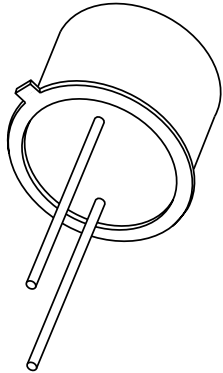


DATA SHEET



BAV45 Picoampere diode

Product specification
Supersedes data of July 1986

1996 Mar 13

Picoampere diode

BAV45

FEATURES

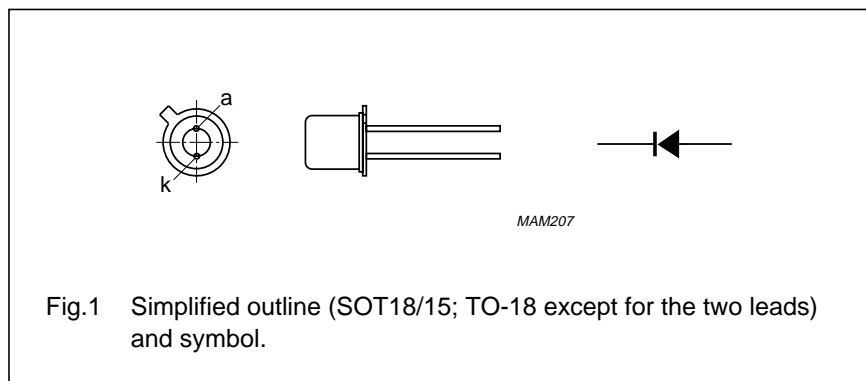
- Extremely low leakage current: max. 5 pA
- Low diode capacitance
- Light insensitive.

APPLICATION

- Clamping
- Holding
- Peak follower
- Time delay circuits
- Logarithmic amplifiers
- Protection of insulated gate field-effect transistors.

DESCRIPTION

Silicon diode in a metal TO-18 can. It has an extremely low leakage current over a wide temperature range combined with a low capacitance and is not sensitive to light.



CAUTION

Handle the device with care whilst soldering into the circuit. The extremely low leakage current can only be guaranteed when the bottom is free from solder flux or other contaminations.

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{RRM}	repetitive peak reverse voltage		–	35	V
V_R	continuous reverse voltage		–	20	V
I_F	continuous forward current	see Fig.2	–	50	mA
I_{FRM}	repetitive peak forward current		–	100	mA
P_{tot}	total power dissipation	$T_{amb} = 25\text{ }^\circ\text{C}$; note 1	–	200	mW
T_{stg}	storage temperature		–65	+125	$^\circ\text{C}$
T_j	junction temperature		–	125	$^\circ\text{C}$

Note

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

Picoampere diode

BAV45

ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
V_F	forward voltage	$I_F = 10\text{ mA}$; see Figs 3 and 4	1	V
I_R	reverse current	see Fig.5 $V_R = 5\text{ V}$ $V_R = 5\text{ V}; T_j = 80\text{ }^\circ\text{C}$ $V_R = 20\text{ V}$	5 250 10	pA pA pA
C_d	diode capacitance	$f = 1\text{ MHz}; V_R = 0$; see Fig.6	1.3	pF
t_{rr}	reverse recovery time	when switched from $I_F = 10\text{ mA}$ to $I_R = 10\text{ mA}$; $R_L = 100\ \Omega$; measured at $I_R = 1\text{ mA}$; see Fig.7	600	ns

