

Silicon Diode

BYV1100

100V/1.7A

DATASHEET

OEM – Philips

Source: Philips Databook 1999

Fast soft-recovery rectifier

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FEATURES

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

DESCRIPTION

Cavity free cylindrical glass package through Implotec™⁽¹⁾ 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.

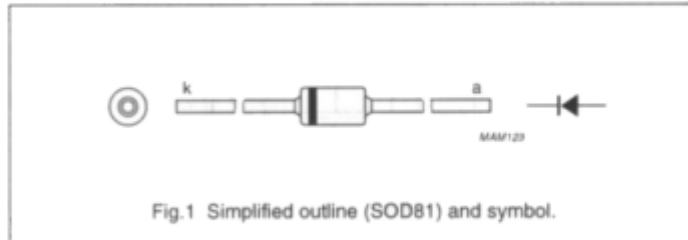


Fig.1 Simplified outline (SOD81) and symbol.

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{RRM}	repetitive peak reverse voltage		–	100	V
V_R	continuous reverse voltage		–	100	V
$I_{F(AV)}$	average forward current	$T_{tp} = 55\text{ °C}$; lead length = 10 mm; averaged over any 20 ms period; see Figs.2 and 4	–	1.7	A
		$T_{amb} = 60\text{ °C}$; printed-circuit board mounting, see Fig.12; averaged over any 20 ms period; see Figs.3 and 4	–	1.0	A
I_{FRM}	repetitive peak forward current	$T_{tp} = 55\text{ °C}$; see Fig.6	–	15	A
		$T_{amb} = 60\text{ °C}$; see Fig.7	–	9.5	A
I_{FSM}	non-repetitive peak forward current	$t = 10\text{ ms}$ half sine wave; $T_j = T_{jmax}$ prior to surge; $V_R = V_{RRMmax}$	–	15	A
T_{stg}	storage temperature		–65	+175	°C
T_j	junction temperature		–65	+175	°C

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	forward voltage	$I_F = 1\text{ A}; T_j = T_{j\text{max}}$; see Fig.5	–	–	0.735	V
		$I_F = 1\text{ A}$; see Fig.5	–	–	0.96	V
$V_{(BR)R}$	reverse avalanche breakdown voltage	$I_R = 0.1\text{ mA}$	120	–	–	V
I_R	reverse current	$V_R = V_{RRM\text{max}}$; see Fig.8	–	–	5	μA
		$V_R = V_{RRM\text{max}}; T_j = 165\text{ °C}$; see Fig.8	–	–	150	μA
t_{rr}	reverse recovery time	when switched from $I_F = 0.5\text{ A}$ to $I_R = 1\text{ A}$; measured at $I_R = 0.25\text{ A}$; see Fig.10	–	–	10	ns
C_d	diode capacitance	$f = 1\text{ MHz}; V_R = 0$; see Fig.9	–	70	–	pF
$\left \frac{dI_R}{dt} \right $	maximum slope of reverse recovery current	when switched from $I_F = 1\text{ A}$ to $V_R \geq 30\text{ V}$ and $dI_F/dt = -1\text{ A}/\mu\text{s}$; see Fig.11	–	–	2	A/ μs

