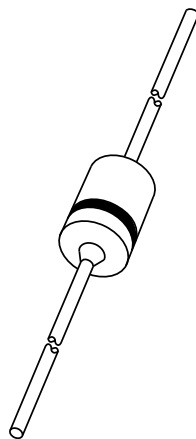


DATA SHEET



BAX14 General purpose diode

Product specification
Supersedes data of April 1996
File under Discrete Semiconductors, SC01

1996 Sep 17

General purpose diode

BAX14

FEATURES

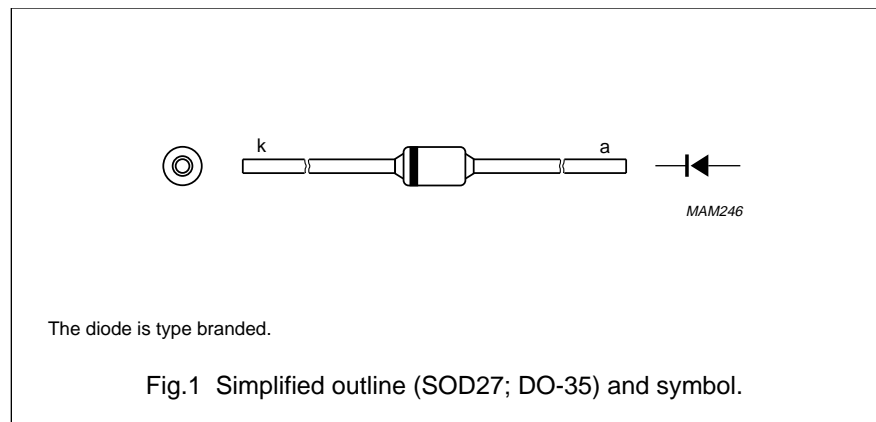
- Hermetically sealed leaded glass SOD27 (DO-35) package
- Switching speed: max. 50 ns
- General application
- Continuous reverse voltage: max. 20 V
- Repetitive peak reverse voltage: max. 40 V
- Repetitive peak forward current: max. 2 A.

APPLICATIONS

- Low-voltage switching
- Rectifier applications
- Low-voltage stabilizing.

DESCRIPTION

The BAX14 is a general purpose switching diode fabricated in planar technology, and encapsulated in the hermetically sealed leaded glass SOD27 (DO-35) package.



LIMITING VALUES

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

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|-----------|-------------------------------------|--|------|---------------|-------------|
| V_{RRM} | repetitive peak reverse voltage | | – | 40 | V |
| V_R | continuous reverse voltage | | – | 20 | V |
| I_F | continuous forward current | see Fig.2; note 1 | – | 500 | mA |
| I_{FRM} | repetitive peak forward current | | – | 2000 | mA |
| I_{FSM} | non-repetitive peak forward current | square wave; $T_j = 25\text{ °C}$ prior to surge; see Fig.4 $t = 1\ \mu\text{s}$ $t = 100\ \mu\text{s}$ $t = 10\ \text{ms}$ | – | 55 15 9 | A A A |
| P_{tot} | total power dissipation | $T_{amb} = 25\text{ °C}$; note 1 | – | 450 | mW |
| T_{stg} | storage temperature | | –65 | +200 | °C |
| T_j | junction temperature | | – | 200 | °C |

Note

1. Device mounted on an FR4 printed circuit-board; lead length 10 mm.

General purpose diode

BAX14

ELECTRICAL CHARACTERISTICS

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

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|----------|-----------------------|---|------|------|---------------|
| V_F | forward voltage | see Fig.3 $I_F = 1\text{ mA}$ | 520 | 600 | mV |
| | | $I_F = 300\text{ mA}$ | 750 | 1000 | mV |
| I_R | reverse current | see Fig.5 $V_R = 20\text{ V}$ | – | 100 | nA |
| | | $V_R = 20\text{ V}; T_j = 150\text{ °C}$ | – | 100 | μA |
| C_d | diode capacitance | $f = 1\text{ MHz}; V_R = 0$; see Fig.6 | – | 35 | pF |
| t_{rr} | reverse recovery time | when switched from $I_F = 30\text{ mA}$ to $I_R = 30\text{ mA}; R_L = 100\ \Omega$; measured at $I_R = 3\text{ mA}$; see Fig.7 | – | 50 | ns |

