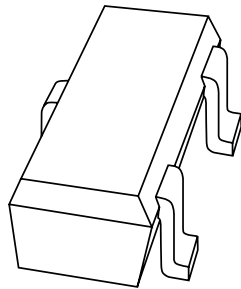


# DATA SHEET



## **1PS59SB10 series** Schottky barrier (double) diodes

Product specification

1996 Sep 20

Schottky barrier (double) diodes

1PS59SB10 series

FEATURES

- Low forward voltage
- Guard ring protected
- Small SMD package.

APPLICATIONS

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

DESCRIPTION

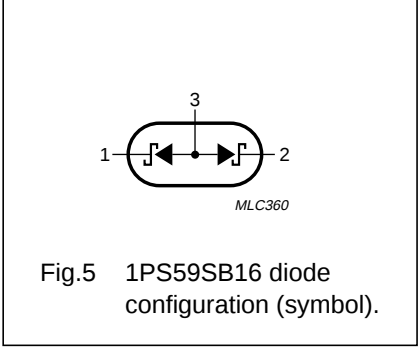
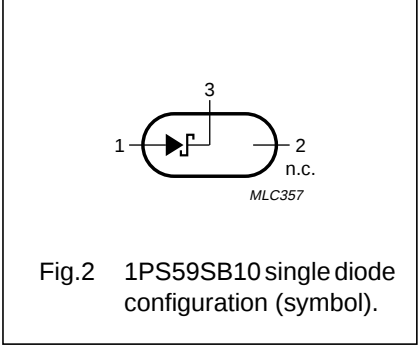
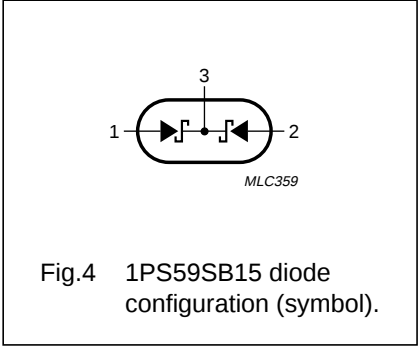
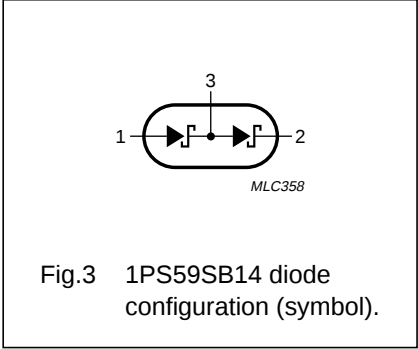
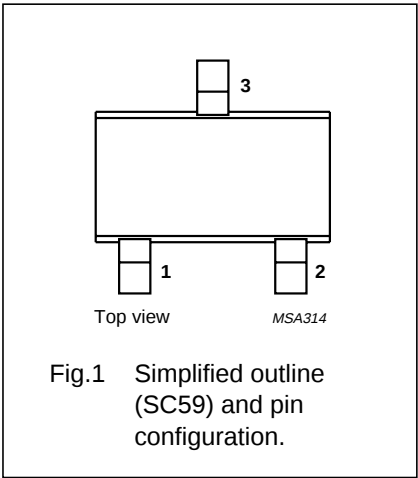
Planar Schottky barrier diodes encapsulated in a SC59 small plastic SMD package. Single diodes and double diodes with different pinning are available.

MARKING

| TYPE NUMBER | MARKING CODE |
|-------------|--------------|
| 1PS59SB10   | 10           |
| 1PS59SB14   | 14           |
| 1PS59SB15   | 15           |
| 1PS59SB16   | 16           |

PINNING

| PIN | 1PS59SB. . |                                 |                                 |                                 |
|-----|------------|---------------------------------|---------------------------------|---------------------------------|
|     | 10         | 14                              | 15                              | 16                              |
| 1   | a          | a <sub>1</sub>                  | a <sub>1</sub>                  | k <sub>1</sub>                  |
| 2   | n.c.       | k <sub>2</sub>                  | a <sub>2</sub>                  | k <sub>2</sub>                  |
| 3   | k          | k <sub>1</sub> , a <sub>2</sub> | k <sub>1</sub> , k <sub>2</sub> | a <sub>1</sub> , a <sub>2</sub> |



