

Philips

Diode BYD147

Datasheet

**Silicon Diode**

**BYD147**

400V/1A

**DATASHEET**

OEM – Philips

Source: Philips Databook 1999

**Ultra fast low-loss rectifiers****BYD147****FEATURES**

- Glass passivated
- High maximum operating temperature
- Low leakage current
- Excellent stability
- Available in ammo-pack.
- Smallest surface mount rectifier outline.

**DESCRIPTION**

Cavity free cylindrical glass SOD87 package through Implotec<sup>TM(1)</sup> technology. This package is

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

(1) Implotec is a trademark of Philips.



Fig.1 Simplified outline (SOD87) and symbol.

**LIMITING VALUES**

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{RRM}$	repetitive peak reverse voltage		–	400	V
$V_R$	continuous reverse voltage		–	400	V
$I_{F(AV)}$	average forward current	$T_{IP} = 135^\circ\text{C}$ ; averaged over any 20 ms period; see Figs 5 and 6	–	1	A
		$T_{IP} = 80^\circ\text{C}$ ; averaged over any 20 ms period; see Figs 5 and 6	–	2	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	$^\circ\text{C}$
$T_J$	junction temperature		–65	+175	$^\circ\text{C}$

**ELECTRICAL CHARACTERISTICS**

$T_J = 25^\circ\text{C}$  unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
$V_F$	forward voltage	$I_F = 1 \text{ A}; \text{ see Fig.2}; T_J = 150^\circ\text{C}$	0.95	V
		$I_F = 1 \text{ A}; \text{ see Fig.2}$	1.15	V
$I_R$	reverse current	$V_R = V_{RRMmax}; \text{ see Fig.3}$	5	$\mu\text{A}$
		$V_R = V_{RRMmax}; T_J = 150^\circ\text{C}; \text{ see Fig.3}$	150	$\mu\text{A}$
$t_{rr}$	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

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## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j\-\!tp}$	thermal resistance from junction to tie-point		30	K/W
$R_{th\ j\-\!a}$	thermal resistance from junction to ambient	note 1	150	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 the associated handbook".

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## GRAPHICAL DATA

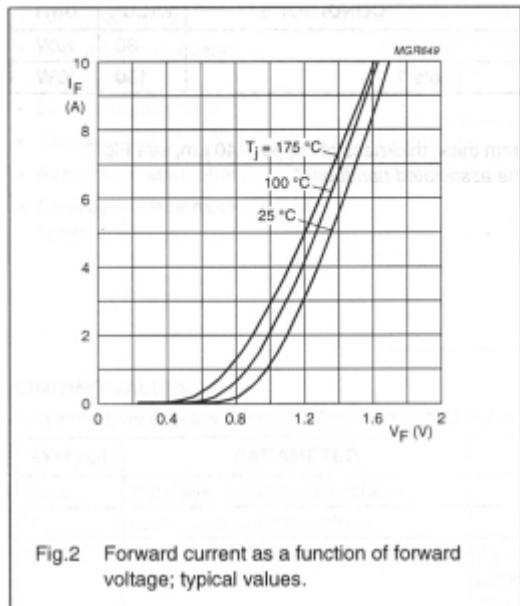


Fig.2 Forward current as a function of forward voltage; typical values.

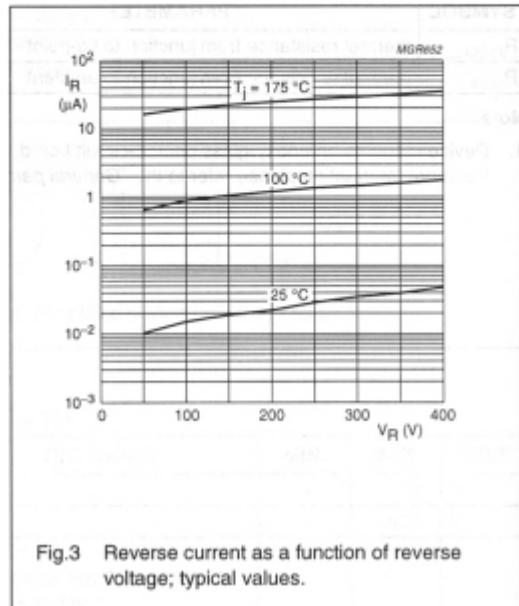


Fig.3 Reverse current as a function of reverse voltage; typical values.

