



# BAS70W

## General-purpose Schottky diode

19 January 2023

Product data sheet

### 1. General description

General-purpose Schottky diode in a small SOT323 (SC-70) Surface-Mounted Device (SMD) plastic package.

### 2. Features and benefits

- High switching speed
- Low leakage current
- High breakdown voltage
- Low capacitance

### 3. Applications

- Ultra high-speed switching
- Voltage clamping

### 4. Quick reference data

Table 1. Quick reference data

| Symbol | Parameter       | Conditions  | Min | Typ | Max | Unit |
|--------|-----------------|---|-----|-----|-----|------|
| $I_F$  | forward current |   | -   | -   | 70  | mA   |
| $V_F$  | forward voltage | $I_F = 1 \text{ mA}$ ; $t_p \leq 300 \text{ } \mu\text{s}$ ; $\delta \leq 0.02$ ; pulsed; $T_{\text{amb}} = 25 \text{ } ^\circ\text{C}$ | -   | -   | 410 | mV   |
| $V_R$  | reverse voltage | $T_j = 25 \text{ } ^\circ\text{C}$  | -   | -   | 70  | V    |

### 5. Pinning information

Table 2. Pinning information

| Pin | Symbol | Description   | Simplified outline    | Graphic symbol   |
|-----|--------|---------------|-----------------------|------------------|
| 1   | A      | anode         | <p>SC-70 (SOT323)</p> | <p>006aaa436</p> |
| 2   | n.c.   | not connected |                       |                  |
| 3   | K      | cathode       |                       |                  |

## 6. Ordering information

Table 3. Ordering information

| Type number            | Package |  |                        |
|------------------------|---------|--|------------------------|
|                        | Name    | Description  | Version                |
| <a href="#">BAS70W</a> | SC-70   | plastic, surface-mounted package; 3 leads; 1.3 mm pitch; 2 mm x 1.25 mm x 0.95 mm body | <a href="#">SOT323</a> |

## 7. Marking

Table 4. Marking codes

| Type number | Marking code[1] |
|-------------|-----------------|
| BAS70W      | 73%             |

[1] % = placeholder for manufacturing site code

## 8. Limiting values

Table 5. Limiting values

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

| Symbol           | Parameter                           | Conditions  | Min | Max | Unit |
|------------------|-------------------------------------|---|-----|-----|------|
| $V_R$            | reverse voltage                     | $T_j = 25\text{ °C}$  | -   | 70  | V    |
| $I_F$            | forward current                     |   | -   | 70  | mA   |
| $I_{FRM}$        | repetitive peak forward current     | $t_p \leq 1\text{ s}$ ; $\delta \leq 0.5$                     | -   | 70  | mA   |
| $I_{FSM}$        | non-repetitive peak forward current | $t_p \leq 10\text{ ms}$ ; $T_{j(\text{init})} = 25\text{ °C}$ | -   | 100 | mA   |
| $T_j$            | junction temperature                |   | -   | 150 | °C   |
| $T_{\text{amb}}$ | ambient temperature                 |   | -65 | 150 | °C   |
| $T_{\text{stg}}$ | storage temperature                 |   | -65 | 150 | °C   |

