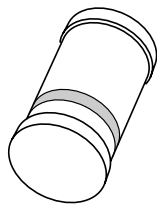


DATA SHEET



PRL5817; PRL5818; PRL5819 Schottky barrier diodes

Product specification
Supersedes data of 1996 May 03

1999 Apr 22

Schottky barrier diodes

PRLL5817; PRLL5818; PRLL5819

FEATURES

- Low switching losses
- Fast recovery time
- Guard ring protected
- Hermetically sealed glass SMD package.

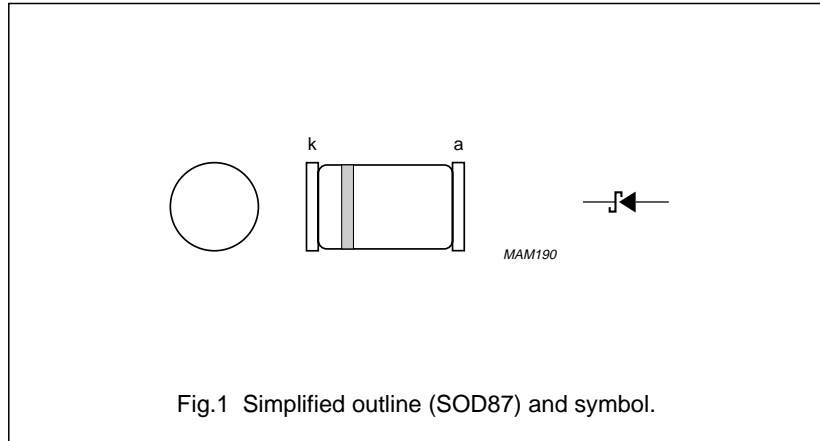
APPLICATIONS

- Low power, switched-mode power supplies
- Rectifying
- Polarity protection.

DESCRIPTION

The PRLL5817 to PRLL5819 types are Schottky barrier diodes fabricated in planar technology, and encapsulated in SOD87 hermetically sealed glass SMD packages incorporating Implotec™⁽¹⁾ technology.

(1) Implotec is a trademark of Philips.



MARKING

TYPE NUMBER	MARKING CODE
PRLL5817	9
PRLL5818	9
PRLL5819	9

Schottky barrier diodes

PRLL5817; PRLL5818; PRLL5819

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_R	continuous reverse voltage				
	PRLL5817		–	20	V
	PRLL5818		–	30	V
	PRLL5819		–	40	V
V_{RSM}	non-repetitive peak reverse voltage				
	PRLL5817		–	24	V
	PRLL5818		–	36	V
	PRLL5819		–	48	V
V_{RRM}	repetitive peak reverse voltage				
	PRLL5817		–	20	V
	PRLL5818		–	30	V
	PRLL5819		–	40	V
V_{RWM}	crest working reverse voltage				
	PRLL5817		–	20	V
	PRLL5818		–	30	V
	PRLL5819		–	40	V
$I_{F(AV)}$	average forward current	$T_{amb} = 60\text{ °C}$	–	1	A
I_{FSM}	non-repetitive peak forward current	$t = 10\text{ ms}$ half sine wave; $T_j = T_{j\text{ max}}$ prior to surge: $V_R = 0$	–	25	A
T_{stg}	storage temperature		–65	+175	°C
T_j	junction temperature		–	125	°C

