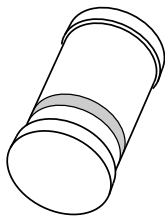


DATA SHEET



PRL5817; PRL5818; PRL5819 Schottky barrier diodes

Product specification
Supersedes data of November 1993
File under Discrete Semiconductors, SC01

1996 May 03

Schottky barrier diodes

PRLL5817; PRLL5818; PRLL5819

FEATURES

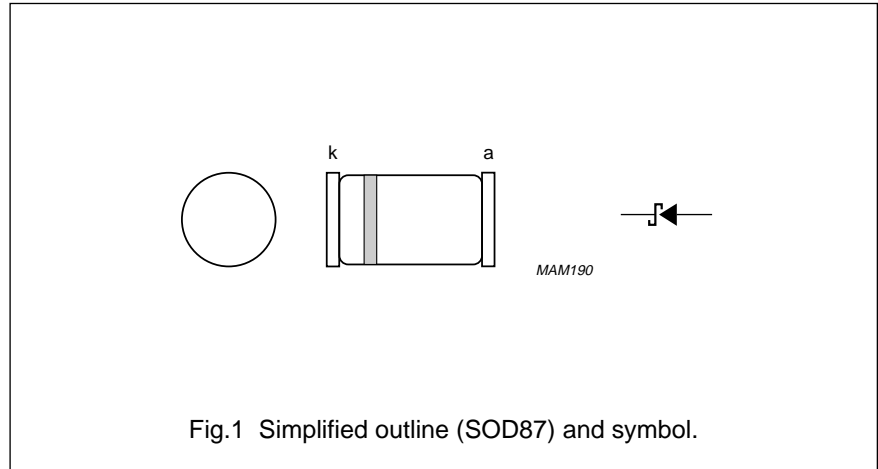
- Low switching losses
- Fast recovery time
- Guard ring protected
- Hermetically sealed glass SMD package.

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 ImplotecTM(1) technology.



MARKING

| TYPE NUMBER | MARKING CODE |
|-------------|--------------|
| PRLL5817 | 817 PH |
| PRLL5818 | 818 PH |
| PRLL5819 | 819 PH |

(1) Implotec is a trademark of Philips.

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. Pulsed 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

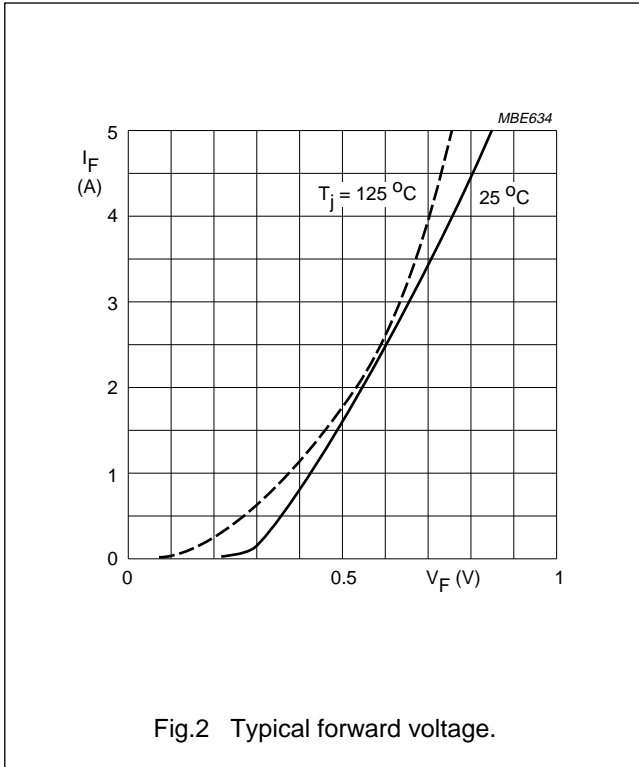


Fig.2 Typical forward voltage.

