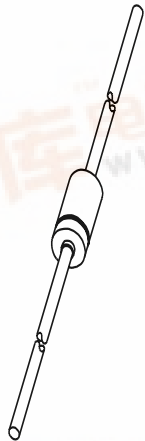


**DISCRETE SEMICONDUCTORS**

# DATA SHEET



## **BAS45A** Low-leakage diode

Product specification  
Supersedes data of June 1994

1996 Mar 13

## Low-leakage diode

## BAS45A

## FEATURES

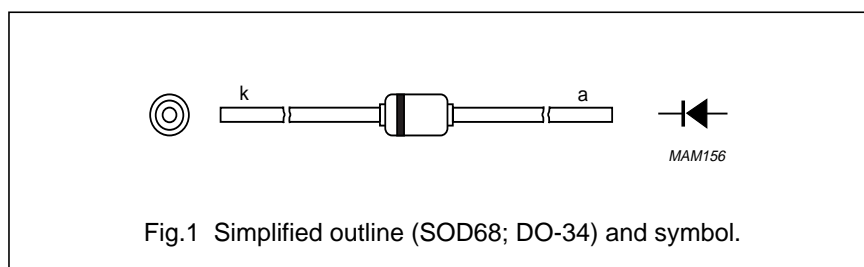
- Continuous reverse voltage: max. 125 V
- Repetitive peak forward current: max. 625 mA
- Low reverse current: max. 1 nA
- Switching time: typ. 1.5  $\mu$ s.

## APPLICATION

- Low leakage current applications.

## DESCRIPTION

Epitaxial medium-speed switching diode with a low leakage current in a hermetically-sealed glass SOD68 (DO-34) package.



## LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{RRM}$	repetitive peak reverse voltage		–	125	V
$V_R$	continuous reverse voltage		–	125	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; $T_j = 25\text{ }^\circ\text{C}$ prior to surge; see Fig.4 $t_p = 1\text{ }\mu\text{s}$ $t_p = 1\text{ ms}$ $t_p = 1\text{ s}$	–	4 1 0.5	A A A
$P_{tot}$	total power dissipation	$T_{amb} = 25\text{ }^\circ\text{C}$	–	300	mW
$T_{stg}$	storage temperature		–65	+175	$^\circ\text{C}$
$T_j$	junction temperature		–	175	$^\circ\text{C}$

## Note

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

## Low-leakage diode

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**ELECTRICAL CHARACTERISTICS**

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

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
$V_F$	forward voltage	see Fig.3 $I_F = 1\text{ mA}$	–	780	mV
		$I_F = 10\text{ mA}$	–	860	mV
		$I_F = 100\text{ mA}$	–	1000	mV
$I_R$	reverse current	see Fig.5 $V_R = 125\text{ V}; E_{\max} = 100\text{ lx}$	–	1	nA
		$V_R = 30\text{ V}; T_j = 125\text{ °C}; E_{\max} = 100\text{ lx}$	–	300	nA
		$V_R = 125\text{ V}; T_j = 125\text{ °C}; E_{\max} = 100\text{ lx}$	–	500	nA
		$V_R = 125\text{ V}; T_j = 150\text{ °C}; E_{\max} = 100\text{ lx}$	–	2	$\mu\text{A}$
$C_d$	diode capacitance	$f = 1\text{ MHz}; V_R = 0$ ; see Fig.6	–	4	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	1.5	–	$\mu\text{s}$

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-tp}$	thermal resistance from junction to tie-point	8 mm from the body	300	K/W
$R_{th\ j-a}$	thermal resistance from junction to ambient	lead length 10 mm; note 1	500	K/W

