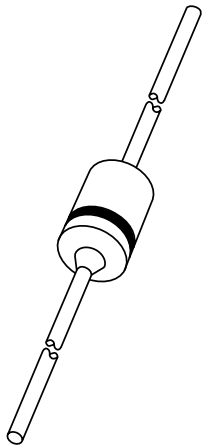


DATA SHEET



BYD163

Ultra fast low-loss rectifier

Product specification
Supersedes data of 1998 Dec 04

1999 Feb 10

Ultra fast low-loss rectifier

BYD163

FEATURES

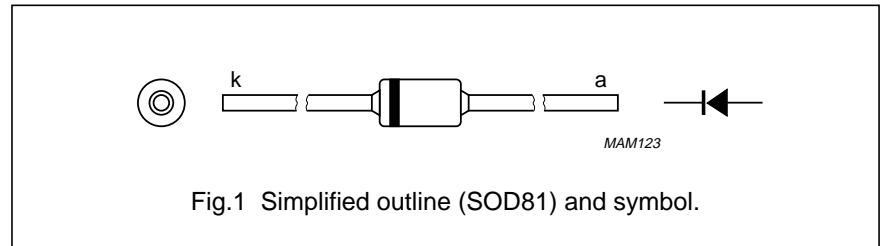
- Glass passivated
- High maximum operating temperature
- Low leakage current
- Excellent stability
- Available in ammo-pack.

DESCRIPTION

Cavity free cylindrical glass SOD81 package through Implotec™⁽¹⁾ technology. The SOD81 package is

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

(1) Implotec is a trademark of Philips.



LIMITING VALUES

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

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|-------------|-------------------------------------|---|------|------|------|
| V_{RRM} | repetitive peak reverse voltage | | – | 600 | V |
| V_R | continuous reverse voltage | | – | 600 | V |
| $I_{F(AV)}$ | average forward current | $T_{tp} = 95\text{ °C}$; lead length = 10 mm; averaged over any 20 ms period; see Figs 5 and 6 | – | 1 | A |
| I_{FSM} | non-repetitive peak forward current | $t = 10\text{ ms}$ half sinewave; $V_R = V_{RRMmax}$ | – | 25 | A |
| T_{stg} | storage temperature | | –65 | +175 | °C |
| T_j | junction temperature | | –65 | +175 | °C |

ELECTRICAL CHARACTERISTICS

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

| SYMBOL | PARAMETER | CONDITIONS | MAX. | UNIT |
|----------|-----------------------|---|------|---------------|
| V_F | forward voltage | $I_F = 1\text{ A}$; $T_j = 150\text{ °C}$; see Fig.2 | 1.05 | V |
| | | $I_F = 1\text{ A}$; see Fig.2 | 1.25 | V |
| I_R | reverse current | $V_R = V_{RRMmax}$; see Fig.3 | 5 | μA |
| | | $V_R = V_{RRMmax}$; $T_j = 150\text{ °C}$; see Fig.3 | 150 | μA |
| t_{rr} | reverse recovery time | when switched from $I_F = 0.5\text{ A}$ to $I_R = 1\text{ A}$; measured at $I_R = 0.25\text{ A}$ | 50 | ns |

Ultra fast low-loss rectifier

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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 |

