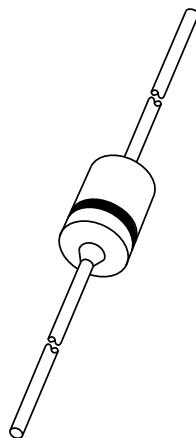


DATA SHEET



BAV18 to BAV21 General purpose diodes

Product specification

1996 Sep 17

Supersedes data of April 1996

File under Discrete Semiconductors, SC01

Philips
Semiconductors



PHILIPS

General purpose diodes

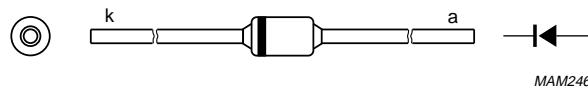
BAV18 to BAV21

FEATURES

- Hermetically sealed leaded glass SOD27 (DO-35) package
- Switching speed: max. 50 ns
- General application
- Continuous reverse voltage: max. 50 V, 100 V, 150 V, 200 V
- Repetitive peak reverse voltage: max. 60 V, 120 V, 200 V, 250 V
- Repetitive peak forward current: max. 625 mA.

DESCRIPTION

The BAV18, BAV19, BAV20, BAV21 are switching diodes fabricated in planar technology, and encapsulated in hermetically sealed leaded glass SOD27 (DO-35) packages.



The diodes are type branded.

Fig.1 Simplified outline (SOD27; DO-35) and symbol.

APPLICATIONS

- General purposes in industrial equipment e.g. oscilloscopes, digital voltmeters and video output stages in colour television.

General purpose diodes

BAV18 to BAV21

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{RRM}	repetitive peak reverse voltage BAV18 BAV19 BAV20 BAV21		–	60	V
				120	V
				200	V
				250	V
V_R	continuous peak reverse voltage BAV18 BAV19 BAV20 BAV21		–	50	V
				100	V
				150	V
				200	V
I_F	continuous forward current	see Fig.2; note 1	–	250	mA
I_{FRM}	repetitive peak forward current		–	625	mA
I_{FSM}	non-repetitive peak forward current	square wave; $T_j = 25^\circ\text{C}$ prior to surge; see Fig.4 $t = 1 \mu\text{s}$ $t = 100 \mu\text{s}$ $t = 1 \text{ s}$	–	9	A
				3	A
				1	A
P_{tot}	total power dissipation	$T_{amb} = 25^\circ\text{C}$; note 1	–	400	mW
T_{stg}	storage temperature		–65	+175	°C
T_j	junction temperature		–	175	°C

Note

1. Device mounted on an FR4 printed circuit-board; lead length 10 mm.

General purpose diodes

BAV18 to BAV21

ELECTRICAL CHARACTERISTICS

 $T_j = 25^\circ\text{C}$; unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_F	forward voltage	see Fig.3 $I_F = 100 \text{ mA}$ $I_F = 200 \text{ mA}$	—	1.0	V
I_R	reverse current	see Fig.5 $V_R = V_{R\text{max}}$ $V_R = V_{R\text{max}}; T_j = 150^\circ\text{C}$	—	100	nA
C_d	diode capacitance	$f = 1 \text{ MHz}; V_R = 0$; see Fig.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	—	50	ns

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{\text{th j-tp}}$	thermal resistance from junction to tie-point	lead length 10 mm	240	K/W
$R_{\text{th j-a}}$	thermal resistance from junction to ambient	lead length 10 mm; note 1	375	K/W