## 9. Thermal characteristics

Table 6. Thermal characteristics

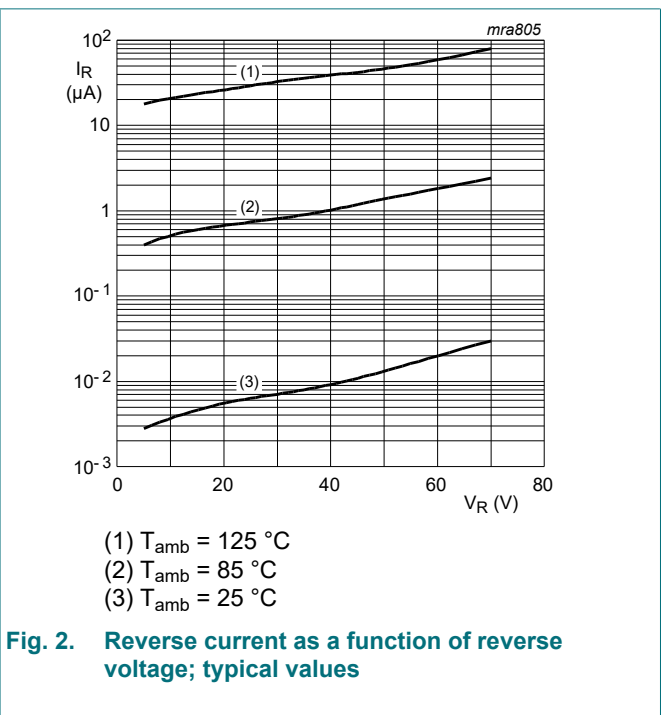
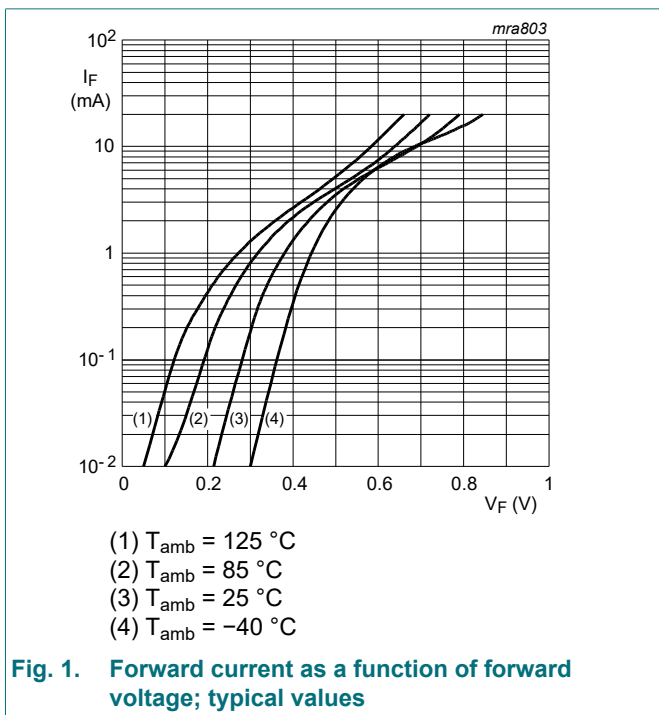
| Symbol               | Parameter                                   | Conditions  | Min | Typ | Max | Unit |
|----------------------|---|-------------|-----|-----|-----|------|
| $R_{\text{th}(j-a)}$ | thermal resistance from junction to ambient | in free air | [1] | -   | 625 | K/W  |

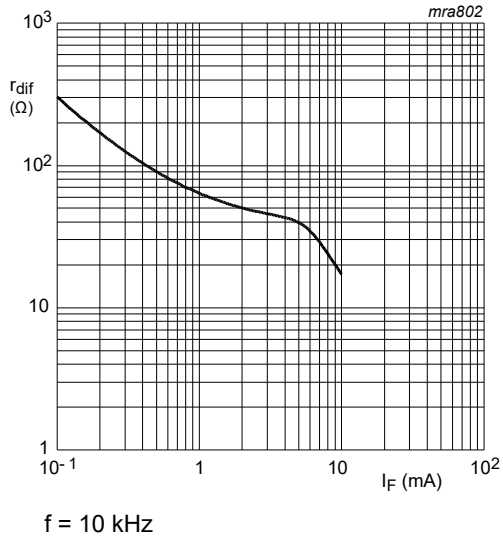
[1] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint.