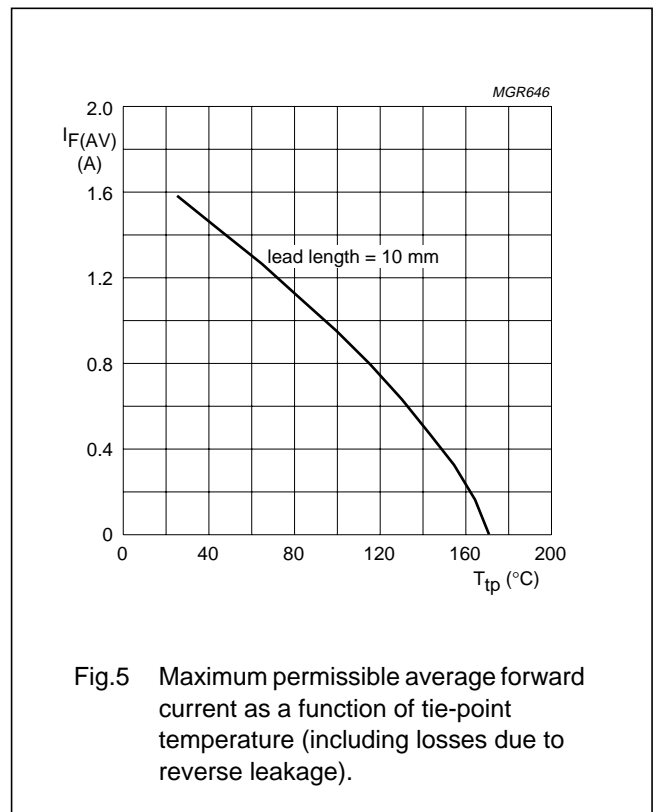
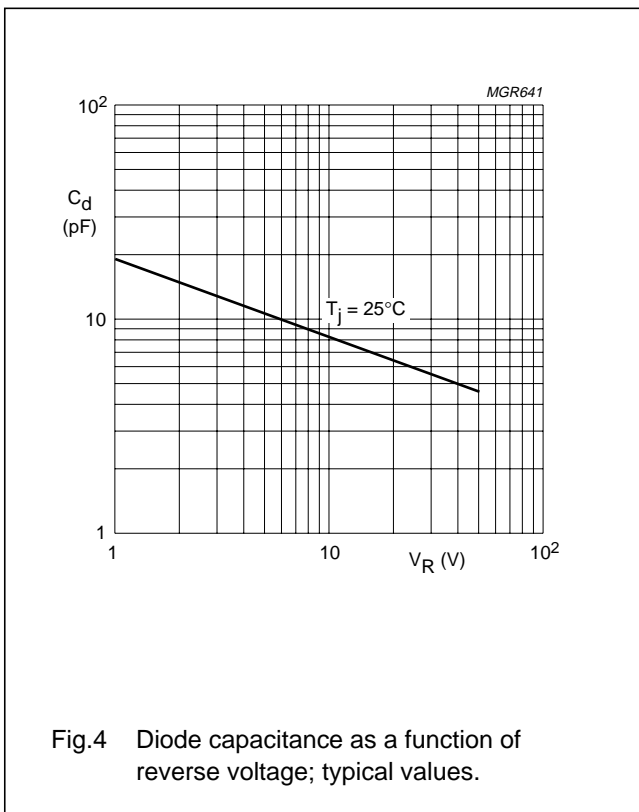
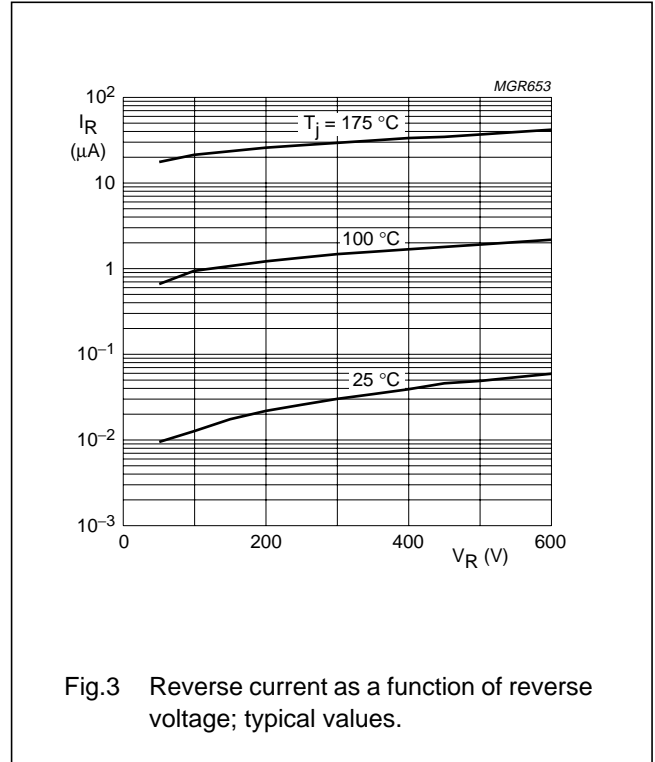
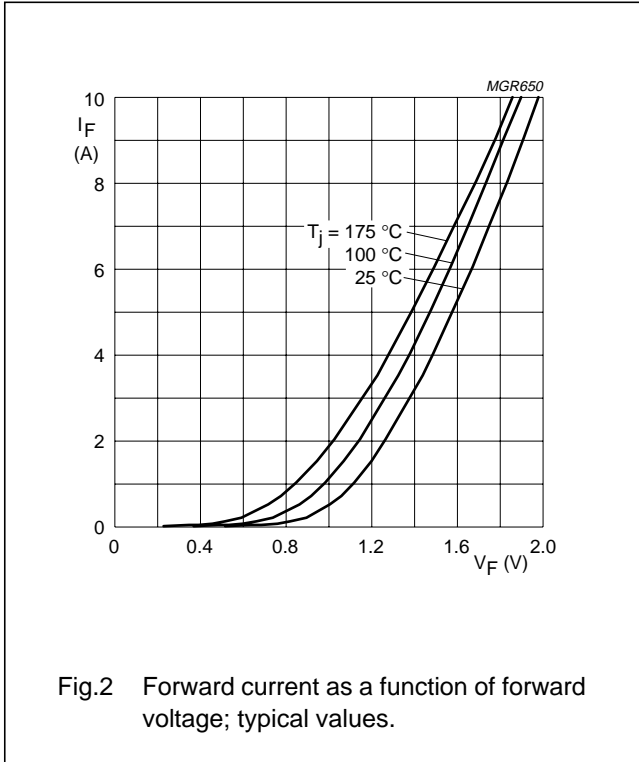
Note

