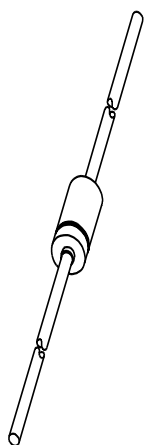


# DATA SHEET



## **BAT85** Schottky barrier diode

Product specification  
Supersedes data of February 1992

1996 Mar 20

Schottky barrier diode

BAT85

FEATURES

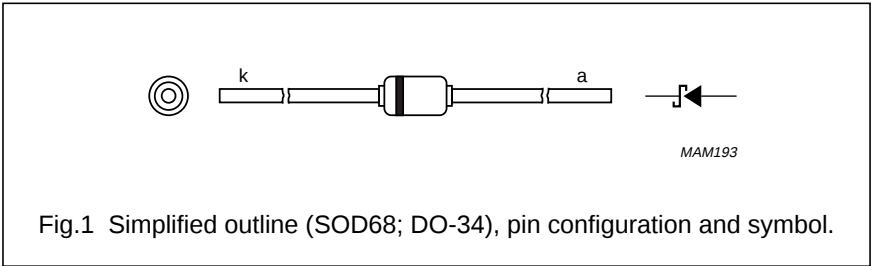
- Low forward voltage
- Guard ring protected
- Hermetically-sealed leaded glass package.

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          |                                                                                                                                                  | —    | 30   | V                |
| $I_F$       | continuous forward current          |                                                                                                                                                  | —    | 200  | mA               |
| $I_{F(AV)}$ | average forward current             | PCB mounting, lead length = 4 mm;<br>$V_{RWM} = 25\text{ V}$ ; $a = 1.57$ ; $\delta = 0.5$ ;<br>$T_{amb} = 50\text{ }^\circ\text{C}$ ; see Fig.2 | —    | 200  | mA               |
| $I_{FRM}$   | repetitive peak forward current     | $t_p \leq 1\text{ s}$ ; $\delta 0.5$                                                                                                             | —    | 300  | mA               |
| $I_{FSM}$   | non-repetitive peak forward current | $t_p \leq 10\text{ ms}$                                                                                                                          | —    | 5    | A                |
| $T_{stg}$   | storage temperature                 |                                                                                                                                                  | −65  | +150 | $^\circ\text{C}$ |
| $T_j$       | junction temperature                |                                                                                                                                                  | —    | 125  | $^\circ\text{C}$ |
| $T_{amb}$   | operating ambient temperature       |                                                                                                                                                  | −65  | +125 | $^\circ\text{C}$ |

## Schottky barrier diode

## BAT85

**ELECTRICAL CHARACTERISTICS**

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

| SYMBOL   | PARAMETER             | CONDITIONS                                                                                                                                | MAX. | UNIT          |
|----------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------|------|---------------|
| $V_F$    | forward voltage       | see Fig.3                                                                                                                                 |      |               |
|          |                       | $I_F = 0.1\text{ mA}$                                                                                                                     | 240  | mV            |
|          |                       | $I_F = 1\text{ mA}$                                                                                                                       | 320  | mV            |
|          |                       | $I_F = 10\text{ mA}$                                                                                                                      | 400  | mV            |
|          |                       | $I_F = 30\text{ mA}$                                                                                                                      | 500  | mV            |
|          |                       | $I_F = 100\text{ mA}$                                                                                                                     | 800  | mV            |
| $I_R$    | reverse current       | $V_R = 25\text{ V}$ ; see Fig.4                                                                                                           | 2    | $\mu\text{A}$ |
| $t_{rr}$ | reverse recovery time | when switched from $I_F = 10\text{ mA}$ to $I_R = 10\text{ mA}$ ; $R_L = 100\text{ }\Omega$ ; 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                                                                                       | 10   | pF            |

