



# THE DATASHEET OF 1PS59SB15



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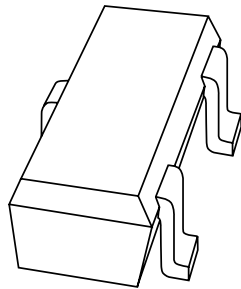
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If you have any questions related to the data sheet, please contact our nearest sales office via e-mail or telephone (details via [salesaddresses@nexperia.com](mailto:salesaddresses@nexperia.com)). Thank you for your cooperation and understanding,

Kind regards,

Team Nexperia

# 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> |

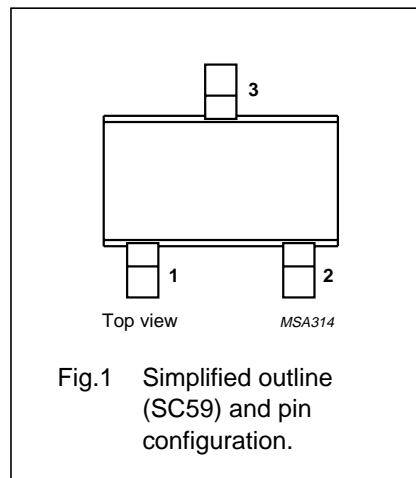


Fig.1 Simplified outline (SC59) and pin configuration.

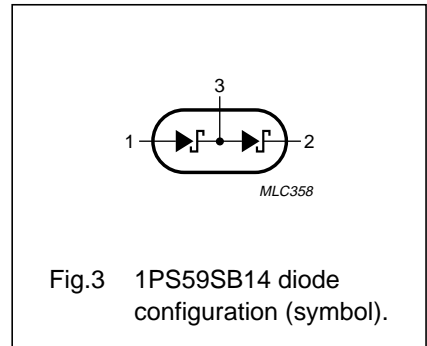


Fig.3 1PS59SB14 diode configuration (symbol).

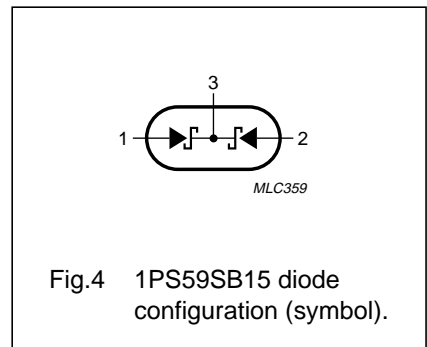


Fig.4 1PS59SB15 diode configuration (symbol).

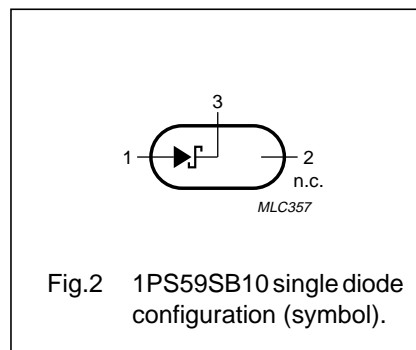


Fig.2 1PS59SB10 single diode configuration (symbol).

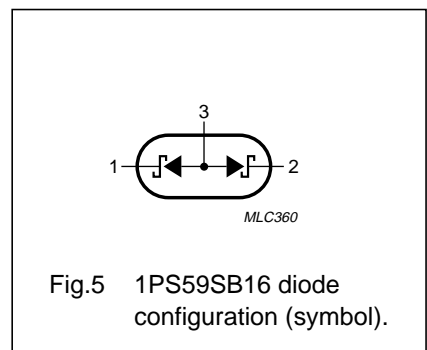


Fig.5 1PS59SB16 diode configuration (symbol).

## 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                               | $\mu$ A                    |
| $t_{rr}$         | reverse recovery time | when switched from $I_F = 10$ mA to $I_R = 10$ mA; $R_L = 100$ $\Omega$ ; 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  |