Schottky barrier diodes

PRLL5817; PRLL5818; PRLL5819

ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	forward voltage PRLL5817	see Fig.2 $I_F = 0.1\text{ A}$	–	–	320	mV
		$I_F = 1\text{ A}$	–	–	450	mV
		$I_F = 3\text{ A}$	–	–	750	mV
V_F	forward voltage PRLL5818	see Fig.2 $I_F = 0.1\text{ A}$	–	–	330	mV
		$I_F = 1\text{ A}$	–	–	550	mV
		$I_F = 3\text{ A}$	–	–	875	mV
V_F	forward voltage PRLL5819	see Fig.2 $I_F = 0.1\text{ A}$	–	–	340	mV
		$I_F = 1\text{ A}$	–	–	600	mV
		$I_F = 3\text{ A}$	–	–	900	mV
I_R	reverse current	$V_R = V_{RRMmax}$; note 1	–	0.5	1	mA
		$V_R = V_{RRMmax}$; $T_j = 100\text{ °C}$	–	5	10	mA
C_d	diode capacitance PRLL5817 PRLL5818 PRLL5819	$V_R = 4\text{ V}$; $f = 1\text{ MHz}$	–	70	–	pF
			–	50	–	pF
			–	50	–	pF

Note

1. Pulse test: $t_p = 300\text{ }\mu\text{s}$; $\delta = 0.02$.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	150	K/W

Note

1. Refer to SOD87 standard mounting conditions.

Schottky barrier diodes

PRL5817; PRL5818; PRL5819

GRAPHICAL DATA

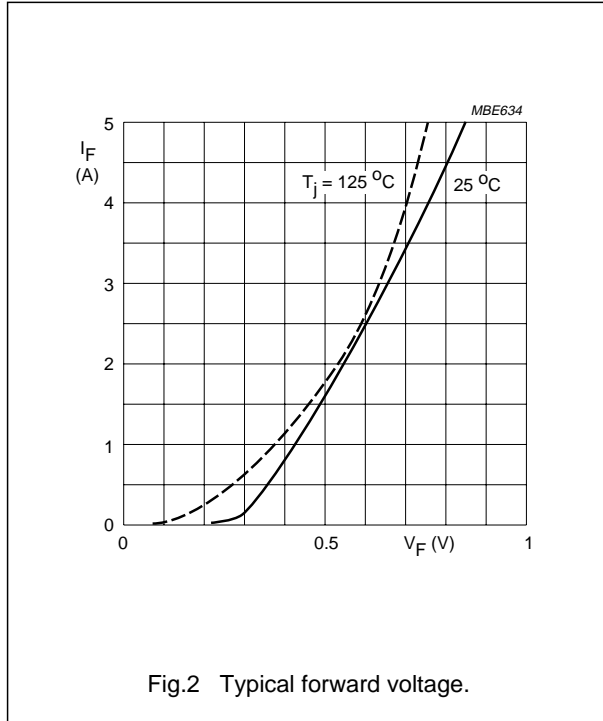


Fig.2 Typical forward voltage.