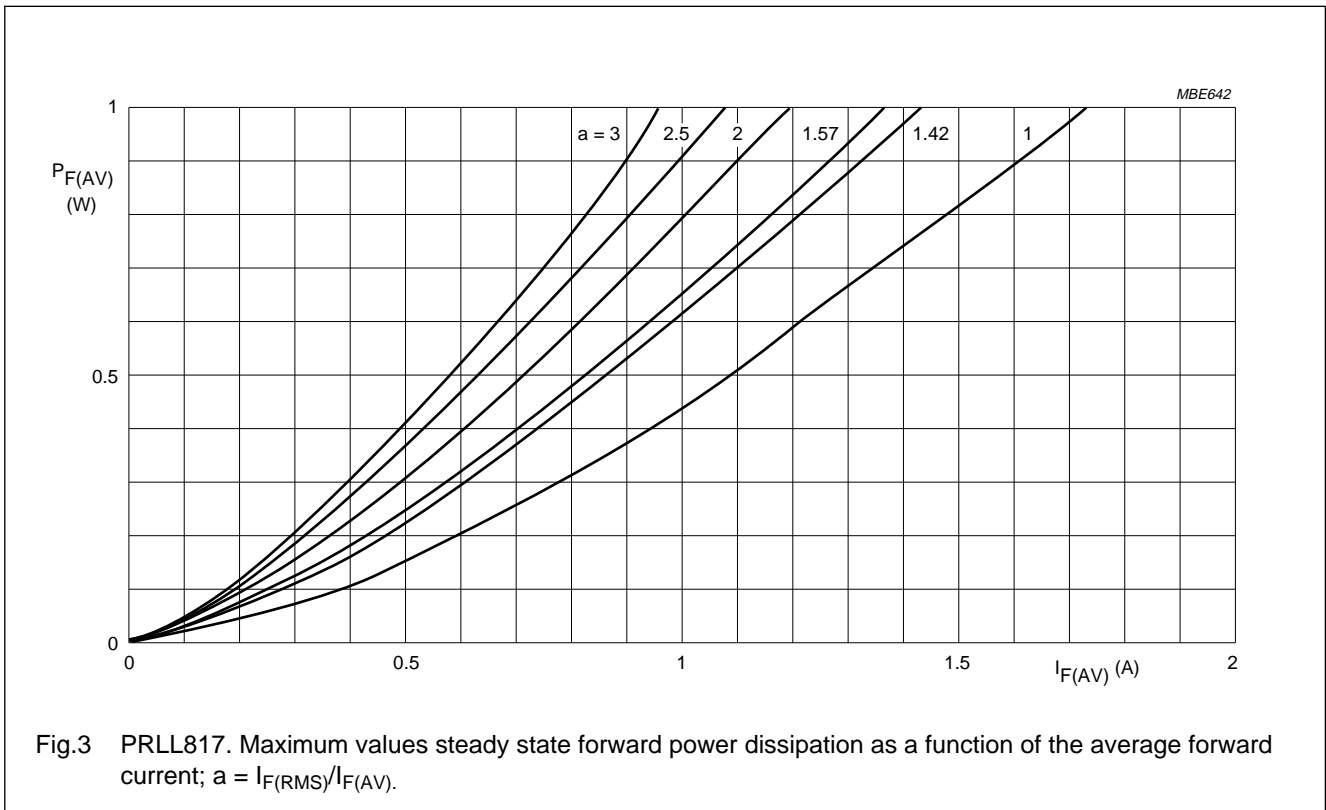
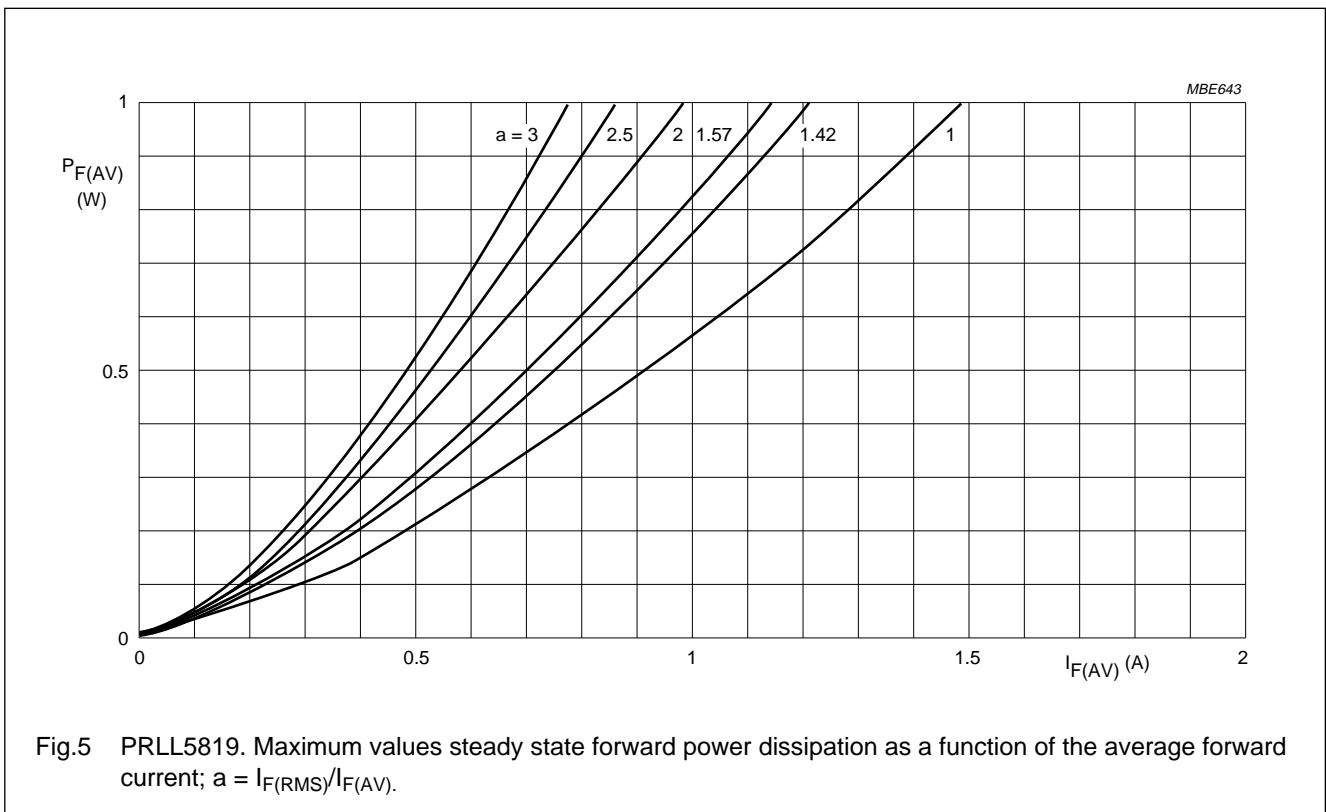
