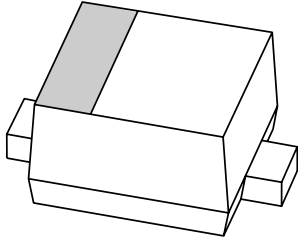


DATA SHEET



BAS516 High-speed diode

Product specification

1998 Aug 31

High-speed diode

BAS516

FEATURES

- Ultra small plastic SMD package
- High switching speed: max. 4 ns
- Continuous reverse voltage: max. 75 V
- Repetitive peak reverse voltage: max. 85 V
- Repetitive peak forward current: max. 500 mA.

APPLICATIONS

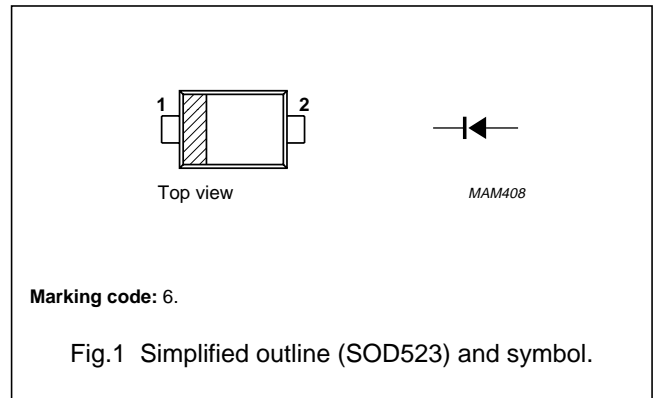
- High-speed switching in e.g. surface mounted circuits.

DESCRIPTION

The BAS516 is a high-speed switching diode fabricated in planar technology, and encapsulated in the SOD523 (SC79) SMD plastic package.

PINNING

| PIN | DESCRIPTION |
|-----|-------------|
| 1 | cathode |
| 2 | anode |



LIMITING VALUES

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

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|-----------|-------------------------------------|--|------|---------------|-------------|
| V_{RRM} | repetitive peak reverse voltage | | – | 85 | V |
| V_R | continuous reverse voltage | | – | 75 | V |
| I_F | continuous forward current | $T_s = 90\text{ °C}$; note 1; see Fig.2 | – | 250 | mA |
| I_{FRM} | repetitive peak forward current | | – | 500 | mA |
| I_{FSM} | non-repetitive peak forward current | square wave; $T_j = 25\text{ °C}$ prior to surge; see Fig.4 $t = 1\ \mu\text{s}$ $t = 1\ \text{ms}$ $t = 1\ \text{s}$ | – | 4 1 0.5 | A A A |
| P_{tot} | total power dissipation | $T_s = 90\text{ °C}$; note 1 | – | 500 | mW |
| T_{stg} | storage temperature | | –65 | +150 | °C |
| T_j | junction temperature | | – | 150 | °C |

Note

1. T_s is the temperature at the soldering point of the cathode tab.

High-speed diode

BAS516

ELECTRICAL CHARACTERISTICS

$T_j = 25\text{ °C}$ unless otherwise specified.

| SYMBOL | PARAMETER | CONDITIONS | MAX. | UNIT |
|----------|--------------------------|---|------|---------------|
| V_F | forward voltage | see Fig.3 | | |
| | | $I_F = 1\text{ mA}$ | 715 | mV |
| | | $I_F = 10\text{ mA}$ | 855 | mV |
| | | $I_F = 50\text{ mA}$ | 1 | V |
| I_R | reverse current | $I_F = 150\text{ mA}$ | 1.25 | V |
| | | see Fig.5 | | |
| | | $V_R = 25\text{ V}$ | 30 | nA |
| | | $V_R = 75\text{ V}$ | 1 | μA |
| C_d | diode capacitance | $V_R = 25\text{ V}; T_j = 150\text{ °C}$ | 30 | μA |
| | | $V_R = 75\text{ V}; T_j = 150\text{ °C};$ | 50 | μA |
| C_d | diode capacitance | $f = 1\text{ MHz}; V_R = 0;$ see Fig.6 | 1 | pF |
| t_{rr} | reverse recovery time | when switched from $I_F = 10\text{ mA}$ to $I_R = 10\text{ mA};$ $R_L = 100\ \Omega;$ measured at $I_R = 1\text{ mA};$ see Fig.7 | 4 | ns |
| V_{fr} | forward recovery voltage | when switched from $I_F = 10\text{ mA}; t_r = 20\text{ ns};$ see Fig.8 | 1.75 | V |