## Schottky barrier (double) diodes

## 1PS59SB10 series

## LIMITING VALUES

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

| SYMBOL           | PARAMETER                             | CONDITIONS                        | MIN. | MAX. | UNIT |
|------------------|---------------------------------------|-----------------------------------|------|------|------|
| <b>Per diode</b> |                                       |                                   |      |      |      |
| $V_R$            | continuous reverse voltage            |                                   | –    | 30   | V    |
| $I_F$            | continuous forward current            |                                   | –    | 200  | mA   |
| $I_{FRM}$        | repetitive peak forward current       | $t_p \leq 1$ s; $\delta \leq 0.5$ | –    | 300  | mA   |
| $I_{FSM}$        | non-repetitive peak forward current   | $t_p < 10$ ms                     | –    | 600  | mA   |
| $P_{tot}$        | total power dissipation (per package) | $T_{amb} \leq 25$ °C              | –    | 250  | mW   |
| $T_{stg}$        | storage temperature                   |                                   | –65  | +150 | °C   |
| $T_j$            | junction temperature                  |                                   | –    | 125  | °C   |

## ELECTRICAL CHARACTERISTICS

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

| SYMBOL           | PARAMETER             | CONDITIONS                                                                                            | MAX.                            | UNIT                       |
|------------------|-----------------------|-------------------------------------------------------------------------------------------------------|---------------------------------|----------------------------|
| <b>Per diode</b> |                       |                                                                                                       |                                 |                            |
| $V_F$            | forward voltage       | see Fig.6<br>$I_F = 0.1$ mA<br>$I_F = 1$ mA<br>$I_F = 10$ mA<br>$I_F = 30$ mA<br>$I_F = 100$ mA       | 240<br>320<br>400<br>500<br>800 | mV<br>mV<br>mV<br>mV<br>mV |
| $I_R$            | reverse current       | $V_R = 25$ V; see Fig.7                                                                               | 2                               | µA                         |
| $t_{rr}$         | reverse recovery time | when switched from $I_F = 10$ mA to $I_R = 10$ mA; $R_L = 100$ Ω; measured at $I_R = 1$ mA; see Fig.9 | 5                               | ns                         |
| $C_d$            | diode capacitance     | $f = 1$ MHz; $V_R = 1$ V; see Fig.8                                                                   | 10                              | pF                         |