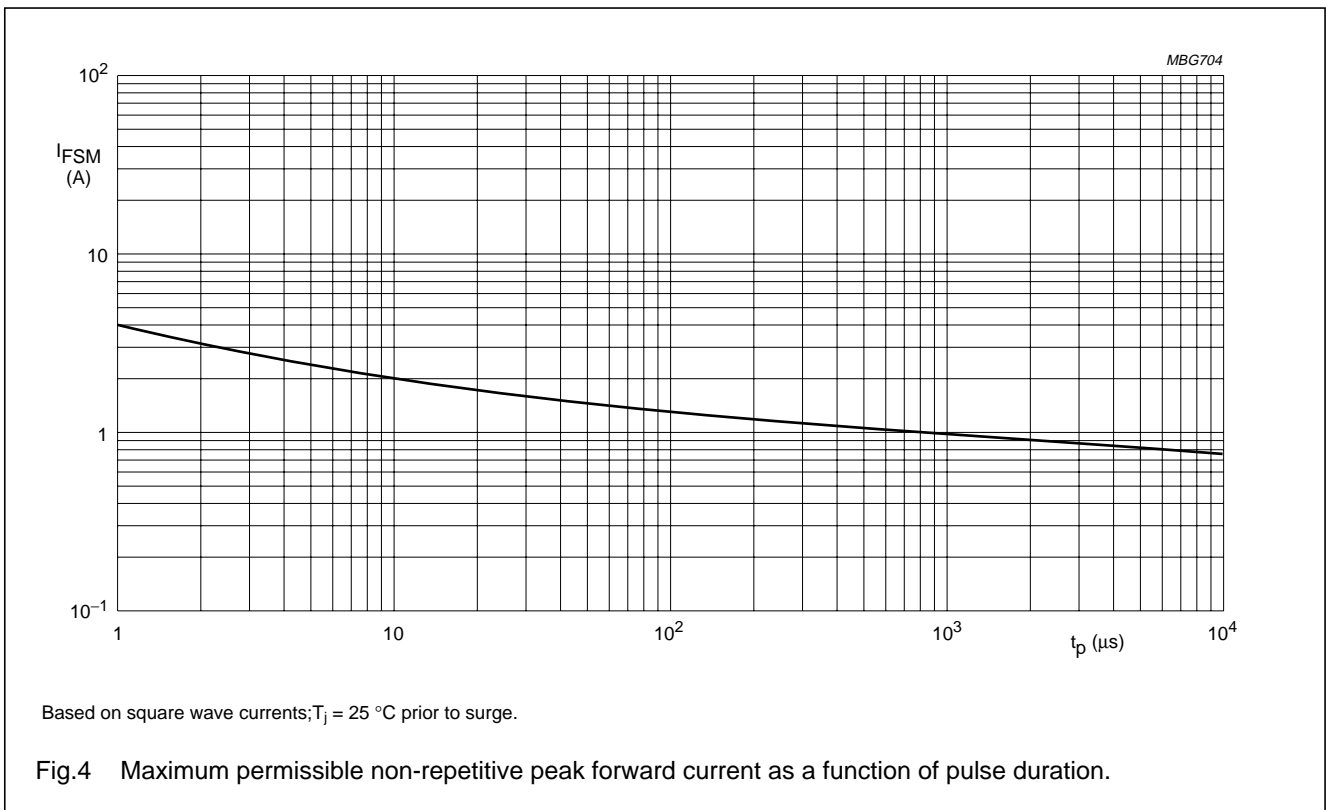
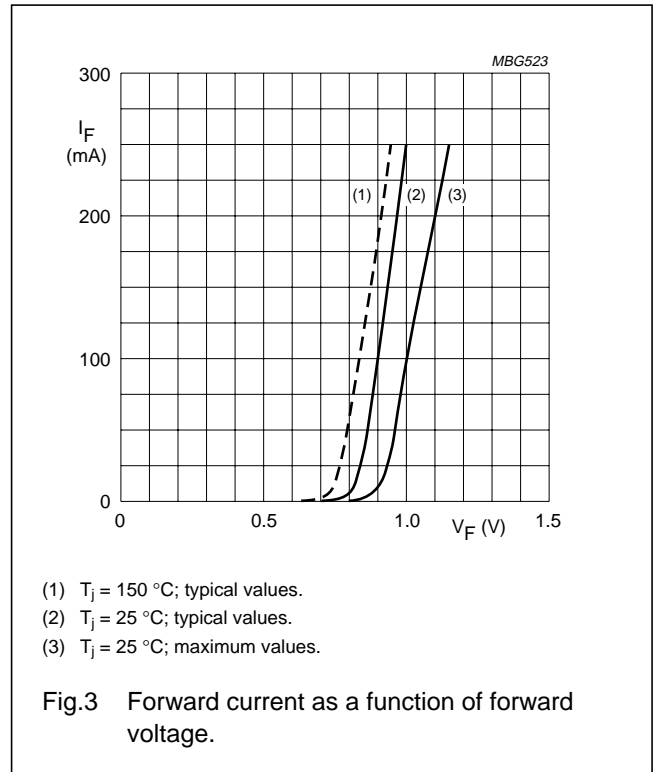
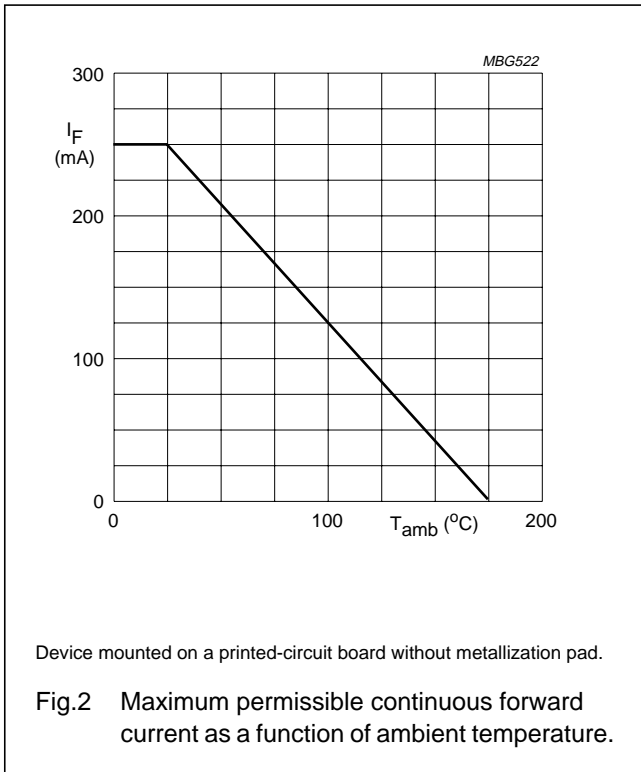
**Note**