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|---------------|---|------------|-------|------|
| $R_{th\ j-s}$ | thermal resistance from junction to soldering point | note 1 | 120 | K/W |

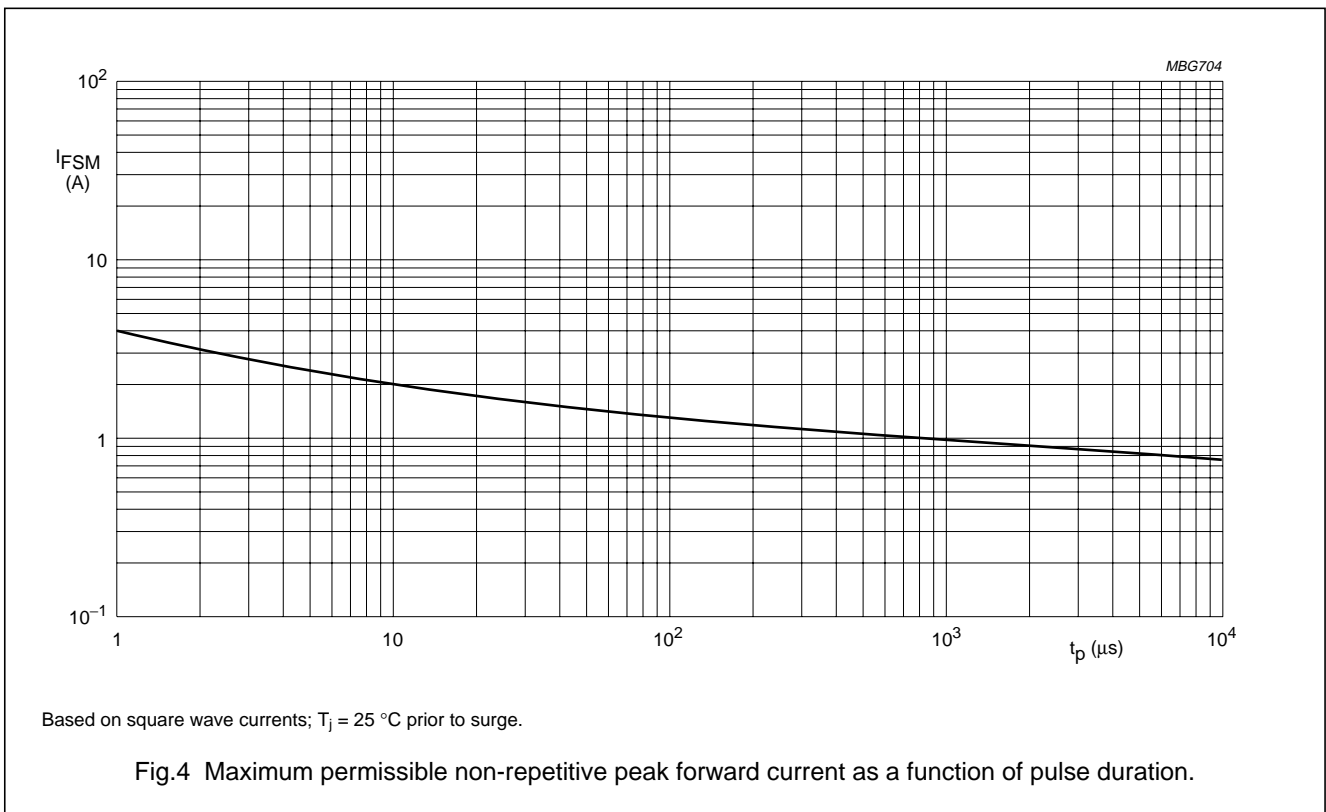
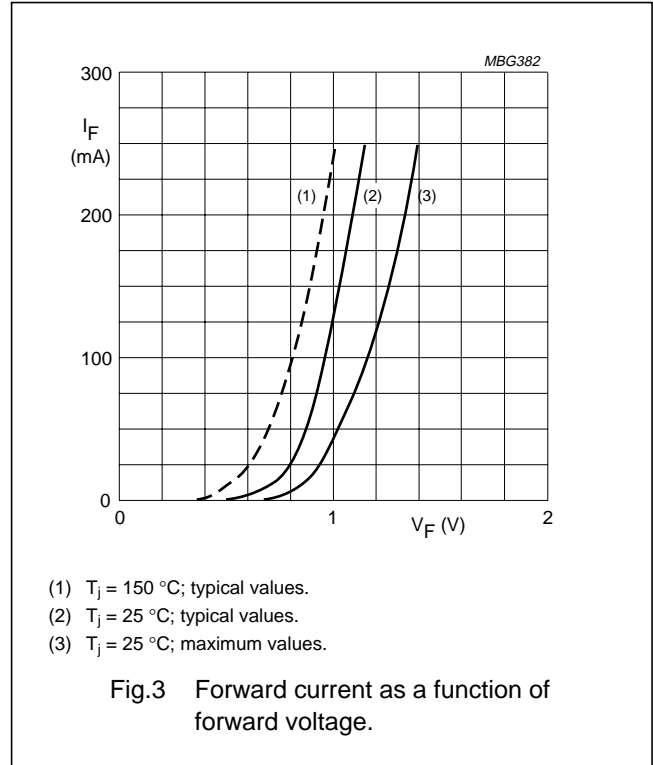
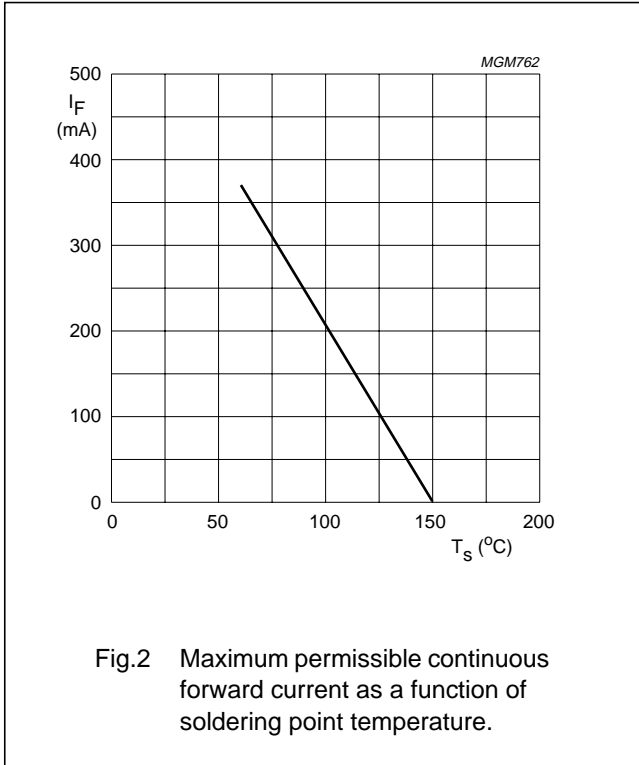
Note

