



BAS70-05-Q

General-purpose dual Schottky diode

2 December 2021

Product data sheet

1. General description

General-purpose dual Schottky diode in a small SOT23 (TO-236AB) Surface-Mounted Device (SMD) plastic package.

2. Features and benefits

- High switching speed
- Low leakage current
- High breakdown voltage
- Low capacitance
- Qualified according to AEC-Q101 and recommended for use in automotive applications

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 | $I_F = 1 \text{ mA}$; $t_p \leq 300 \mu\text{s}$; $\delta \leq 0.02$; 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 | A1 | anode (diode 1) | <p>SOT23</p> | <p>006aaa438</p> |
| 2 | A2 | anode (diode 2) | | |
| 3 | K1, K2 | common cathode (diode 1 and diode 2) | | |

6. Ordering information

Table 3. Ordering information

| Type number | Package | | |
|-------------|---------|--|---------|
| | Name | Description | Version |
| BAS70-05-Q | SOT23 | plastic, surface-mounted package; 3 terminals; 1.9 mm pitch; 2.9 mm x 1.3 mm x 1 mm body | SOT23 |

7. Marking

Table 4. Marking codes

| Type number | Marking code[1] |
|-------------|-----------------|
| BAS70-05-Q | 75% |

[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_{amb} | ambient temperature | | -65 | 150 | °C |
| T_{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] | - | 500 | 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 _F | forward voltage | I _F = 1 mA; t _p ≤ 300 μs; δ ≤ 0.02; pulsed; T _{amb} = 25 °C | - | - | 410 | mV |
| | | I _F = 10 mA; t _p ≤ 300 μs; δ ≤ 0.02; pulsed; T _{amb} = 25 °C | - | - | 750 | mV |
| | | I _F = 15 mA; t _p ≤ 300 μs; δ ≤ 0.02; pulsed; T _{amb} = 25 °C | - | - | 1 | V |
| I _R | reverse current | V _R = 50 V; T _{amb} = 25 °C | - | - | 100 | nA |
| | | V _R = 70 V; T _{amb} = 25 °C | - | - | 10 | μA |
| C _d | diode capacitance | V _R = 0 V; f = 1 MHz; T _{amb} = 25 °C | - | - | 2 | pF |