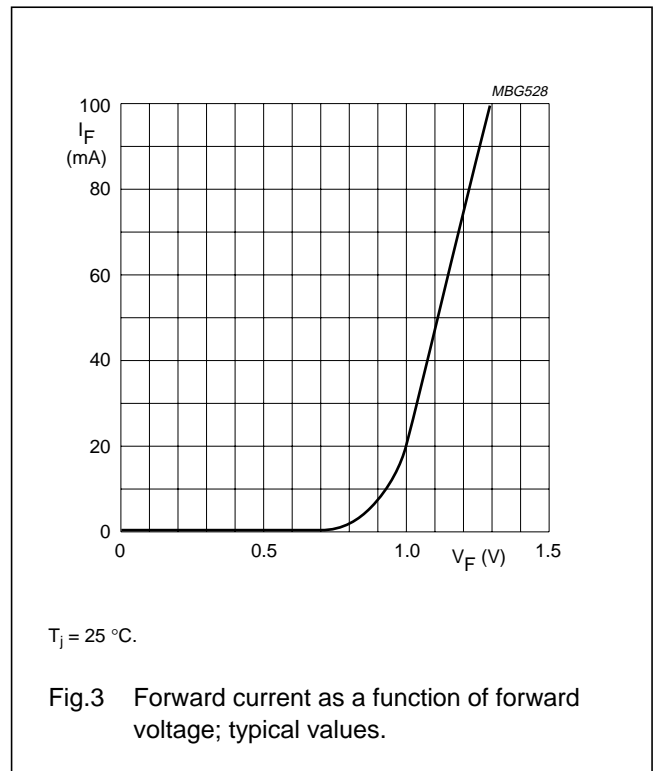
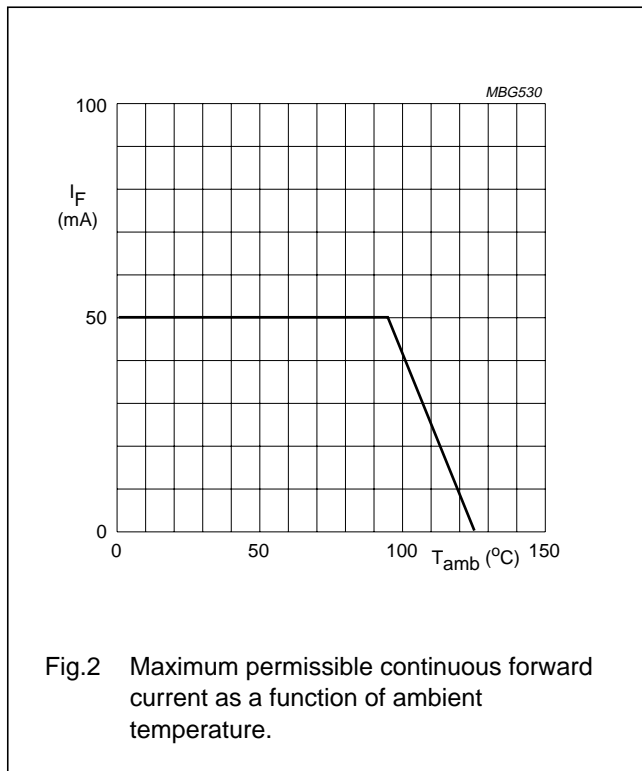
THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient; note 1	500	K/W