1. Soldering point of the cathode tab.

High-speed diode

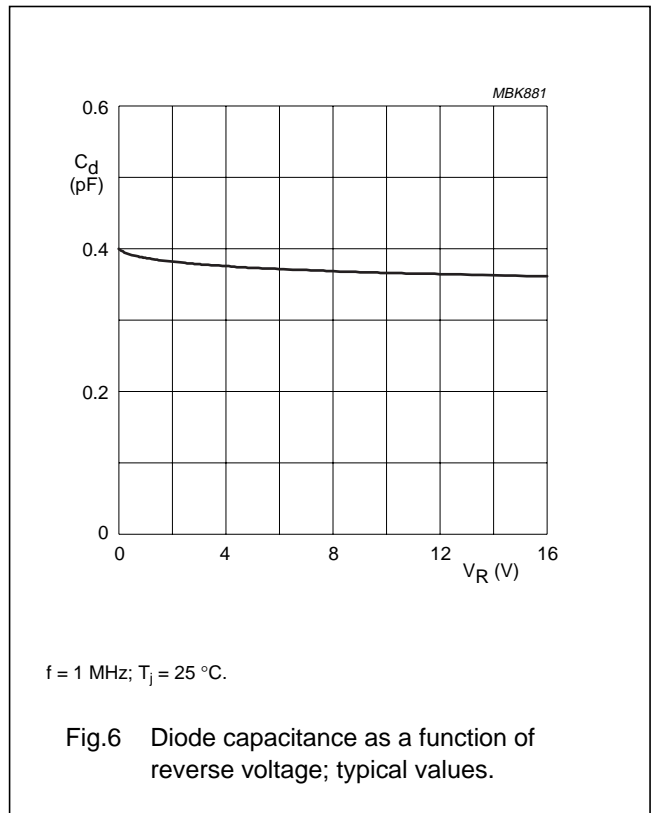
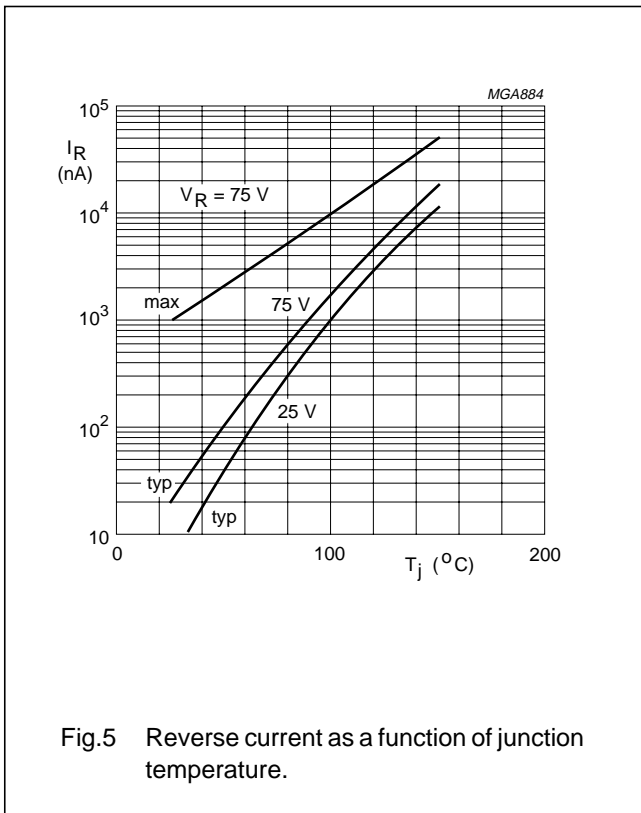
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GRAPHICAL DATA