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

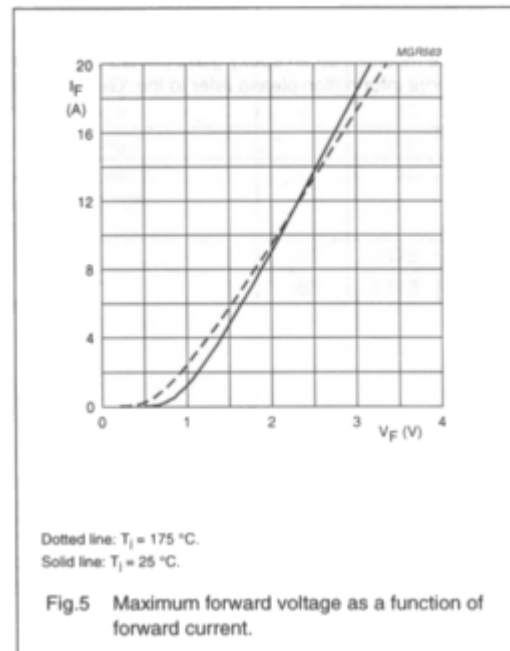
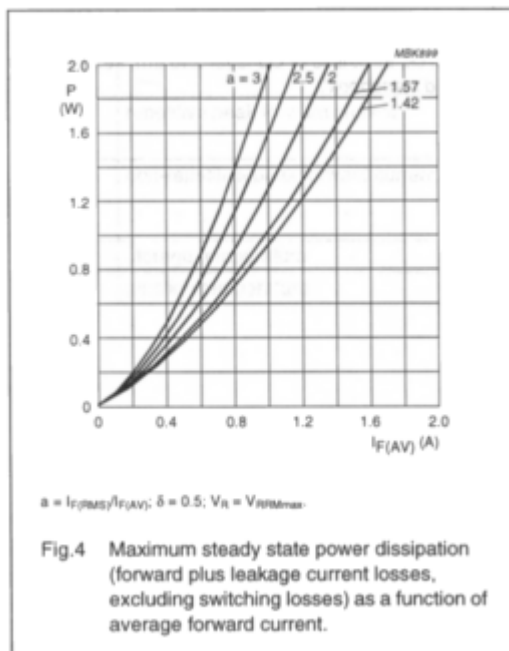
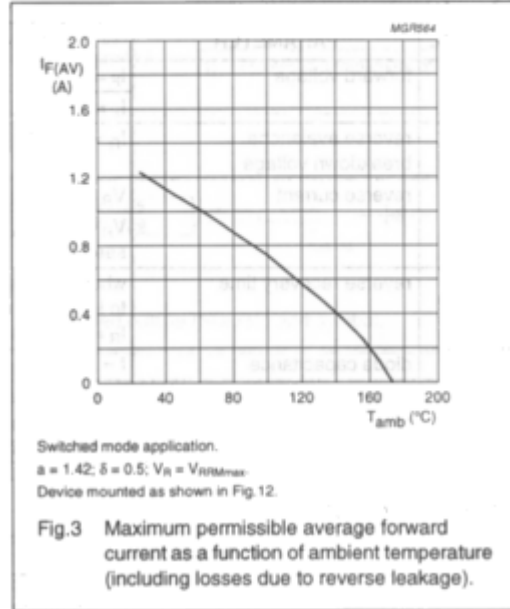
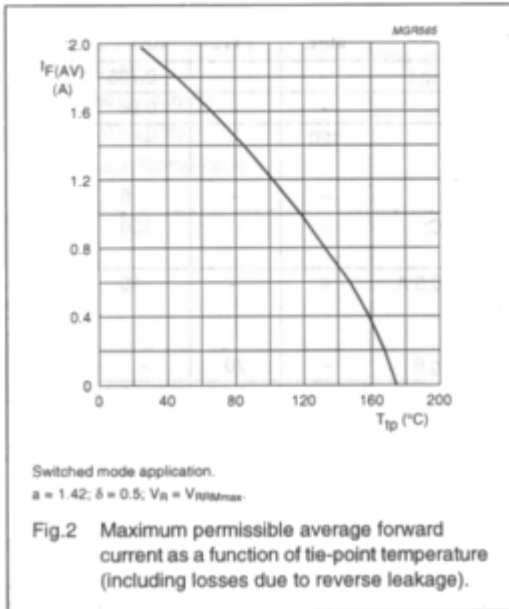
Note

1. Device mounted on an epoxy-glass printed-circuit board, 1.5 mm thick; thickness of Cu-layer $\geq 40\ \mu\text{m}$, see Fig.12. For more information please refer to the 'General Part of associated Handbook'.