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

Low-leakage diode

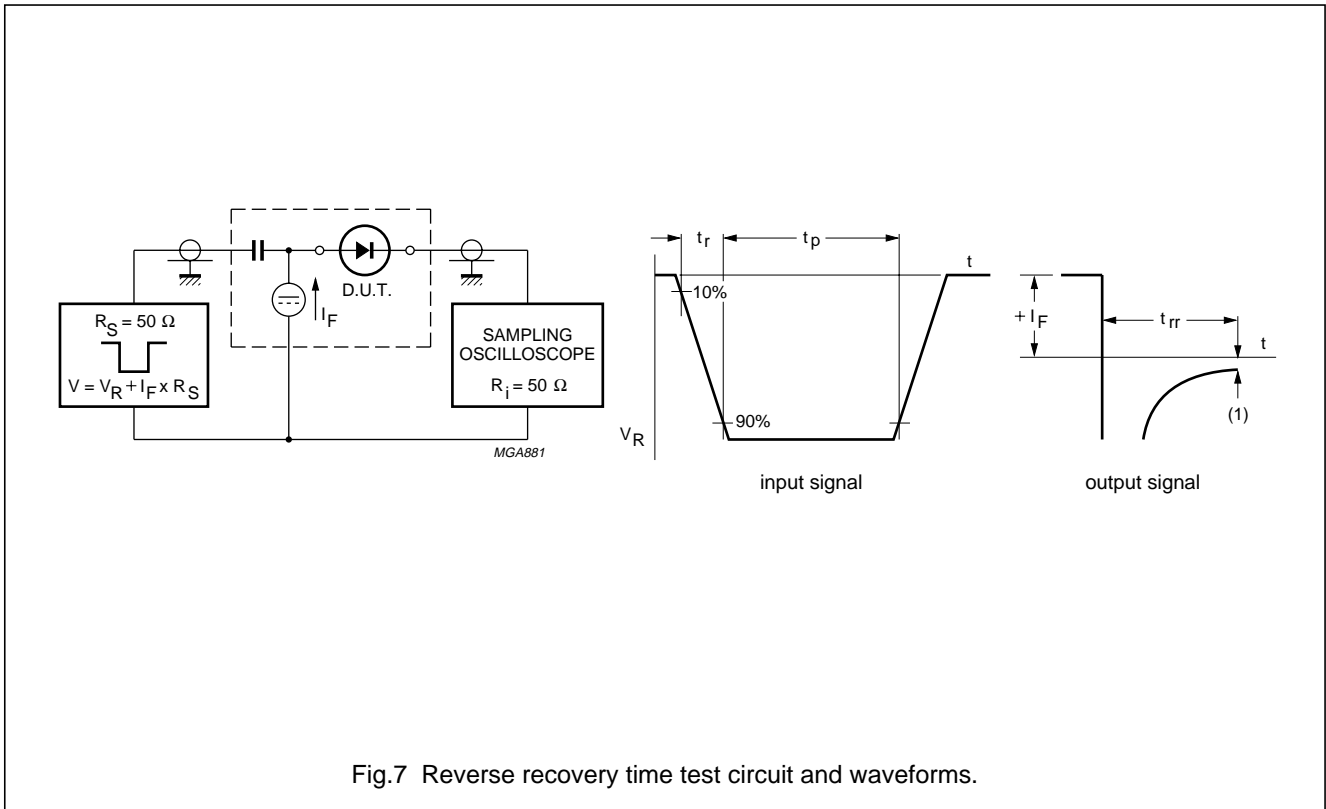