1. Device mounted on epoxy-glass printed-circuit board, 1.5 mm thick; thickness of copper $\geq 40\ \mu\text{m}$, see Fig.7.
For more information please refer to the "*General Part of associated Handbook*".

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GRAPHICAL DATA



Ultra fast low-loss rectifier

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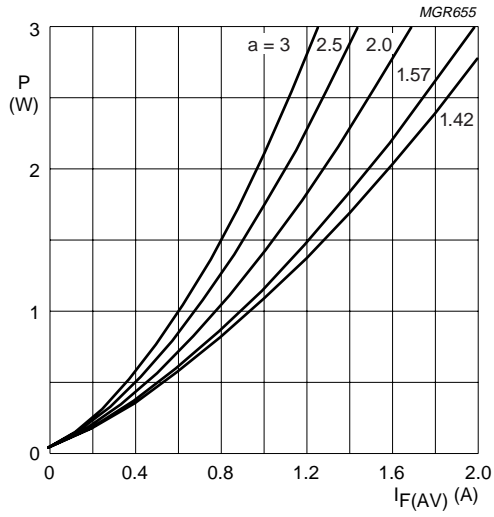
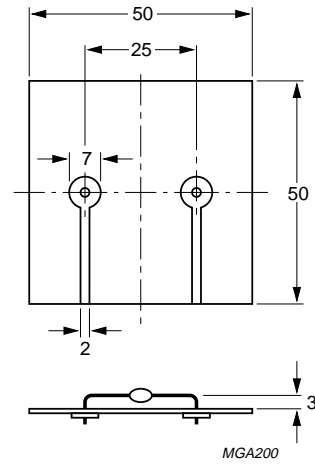


Fig.6 Maximum steady state power dissipation (forward plus leakage current losses, excluding switching losses) as a function of average forward current.



Dimensions in mm.

Fig.7 Device mounted on a printed-circuit board.

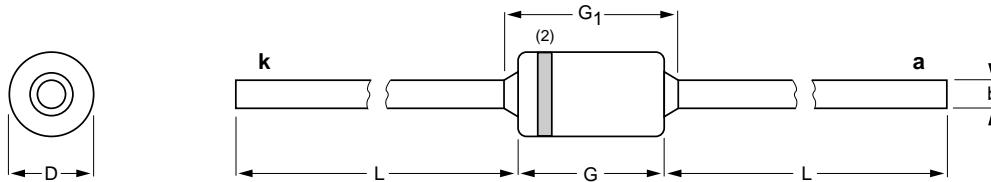
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PACKAGE OUTLINE

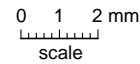
Hermetically sealed glass package;
Implotec™(1) technology; axial leaded; 2 leads

SOD81



DIMENSIONS (mm are the original dimensions)

| UNIT | b max. | D max. | G max. | G ₁ max. | L min. |
|------|--------|--------|--------|---------------------|--------|
| mm | 0.81 | 2.15 | 3.8 | 5 | 28 |



Notes

1. Implotec is a trademark of Philips.
2. The marking band indicates the cathode.

| OUTLINE VERSION | REFERENCES | | | EUROPEAN PROJECTION | ISSUE DATE |
|-----------------|------------|-------|------|---------------------|------------|
| | IEC | JEDEC | EIAJ | | |
| SOD81 | | | | | 97-06-20 |