Note

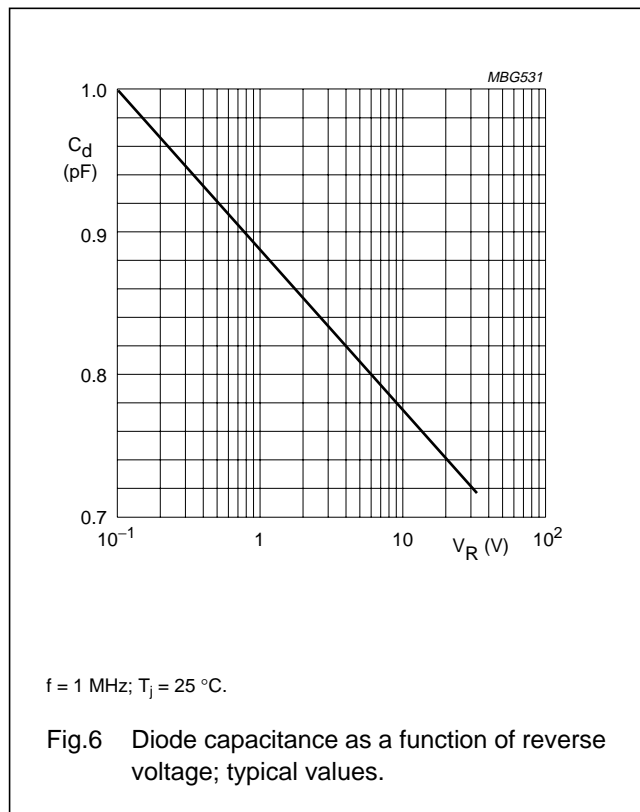
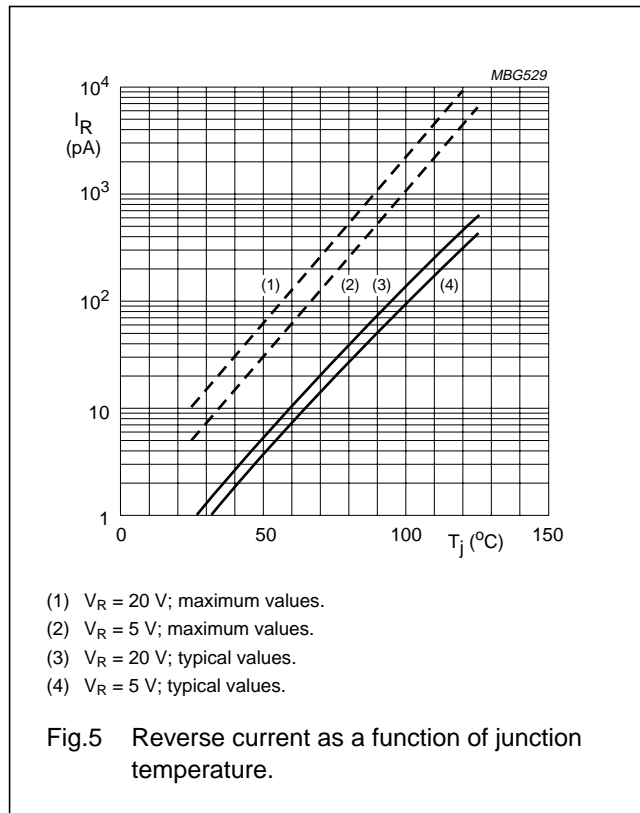
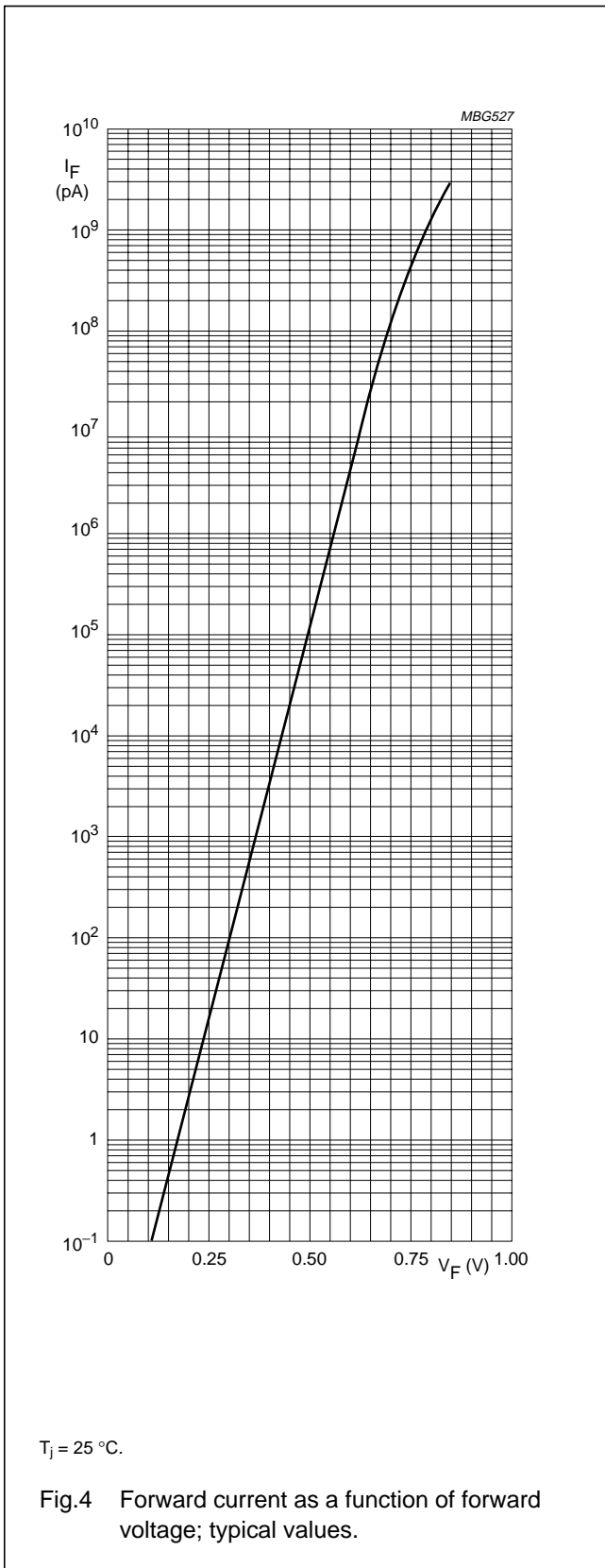
1. Device mounted on a FR4 printed-circuit board.