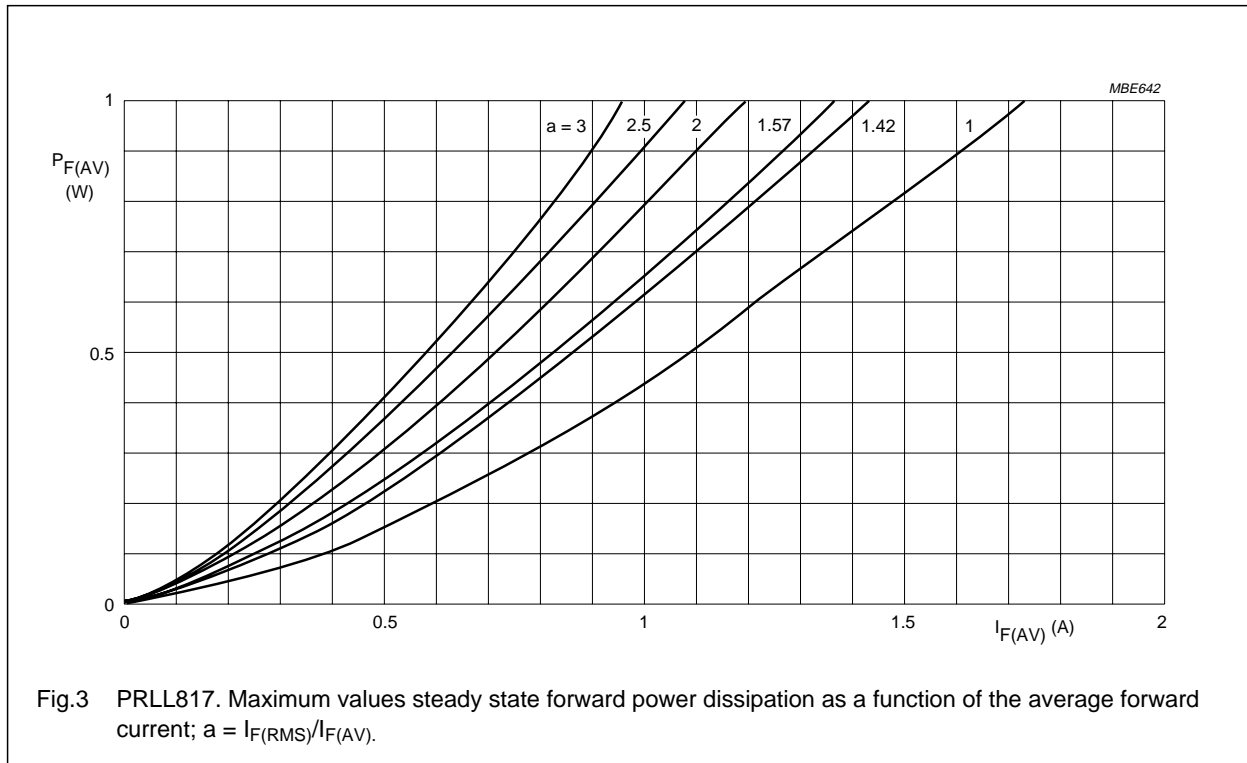
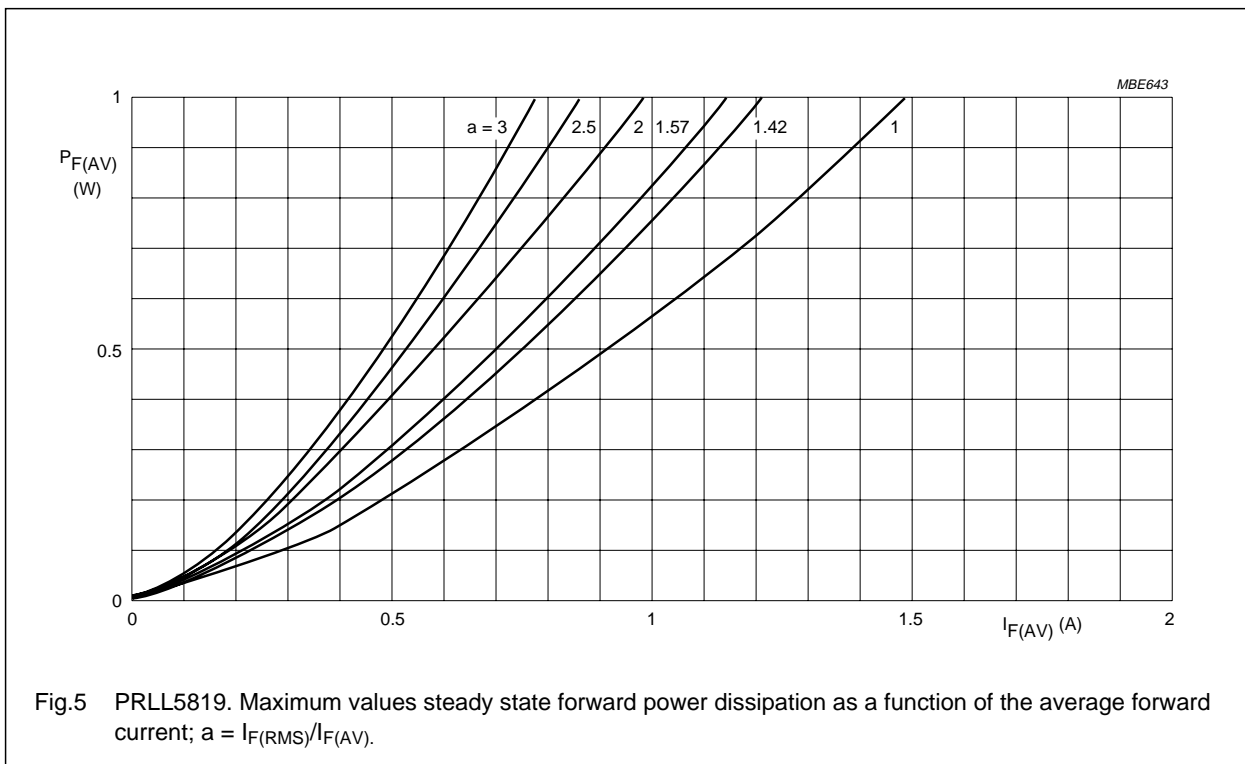
