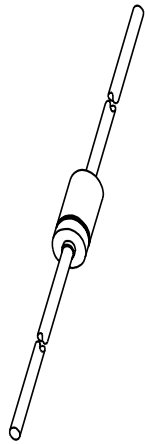


# DATA SHEET



## **BAT86** Schottky barrier diode

Product specification  
Supersedes data of April 1992

1996 Mar 20

# Schottky barrier diode

# BAT86

## FEATURES

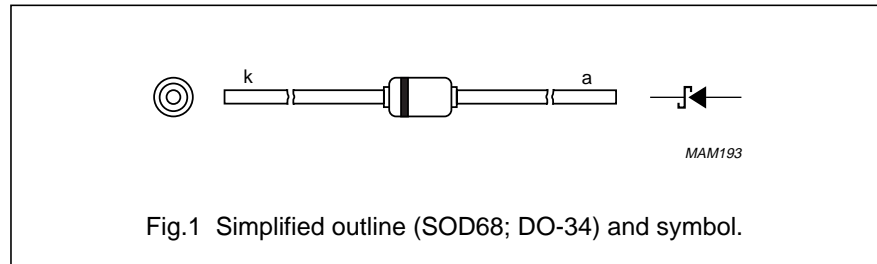
- Low forward voltage
- Guard ring protected
- Hermetically-sealed leaded glass package.

## APPLICATIONS

- Ultra high-speed switching
- Voltage clamping
- Protection circuits
- Blocking diodes.

## DESCRIPTION

Planar Schottky barrier diode with an integrated protection ring against static discharges, encapsulated in a hermetically-sealed subminiature SOD68 (DO-34) package. The diode is suitable for mounting on a 2 E (5.08 mm) pitch.



## LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_R$	continuous reverse voltage		–	50	V
$I_F$	continuous forward current		–	200	mA
$I_{F(AV)}$	average forward current	PCB mounting, lead length = 4 mm; $V_{RWM} = 25\text{ V}$ ; $a = 1.57$ ; $\delta = 0.5$ ; $T_{amb} = 50\text{ °C}$ ; see Fig.2	–	200	mA
$I_{FRM}$	repetitive peak forward current	$t_p \leq 1\text{ s}$ ; $\delta \leq 0.5$	–	500	mA
$I_{FSM}$	non-repetitive peak forward current	$t_p \leq 10\text{ ms}$	–	5	A
$T_{stg}$	storage temperature		–65	+150	°C
$T_j$	junction temperature		–	125	°C
$T_{amb}$	operating ambient temperature		–65	+125	°C

## Schottky barrier diode

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**ELECTRICAL CHARACTERISTICS**

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

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
$V_F$	forward voltage	see Fig.3 $I_F = 0.1\text{ mA}$ $I_F = 1\text{ mA}$ $I_F = 10\text{ mA}$ $I_F = 30\text{ mA}$ $I_F = 100\text{ mA}$	300 380 450 600 900	mV mV mV mV mV
$I_R$	reverse current	$V_R = 40\text{V}$ ; see Fig.4; note 1	5	$\mu\text{A}$
$t_{rr}$	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.6	4	ns
$C_d$	diode capacitance	$f = 1\text{ MHz}$ ; $V_R = 1\text{ V}$ ; see Fig.5	8	pF