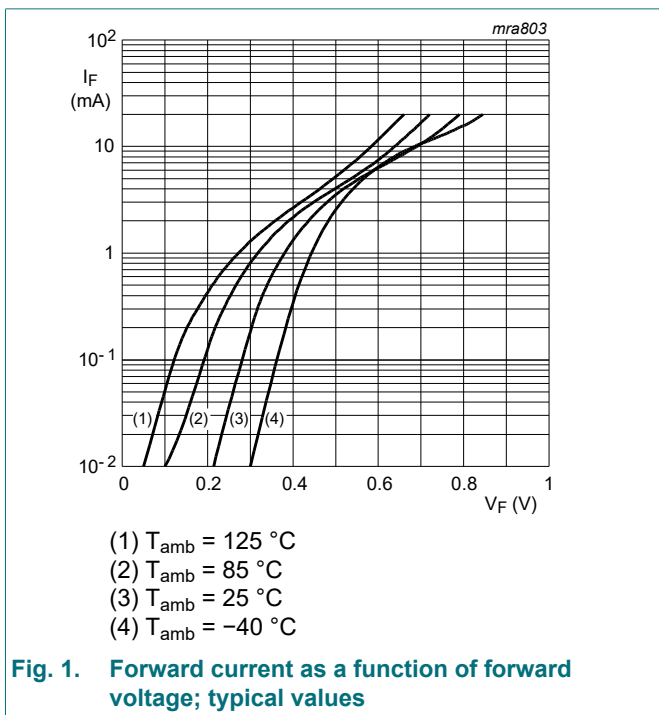


Fig. 1. Forward current as a function of forward voltage; typical values

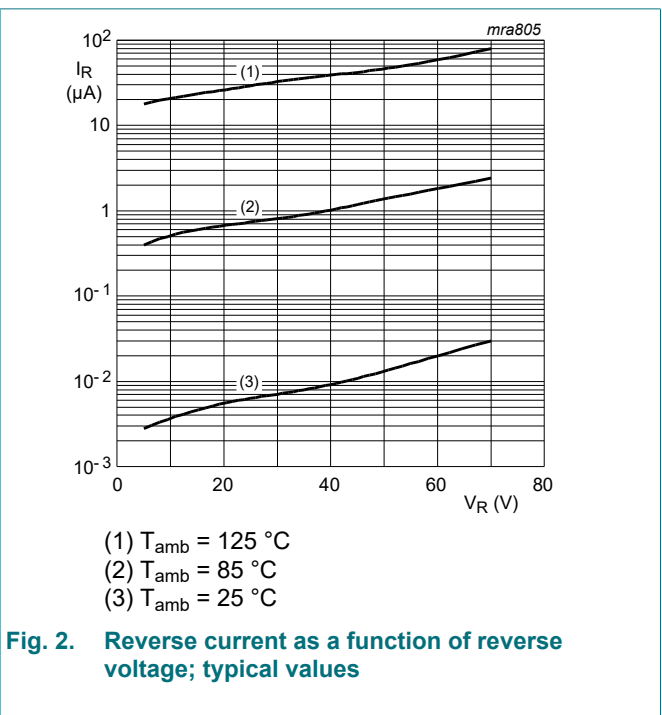


Fig. 2. Reverse current as a function of reverse voltage; typical values

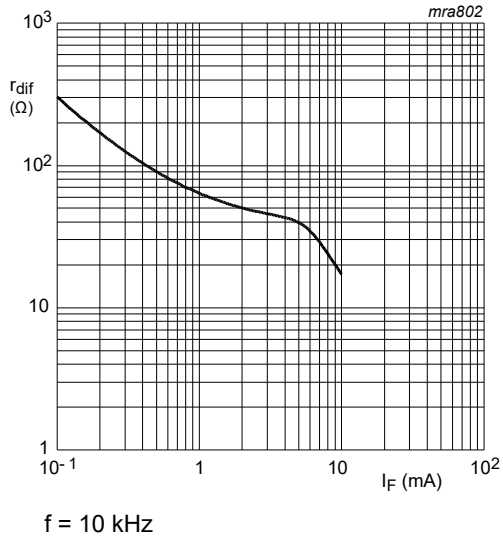


Fig. 3. Differential forward resistance as a function of forward current; typical values

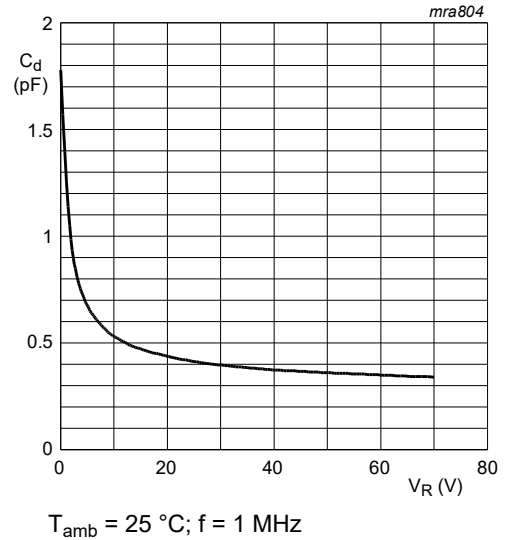


Fig. 4. Diode capacitance as a function of reverse voltage; typical values

11. Test information

Quality information

This product has been qualified in accordance with the Automotive Electronics Council (AEC) standard Q101 - *Stress test qualification for discrete semiconductors*, and is suitable for use in automotive applications.