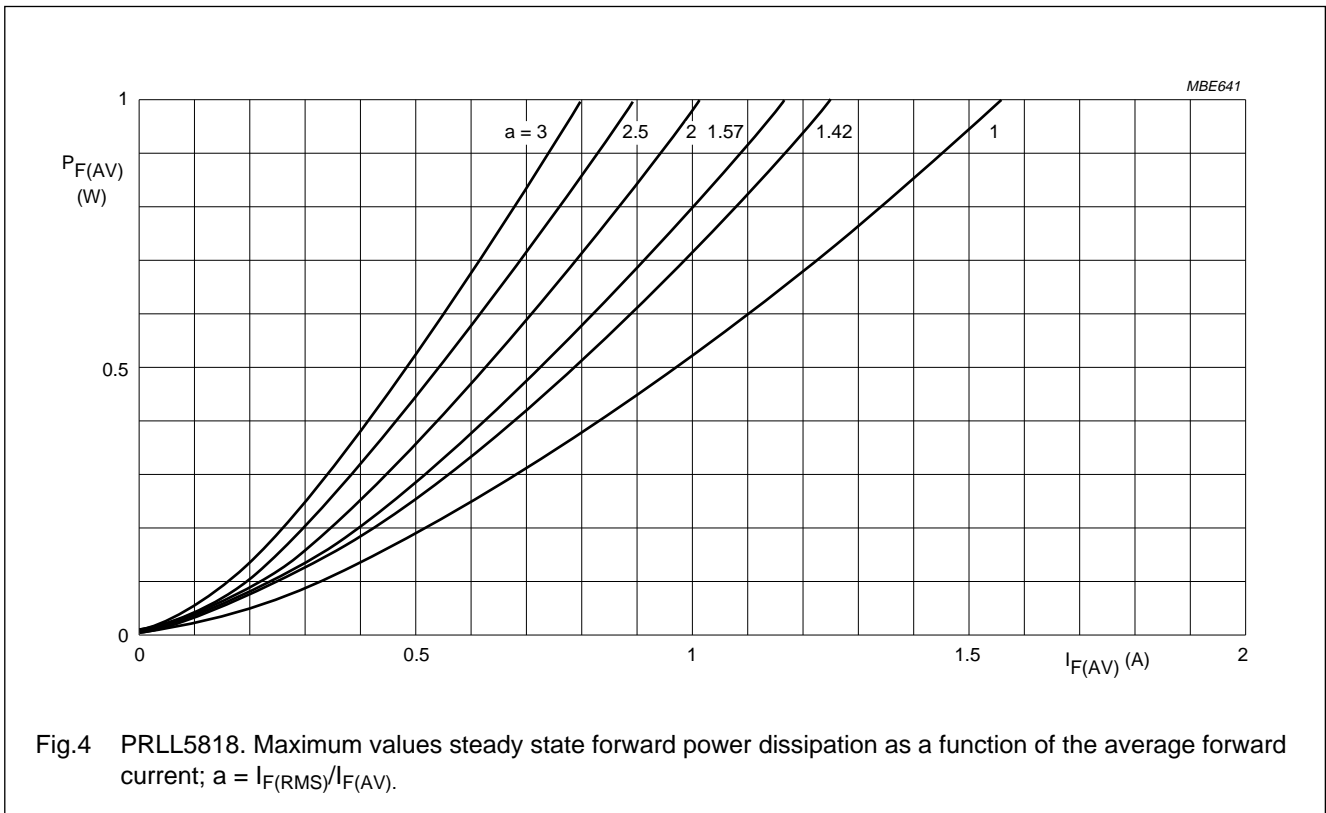


