



# PS07 series

General purpose rectifiers

Rev. 02 — 26 July 2004

Product data sheet

## 1. Product profile

### 1.1 General description

General purpose rectifier diodes in a cavity free cylindrical glass surface mounted package using Implotec™ technology.

### 1.2 Features

- Low leakage current
- Hermetically sealed package
- Glass passivated
- Small package.

### 1.3 Applications

- Low frequency general purpose rectification
- Bridge rectifiers.

### 1.4 Quick reference data

- $V_R \leq 600$  V (PS07J)
- $V_R \leq 400$  V (PS07G)
- $V_R \leq 200$  V (PS07D)
- $V_F \leq 1.1$  V
- $I_{F(AV)} \leq 1.8$  A
- $t_{rr} = 3$   $\mu$ s (typ).

## 2. Pinning information

Table 1: Discrete pinning

Pin	Description	Simplified outline	Symbol
a	anode (a)	<p style="text-align: center;">SOD87</p>	<p style="text-align: center;">001aaa020</p>
k	cathode (k)		

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### 3. Ordering information

**Table 2: Ordering information**

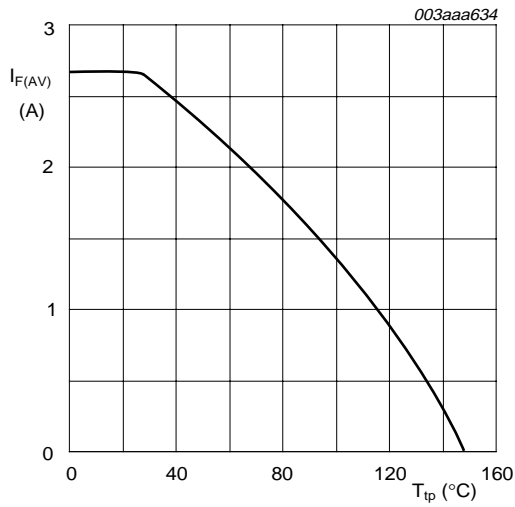
Type number	Package		Version
	Name	Description	
PS07D	SOD87	Hermetically sealed glass surface mounted package; Implotec™ technology; 2 connectors	SOD87
PS07G			
PS07J			

### 4. Limiting values

**Table 3: Limiting values**

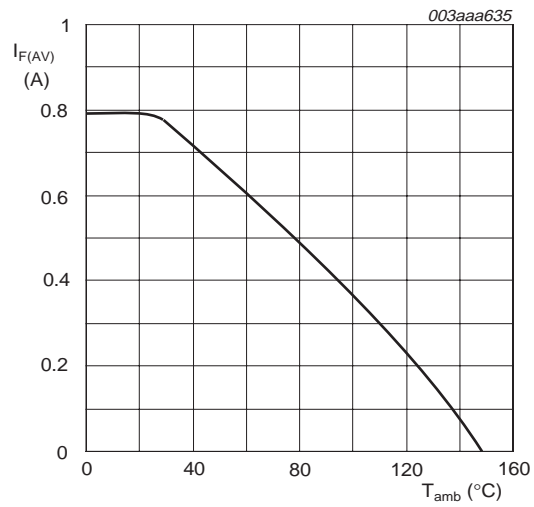
In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions	Min	Max	Unit
V <sub>RRM</sub>	repetitive peak reverse voltage				
		PS07D	-	200	V
		PS07G	-	400	V
		PS07J	-	600	V
V <sub>RWM</sub>	crest working reverse voltage				
		PS07D	-	200	V
		PS07G	-	400	V
		PS07J	-	600	V
V <sub>R</sub>	reverse voltage				
		PS07D	-	200	V
		PS07G	-	400	V
		PS07J	-	600	V
I <sub>F(AV)</sub>	average forward current	T <sub>tp</sub> = 75 °C; <a href="#">Figure 1</a> averaged over any 20 ms period	-	1.8	A
		T <sub>amb</sub> = 65 °C; <a href="#">Figure 2</a> mounted on a printed-circuit board; averaged over any 20 ms period	-	0.6	A
I <sub>FSM</sub>	non-repetitive peak forward current	t <sub>p</sub> = 8.3 ms half sine wave; T <sub>j</sub> = 25 °C prior to surge	-	25	A
T <sub>stg</sub>	storage temperature		-65	+150	°C
T <sub>j</sub>	junction temperature		-65	+150	°C



a = 1.42; V<sub>R</sub> = V<sub>R<sub>RRM</sub>(max)</sub>; δ = 0.5

Fig 1. Average forward current as a function of tie-point temperature (including losses due to reverse leakage); maximum values.



a = 1.42; V<sub>R</sub> = V<sub>R<sub>RRM</sub>(max)</sub>; δ = 0.5

Device mounted as shown in [Figure 6](#)

Fig 2. Average forward current as a function of ambient temperature (including losses due to reverse leakage); maximum values.