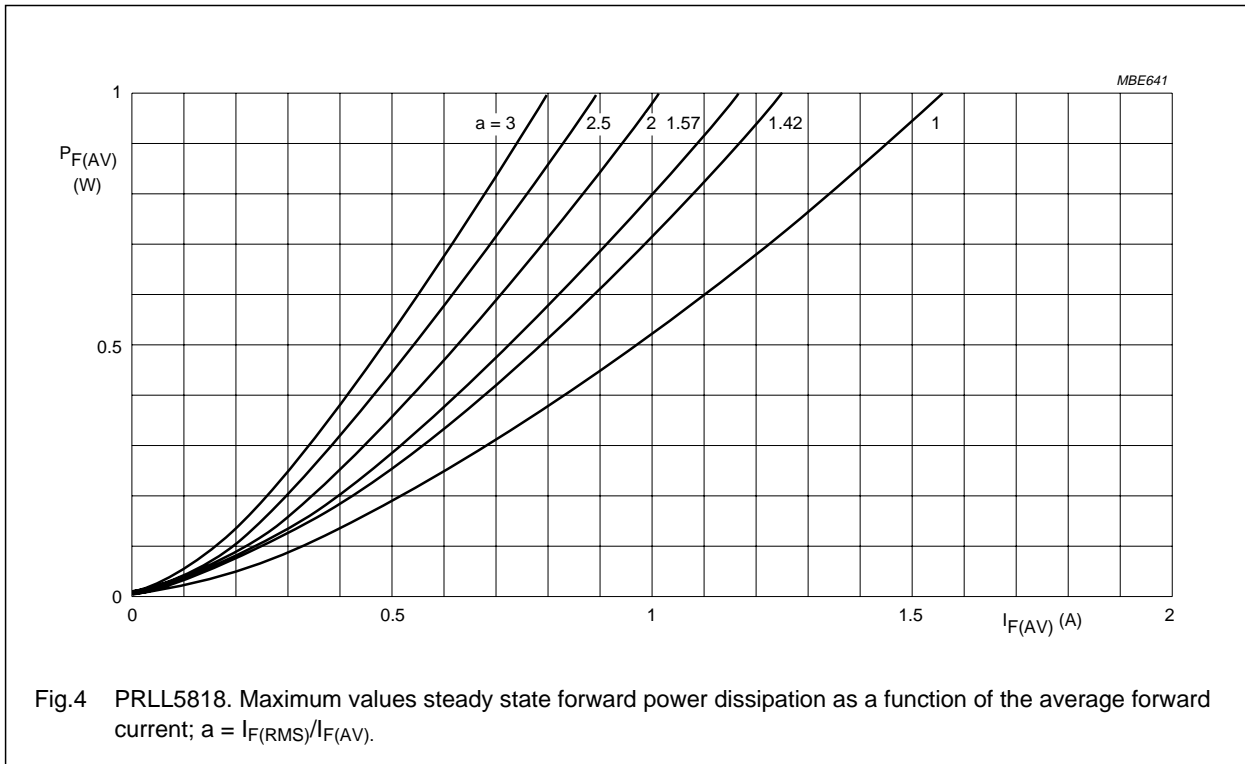


