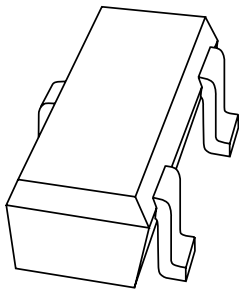


# DATA SHEET



## **1PS59SB20** Schottky barrier diode

Product specification

1998 Jul 28

# Schottky barrier diode

# 1PS59SB20

### FEATURES

- Ultra fast switching speed
- Low forward voltage
- Guard ring protected
- Small SMD package.

### APPLICATIONS

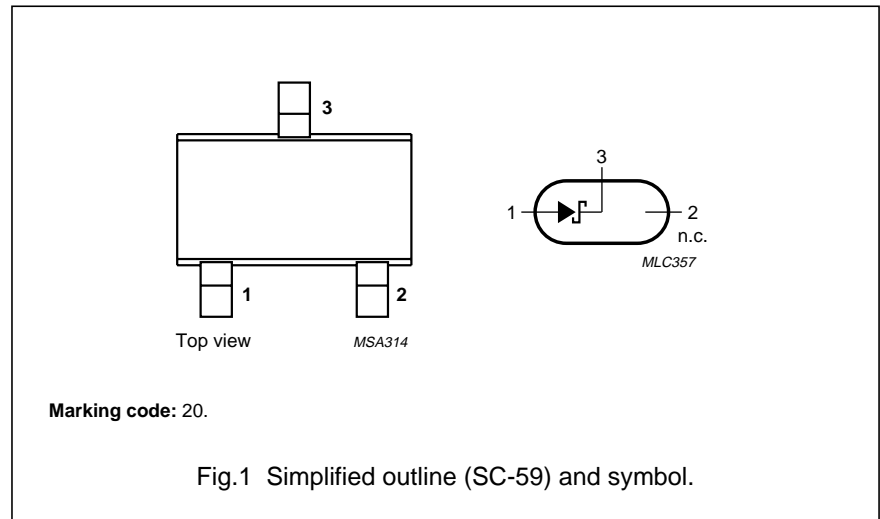
- High-speed switching
- Voltage clamping
- Protection circuits.

### PINNING

| PIN | DESCRIPTION   |
|-----|---------------|
| 1   | anode         |
| 2   | not connected |
| 3   | cathode       |

### DESCRIPTION

Planar Schottky barrier diode with an integrated guard ring for stress protection in an SC-59 small SMD plastic package.



### LIMITING VALUES

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

| SYMBOL    | PARAMETER                           | MIN. | MAX. | UNIT |
|-----------|-------------------------------------|------|------|------|
| $V_R$     | continuous reverse voltage          | –    | 40   | V    |
| $I_F$     | continuous forward current          | –    | 500  | mA   |
| $I_{FSM}$ | non-repetitive peak forward current | –    | 2    | A    |
| $T_{stg}$ | storage temperature                 | –65  | +150 | °C   |
| $T_j$     | junction temperature                | –    | 125  | °C   |

## Schottky barrier diode

1PS59SB20

**ELECTRICAL CHARACTERISTICS** $T_j = 25\text{ }^\circ\text{C}$  unless otherwise specified.

| SYMBOL | PARAMETER         | CONDITIONS  | MIN. | MAX. | UNIT          |
|--------|-------------------|---|------|------|---------------|
| $V_F$  | forward voltage   | $I_F = 500\text{ mA}$ ; see Fig.2                                   | –    | 550  | mV            |
| $I_R$  | reverse current   | $V_R = 35\text{ V}$ ; see Fig.3                                     | –    | 100  | $\mu\text{A}$ |
|        |                   | $V_R = 35\text{ V}$ ; $T_j = 100\text{ }^\circ\text{C}$ ; see Fig.3 | –    | 10   | mA            |
| $C_d$  | diode capacitance | $f = 1\text{ MHz}$ ; $V_R = 0$ ; see Fig.4                          | 60   | 90   | pF            |