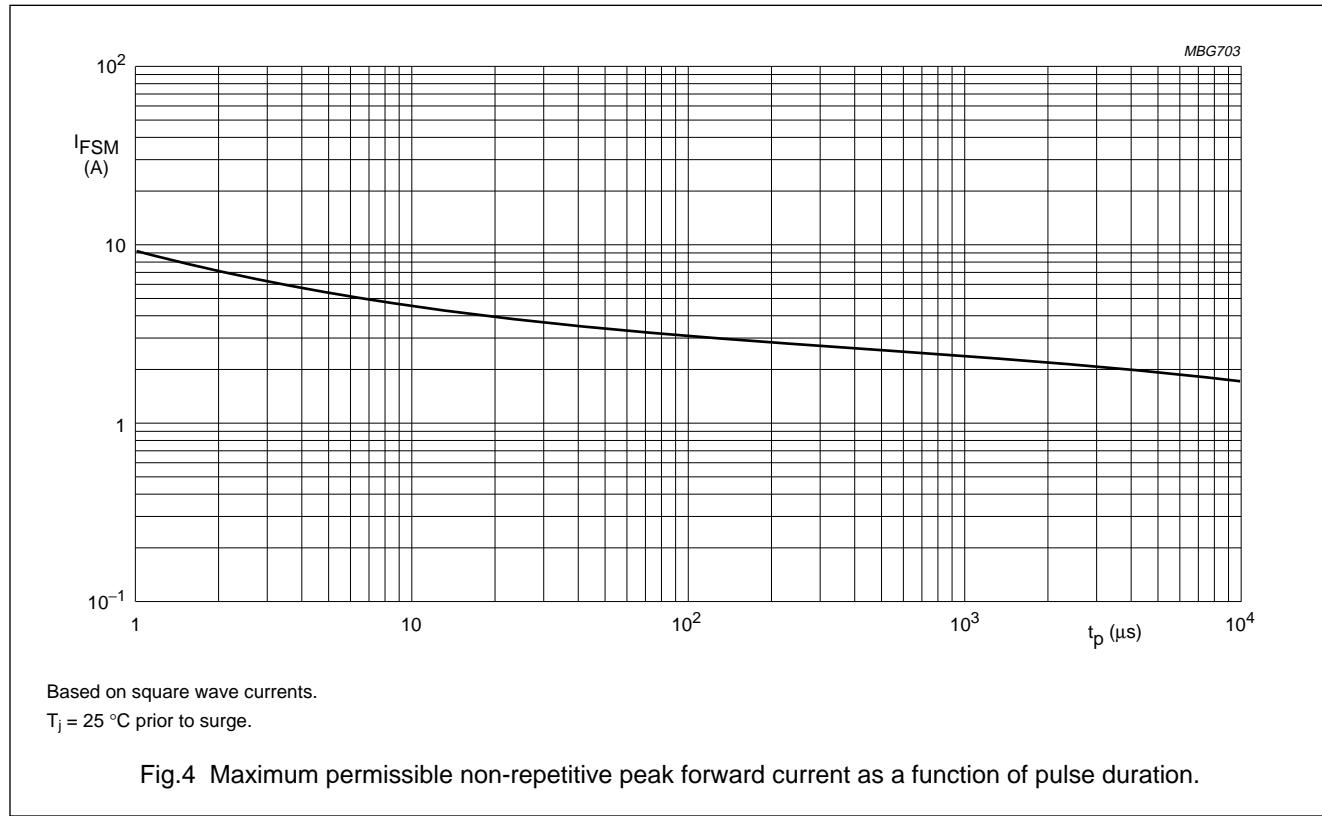
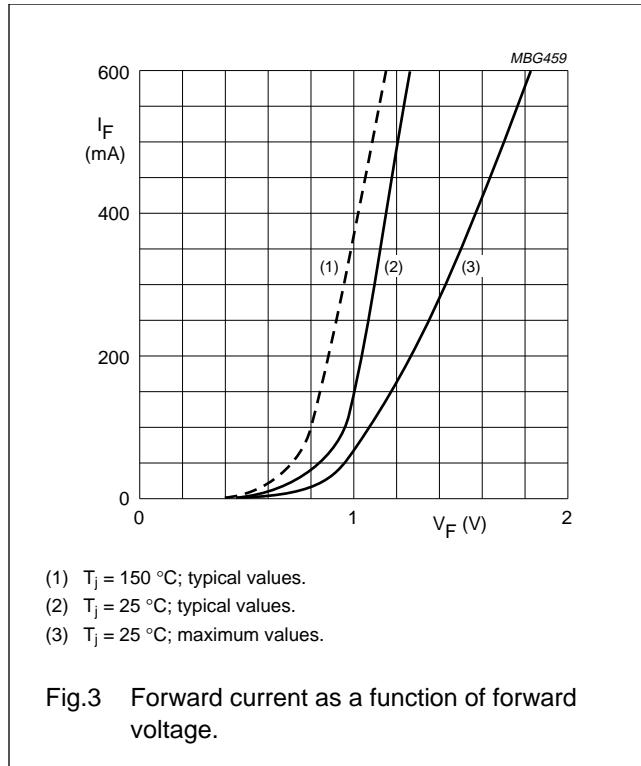
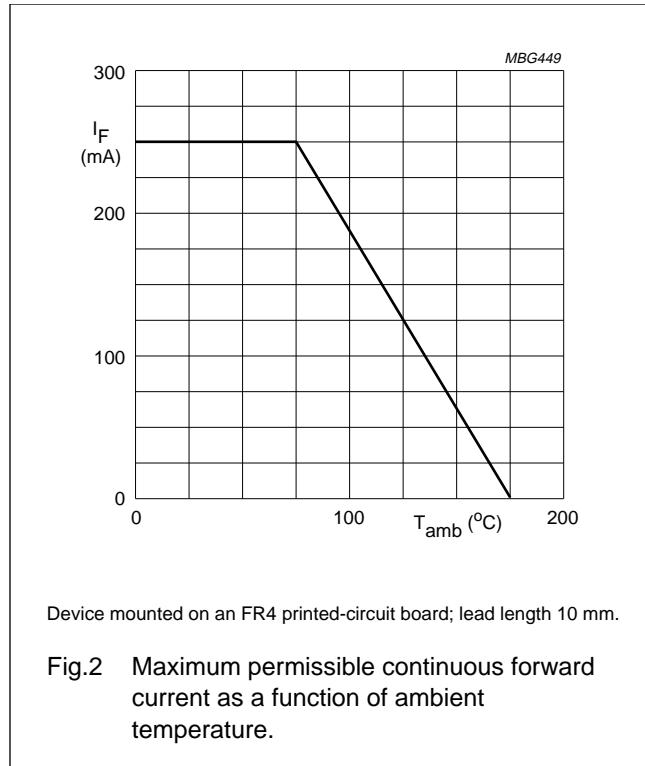
Note

