

Schottky Barrier Diode

1N5818

30V/1A

DATASHEET

OEM – Philips

Source: Philips Databook 1999

Schottky barrier diodes**1N5817; 1N5818; 1N5819****FEATURES**

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

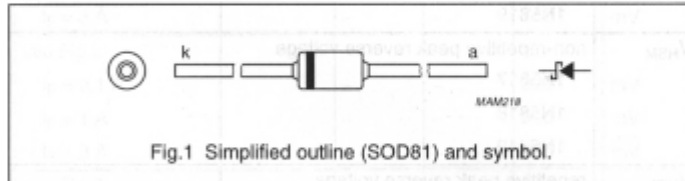
APPLICATIONS

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

DESCRIPTION

The 1N5817 to 1N5819 types are Schottky barrier diodes fabricated in planar technology, and encapsulated in SOD81 hermetically sealed glass packages incorporating Implotec^{TM(1)} technology.

(1) Implotec is a trademark of Philips.



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LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_R	continuous reverse voltage				
	1N5817		–	20	V
	1N5818		–	30	V
	1N5819		–	40	V
V_{RSM}	non-repetitive peak reverse voltage				
	1N5817		–	24	V
	1N5818		–	36	V
	1N5819		–	48	V
V_{RRM}	repetitive peak reverse voltage				
	1N5817		–	20	V
	1N5818		–	30	V
	1N5819		–	40	V
V_{RWM}	crest working reverse voltage				
	1N5817		–	20	V
	1N5818		–	30	V
	1N5819		–	40	V
$I_{F(AV)}$	average forward current	$T_{amb} = 55\text{ °C}$; $R_{th(j-a)} = 100\text{ K/W}$; note 1; $V_{R(equiv)} = 0.2\text{ V}$; note 2	–	1	A
I_{FSM}	non-repetitive peak forward current	$t = 8.3\text{ ms}$ half sine wave; JEDEC method; $T_j = T_{jmax}$ prior to surge: $V_R = 0$	–	25	A
T_{stg}	storage temperature		–65	+175	°C
T_j	junction temperature		–	125	°C

Notes

1. Refer to SOD81 standard mounting conditions.
2. For Schottky barrier diodes thermal run-away has to be considered, as in some applications, the reverse power losses P_R are a significant part of the total power losses. Nomograms for determination of the reverse power losses P_R and $I_{F(AV)}$ rating will be available on request.

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ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	forward voltage 1N5817	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 1N5818	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 1N5819	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	–	–	1	mA
		$V_R = V_{RRMmax}$; $T_J = 100\text{ °C}$	–	–	10	mA
C_d	diode capacitance	$V_R = 4\text{ V}$; $f = 1\text{ MHz}$	–	80	–	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	100	K/W

Note

1. Refer to SOD81 standard mounting conditions.

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GRAPHICAL DATA

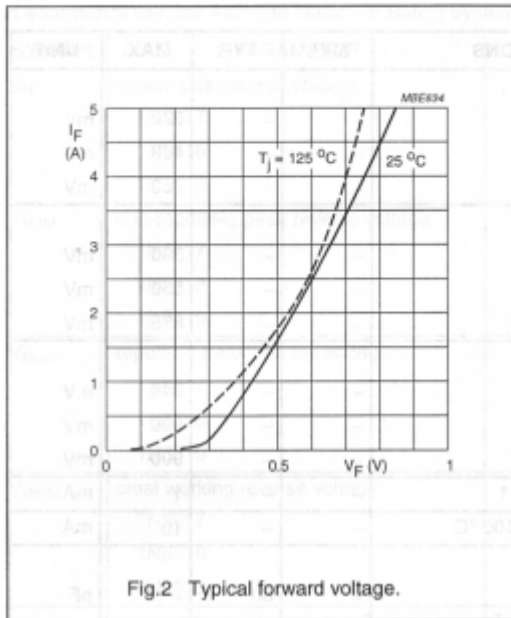


Fig.2 Typical forward voltage.