**THERMAL CHARACTERISTICS**

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

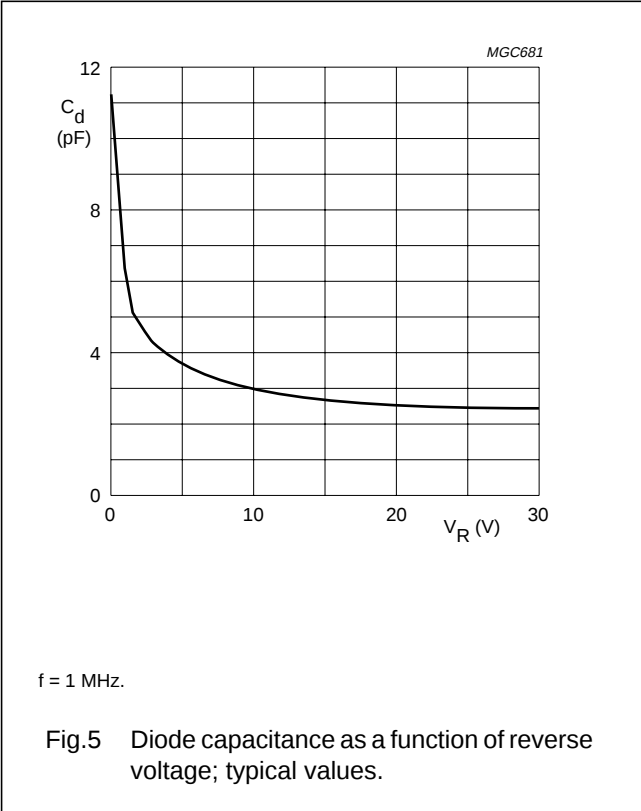
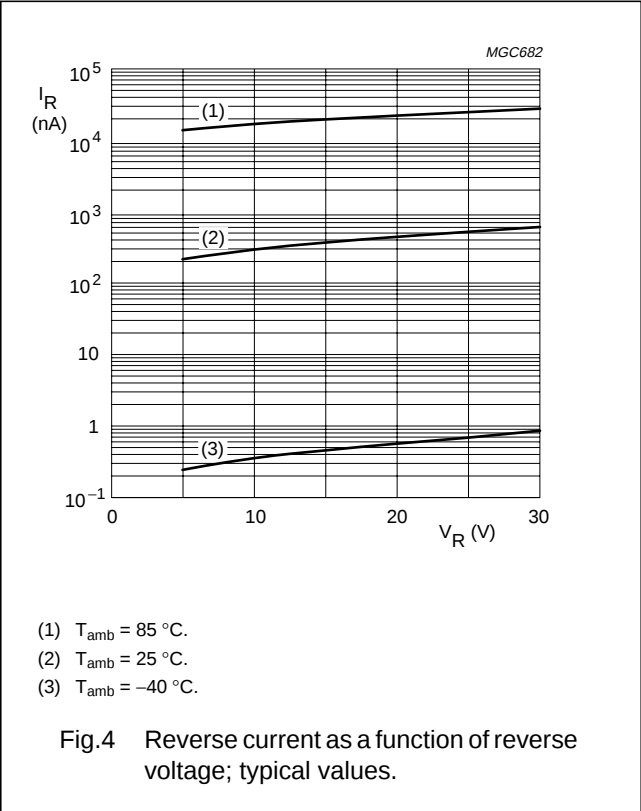
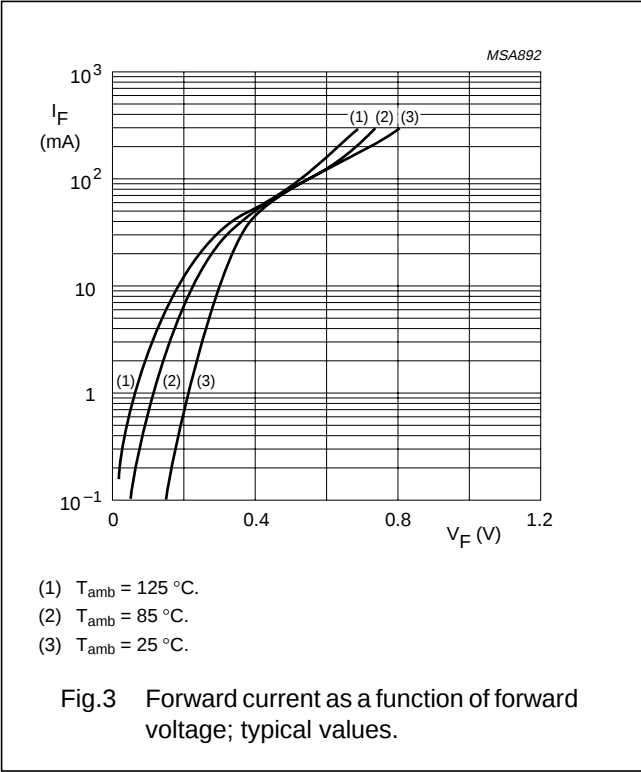
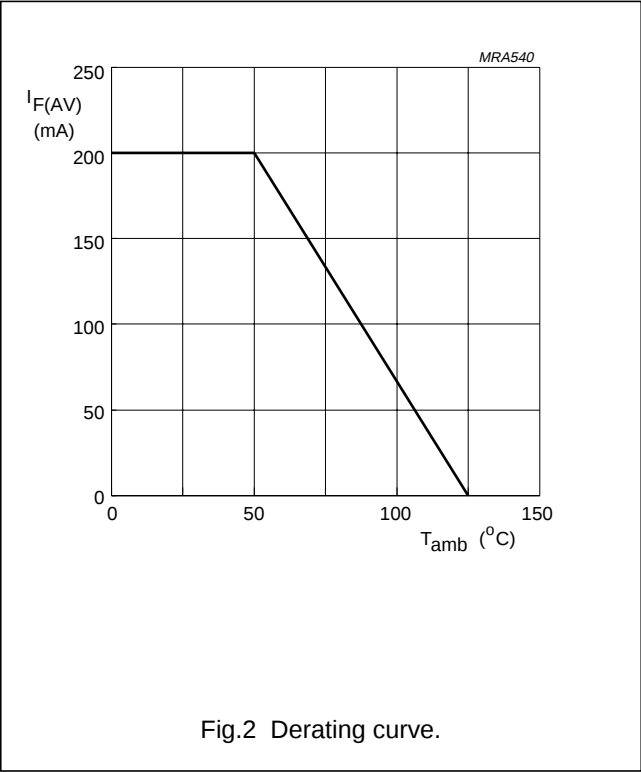
**Note**

