



# 1PS79SB31

## Schottky barrier diode

1 July 2023

Product data sheet

## 1. General description

Planar Schottky barrier diode in a SOD523 (SC-79) ultra small Surface-Mounted Device (SMD) plastic package.

## 2. Features and benefits

- Very low forward voltage
- Guard ring protected
- Ultra small SMD package

## 3. Applications

- Ultra high-speed switching
- Voltage clamping
- Protection circuits
- Low current rectification
- Low power consumption applications (e.g. hand-held devices)

## 4. Quick reference data

Table 1. Quick reference data

| Symbol | Parameter       | Conditions                                                           | Min | Typ | Max | Unit |
|--------|-----------------|----------------------------------------------------------------------|-----|-----|-----|------|
| $I_F$  | forward current |                                                                      | -   | -   | 200 | mA   |
| $V_R$  | reverse voltage |                                                                      | -   | -   | 30  | V    |
| $V_F$  | forward voltage | $I_F = 10 \text{ mA}$ ; $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$ | 255 | -   | 300 | mV   |

## 5. Pinning information

Table 2. Pinning information

| Pin | Symbol | Description | Simplified outline                                                                                    | Graphic symbol                                                                                             |
|-----|--------|-------------|-------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| 1   | K      | cathode[1]  | <br>SC-79 (SOD523) | <br>K A<br>aaa-003679 |
| 2   | A      | anode       |                                                                                                       |                                                                                                            |

[1] The marking bar indicates the cathode.

6. Ordering information

Table 3. Ordering information

| Type number | Package |                                                                          |         |
|-------------|---------|--------------------------------------------------------------------------|---------|
|             | Name    | Description                                                              | Version |
| 1PS79SB31   | SC-79   | plastic, surface-mounted package; 2 leads; 1.2 mm x 0.8 mm x 0.6 mm body | SOD523  |

7. Marking

Table 4. Marking codes

| Type number | Marking code |
|-------------|--------------|
| 1PS79SB31   | G3           |

8. Limiting values

Table 5. Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134).

| Symbol           | Parameter                           | Conditions                                                                          |  | Min | Max | Unit |
|------------------|-------------------------------------|-------------------------------------------------------------------------------------|--|-----|-----|------|
| V <sub>R</sub>   | reverse voltage                     |                                                                                     |  | -   | 30  | V    |
| I <sub>F</sub>   | forward current                     |                                                                                     |  | -   | 200 | mA   |
| I <sub>FRM</sub> | repetitive peak forward current     | t <sub>p</sub> ≤ 1 s; δ ≤ 0.5                                                       |  | -   | 300 | mA   |
| I <sub>FSM</sub> | non-repetitive peak forward current | t <sub>p</sub> = 8.3 ms; half sine wave; JEDEC method; T <sub>j(init)</sub> = 25 °C |  | -   | 1   | A    |
| T <sub>j</sub>   | junction temperature                |                                                                                     |  | -   | 125 | °C   |
| T <sub>amb</sub> | ambient temperature                 |                                                                                     |  | -65 | 125 | °C   |
| T <sub>stg</sub> | storage temperature                 |                                                                                     |  | -65 | 150 | °C   |

