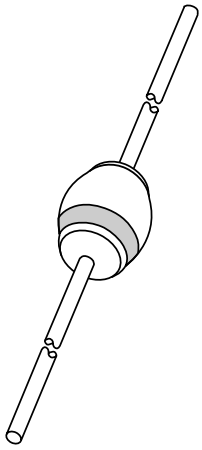
DATA SHEET



1N4001G to 1N4007G
Rectifiers

Product specification
Supersedes data of April 1992

1996 May 24

Philips
Semiconductors

PHILIPS

Rectifiers 1N4001G to 1N4007G

FEATURES

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

DESCRIPTION

Rugged glass package, using a high temperature alloyed construction.

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

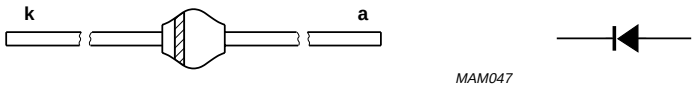


Fig.1 Simplified outline (SOD57) and symbol.

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{RRM}	repetitive peak reverse voltage				
	1N4001G		–	50	V
	1N4002G		–	100	V
	1N4003G		–	200	V
	1N4004G		–	400	V
	1N4005G		–	600	V
	1N4006G		–	800	V
	1N4007G		–	1000	V
V_R	continuous reverse voltage				
	1N4001G		–	50	V
	1N4002G		–	100	V
	1N4003G		–	200	V
	1N4004G		–	400	V
	1N4005G		–	600	V
	1N4006G		–	800	V
	1N4007G		–	1000	V
$I_{F(AV)}$	average forward current	averaged over any 20 ms period; T_{amb} = 75 °C; see Fig.2	–	1.00	A
		averaged over any 20 ms period; T_{amb} = 100 °C; see Fig.2	–	0.75	A
I_F	continuous forward current	T_{amb} = 75 °C; see Fig.2	–	1.00	A
I_{FRM}	repetitive peak forward current		–	10	A
I_{FSM}	non-repetitive peak forward current	half sinewave; 60 Hz	–	30	A
T_{stg}	storage temperature		–65	+175	°C
T_j	junction temperature		–65	+175	°C

ELECTRICAL CHARACTERISTICS

T_j = 25 °C; unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
V_F	forward voltage	I_F = 1 A; see Fig.3	1.1	V
$V_{F(AV)}$	full-cycle average forward voltage	$I_{F(AV)}$ = 1 A	0.8	V
I_R	reverse current	$V_R = V_{Rmax}$	10	μA
		$V_R = V_{Rmax}$; T_{amb} = 100 °C	50	μA
$I_{R(AV)}$	full-cycle average reverse current	$V_R = V_{RRMmax}$; T_{amb} = 75 °C	30	μA

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j\text{-}tp}$	thermal resistance from junction to tie-point	lead length = 10 mm	46	K/W
$R_{th\ j\text{-}a}$	thermal resistance from junction to ambient	note 1	100	K/W

Note

1. Device mounted on epoxy-glass printed-circuit board, 1.5 mm thick; thickness of copper ≥40 μm, see Fig.4. For more information please refer to the *"General Part of associated Handbook"*.

GRAPHICAL DATA

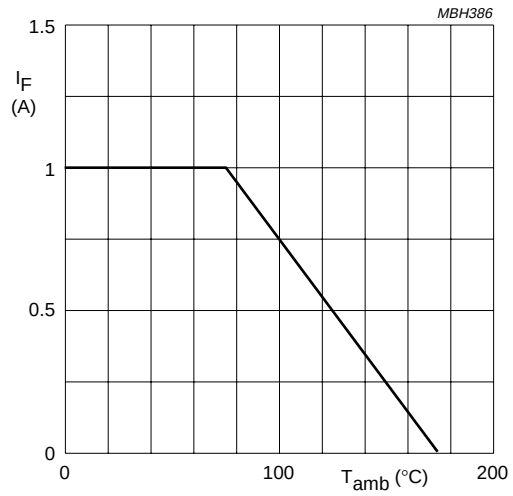
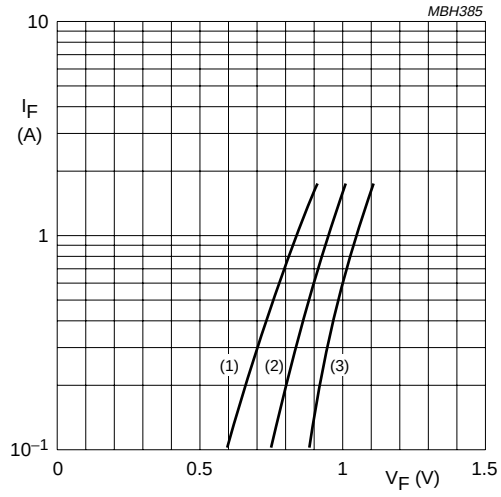
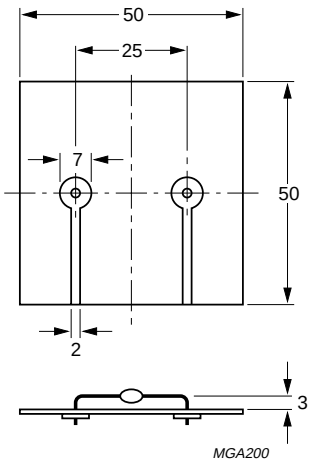


Fig.2 Maximum forward current as a function of ambient temperature.



(1) T_{amb} = 100 °C.
(2) T_{amb} = 20 °C.
(3) T_{amb} = –50 °C.

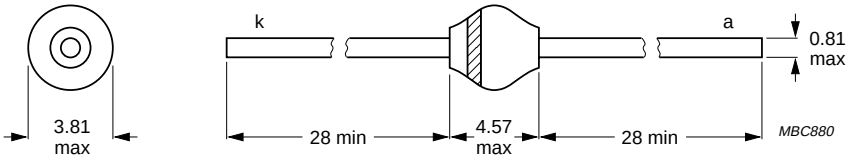
Fig.3 Forward current as a function of forward voltage; typical values.



Dimensions in mm.

Fig.4 Device mounted on a printed-circuit board.

PACKAGE OUTLINE



Dimensions in mm.

Fig.5 SOD57.

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.