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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Ultra fast low-loss rectifier

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Philips Semiconductors – a worldwide company

Argentina: see South America

Australia: 34 Waterloo Road, NORTH RYDE, NSW 2113,
Tel. +61 2 9805 4455, Fax. +61 2 9805 4466

Austria: Computerstr. 6, A-1101 WIEN, P.O. Box 213,
Tel. +43 1 60 101 1248, Fax. +43 1 60 101 1210

Belarus: Hotel Minsk Business Center, Bld. 3, r. 1211, Volodarski Str. 6,
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Belgium: see The Netherlands

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Bulgaria: Philips Bulgaria Ltd., Energoproject, 15th floor,
51 James Bourchier Blvd., 1407 SOFIA,
Tel. +359 2 68 9211, Fax. +359 2 68 9102

Canada: PHILIPS SEMICONDUCTORS/COMPONENTS,
Tel. +1 800 234 7381, Fax. +1 800 943 0087

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72 Tat Chee Avenue, Kowloon Tong, HONG KONG,
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Denmark: Sydhavnsgade 23, 1780 COPENHAGEN V,
Tel. +45 33 29 3333, Fax. +45 33 29 3905

Finland: Sinikalliontie 3, FIN-02630 ESPOO,
Tel. +358 9 615 800, Fax. +358 9 6158 0920

France: 51 Rue Carnot, BP317, 92156 SURESNES Cedex,
Tel. +33 1 4099 6161, Fax. +33 1 4099 6427

Germany: Hammerbrookstraße 69, D-20097 HAMBURG,
Tel. +49 40 2353 60, Fax. +49 40 2353 6300

Greece: No. 15, 25th March Street, GR 17778 TAVROS/ATHENS,
Tel. +30 1 489 4339/4239, Fax. +30 1 481 4240

Hungary: see Austria

India: Philips INDIA Ltd, Band Box Building, 2nd floor,
254-D, Dr. Annie Besant Road, Worli, MUMBAI 400 025,
Tel. +91 22 493 8541, Fax. +91 22 493 0966

Indonesia: PT Philips Development Corporation, Semiconductors Division,
Gedung Philips, Jl. Buncit Raya Kav.99-100, JAKARTA 12510,
Tel. +62 21 794 0040 ext. 2501, Fax. +62 21 794 0080

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Tel. +353 1 7640 000, Fax. +353 1 7640 200

Israel: RAPAC Electronics, 7 Kehilat Saloniki St, PO Box 18053,
TEL AVIV 61180, Tel. +972 3 645 0444, Fax. +972 3 649 1007

Italy: PHILIPS SEMICONDUCTORS, Piazza IV Novembre 3,
20124 MILANO, Tel. +39 2 6752 2531, Fax. +39 2 6752 2557

Japan: Philips Bldg 13-37, Kohnan 2-chome, Minato-ku,
TOKYO 108-8507, Tel. +81 3 3740 5130, Fax. +81 3 3740 5077

Korea: Philips House, 260-199 Itaewon-dong, Yongsan-ku, SEOUL,
Tel. +82 2 709 1412, Fax. +82 2 709 1415

Malaysia: No. 76 Jalan Universiti, 46200 PETALING JAYA, SELANGOR,
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Mexico: 5900 Gateway East, Suite 200, EL PASO, TEXAS 79905,
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Middle East: see Italy

Netherlands: Postbus 90050, 5600 PB EINDHOVEN, Bldg. VB,
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Tel. +64 9 849 4160, Fax. +64 9 849 7811

Norway: Box 1, Manglerud 0612, OSLO,
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Pakistan: see Singapore

Philippines: Philips Semiconductors Philippines Inc.,
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Metro MANILA, Tel. +63 2 816 6380, Fax. +63 2 817 3474

Poland: Ul. Lukiska 10, PL 04-123 WARSZAWA,
Tel. +48 22 612 2831, Fax. +48 22 612 2327

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Taiwan: Philips Semiconductors, 6F, No. 96, Chien Kuo N. Rd., Sec. 1,
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Ukraine: PHILIPS UKRAINE, 4 Patrice Lumumba str., Building B, Floor 7,
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Printed in The Netherlands

135002/00/02/pp8

Date of release: 1999 Feb 10

Document order number: 9397 750 05246

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