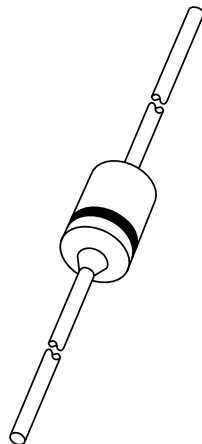


DATA SHEET



1N4001ID to 1N4007ID **Rectifiers**

Product specification
Supersedes data of April 1992
File under Discrete Semiconductors, SC01

1996 Jun 10

Rectifiers

1N4001ID to 1N4007ID

FEATURES

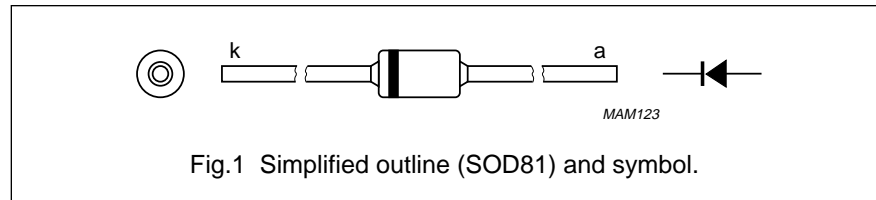
- Glass passivated
- High maximum operating temperature
- Low leakage current
- Excellent stability
- Available in ammo-pack.

DESCRIPTION

Cavity free cylindrical glass package through Implotec™(1) technology.

(1) Implotec is a trademark of Philips.

This package is hermetically sealed and fatigue free as coefficients of expansion of all used parts are matched.



LIMITING VALUES

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

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|-------------|-------------------------------------|---|------|--------------|------|
| V_{RRM} | repetitive peak reverse voltage | | | | |
| | 1N4001ID | | – | 50 | V |
| | 1N4002ID | | – | 100 | V |
| | 1N4003ID | | – | 200 | V |
| | 1N4004ID | | – | 400 | V |
| | 1N4005ID | | – | 600 | V |
| | 1N4006ID 1N4007ID | | – | 800 1 000 | V |
| V_R | continuous reverse voltage | | | | |
| | 1N4001ID | | – | 50 | V |
| | 1N4002ID | | – | 100 | V |
| | 1N4003ID | | – | 200 | V |
| | 1N4004ID | | – | 400 | V |
| | 1N4005ID | | – | 600 | V |
| | 1N4006ID 1N4007ID | | – | 800 1 000 | V |
| $I_{F(AV)}$ | average forward current | averaged over any 20 ms period; $T_{amb} = 75\text{ °C}$; see Fig.2 | – | 1.00 | A |
| | | averaged over any 20 ms period; $T_{amb} = 100\text{ °C}$; see Fig.2 | – | 0.75 | A |
| I_{FRM} | repetitive peak forward current | | – | 10 | A |
| I_{FSM} | non-repetitive peak forward current | half sinewave; 60 Hz | – | 20 | A |
| T_{stg} | storage temperature | | –65 | +175 | °C |
| T_j | junction temperature | | –65 | +175 | °C |

Rectifiers

1N4001ID to 1N4007ID

ELECTRICAL CHARACTERISTICS

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

| SYMBOL | PARAMETER | CONDITIONS | MAX. | UNIT |
|-------------|------------------------------------|---|------|---------------|
| V_F | forward voltage | $I_F = 1\text{ A}$; see see Fig.3 | 1.1 | V |
| $V_{F(AV)}$ | full-cycle average forward voltage | $I_{F(AV)} = 1\text{ A}$ | 0.8 | V |
| I_R | reverse current | $V_R = V_{Rmax}$ | 10 | μA |
| | | $V_R = V_{Rmax}$; $T_{amb} = 100\text{ °C}$ | 50 | μA |
| $I_{R(AV)}$ | full-cycle average reverse current | $V_R = V_{RRMmax}$; $T_{amb} = 75\text{ °C}$ | 30 | μA |