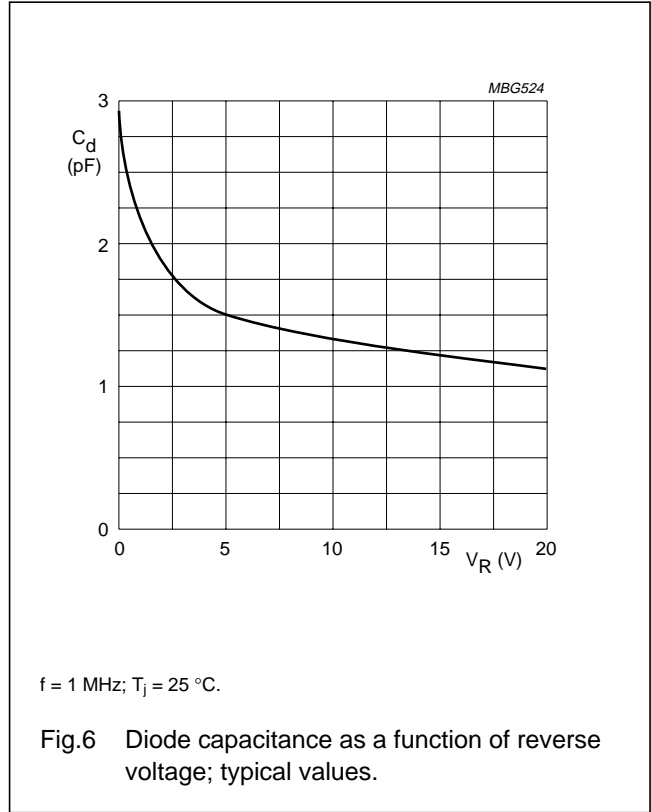
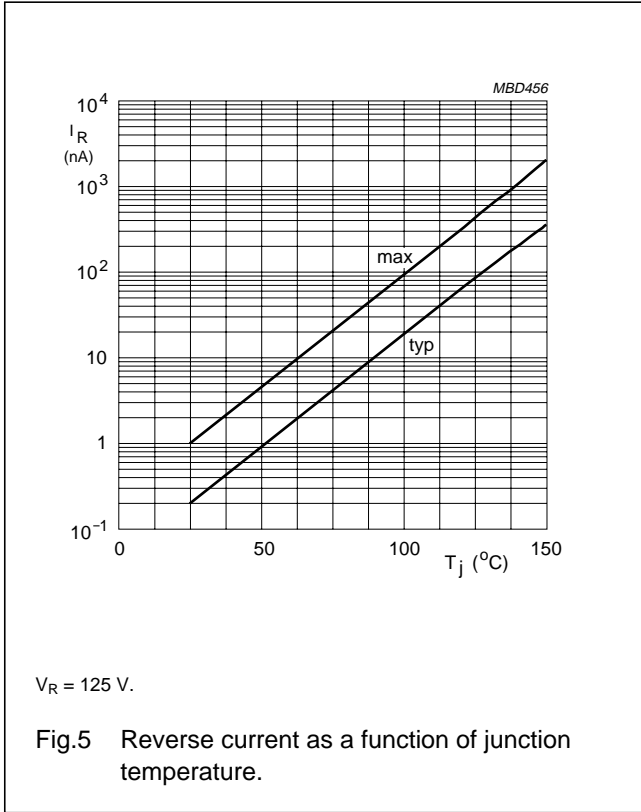
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GRAPHICAL DATA