Fig.3 PRL817. Maximum values steady state forward power dissipation as a function of the average forward current; $a = I_{F(RMS)}/I_{F(AV)}$.

Schottky barrier diodes

PRL5817; PRL5818; PRL5819



Schottky barrier diodes

PRLL5817; PRLL5818; PRLL5819

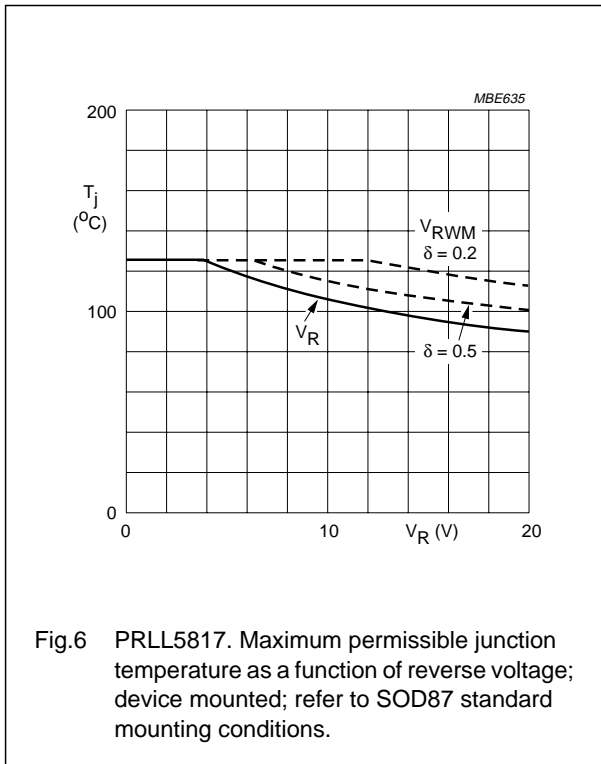


Fig.6 PRLL5817. Maximum permissible junction temperature as a function of reverse voltage; device mounted; refer to SOD87 standard mounting conditions.

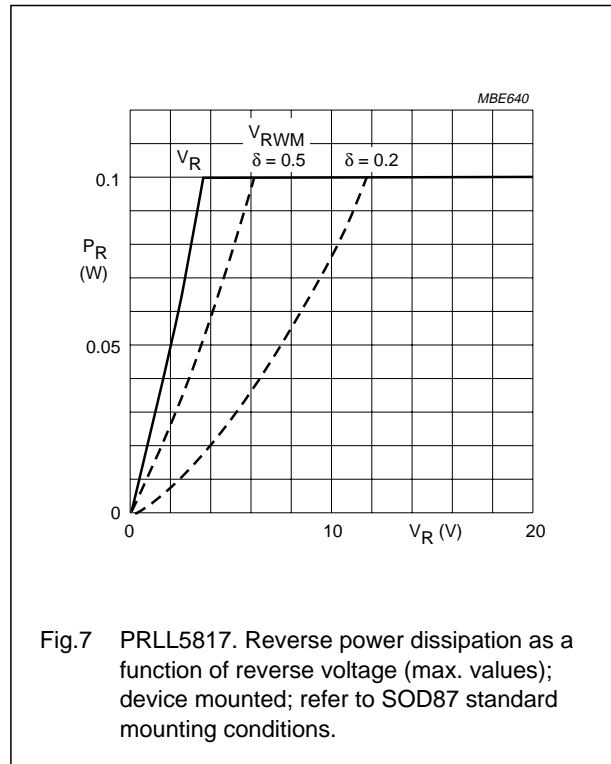


Fig.7 PRLL5817. Reverse power dissipation as a function of reverse voltage (max. values); device mounted; refer to SOD87 standard mounting conditions.