**Note**

1. Pulsed test:  $t_p = 300\ \mu\text{s}$ ;  $\delta = 0.02$ .

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	320	K/W

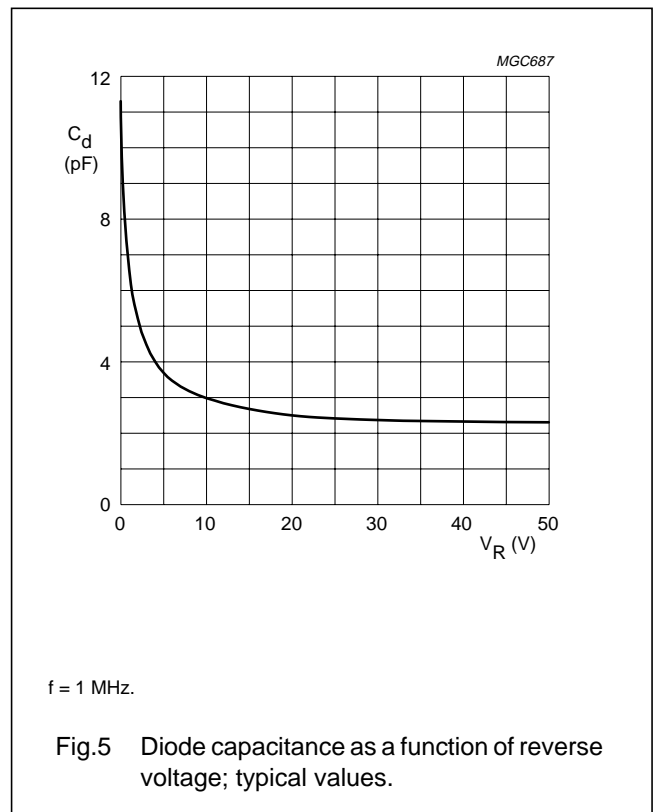
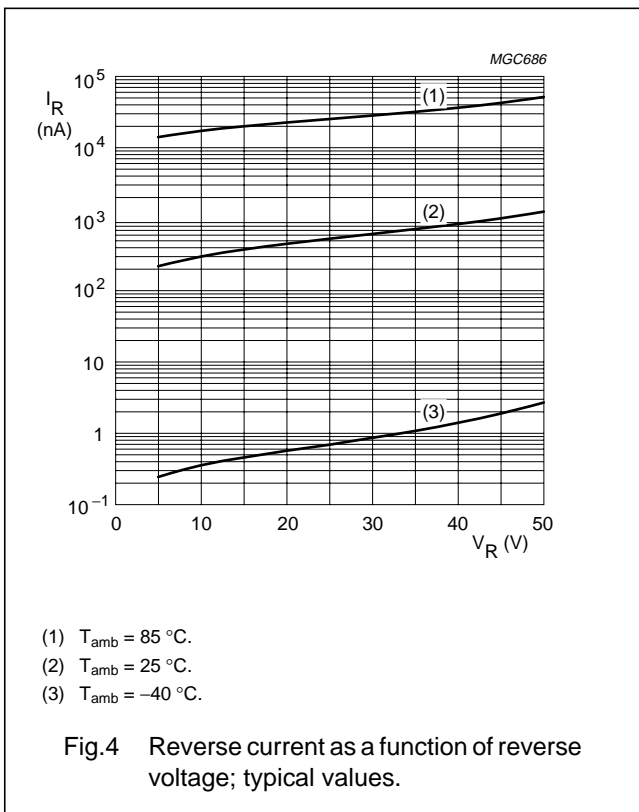
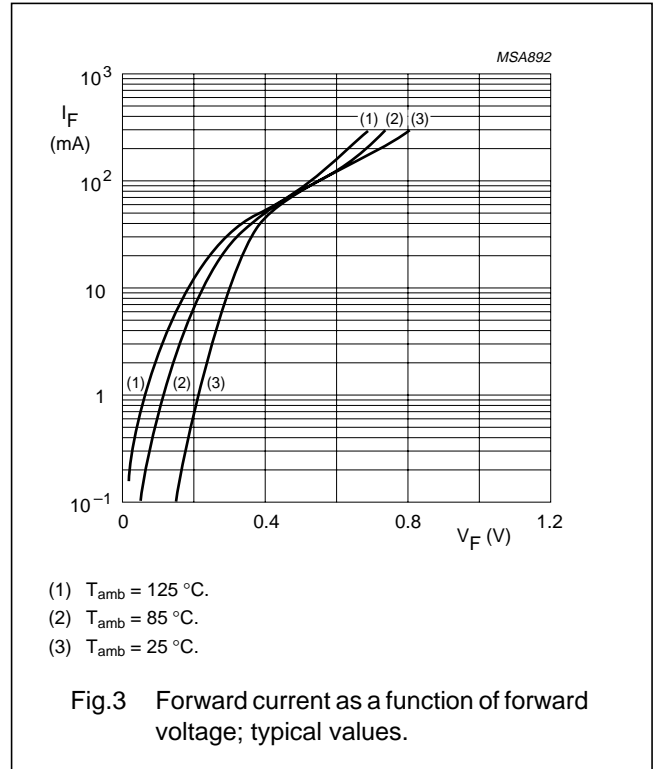
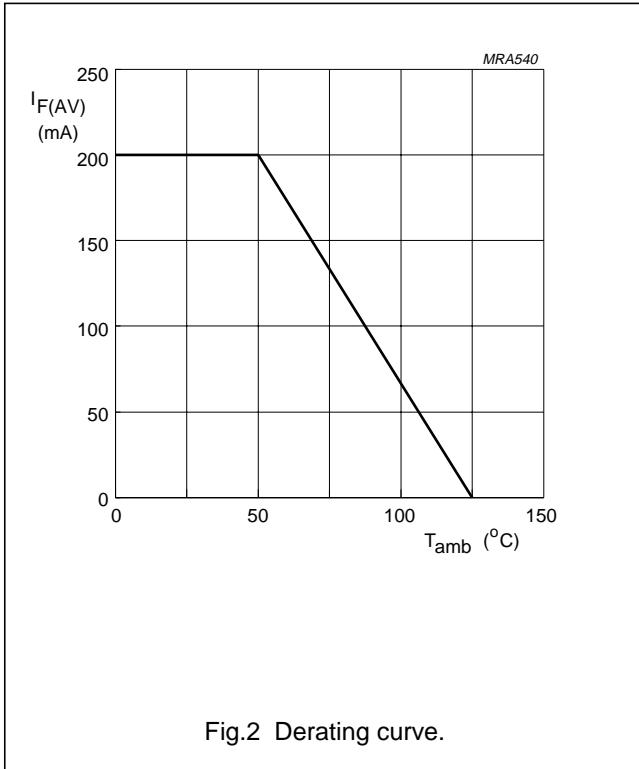
**Note**