9. Thermal characteristics

Table 6. Thermal characteristics

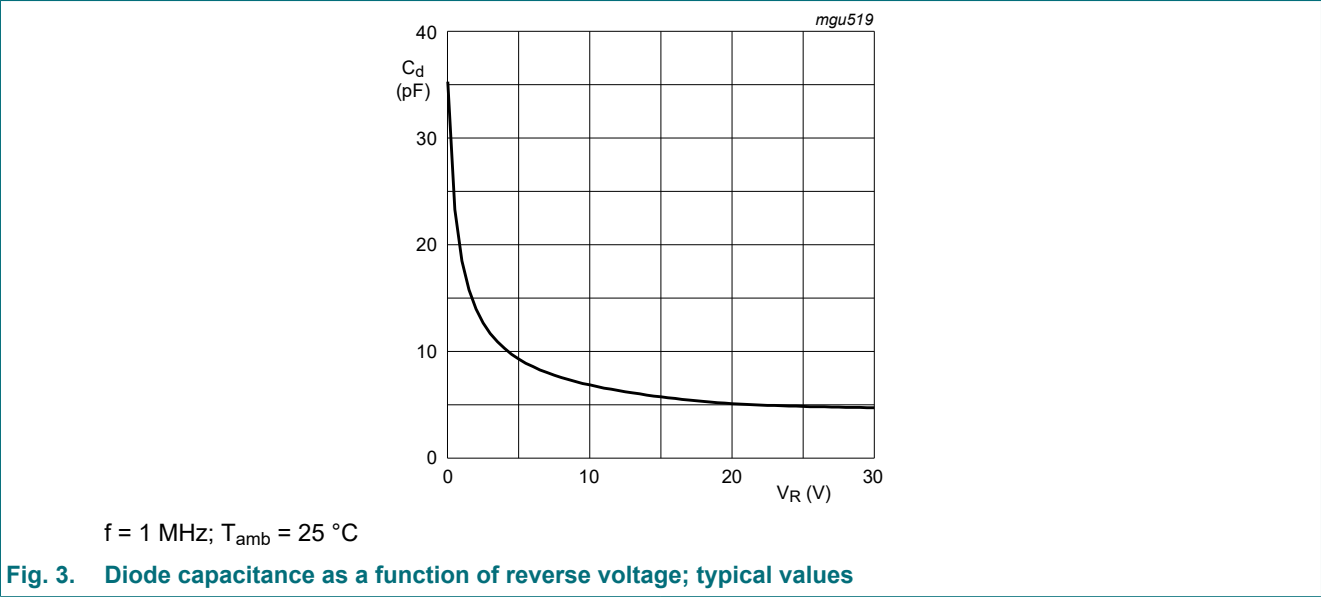
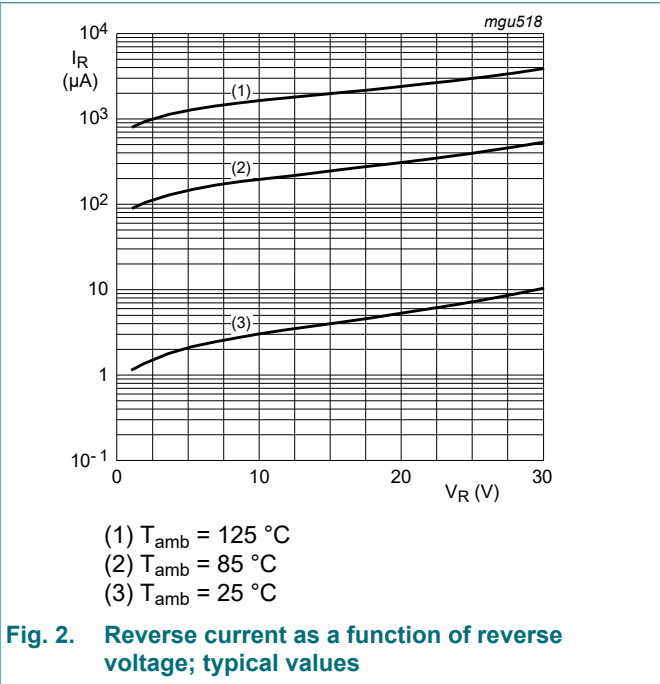
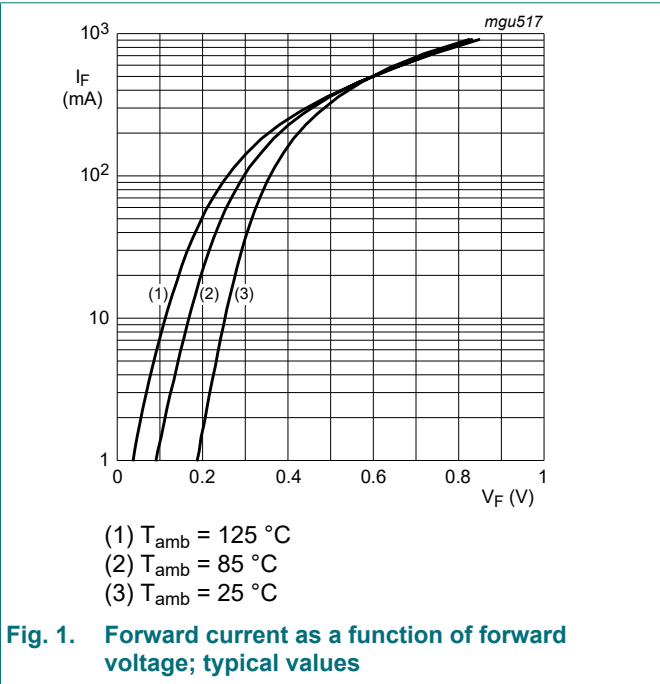
| Symbol               | Parameter                                   | Conditions  |     | Min | Typ | Max | Unit |
|----------------------|---------------------------------------------|-------------|-----|-----|-----|-----|------|
| R <sub>th(j-a)</sub> | thermal resistance from junction to ambient | in free air | [1] | -   | -   | 450 | K/W  |