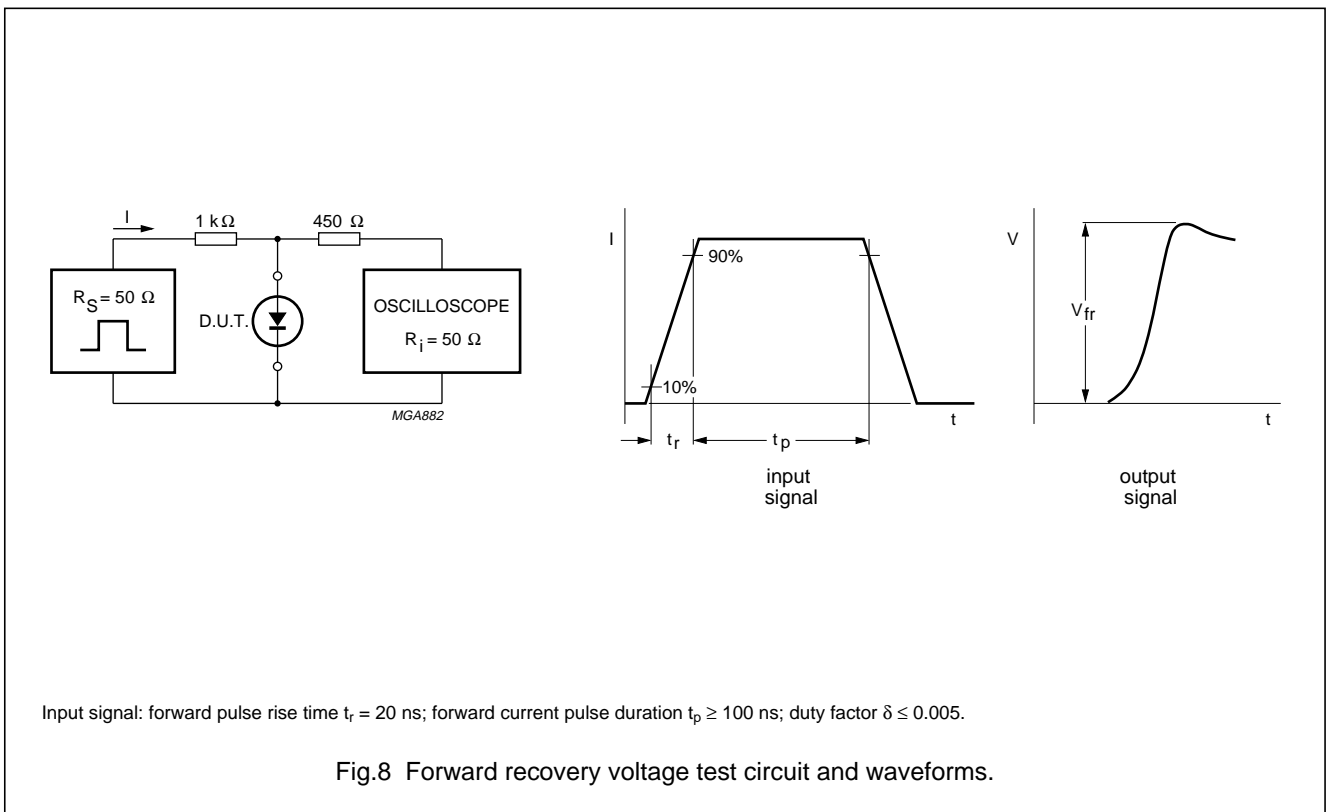
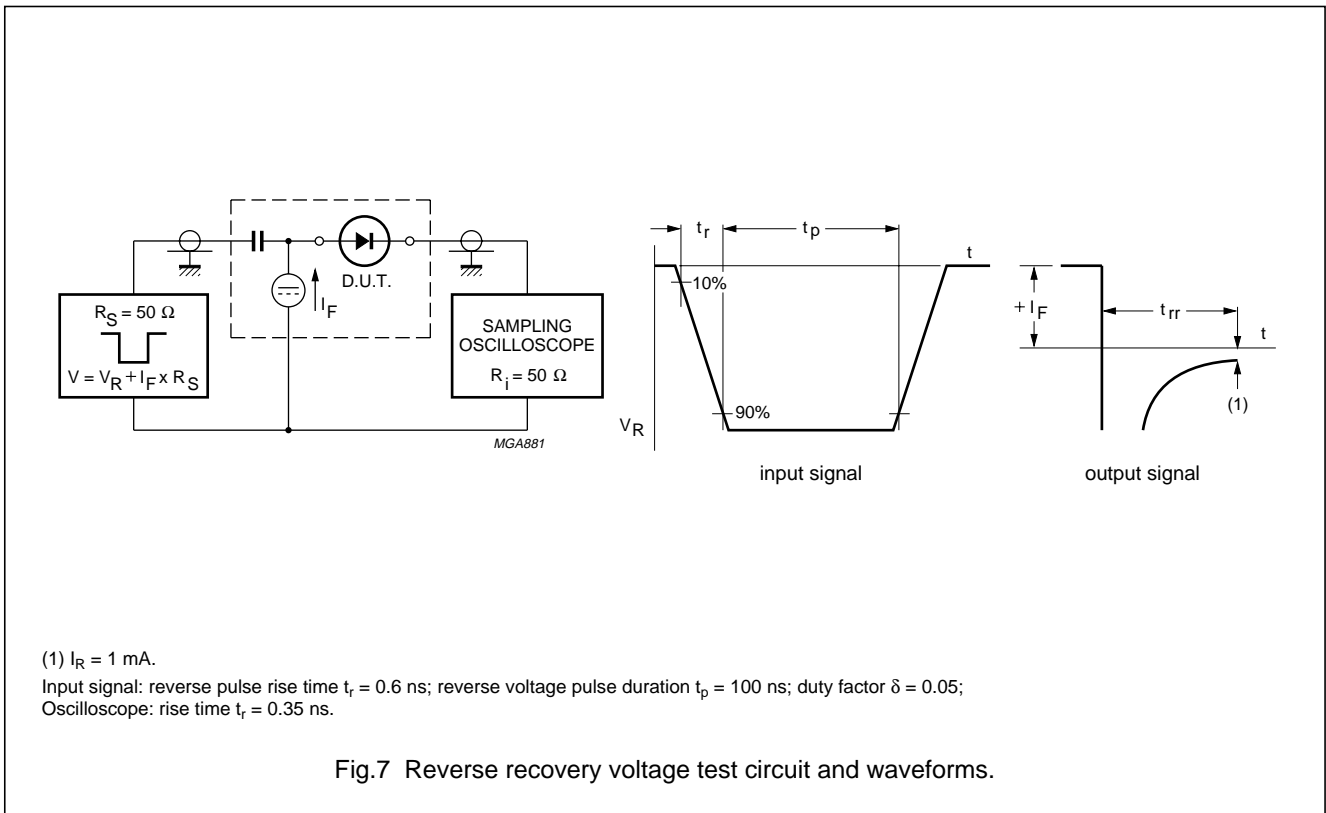
High-speed diode

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High-speed diode

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High-speed diode

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PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SOD523

DIMENSIONS (mm are the original dimensions)

| UNIT | A | bp | c | D | E | HE | v |
|------|------------|--------------|------------|------------|------------|------------|------|
| mm | 0.7 0.5 | 0.35 0.25 | 0.2 0.1 | 1.3 1.1 | 0.9 0.7 | 1.7 1.5 | 0.15 |

Note
1. The marking bar indicates the cathode.

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|-----------------|------------|-------|-------|--|---------------------|------------|
| | IEC | JEDEC | EIAJ | | | |
| SOD523 | | | SC-79 | | | 98-11-25 |

High-speed diode

BAS516

DEFINITIONS

| Data Sheet Status | |
|---|---|
| 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. |
| Limiting values | |
| 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. | |
| Application information | |
| Where application information is given, it is advisory and does not form part of the specification. | |

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High-speed diode

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NOTES

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NOTES

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NOTES

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