1. Refer to SOD68 standard mounting conditions.

Schottky barrier diode

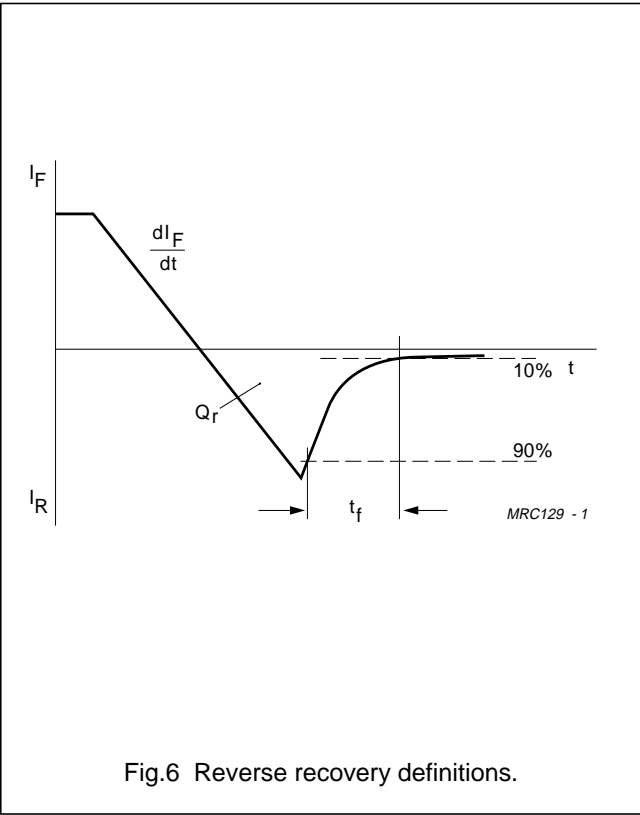
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GRAPHICAL DATA



Schottky barrier diode

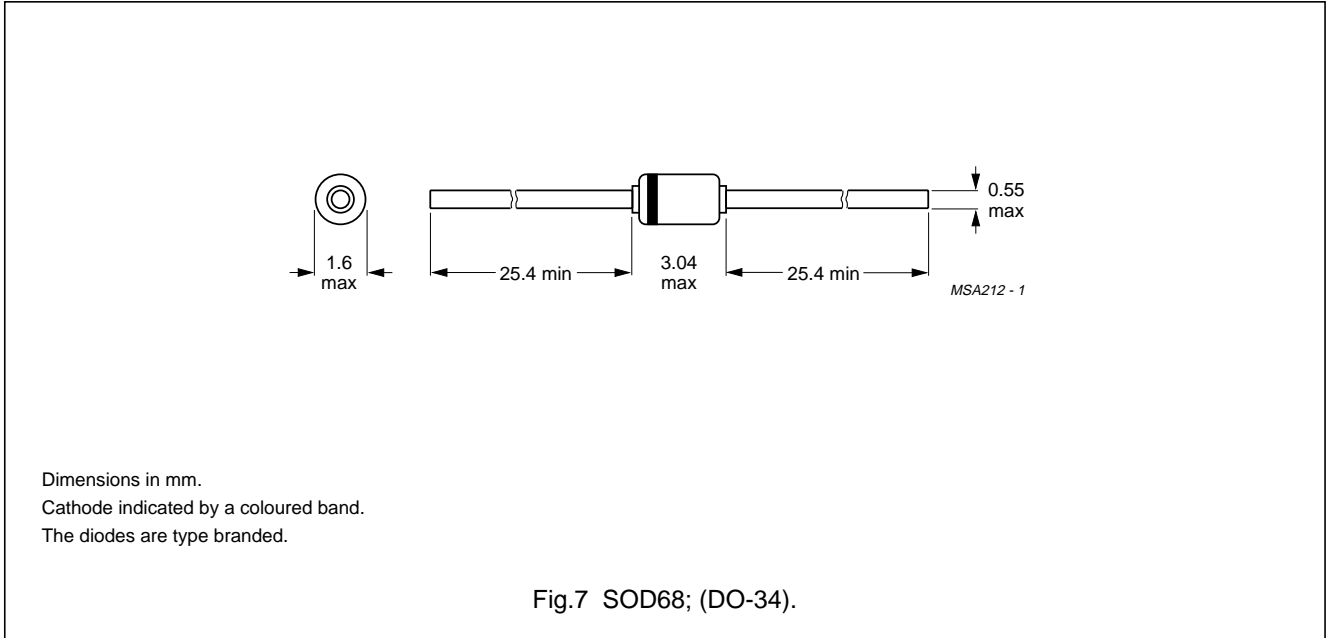
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Schottky barrier diode

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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.