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|----------------|---|---------------------------|-------|------|
| $R_{th\ j-tp}$ | thermal resistance from junction to tie-point | lead length 10 mm | 240 | K/W |
| $R_{th\ j-a}$ | thermal resistance from junction to ambient | lead length 10 mm; note 1 | 375 | K/W |

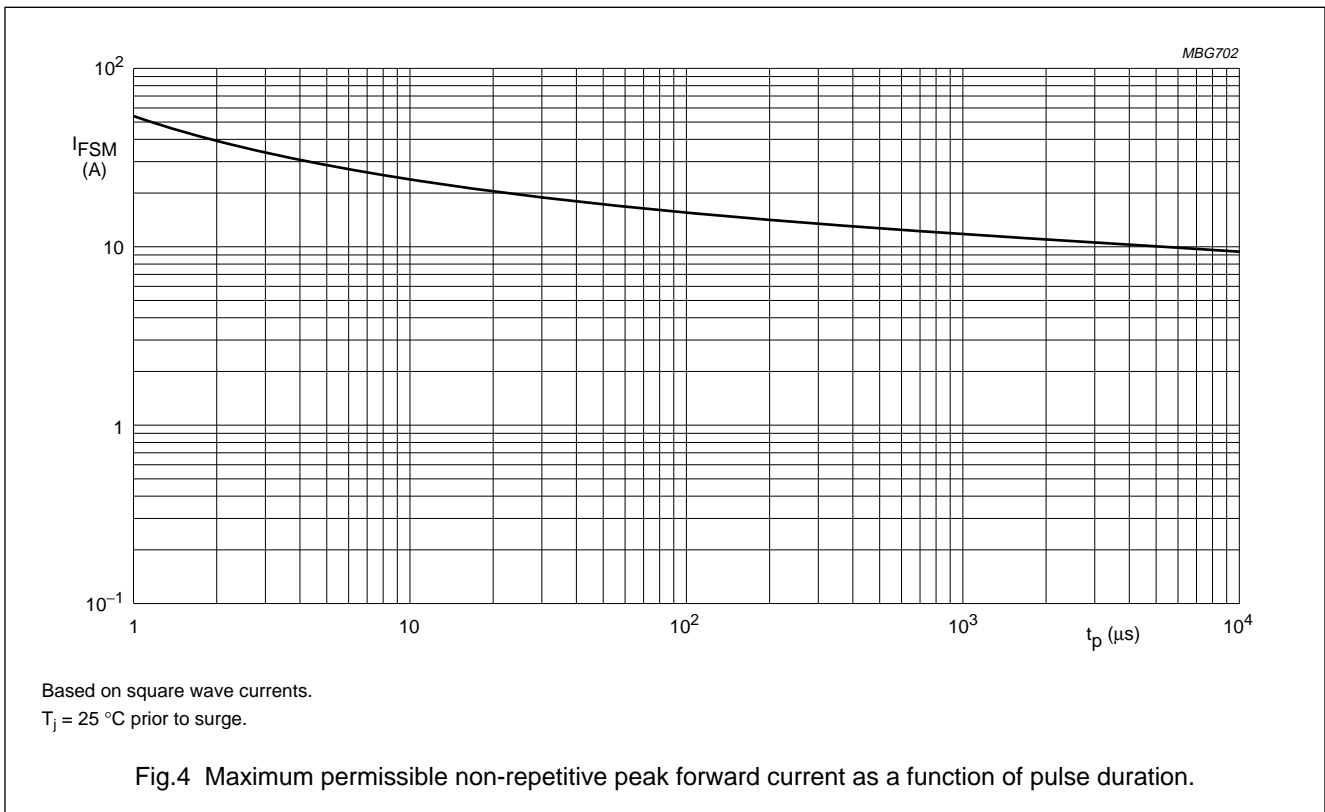
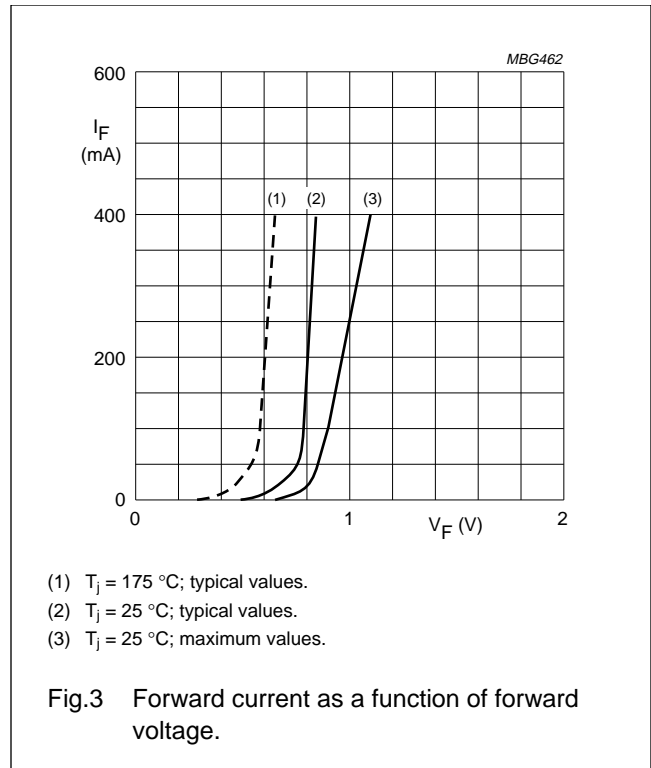
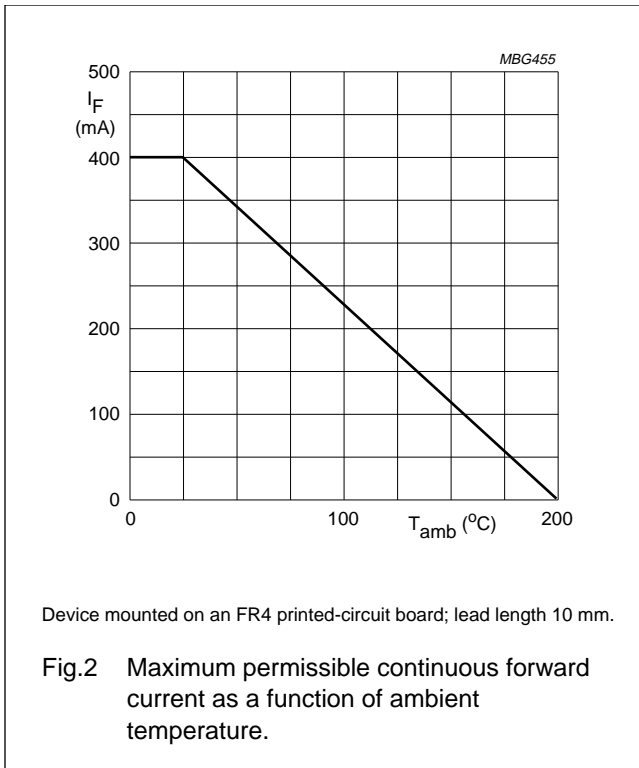
Note