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|----------------|---|---------------------|-------|------|
| $R_{th\ j-tp}$ | thermal resistance from junction to tie-point | lead length = 10 mm | 60 | K/W |
| $R_{th\ j-a}$ | thermal resistance from junction to ambient | note 1 | 120 | K/W |

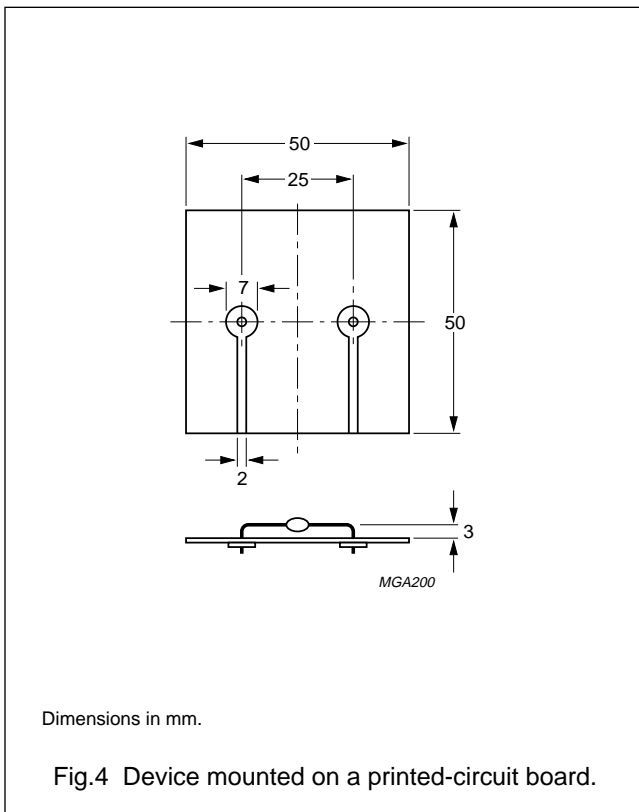
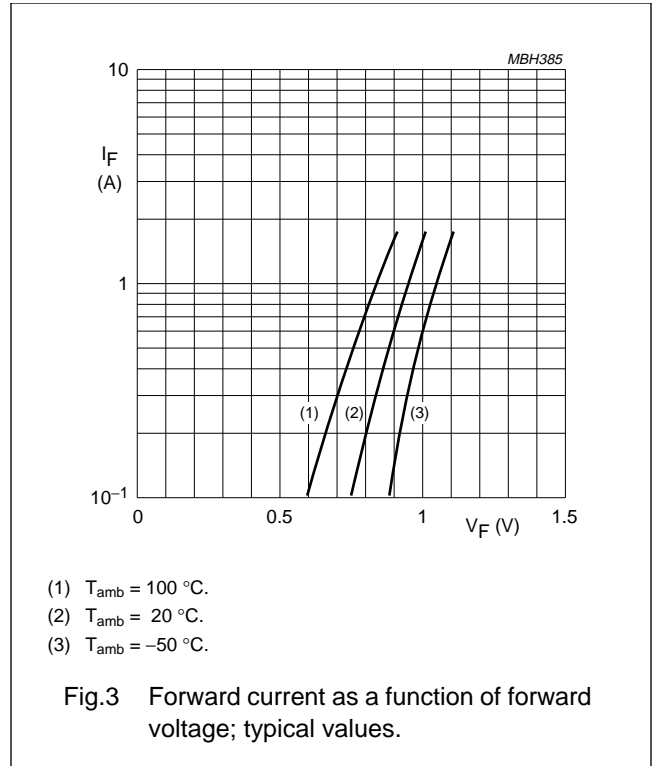
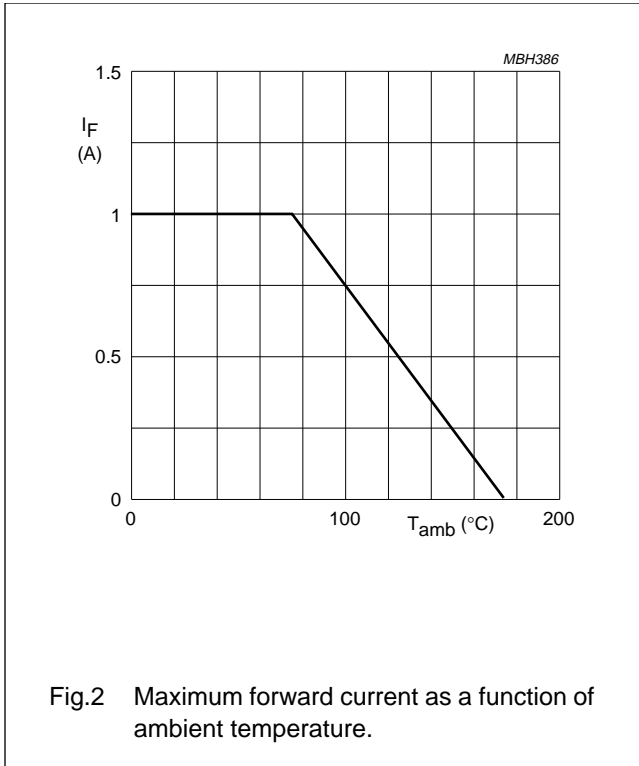
Note