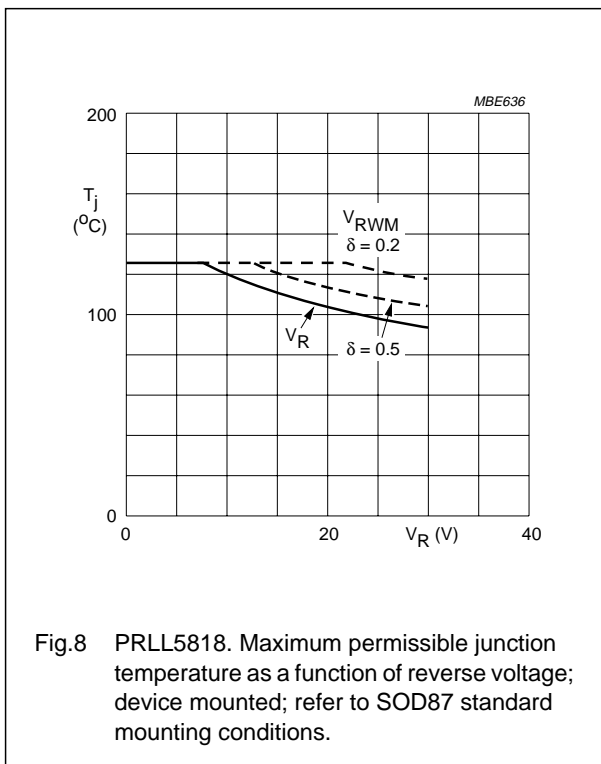


Fig.8 PRLL5818. Maximum permissible junction temperature as a function of reverse voltage; device mounted; refer to SOD87 standard mounting conditions.

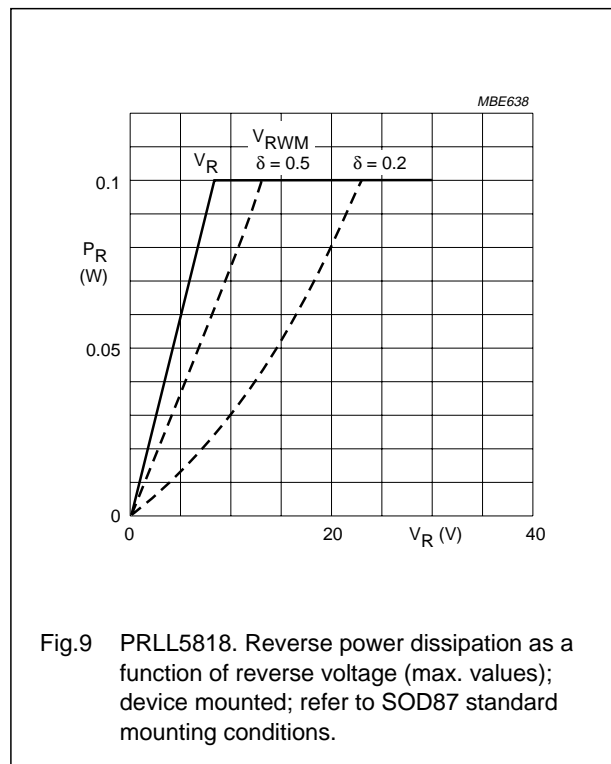
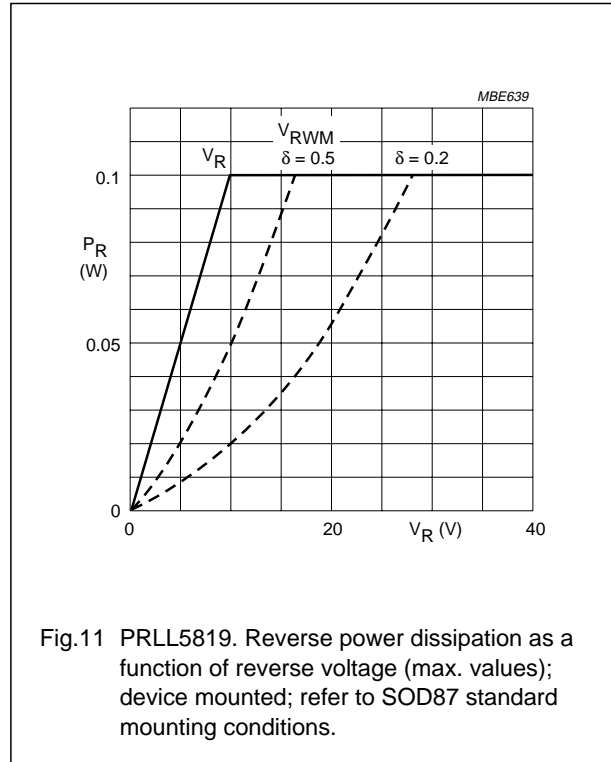
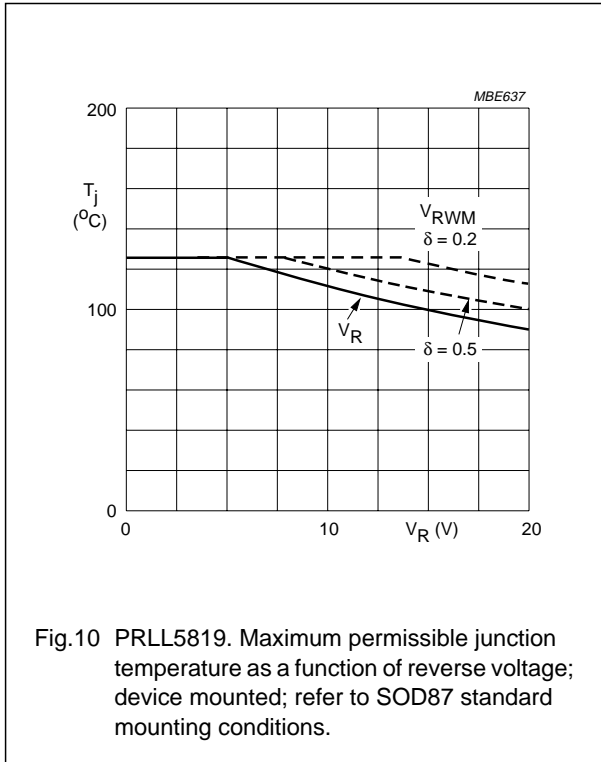