Fig.3 PRL5817. Maximum values steady state forward power dissipation as a function of the average forward current; $a = I_{F(RMS)}/I_{F(AV)}$.

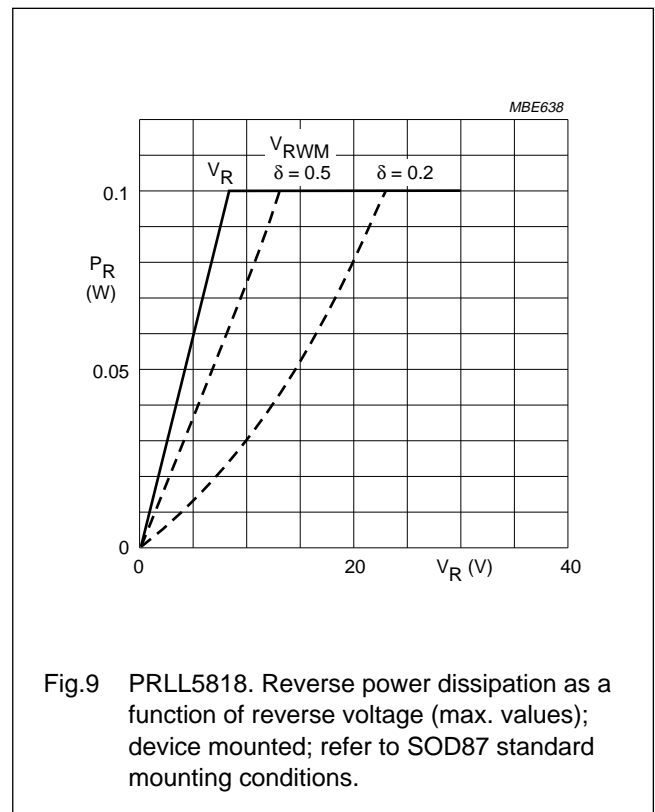