1. Device mounted on epoxy-glass printed-circuit board, 1.5 mm thick; thickness of copper $\geq 40\ \mu\text{m}$, see Fig.4. For more information please refer to the "General Part of Handbook SC01".

Rectifiers

1N4001ID to 1N4007ID

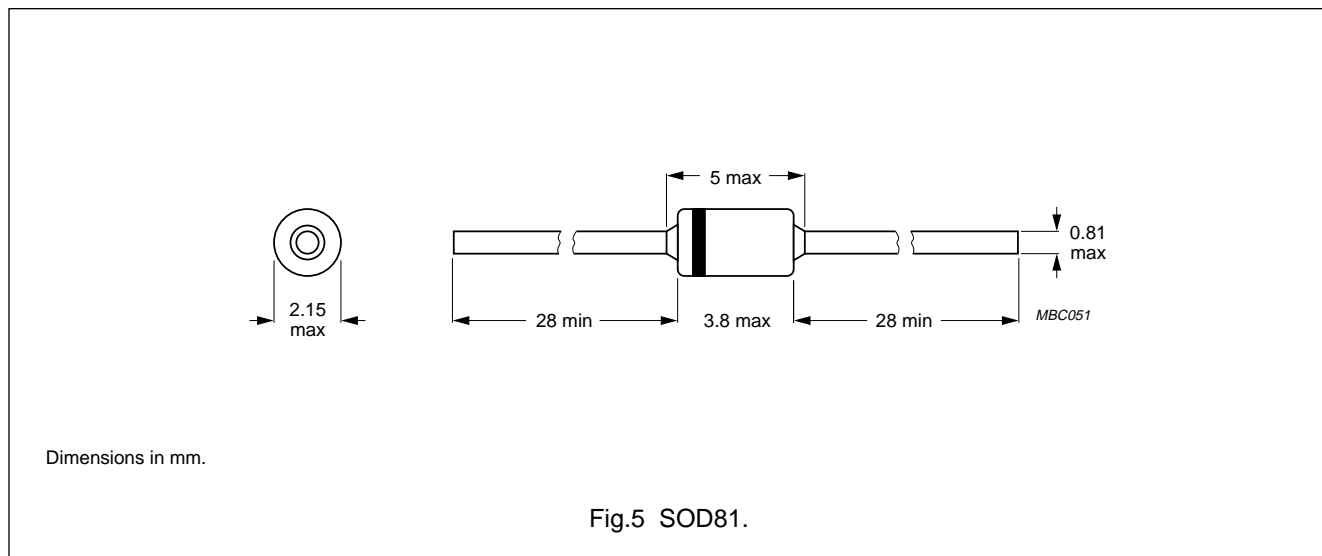
GRAPHICAL DATA



Rectifiers

1N4001ID to 1N4007ID

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.