[1] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint.

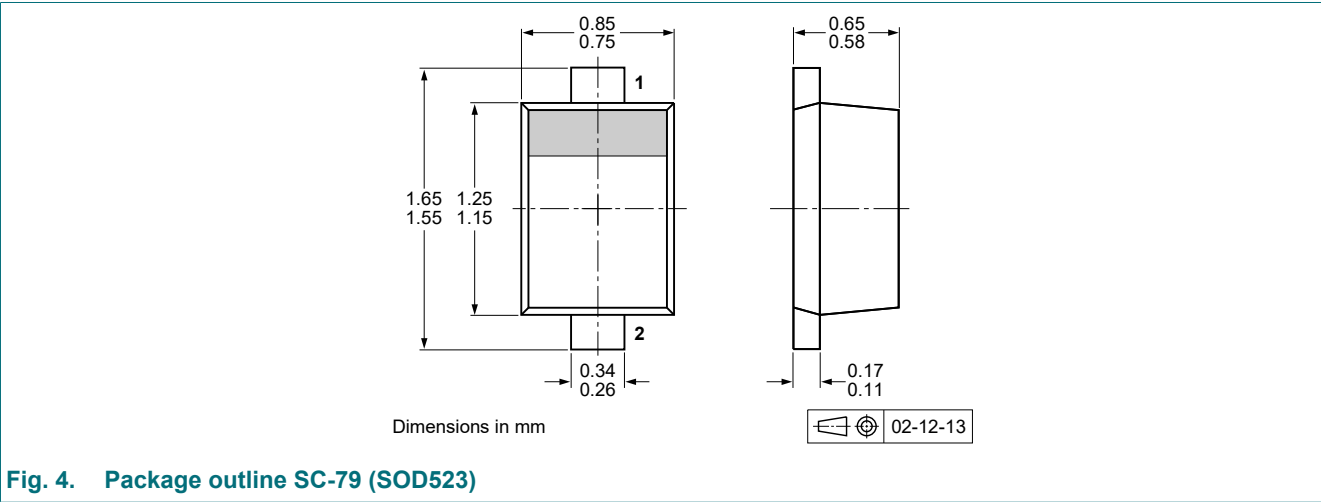
10. Characteristics

Table 7. Characteristics

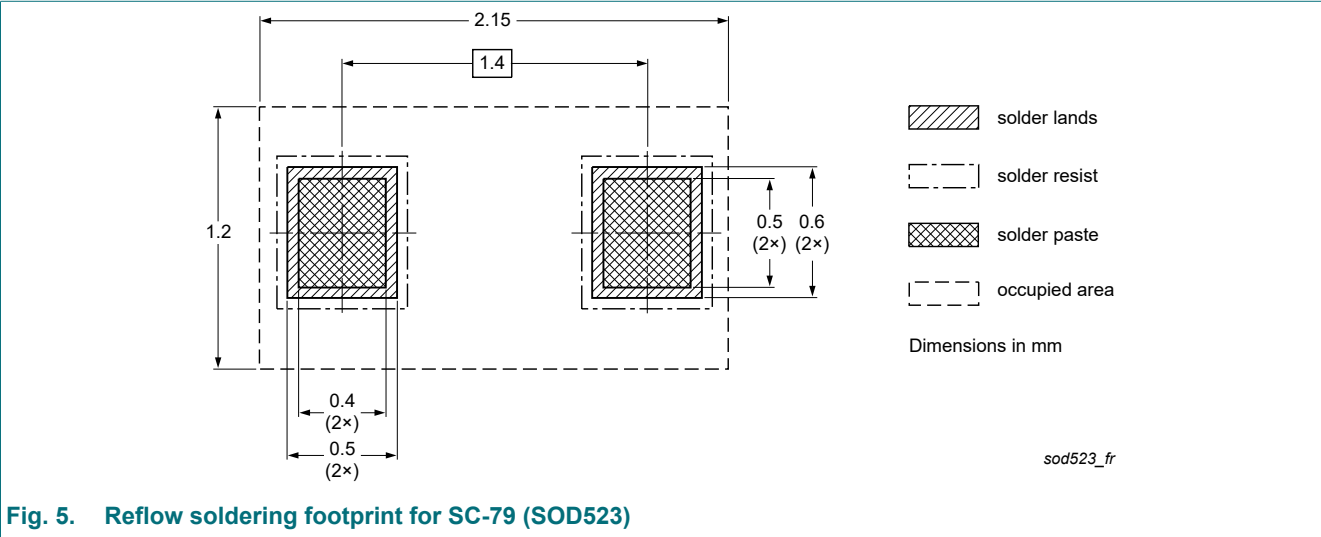
| Symbol         | Parameter         | Conditions                                                                                    |  | Min | Typ | Max | Unit |
|----------------|-------------------|-----------------------------------------------------------------------------------------------|--|-----|-----|-----|------|
| V <sub>F</sub> | forward voltage   | I <sub>F</sub> = 0.1 mA; T <sub>amb</sub> = 25 °C                                             |  | 130 | -   | 190 | mV   |
|                |                   | I <sub>F</sub> = 1 mA; T <sub>amb</sub> = 25 °C                                               |  | 190 | -   | 250 | mV   |
|                |                   | I <sub>F</sub> = 10 mA; T <sub>amb</sub> = 25 °C                                              |  | 255 | -   | 300 | mV   |
|                |                   | I <sub>F</sub> = 100 mA; T <sub>amb</sub> = 25 °C                                             |  | 355 | -   | 410 | mV   |
|                |                   | I <sub>F</sub> = 200 mA; T <sub>amb</sub> = 25 °C                                             |  | 420 | -   | 500 | mV   |
| I <sub>R</sub> | reverse current   | V <sub>R</sub> = 10 V; t <sub>p</sub> = 300 µs; δ = 0.02; pulsed;<br>T <sub>amb</sub> = 25 °C |  | -   | 2.5 | 30  | µA   |
| C <sub>d</sub> | diode capacitance | V <sub>R</sub> = 1 V; f = 1 MHz; T <sub>amb</sub> = 25 °C                                     |  | 20  | -   | 25  | pF   |



11. Package outline



12. Soldering



13. Revision history

Table 8. Revision history

| Data sheet ID  | Release date                                                                                                                                                                                                                                                                                                                                                                                                    | Data sheet status  | Change notice | Supersedes    |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------|---------------|