1. Device mounted on a printed circuit-board without metallization pad.

General purpose diode

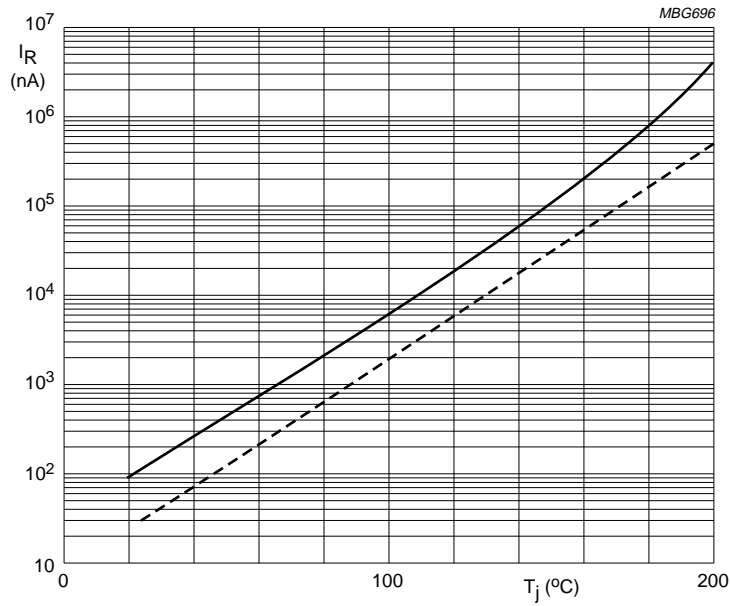
BAX14

GRAPHICAL DATA



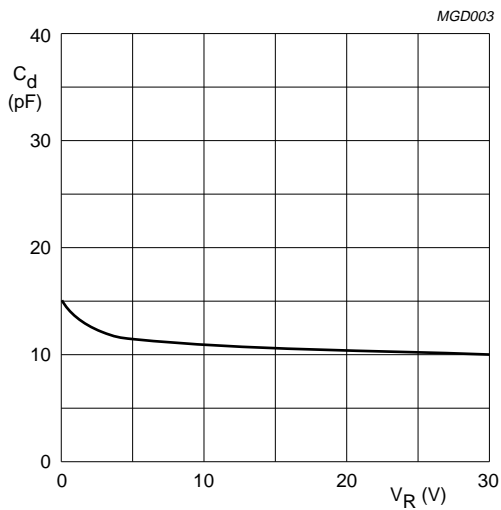
General purpose diode

BAX14



$V_R = 20$ V.
 Solid line; maximum values. Dotted line; typical values.

Fig.5 Reverse current as a function of junction temperature.