## THERMAL CHARACTERISTICS

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

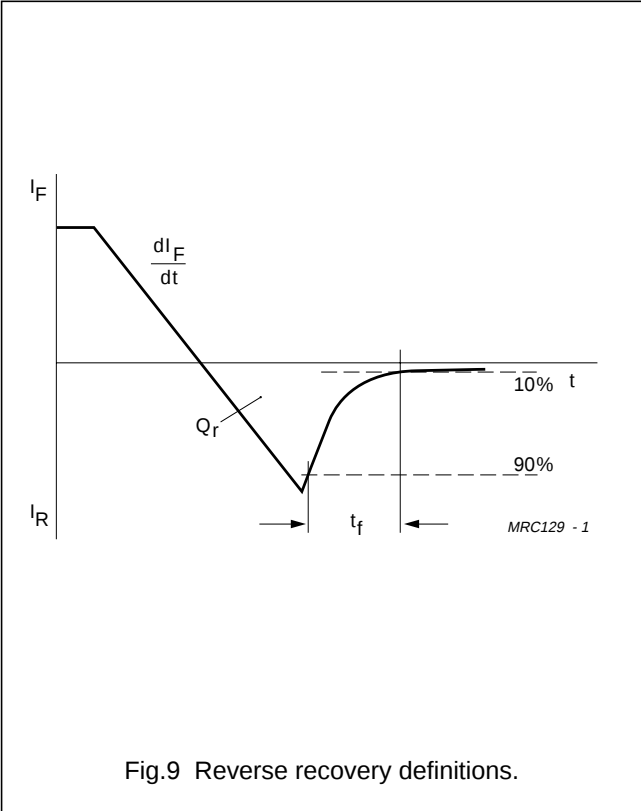
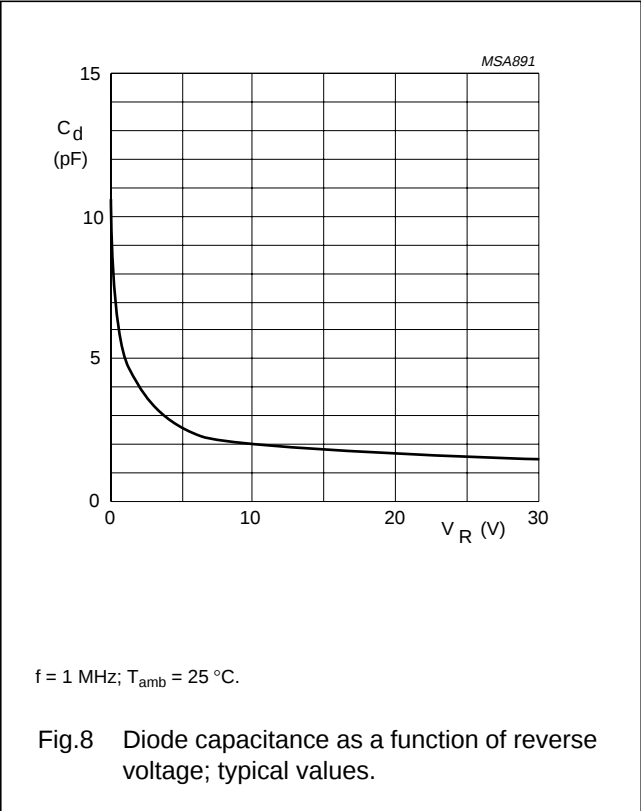
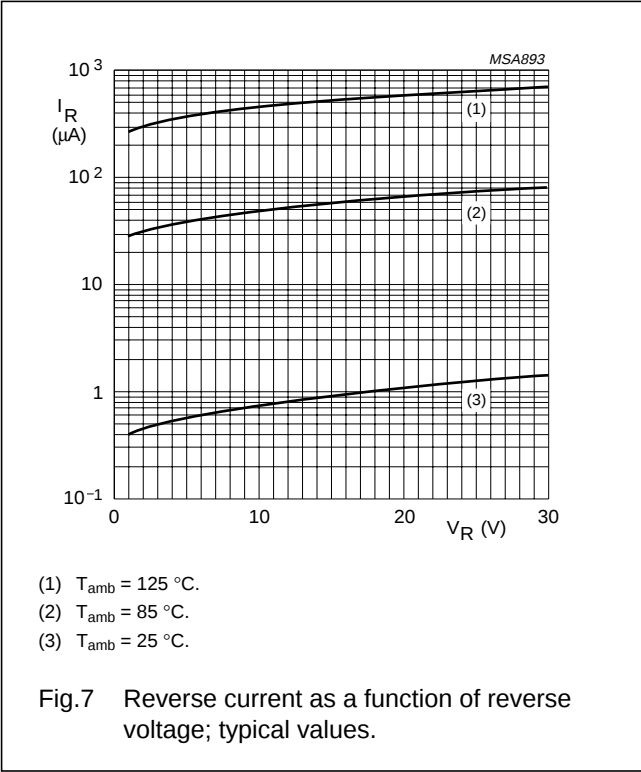
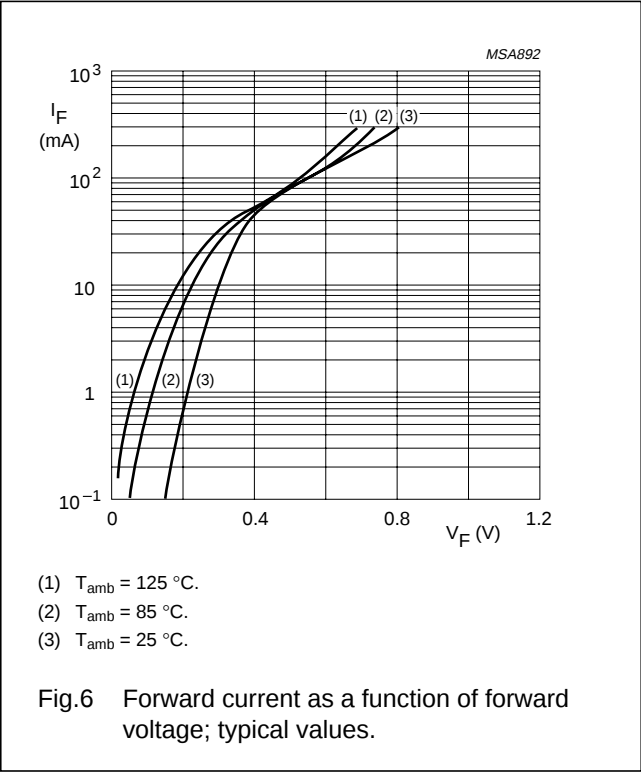
## Note