| 1PS79SB31 v.2  | 20230701                                                                                                                                                                                                                                                                                                                                                                                                        | Product data sheet | -             | 1PS79SB31 v.1 |
| Modifications: | <ul style="list-style-type: none"><li>The format of this data sheet has been redesigned to comply with the identity guidelines of Nexperia.</li><li>Legal texts have been adapted to the new company name where appropriate.</li><li>Product changed to non-automotive qualification. Please refer to <a href="https://www.nexperia.com">nexperia.com</a> for automotive (-Q) product alternative(s).</li></ul> |                    |               |               |
| 1PS79SB31 v.1  | 20020111                                                                                                                                                                                                                                                                                                                                                                                                        | Product data sheet | -             | -             |

## 14. Legal information

### Data sheet status

| Document status [1][2]         | Product status [3] | Definition                                                                            |
|--------------------------------|--------------------|---------------------------------------------------------------------------------------|
| Objective [short] data sheet   | Development        | This document contains data from the objective specification for product development. |
| Preliminary [short] data sheet | Qualification      | This document contains data from the preliminary specification.                       |
| Product [short] data sheet     | Production         | This document contains the product specification.                                     |

- [1] Please consult the most recently issued document before initiating or completing a design.
- [2] The term 'short data sheet' is explained in section "Definitions".
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