1. Device mounted on a printed circuit-board without metallization pad.

General purpose diodes

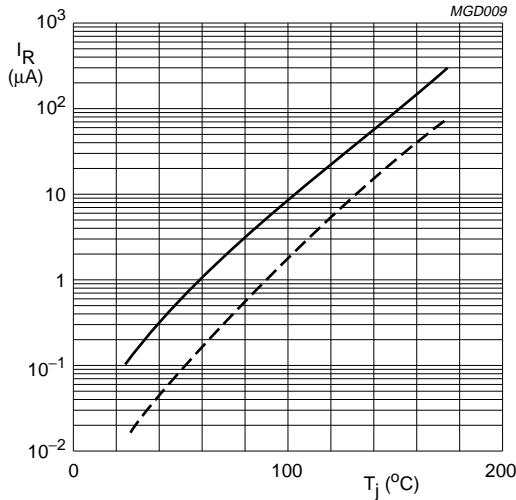
BAV18 to BAV21

GRAPHICAL DATA



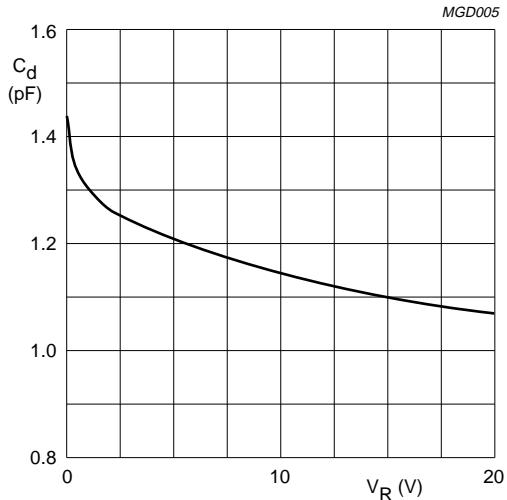
General purpose diodes

BAV18 to BAV21



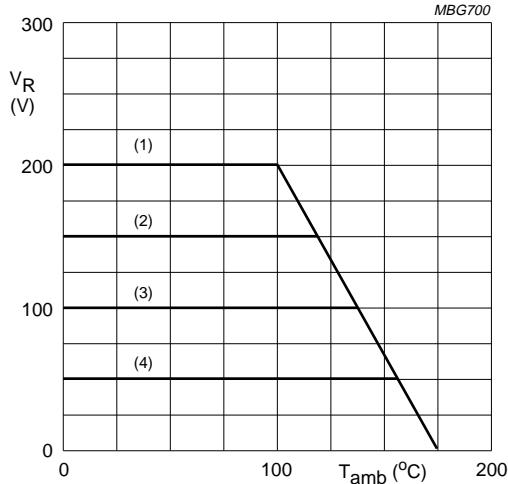
$V_R = V_{R\max}$.
 Solid line; maximum values.
 Dotted line; typical values.

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



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

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

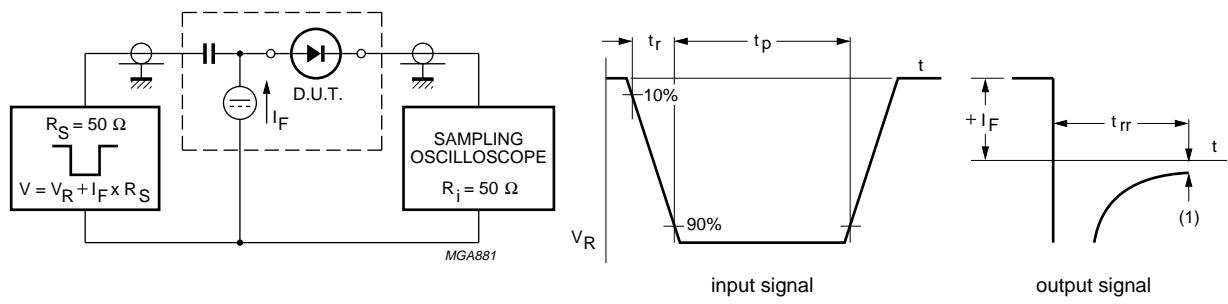


- (1) BAV21.
- (2) BAV20.
- (3) BAV19.
- (4) BAV18.

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

General purpose diodes

BAV18 to BAV21



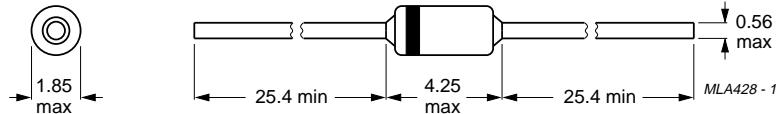
(1) $I_R = 3 \text{ mA}$.

Fig.8 Reverse recovery voltage test circuit and waveforms.

General purpose diodes

BAV18 to BAV21

PACKAGE OUTLINE



Dimensions in mm.

Fig.9 SOD27 (DO-35).

DEFINITIONS

Data Sheet Status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). 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.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

LIFE SUPPORT APPLICATIONS

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