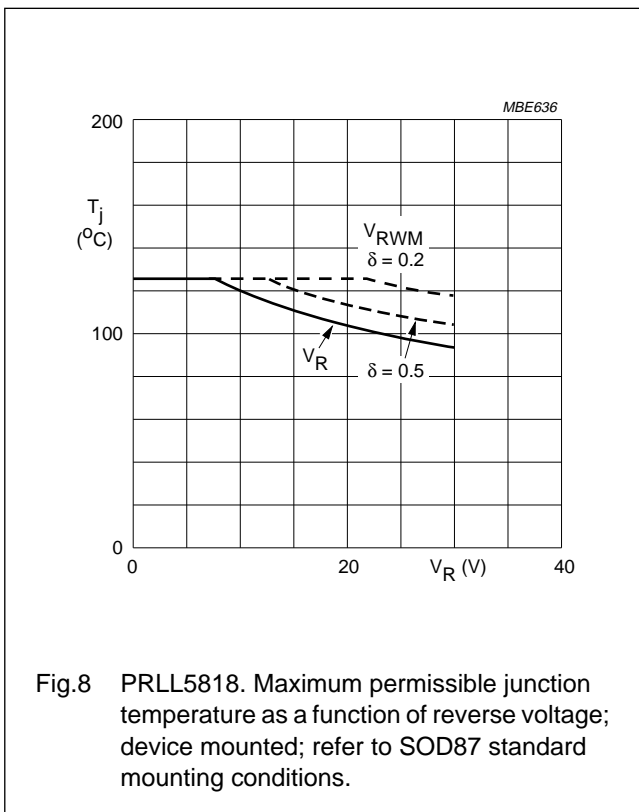
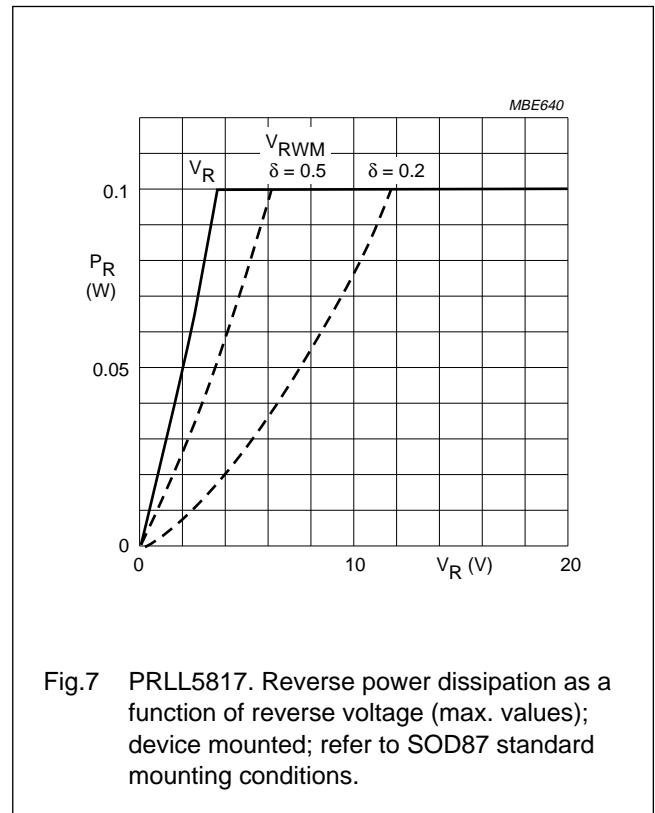
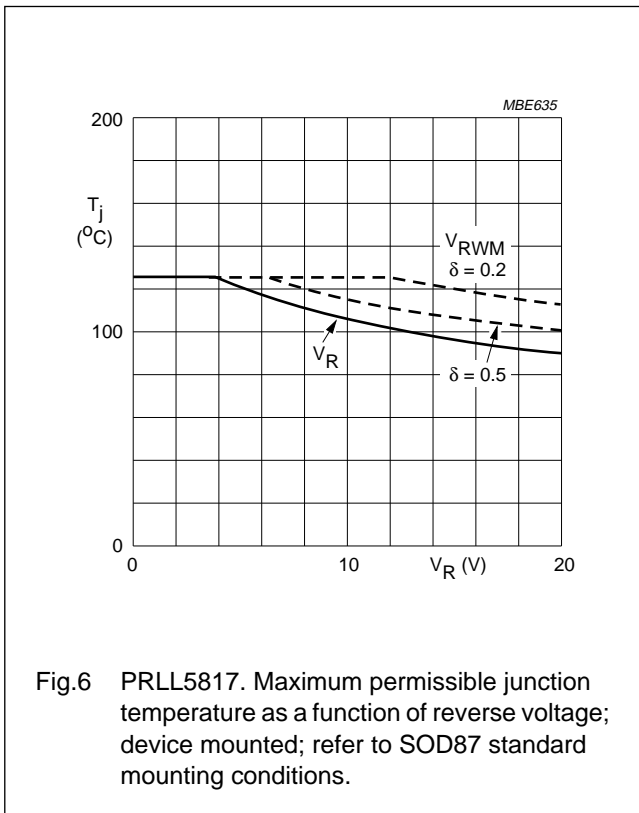
Schottky barrier diodes