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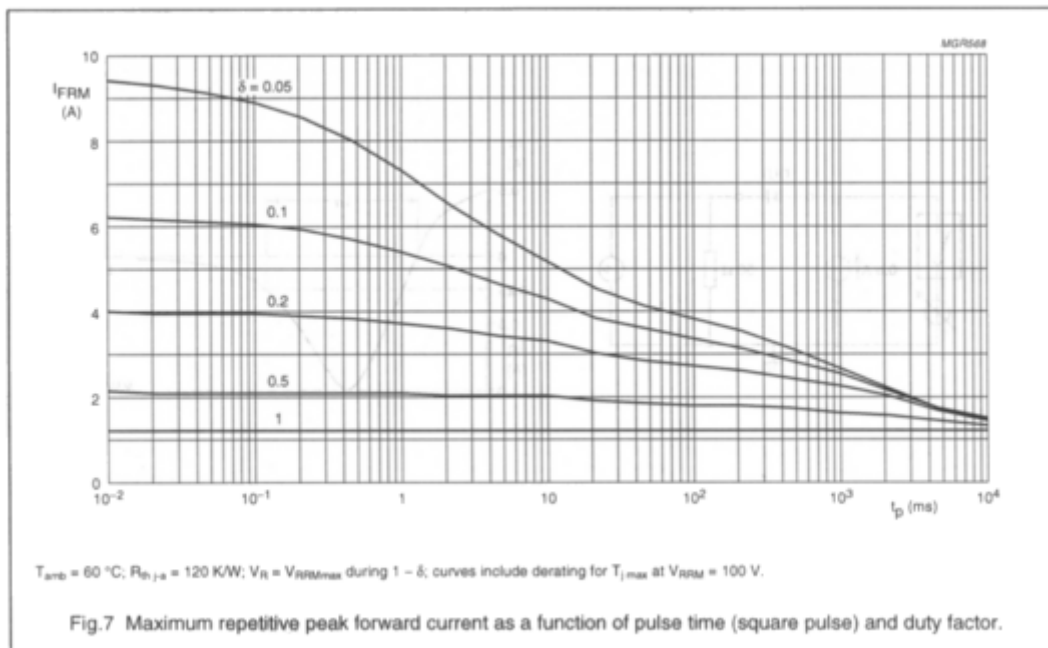
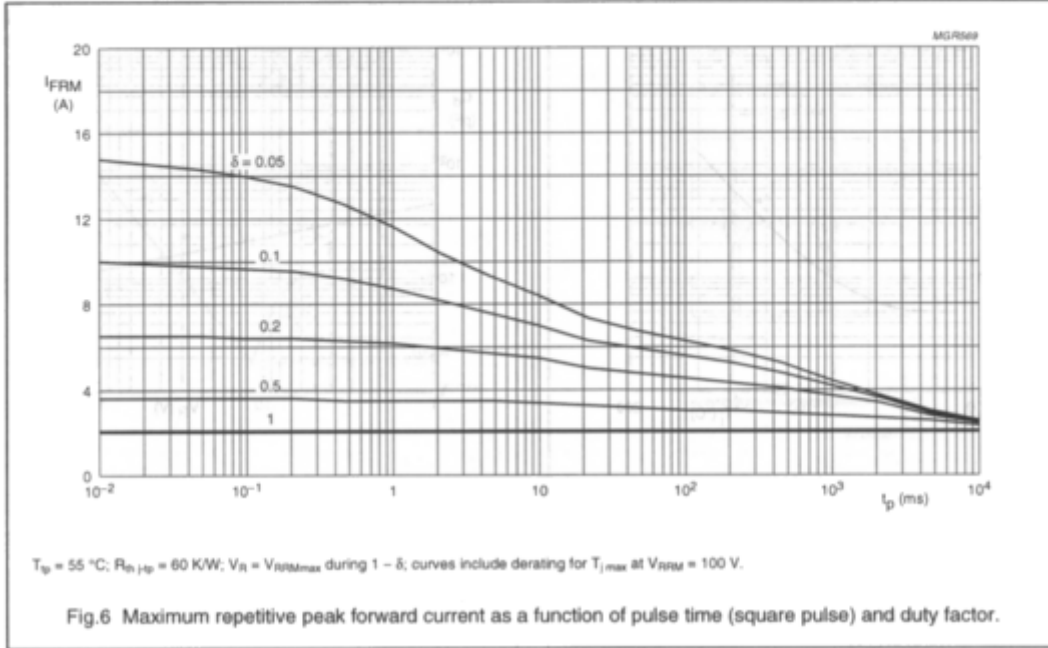
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GRAPHICAL DATA