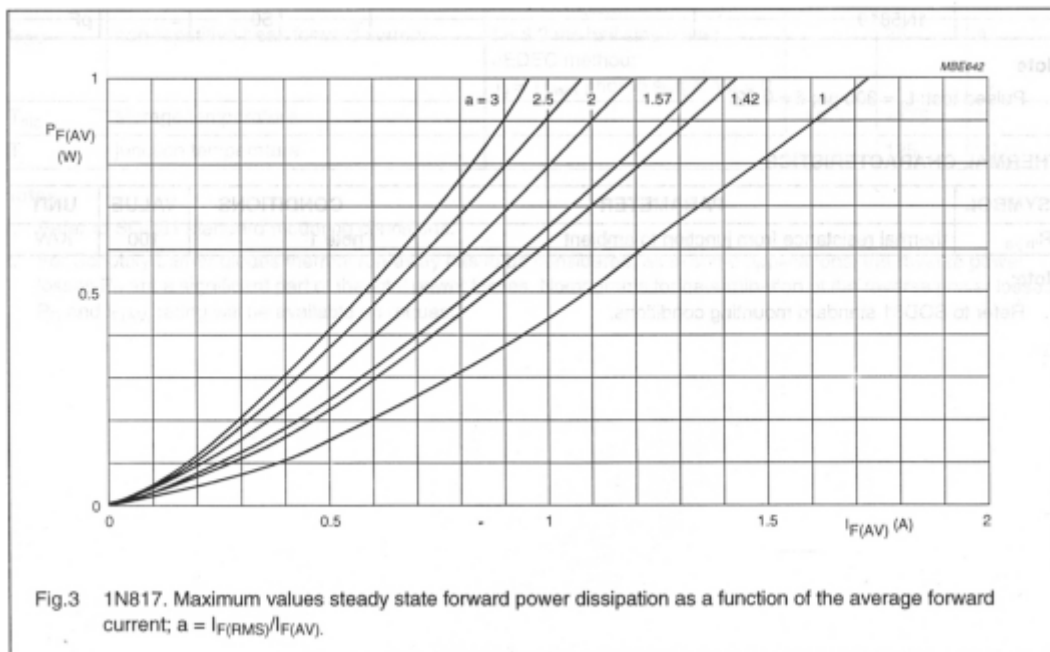
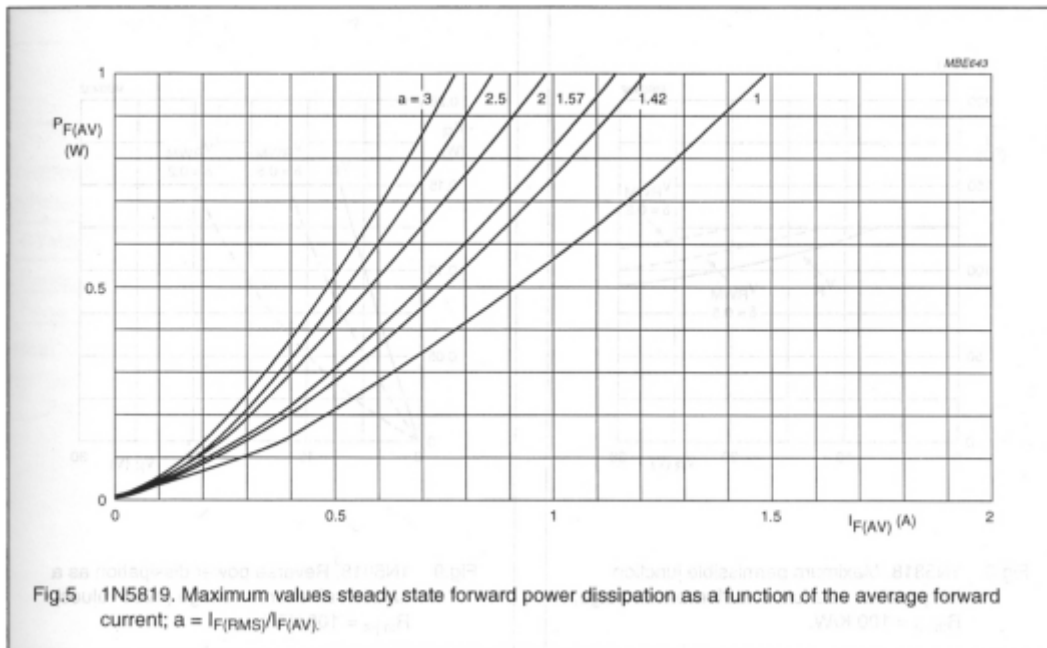