12. Package outline

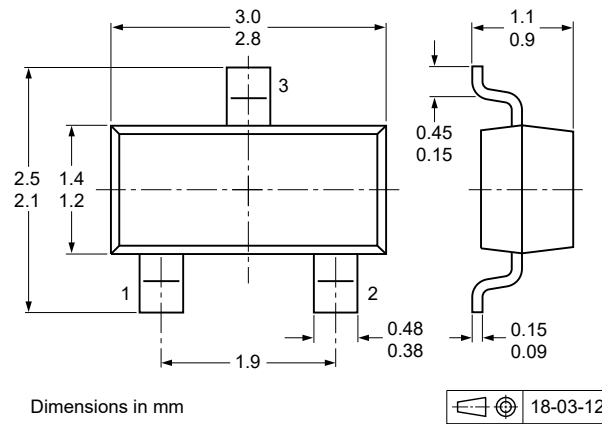


Fig. 5. Package outline SOT23

13. Soldering

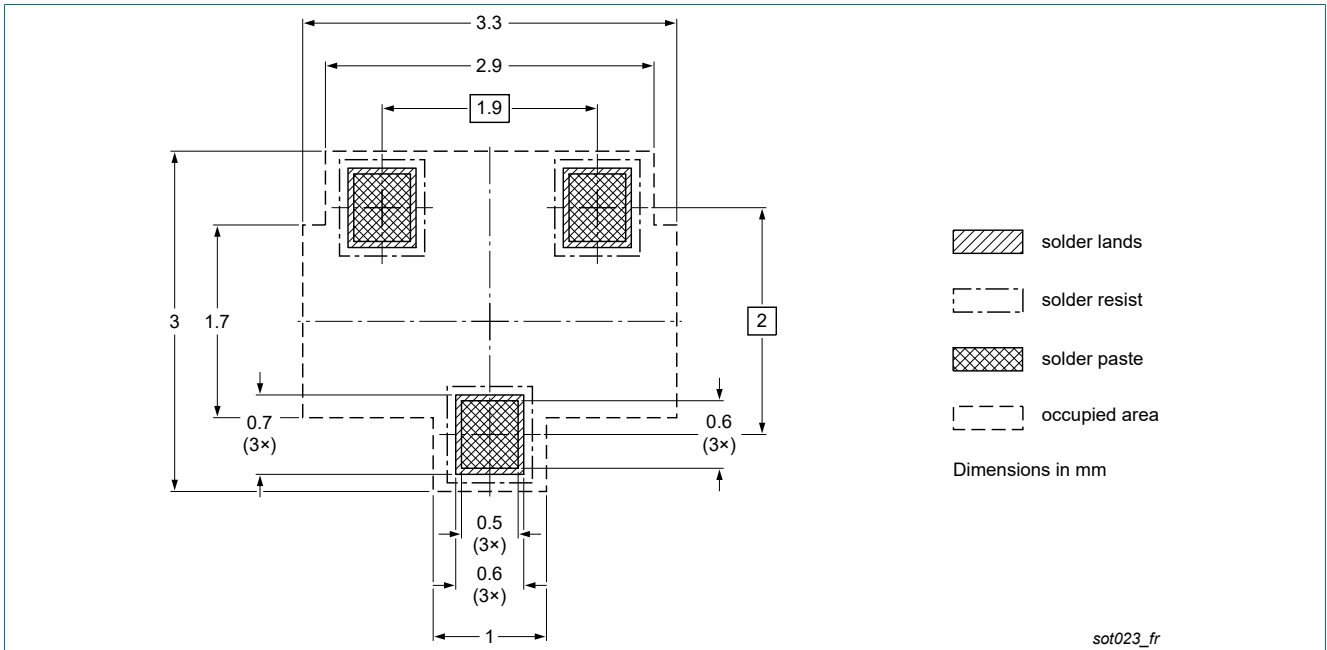


Fig. 6. Reflow soldering footprint for SOT23

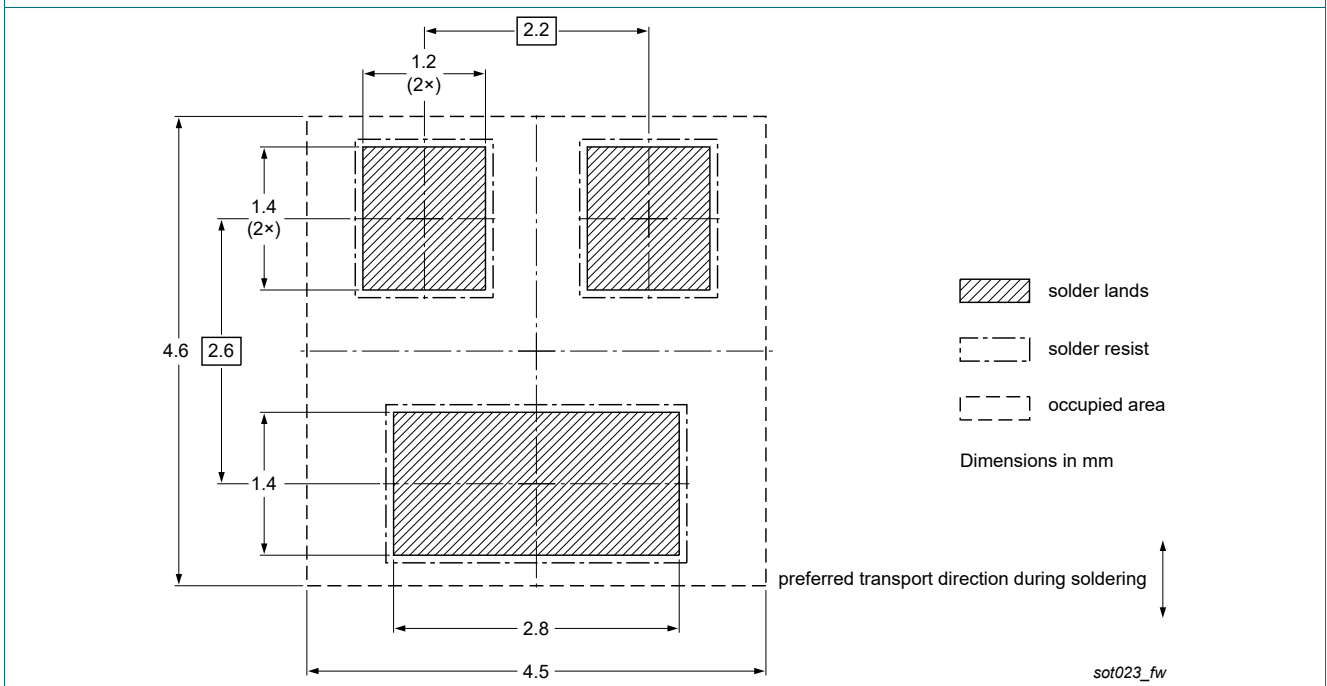


Fig. 7. Wave soldering footprint for SOT23

14. Revision history

Table 8. Revision history

| Data sheet ID | Release date | Data sheet status | Change notice | Supersedes |
|----------------|--------------|--------------------|---------------|------------|
| BAS70-05-Q v.1 | 20211202 | Product data sheet | - | - |

15. 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. |

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