Fig.9 PRLL5818. Reverse power dissipation as a function of reverse voltage (max. values); device mounted; refer to SOD87 standard mounting conditions.

Schottky barrier diodes

PRL5817; PRL5818; PRL5819



Schottky barrier diodes

PRLL5817; PRLL5818; PRLL5819

PACKAGE OUTLINE

Hermetically sealed glass surface mounted package;
Implotec™(1) technology; 2 connectors

SOD87

DIMENSIONS (mm are the original dimensions)

UNIT	D	D1	H	L
mm	2.1 2.0	2.0 1.8	3.7 3.3	0.3

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

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOD87	100H03					99-03-31

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.

Schottky barrier diodes

PRL5817; PRL5818; PRL5819

NOTES

Schottky barrier diodes

PRL5817; PRL5818; PRL5819

NOTES

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,
220050 MINSK, Tel. +375 172 20 0733, Fax. +375 172 20 0773

Belgium: see The Netherlands

Brazil: see South America

Bulgaria: Philips Bulgaria Ltd., Energoproject, 15th floor,
51 James Bouchier 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

China/Hong Kong: 501 Hong Kong Industrial Technology Centre,
72 Tat Chee Avenue, Kowloon Tong, HONG KONG,
Tel. +852 2319 7888, Fax. +852 2319 7700

Colombia: see South America

Czech Republic: see Austria

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

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

Ireland: Newstead, Clonskeagh, DUBLIN 14,
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,
Tel. +60 3 750 5214, Fax. +60 3 757 4880

Mexico: 5900 Gateway East, Suite 200, EL PASO, TEXAS 79905,
Tel. +9-5 800 234 7381, Fax +9-5 800 943 0087

Middle East: see Italy

Netherlands: Postbus 90050, 5600 PB EINDHOVEN, Bldg. VB,
Tel. +31 40 27 82785, Fax. +31 40 27 88399