GRAPHICAL DATA



Picoampere diode

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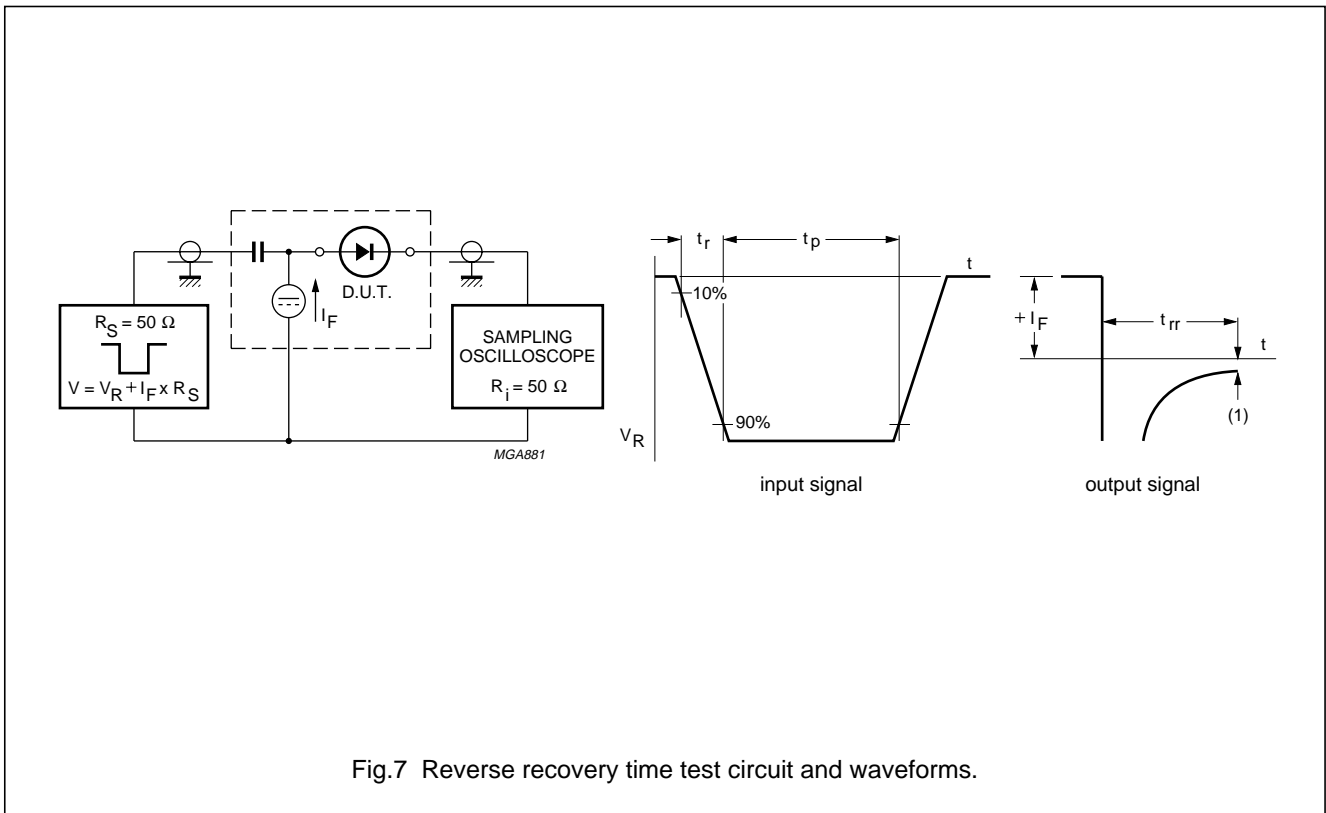
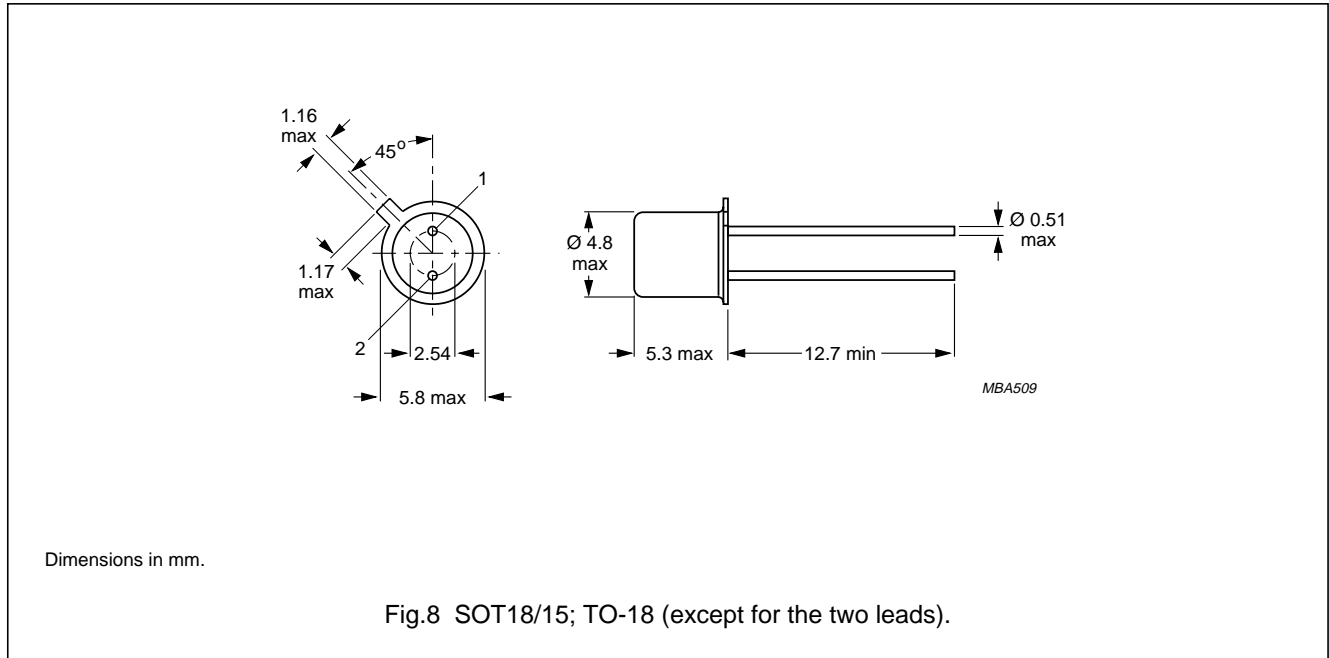


Fig.7 Reverse recovery time test circuit and waveforms.

Picoampere diode

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PACKAGE OUTLINE



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

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips for any damages resulting from such improper use or sale.