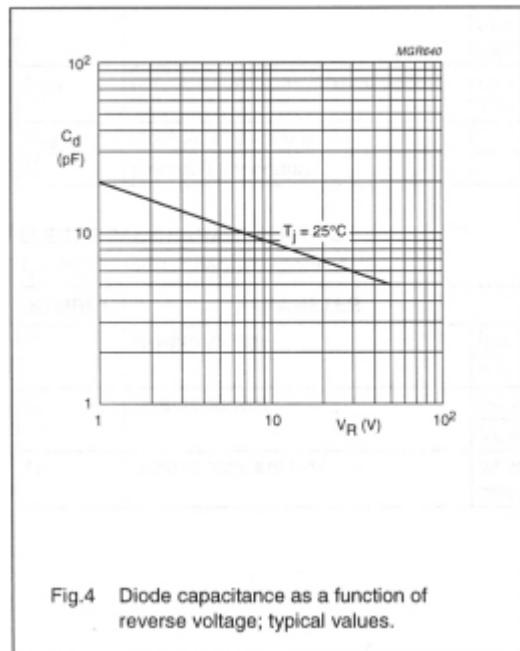


Fig.4 Diode capacitance as a function of reverse voltage; typical values.

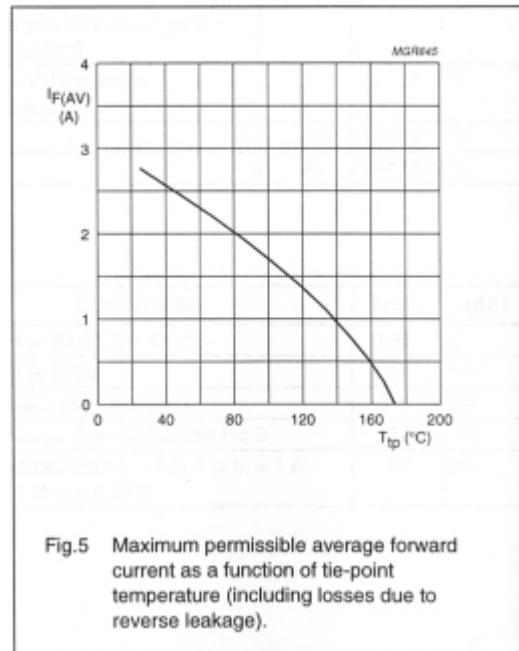


Fig.5 Maximum permissible average forward current as a function of tie-point temperature (including losses due to reverse leakage).

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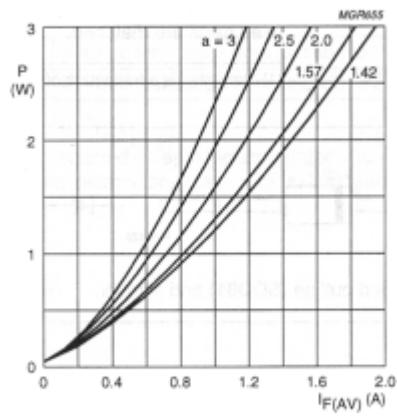
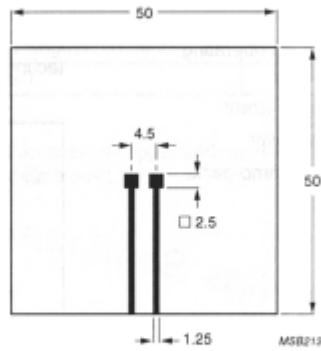


Fig.6 Maximum steady state power dissipation (forward plus leakage current losses, excluding switching losses) as a function of average forward current.



Dimensions in mm.

Fig.7 Printed-circuit board for surface mounting.