-02-28

High-speed double diode

BAV70T

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.
II	Preliminary data	Qualification	This data sheet contains data from the preliminary specification. Supplementary data will be published at a later date. Philips Semiconductors reserves the right to change the specification without notice, in order to improve the design and supply the best possible product.
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Printed in The Netherlands

R76/03/pp9

Date of release: 2004 Feb 04

Document order number: 9397 750 12573

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