### 10. Characteristics

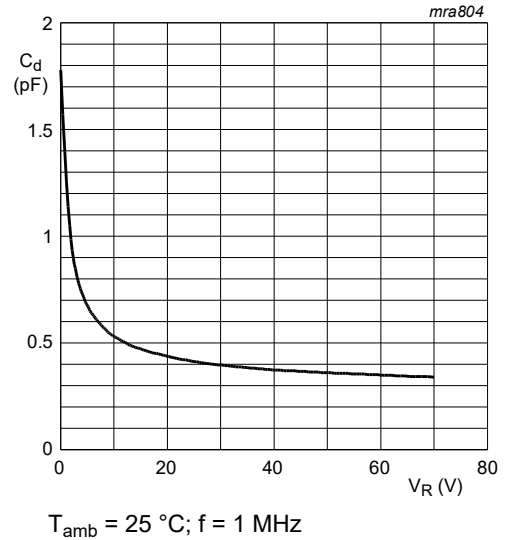
Table 7. Characteristics

| Symbol         | Parameter         | Conditions  | Min | Typ | Max | Unit |
|----------------|-------------------|---|-----|-----|-----|------|
| V <sub>F</sub> | forward voltage   | I <sub>F</sub> = 1 mA; t <sub>p</sub> ≤ 300 μs; δ ≤ 0.02; pulsed; T <sub>amb</sub> = 25 °C  | -   | -   | 410 | mV   |
|                |                   | I <sub>F</sub> = 10 mA; t <sub>p</sub> ≤ 300 μs; δ ≤ 0.02; pulsed; T <sub>amb</sub> = 25 °C | -   | -   | 750 | mV   |
|                |                   | I <sub>F</sub> = 15 mA; t <sub>p</sub> ≤ 300 μs; δ ≤ 0.02; pulsed; T <sub>amb</sub> = 25 °C | -   | -   | 1   | V    |
| I <sub>R</sub> | reverse current   | V <sub>R</sub> = 50 V; T <sub>amb</sub> = 25 °C   | -   | -   | 100 | nA   |
|                |                   | V <sub>R</sub> = 70 V; T <sub>amb</sub> = 25 °C   | -   | -   | 10  | μA   |
| C <sub>d</sub> | diode capacitance | V <sub>R</sub> = 0 V; f = 1 MHz; T <sub>amb</sub> = 25 °C                                   | -   | -   | 2   | pF   |



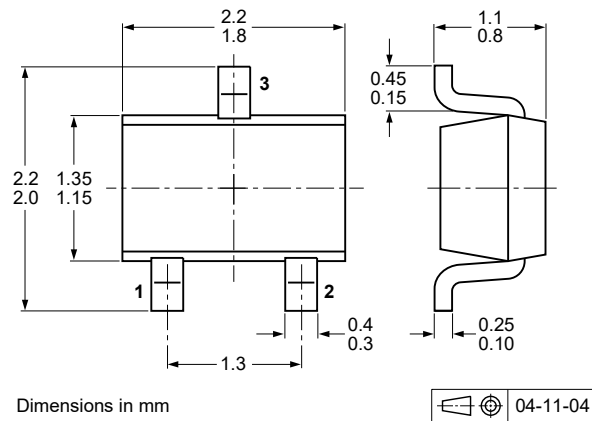


**Fig. 3.** Differential forward resistance as a function of forward current; typical values



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

## 11. Package outline



**Fig. 5.** Package outline SC-70 (SOT323)

## 12. Soldering

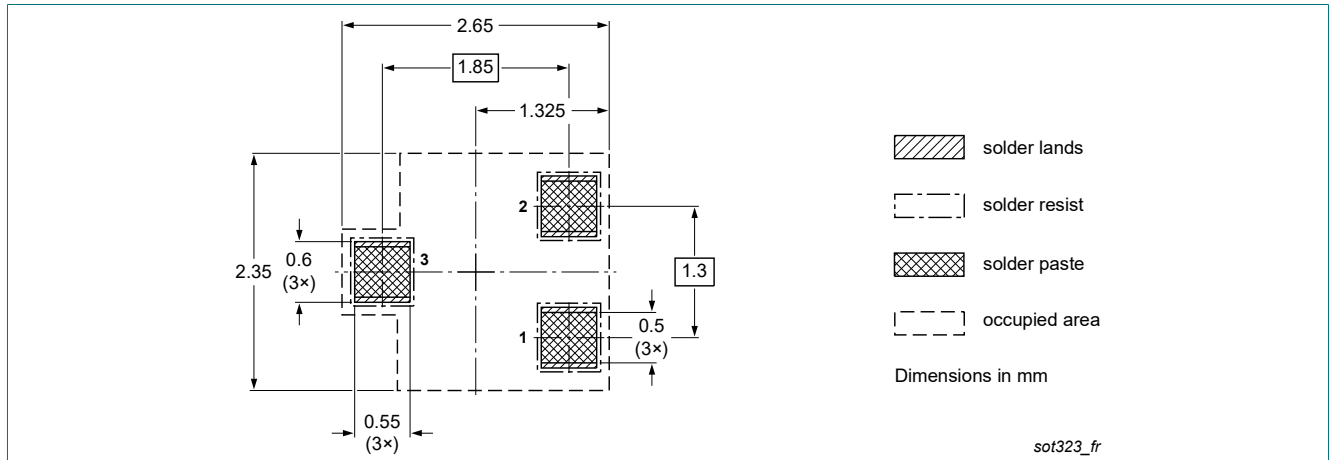


Fig. 6. Reflow soldering footprint for SC-70 (SOT323)