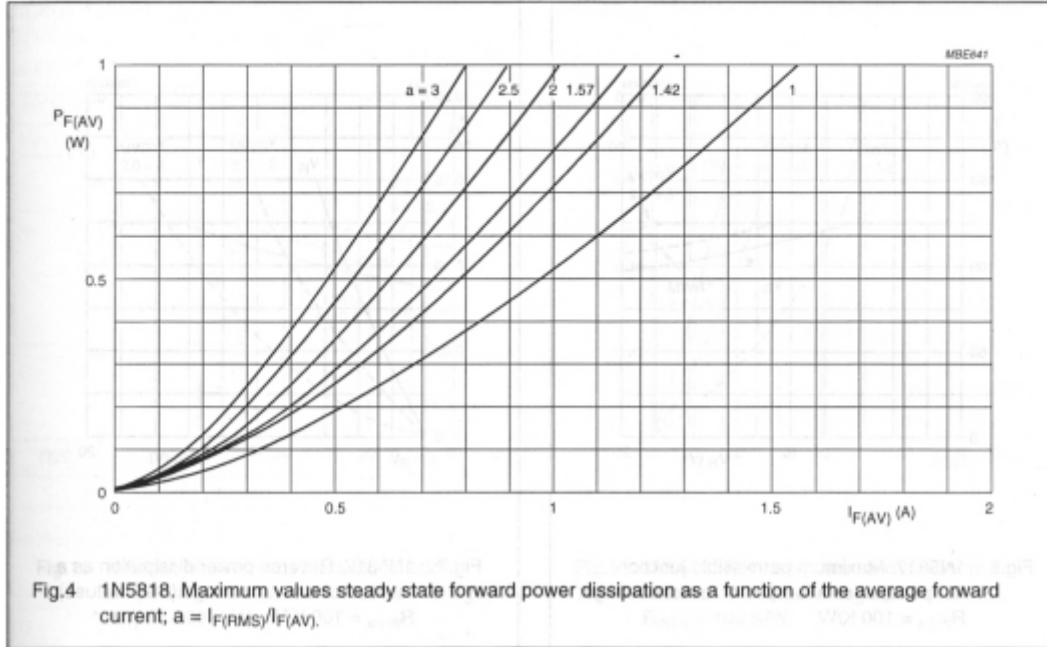


