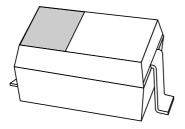
# **DISCRETE SEMICONDUCTORS**

# DATA SHEET



# **1PS76SB10**Schottky barrier diode

**Product specification** 

1996 Oct 14





Philips Semiconductors Product specification

# Schottky barrier diode

1PS76SB10

#### **FEATURES**

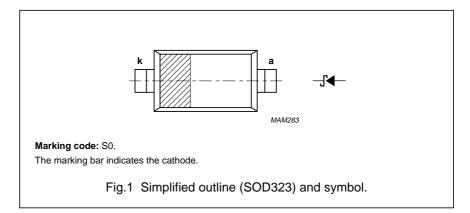
- · Low forward voltage
- · Guard ring protected
- Very small plastic SMD package.

#### **APPLICATIONS**

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

#### **DESCRIPTION**

Planar Schottky barrier diode encapsulated in a SOD323 very small plastic SMD package.



#### **LIMITING VALUES**

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

| SYMBOL           | PARAMETER                           | CONDITIONS                              | MIN. | MAX. | UNIT |
|------------------|-------------------------------------|---|------|------|------|
| V <sub>R</sub>   | continuous reverse voltage          |   | _    | 30   | V    |
| I <sub>F</sub>   | continuous forward current          |   | _    | 200  | mA   |
| I <sub>FRM</sub> | repetitive peak forward current     | $t_p \le 1 \text{ s}; \ \delta \le 0.5$ | _    | 300  | mA   |
| I <sub>FSM</sub> | non-repetitive peak forward current | t <sub>p</sub> < 10 ms                  | _    | 600  | mA   |
| T <sub>stg</sub> | storage temperature                 |   | -65  | +150 | °C   |
| Tj               | junction temperature                |   | _    | 125  | °C   |
| T <sub>amb</sub> | operating ambient temperature       |   | -65  | +125 | °C   |

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#### **ELECTRICAL CHARACTERISTICS**

 $T_{amb}$  = 25 °C unless otherwise specified.

| SYMBOL         | PARAMETER         | CONDITIONS                                 | MAX. | UNIT |
|----------------|-------------------|--|------|------|
| V <sub>F</sub> | forward voltage   | see Fig.2                                  |      |      |
|                |                   | I <sub>F</sub> = 0.1 mA                    | 240  | mV   |
|                |                   | I <sub>F</sub> = 1 mA                      | 320  | mV   |
|                |                   | I <sub>F</sub> = 10 mA                     | 400  | mV   |
|                |                   | I <sub>F</sub> = 30 mA                     | 500  | mV   |
|                |                   | I <sub>F</sub> = 100 mA                    | 800  | mV   |
| I <sub>R</sub> | reverse current   | V <sub>R</sub> = 25 V; note 1; see Fig.3   | 2    | μΑ   |
| C <sub>d</sub> | diode capacitance | f = 1 MHz; V <sub>R</sub> = 1 V; see Fig.4 | 10   | pF   |

#### Note

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

#### THERMAL CHARACTERISTICS

| SYMBOL              | PARAMETER                                   | CONDITIONS | VALUE | UNIT |
|---------------------|---|------------|-------|------|
| R <sub>th j-a</sub> | thermal resistance from junction to ambient | note 1     | 450   | K/W  |

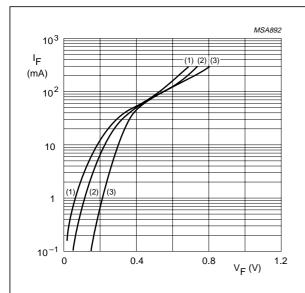
#### Note

1. Refer to SOD323 standard mounting conditions.

# Schottky barrier diode

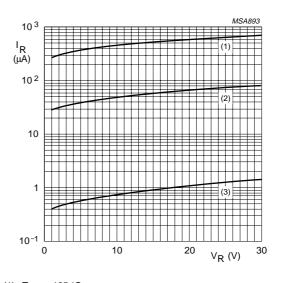
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#### **GRAPHICAL DATA**



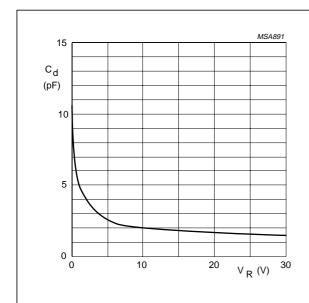
- (1)  $T_{amb} = 125 \,^{\circ}C$ .
- (2)  $T_{amb} = 85 \, ^{\circ}C$ .
- (3)  $T_{amb} = 25 \, ^{\circ}C$ .

Fig.2 Forward current as a function of forward voltage; typical values.



- (1)  $T_{amb} = 125 \, ^{\circ}C$ .
- (2)  $T_{amb} = 85 \, ^{\circ}C$ .
- (3)  $T_{amb} = 25 \, ^{\circ}C$ .

Fig.3 Reverse current as a function of reverse voltage; typical values.



 $f = 1 \text{ MHz}; T_{amb} = 25 \,^{\circ}\text{C}.$ 

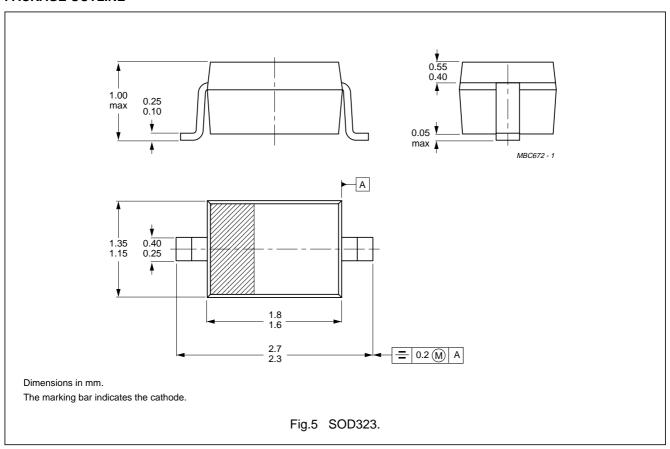
Fig.4 Diode capacitance as a function of reverse voltage; typical values.

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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

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.