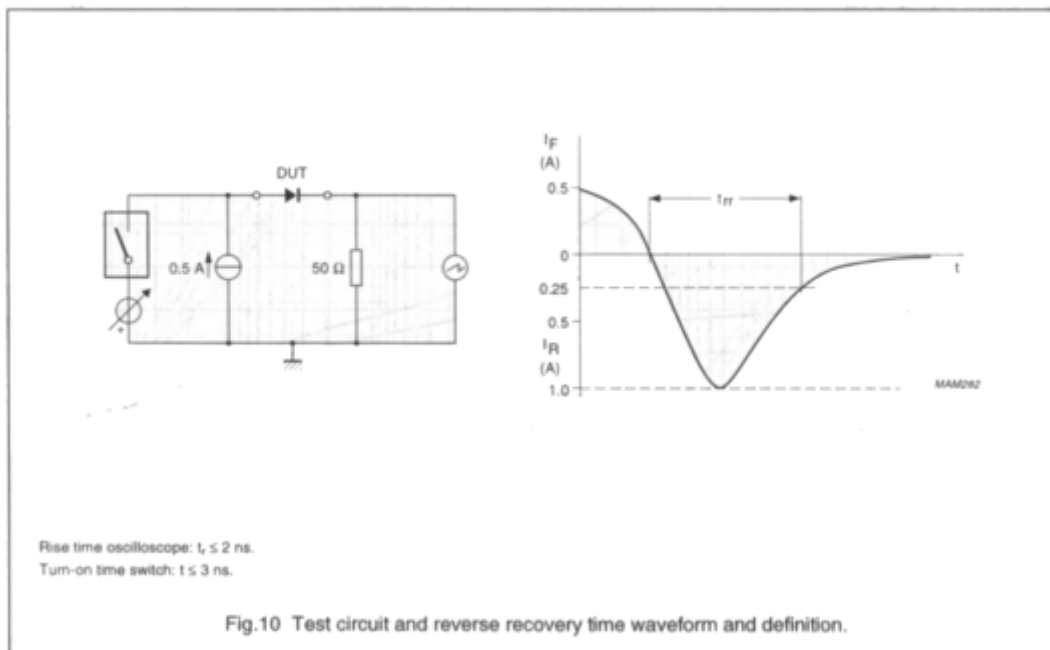
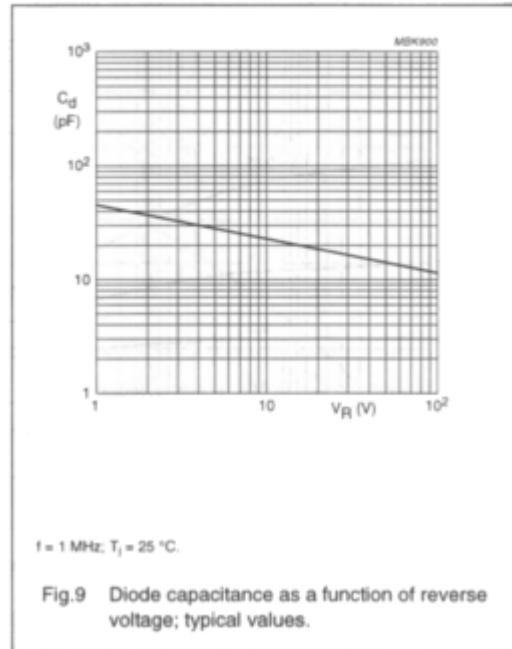
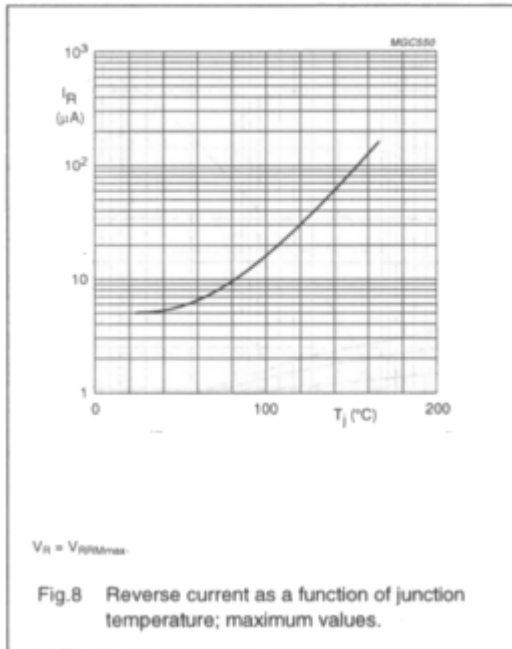
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