Fig.3 1N817. Maximum values steady state forward power dissipation as a function of the average forward current; $a = I_{F(RMS)}/I_{F(AV)}$.

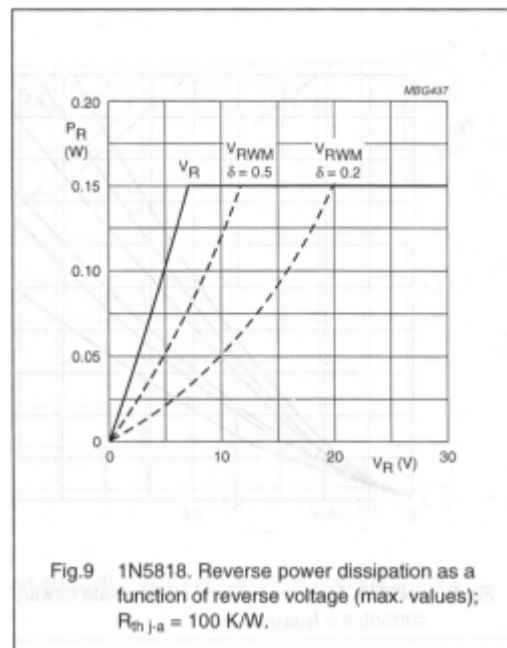
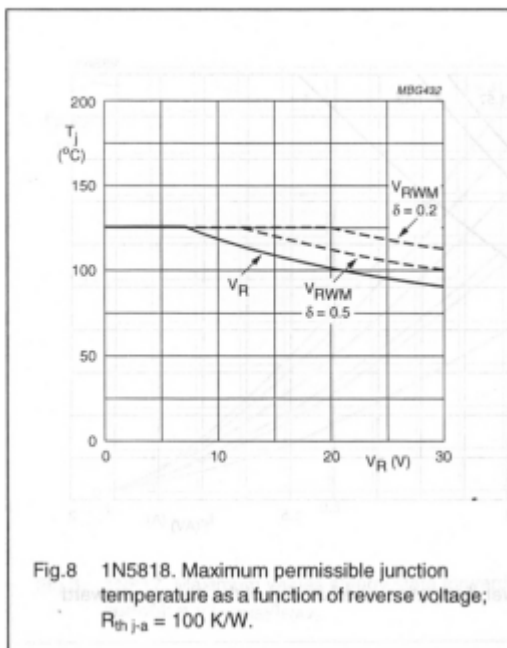
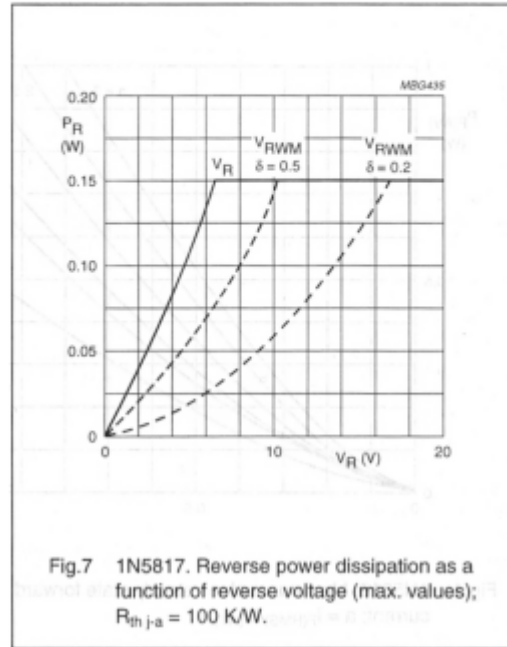
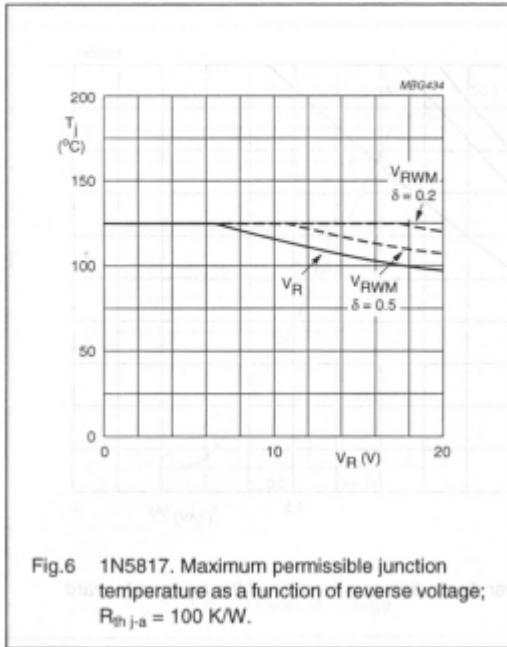
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