1. Refer to SOD68 standard mounting conditions.

Schottky barrier diode

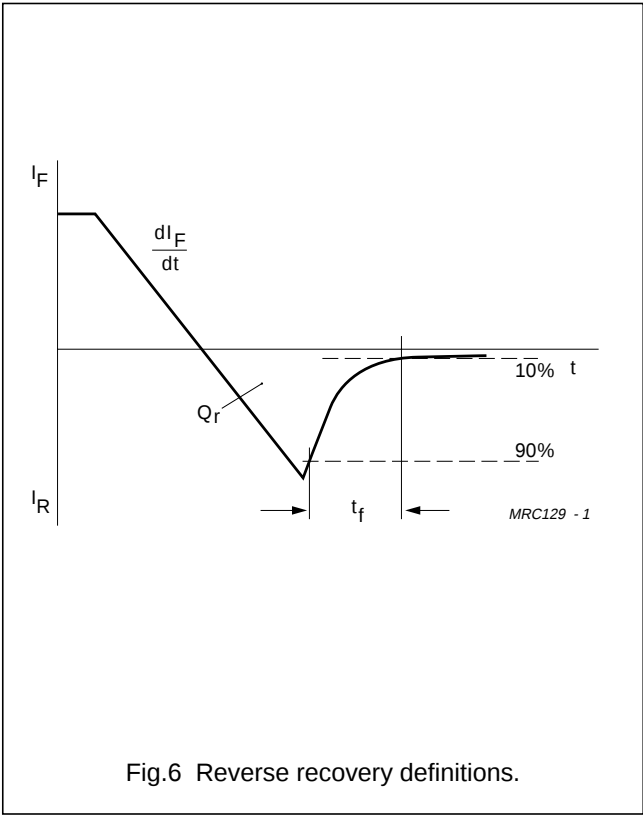
BAT85

GRAPHICAL DATA



Schottky barrier diode

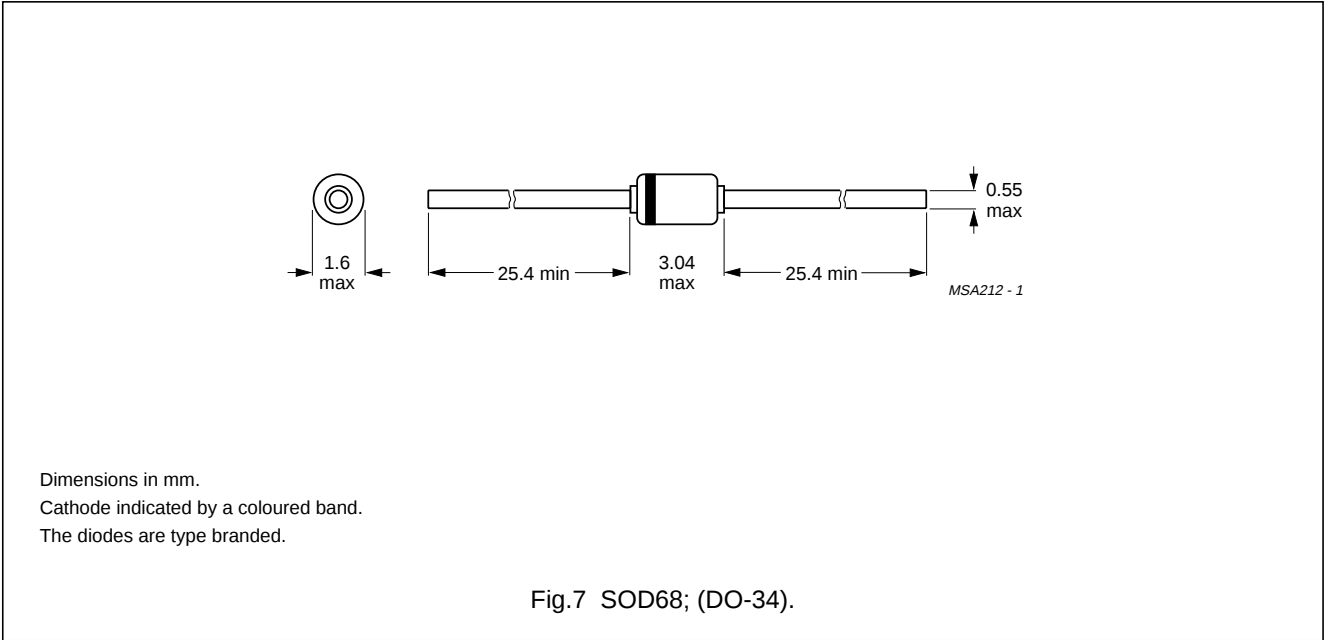
BAT85



Schottky barrier diode

BAT85

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.