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Schottky barrier diodes

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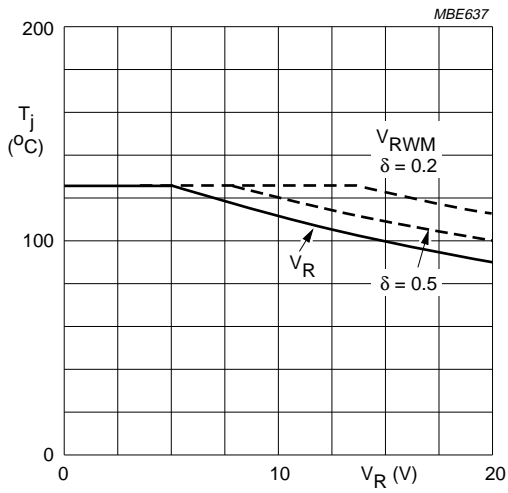


Fig.10 PRL5819. Maximum permissible junction temperature as a function of reverse voltage; device mounted; refer to SOD87 standard mounting conditions.

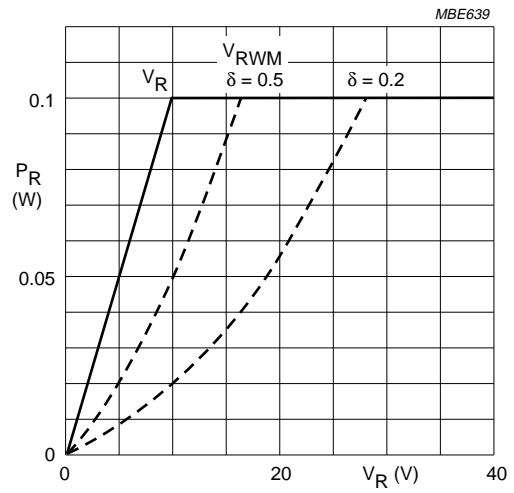
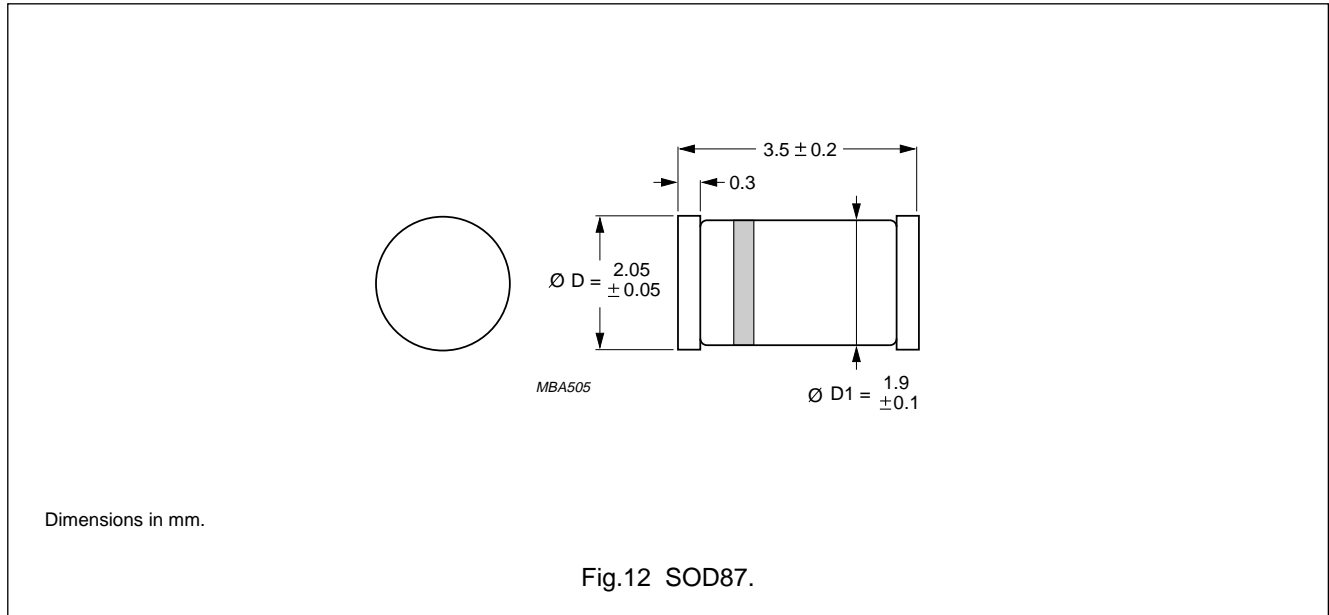


Fig.11 PRL5819. Reverse power dissipation as a function of reverse voltage (max. values); device mounted; refer to SOD87 standard mounting conditions.

Schottky barrier diodes

PRL5817; PRL5818; PRL5819

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.