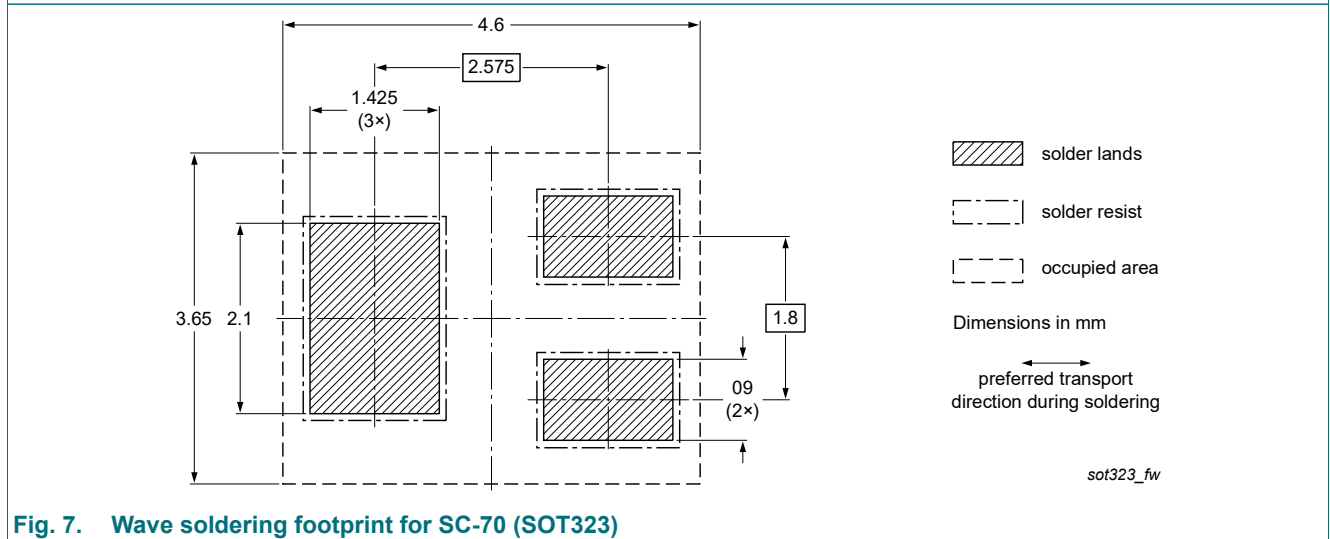


Fig. 7. Wave soldering footprint for SC-70 (SOT323)

## 13. Revision history

Table 8. Revision history

| Data sheet ID          | Release date  | Data sheet status     | Change notice | Supersedes  |
|------------------------|---|-----------------------|---------------|---|
| BAS70W v.12            | 20230119  | Product data sheet    | -             | BAS70W v.11   |
| Modifications:         | <ul style="list-style-type: none"> <li>Characteristics, <math>I_R</math>: Conditions corrected</li> </ul> |                       |               |   |
| BAS70W v.11            | 20230101  | Product data sheet    | -             | BAS70_1PS7XSB70_SER_10  |
| BAS70_1PS7XSB70_SER_10 | 20210407  | Product data sheet    | -             | BAS70_1PS7XSB70_SER_9   |
| BAS70_1PS7XSB70_SER_9  | 20060504  | Product data sheet    | -             | BAS70_1PS7XSB70_SER_8   |
| BAS70_1PS7XSB70_SER_8  | 20060504  | Product data sheet    | -             | BAS70_1PS7XSB70_SER_7   |
| BAS70_1PS7XSB70_SER_7  | 20050718  | Product data sheet    | -             | 1PS76SB70_2<br>1PS79SB70_1<br>BAS70H_1<br>BAS70L_1<br>BAS70-07V_1<br>BAS70VVBAS70W_3<br>BAS70-07S_4<br>BAS70_SERIES_6 |
| 1PS76SB70_2            | 20040126  | Product specification | -             | 1PS76SB70_SER_1   |
| 1PS76SB70_1            | 19980716  | Product specification | -             | -   |
| BAS70H_1               | 20050425  | Product specification | -             | -   |
| BAS70L_1               | 20030520  | Product specification | -             | -   |
| BAS70-07V_1            | 20020117  | Product specification | -             | -   |
| BAS70VV_1              | 20040910  | Product specification | -             | -   |
| BAS70W_3               | 19990326  | Product specification | -             | BAS70W_2  |
| BAS70-07S_4            | 20030411  | Product specification | -             | BAS70_07S_3   |
| BAS70_SERIES_6         | 20011011  | Product specification | -             | BAS70_5   |

## 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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