1. Refer to SC59 standard mounting conditions.

Schottky barrier (double) diodes

1PS59SB10 series

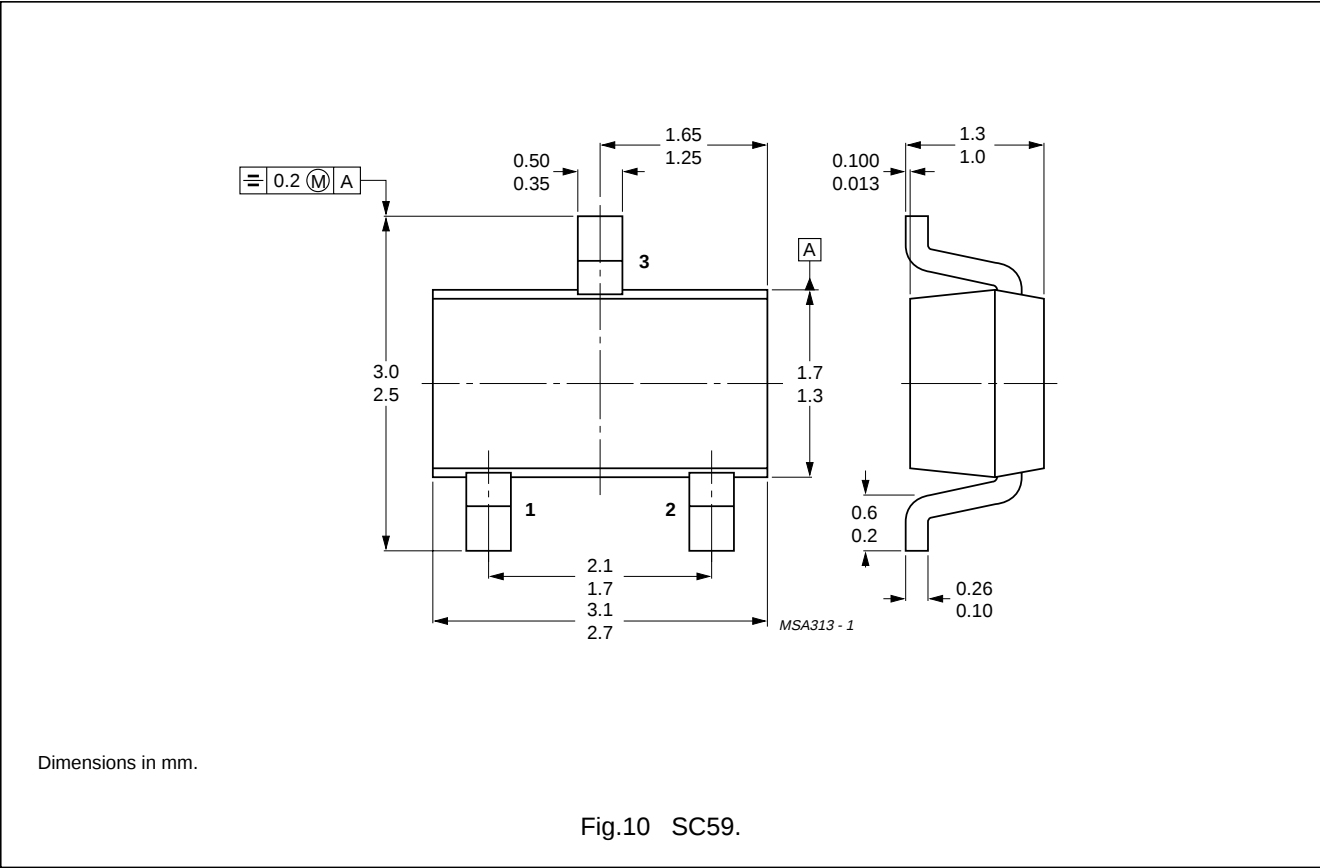
GRAPHICAL DATA



Schottky barrier (double) diodes

1PS59SB10 series

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.