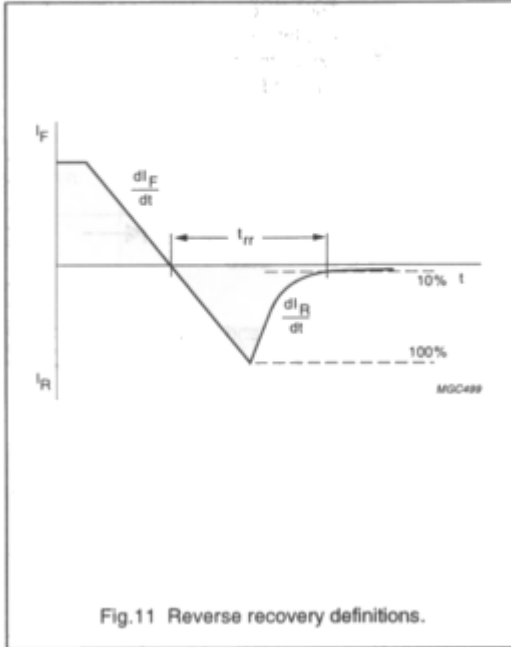
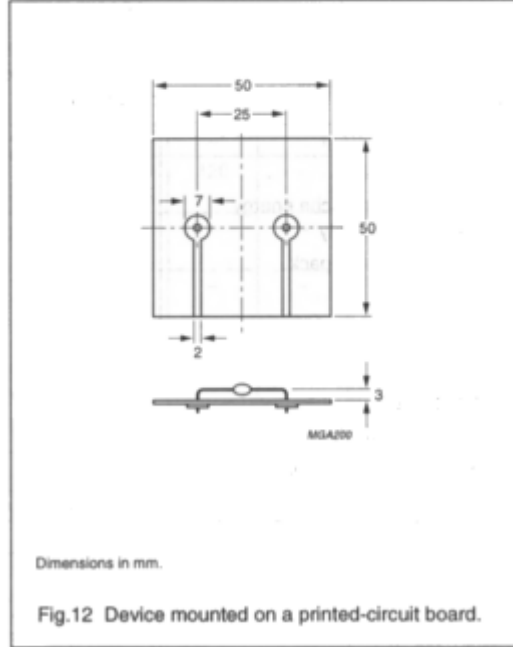


Fig.11 Reverse recovery definitions.



Dimensions in mm.

Fig.12 Device mounted on a printed-circuit board.