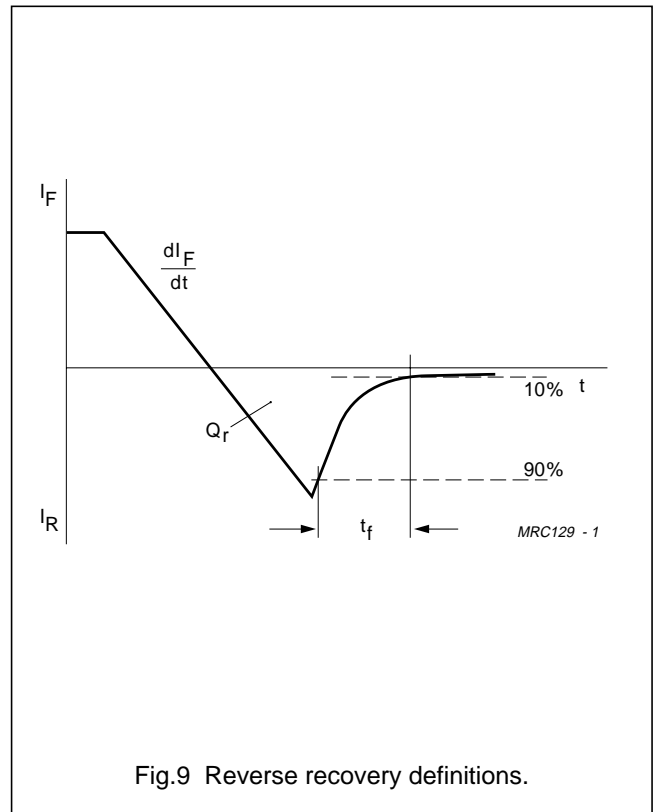
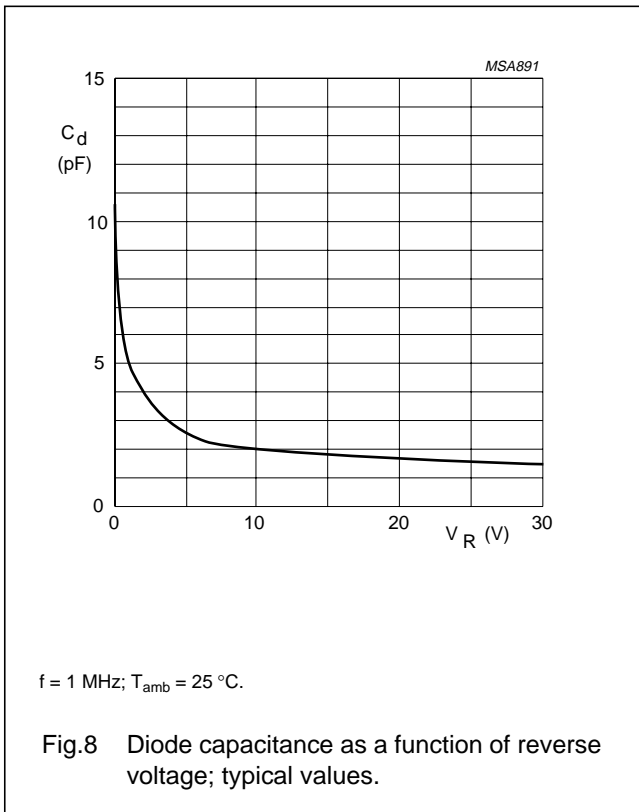
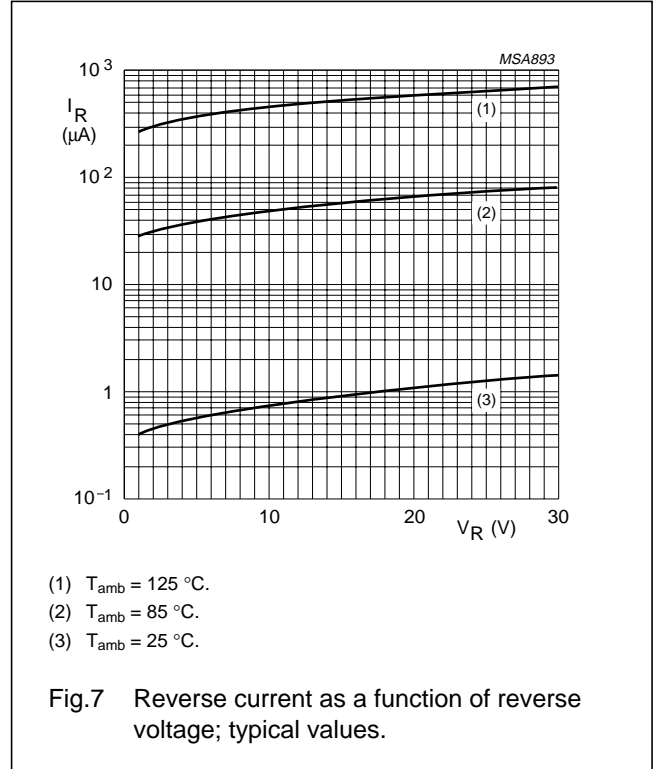
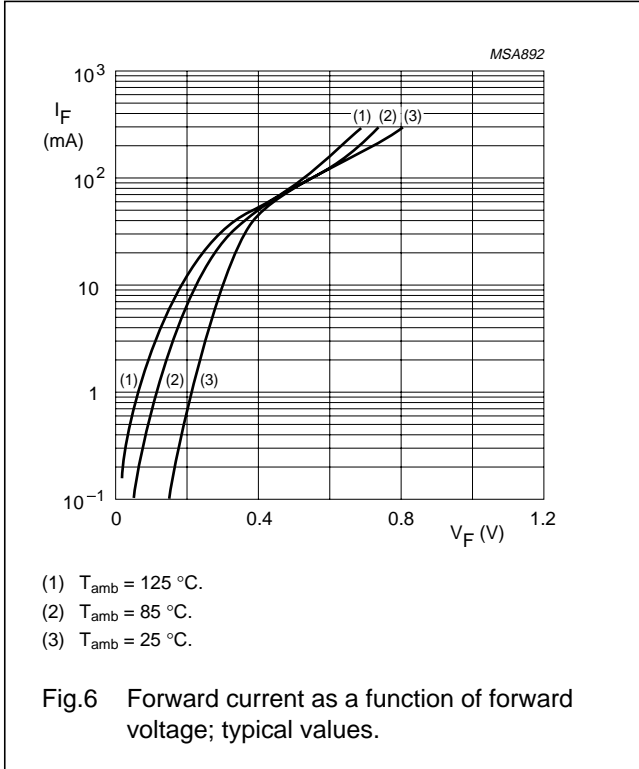
**Note**