New Zealand: 2 Wagener Place, C.P.O. Box 1041, AUCKLAND,
Tel. +64 9 849 4160, Fax. +64 9 849 7811

Norway: Box 1, Manglerud 0612, OSLO,
Tel. +47 22 74 8000, Fax. +47 22 74 8341

Pakistan: see Singapore

Philippines: Philips Semiconductors Philippines Inc.,
106 Valero St. Salcedo Village, P.O. Box 2108 MCC, MAKATI,
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

Portugal: see Spain

Romania: see Italy

Russia: Philips Russia, Ul. Usatcheva 35A, 119048 MOSCOW,
Tel. +7 095 755 6918, Fax. +7 095 755 6919

Singapore: Lorong 1, Toa Payoh, SINGAPORE 319762,
Tel. +65 350 2538, Fax. +65 251 6500

Slovakia: see Austria

Slovenia: see Italy

South Africa: S. A. PHILIPS Pty Ltd., 195-215 Main Road Martindale,
2092 JOHANNESBURG, P.O. Box 7430 Johannesburg 2000,
Tel. +27 11 470 5911, Fax. +27 11 470 5494

South America: Al. Vicente Pinzon, 173, 6th floor,
04547-130 SÃO PAULO, SP, Brazil,
Tel. +55 11 821 2333, Fax. +55 11 821 2382

Spain: Balmes 22, 08007 BARCELONA,
Tel. +34 93 301 6312, Fax. +34 93 301 4107

Sweden: Kottbygatan 7, Akalla, S-16485 STOCKHOLM,
Tel. +46 8 5985 2000, Fax. +46 8 5985 2745

Switzerland: Allmendstrasse 140, CH-8027 ZÜRICH,
Tel. +41 1 488 2741 Fax. +41 1 488 3263

Taiwan: Philips Semiconductors, 6F, No. 96, Chien Kuo N. Rd., Sec. 1,
TAIPEI, Taiwan Tel. +886 2 2134 2886, Fax. +886 2 2134 2874

Thailand: PHILIPS ELECTRONICS (THAILAND) Ltd.,
209/2 Sanpavuth-Bangna Road Prakanong, BANGKOK 10260,
Tel. +66 2 745 4090, Fax. +66 2 398 0793

Turkey: Talatpasa Cad. No. 5, 80640 GÜLTEPE/ISTANBUL,
Tel. +90 212 279 2770, Fax. +90 212 282 6707

Ukraine: PHILIPS UKRAINE, 4 Patrice Lumumba str., Building B, Floor 7,
252042 KIEV, Tel. +380 44 264 2776, Fax. +380 44 268 0461

United Kingdom: Philips Semiconductors Ltd., 276 Bath Road, Hayes,
MIDDLESEX UB3 5BX, Tel. +44 181 730 5000, Fax. +44 181 754 8421

United States: 811 East Arques Avenue, SUNNYVALE, CA 94088-3409,
Tel. +1 800 234 7381, Fax. +1 800 943 0087

Uruguay: see South America

Vietnam: see Singapore

Yugoslavia: PHILIPS, Trg N. Pasica 5/v, 11000 BEOGRAD,
Tel. +381 11 62 5344, Fax. +381 11 63 5777

For all other countries apply to: Philips Semiconductors,
International Marketing & Sales Communications, Building BE-p, P.O. Box 218,
5600 MD EINDHOVEN, The Netherlands, Fax. +31 40 27 24825

Internet: <http://www.semiconductors.philips.com>

© Philips Electronics N.V. 1999

SCA63

All rights are reserved. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner.

The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice. No liability will be accepted by the publisher for any consequence of its use. Publication thereof does not convey nor imply any license under patent- or other industrial or intellectual property rights.

Printed in The Netherlands

115002/00/02/pp12

Date of release: 1999 Apr 22

Document order number: 9397 750 05474

Let's make things better.

**Philips
Semiconductors**



PHILIPS