**THERMAL CHARACTERISTICS**

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

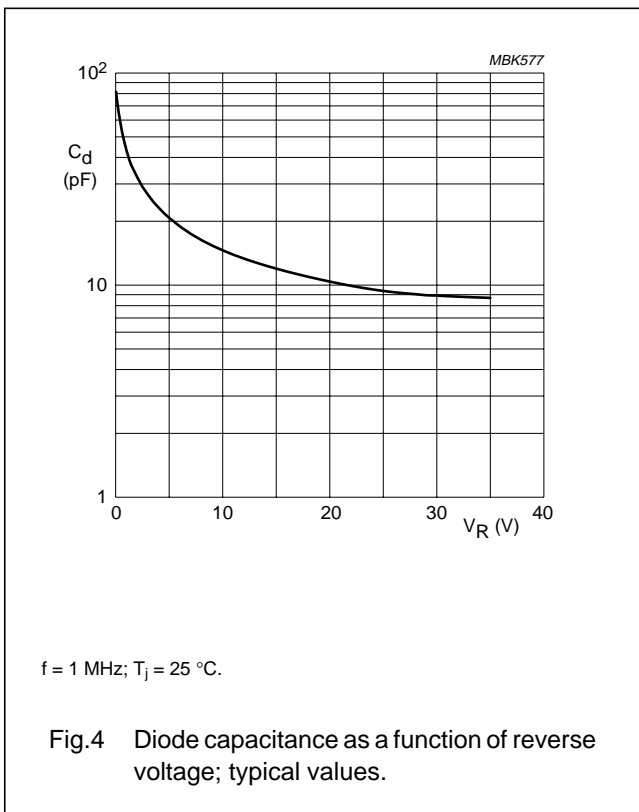
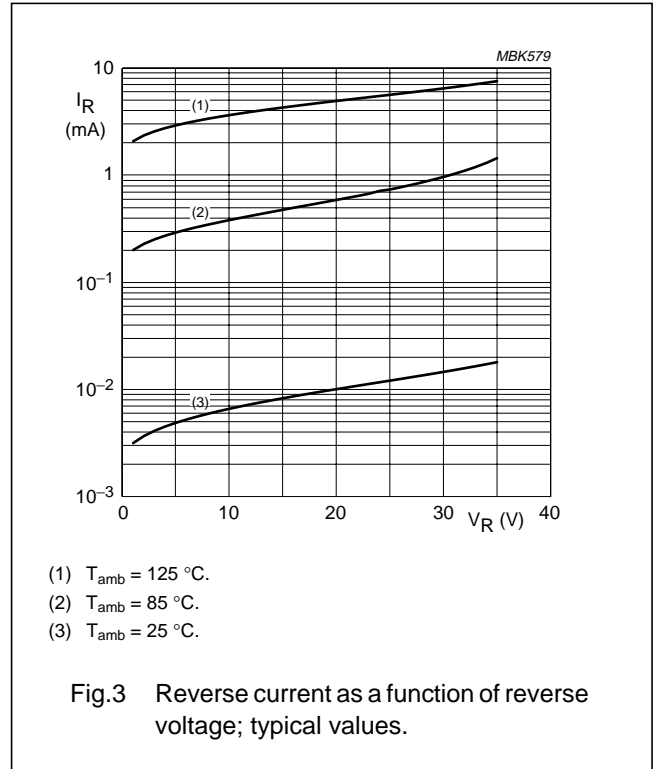
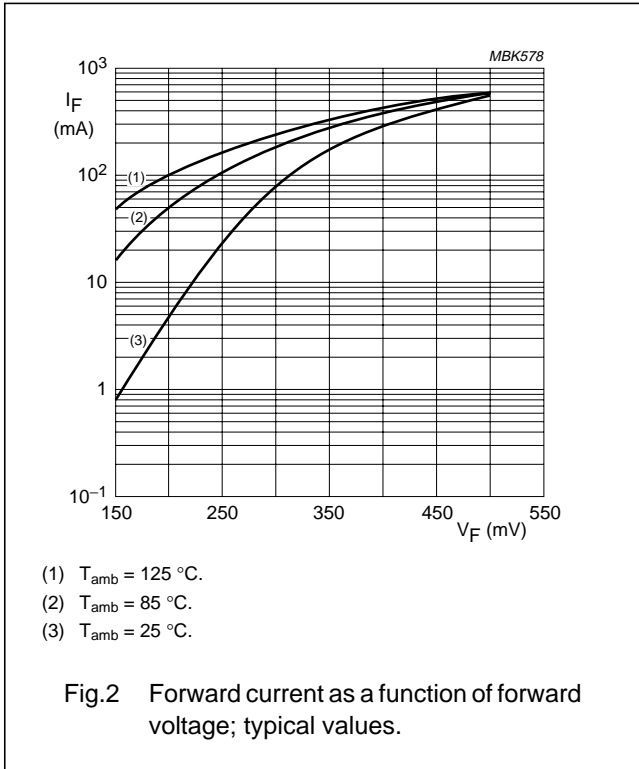
**Note**