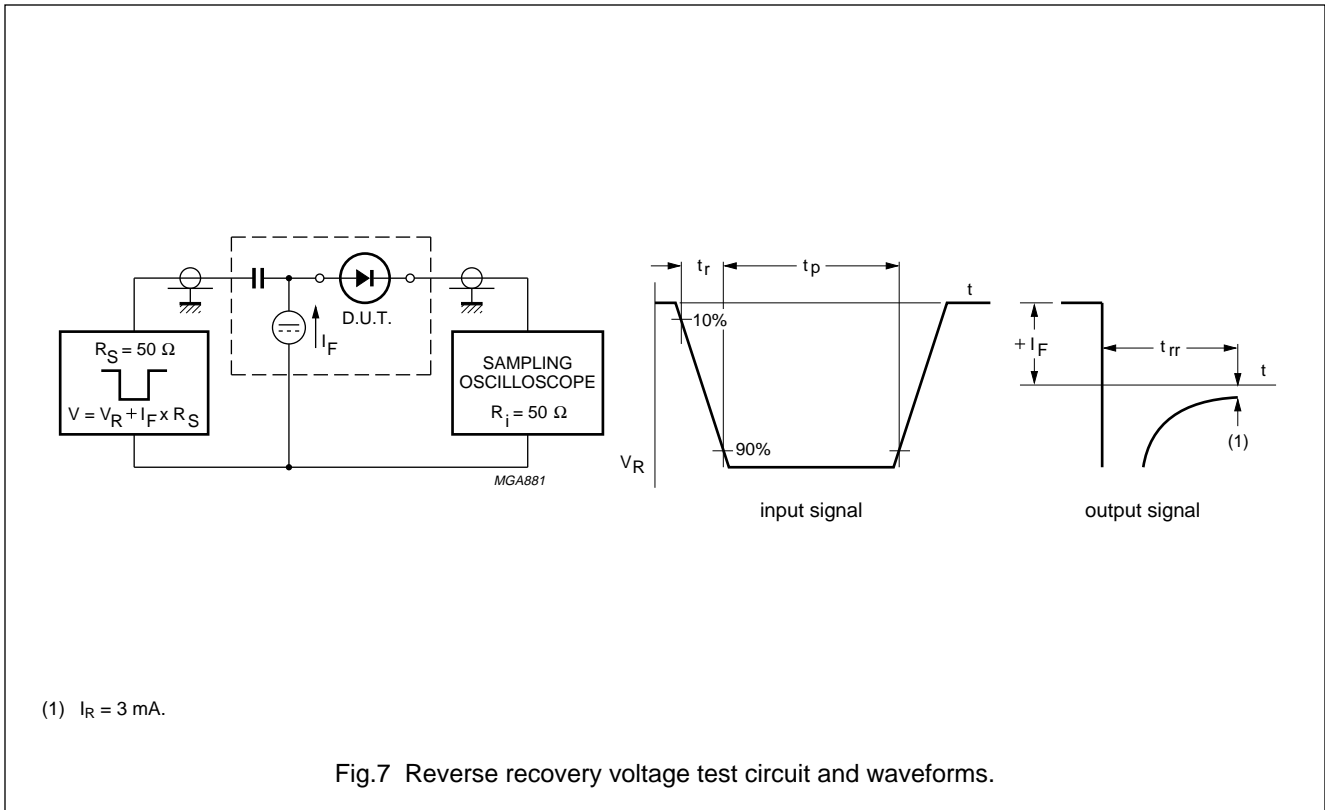


$f = 1$ MHz; $T_j = 25$ °C.

Fig.6 Diode capacitance as a function of reverse voltage; typical values.

General purpose diode

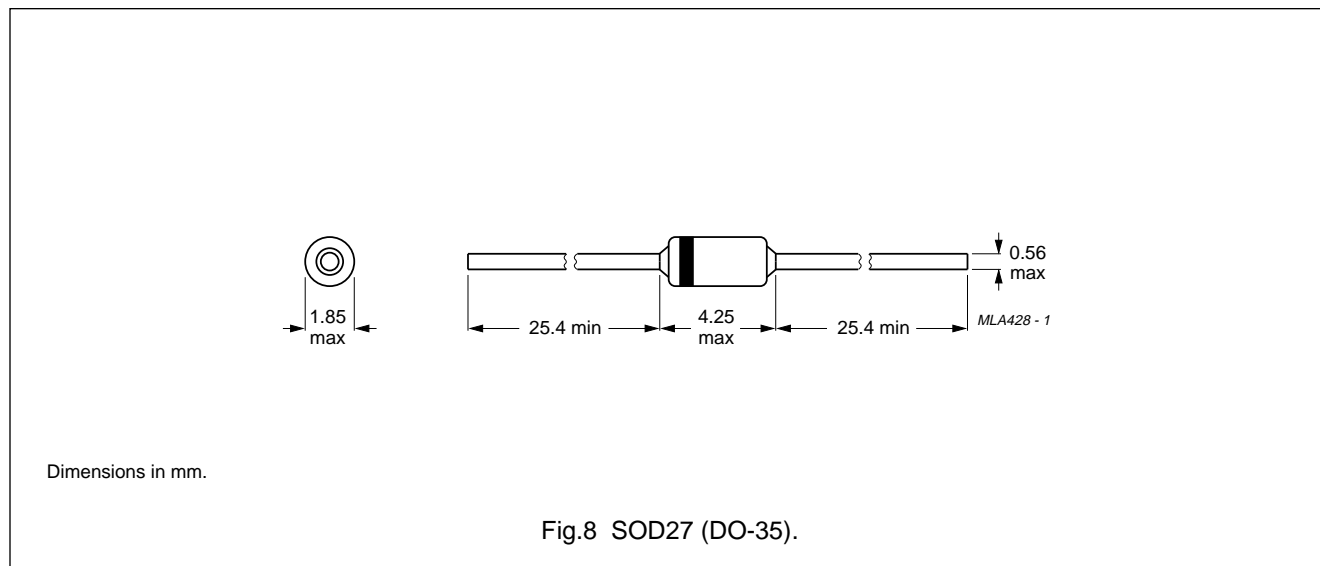
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General purpose diode

BAX14

PACKAGE OUTLINE



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. | |

LIFE SUPPORT APPLICATIONS

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips for any damages resulting from such improper use or sale.