1. Refer to SC59 standard mounting conditions.

Schottky barrier (double) diodes

1PS59SB10 series

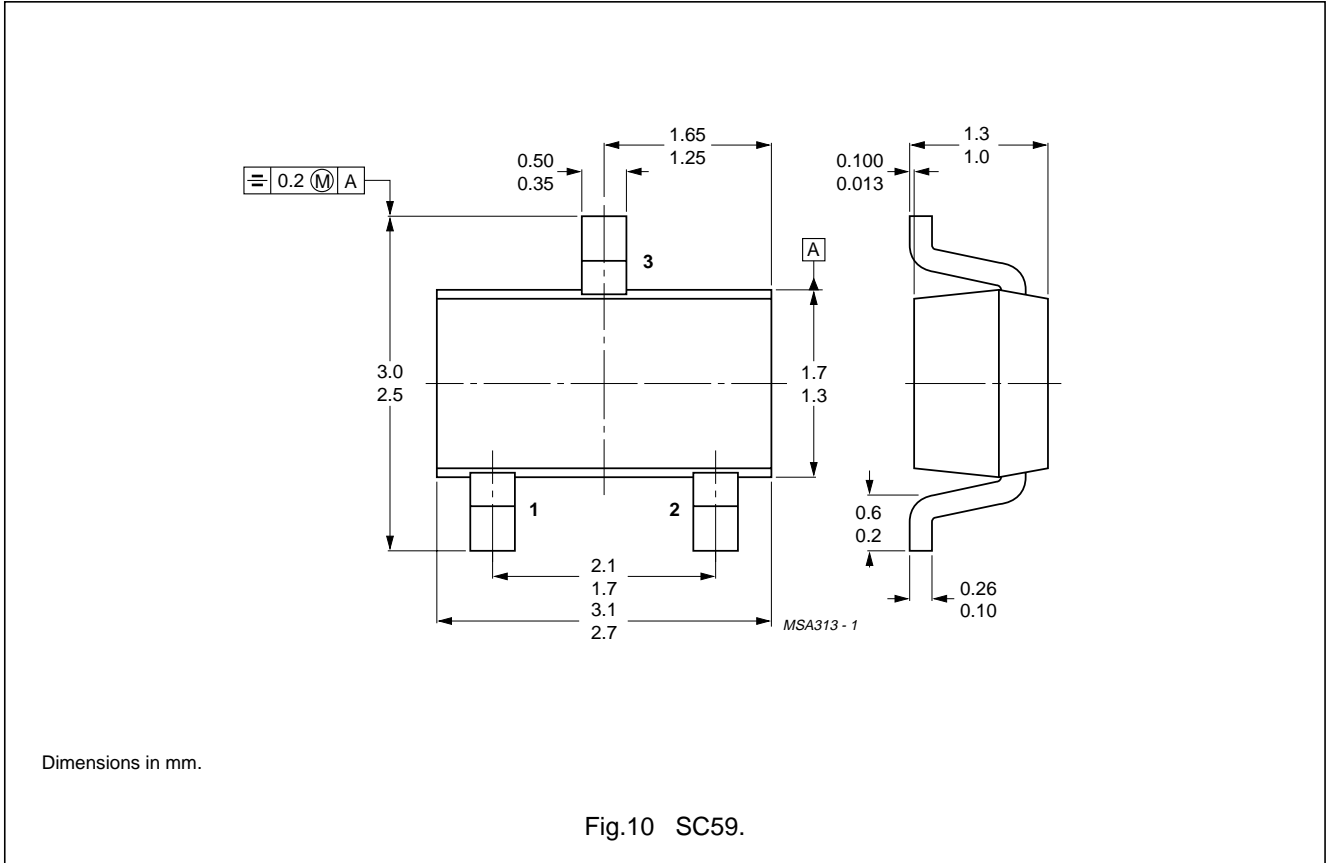
GRAPHICAL DATA



Schottky barrier (double) diodes

1PS59SB10 series

PACKAGE OUTLINE



DEFINITIONS



|   |   |
|---|---|
| <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.   |   |

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