1. Refer to SC-59 standard mounting conditions.

Schottky barrier diode

1PS59SB20

GRAPHICAL DATA



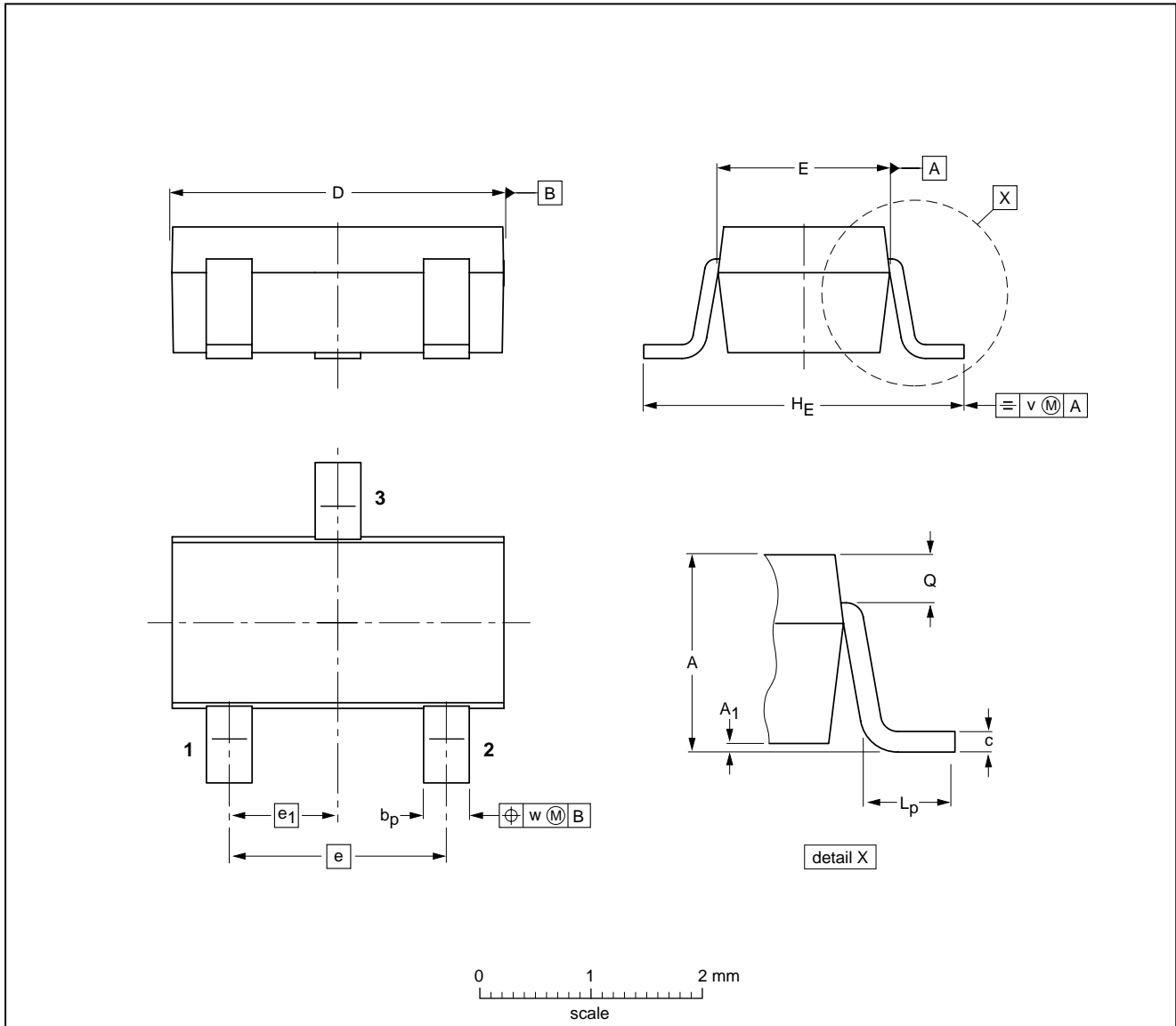
Schottky barrier diode

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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT346



DIMENSIONS (mm are the original dimensions)

| UNIT | A          | A <sub>1</sub> | b <sub>p</sub> | c            | D          | E          | e   | e <sub>1</sub> | H <sub>E</sub> | L <sub>p</sub> | Q            | v   | w   |
|------|------------|----------------|----------------|--------------|------------|------------|-----|----------------|----------------|----------------|--------------|-----|-----|
| mm   | 1.3<br>1.0 | 0.1<br>0.013   | 0.50<br>0.35   | 0.26<br>0.10 | 3.1<br>2.7 | 1.7<br>1.3 | 1.9 | 0.95           | 3.0<br>2.5     | 0.6<br>0.2     | 0.33<br>0.23 | 0.2 | 0.2 |

| OUTLINE VERSION | REFERENCES |        |       |  | EUROPEAN PROJECTION | ISSUE DATE |
|-----------------|------------|--------|-------|--|---------------------|------------|
|                 | IEC        | JEDEC  | EIAJ  |  |                     |            |
| SOT346          |            | TO-236 | SC-59 |  |                     | 98-07-17   |

## Schottky barrier diode

1PS59SB20

**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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Schottky barrier diode

1PS59SB20

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