Low-leakage diode

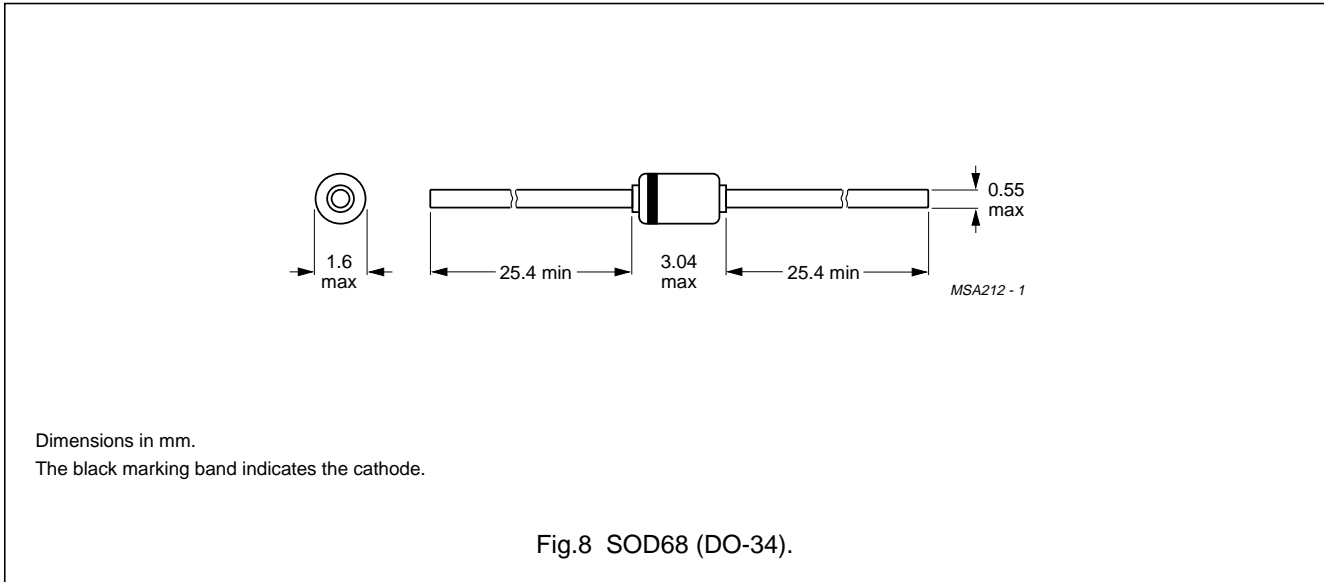
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Low-leakage diode

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PACKAGE OUTLINE



DEFINITIONS

<b>Data Sheet Status</b>	
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.
<b>Limiting values</b>	
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.	
<b>Application information</b>	
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.