## 5. Thermal characteristics

Table 4: Thermal characteristics

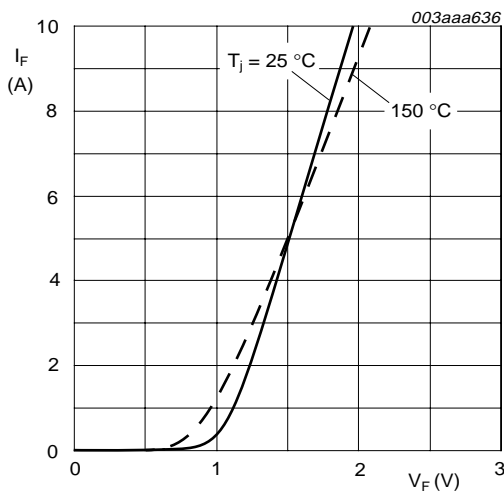
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
R <sub>th(j-tp)</sub>	thermal resistance from junction to tie-point		-	30	-	K/W
R <sub>th(j-a)</sub>	thermal resistance from junction to ambient	mounted on a printed-circuit board, 1.5 mm thick; copper thickness ≥ 40 μm; <a href="#">Figure 6</a>	-	150	-	K/W

## 6. Characteristics

**Table 5: Characteristics**

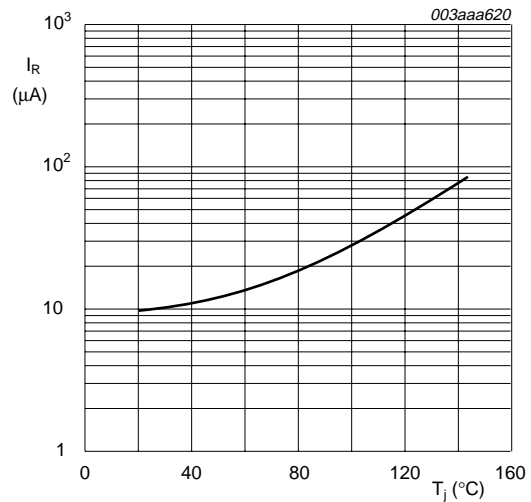
$T_j = 25\text{ °C}$  unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Static characteristics</b>						
$V_F$	forward voltage	$I_F = 1\text{ A}$ ; <a href="#">Figure 3</a>				
		$T_j = 25\text{ °C}$	-	-	1.1	V
		$T_j = 150\text{ °C}$	-	-	0.95	V
$I_R$	reverse current	$V_R = V_{RRM}$ ; <a href="#">Figure 4</a>				
		$T_j = 25\text{ °C}$	-	-	10	$\mu\text{A}$
		$T_j = 125\text{ °C}$	-	-	50	$\mu\text{A}$
<b>Dynamic characteristics</b>						
$C_d$	diode capacitance	$f = 1\text{ MHz}$ ; $V_R = 4\text{ V}$ ; <a href="#">Figure 5</a>	-	8.5	-	pF
$t_{rr}$	reverse recovery time	switching from $I_F = 0.5\text{ A}$ to $I_R = 1\text{ A}$ ; measured at $I_R = 0.25\text{ A}$ ; <a href="#">Figure 7</a>	-	3	-	$\mu\text{s}$



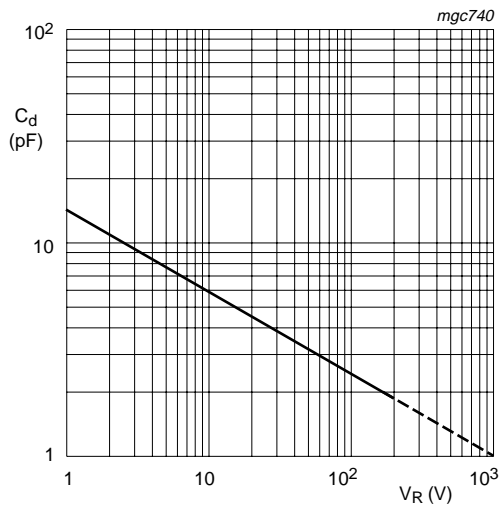
$T_j = 25\text{ °C}$

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



$T_j = 25\text{ °C}$

**Fig. 4. Reverse current as a function of junction temperature; maximum values.**



$f = 1 \text{ MHz}; T_j = 25 \text{ }^\circ\text{C}$

Fig 5. Diode capacitance as a function of reverse voltage; typical values.

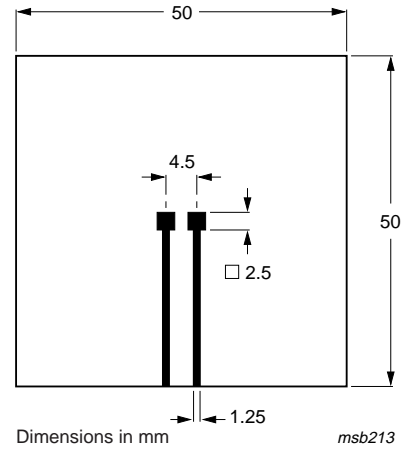
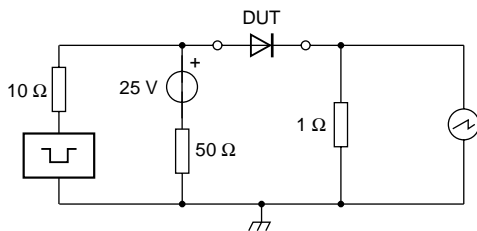
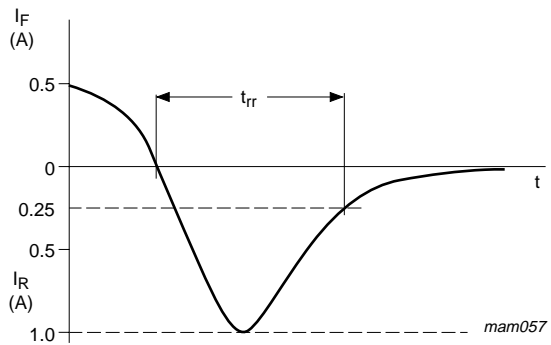


Fig 6. Printed-circuit board for surface mounting.



$T_j = 25 \text{ }^\circ\text{C}$

Fig 7. Test circuit and reverse recovery time waveform definition.



## 7. Package outline

Hermetically sealed glass surface mounted package;  
Implotec™<sup>(1)</sup> technology; 2 connectors

SOD87

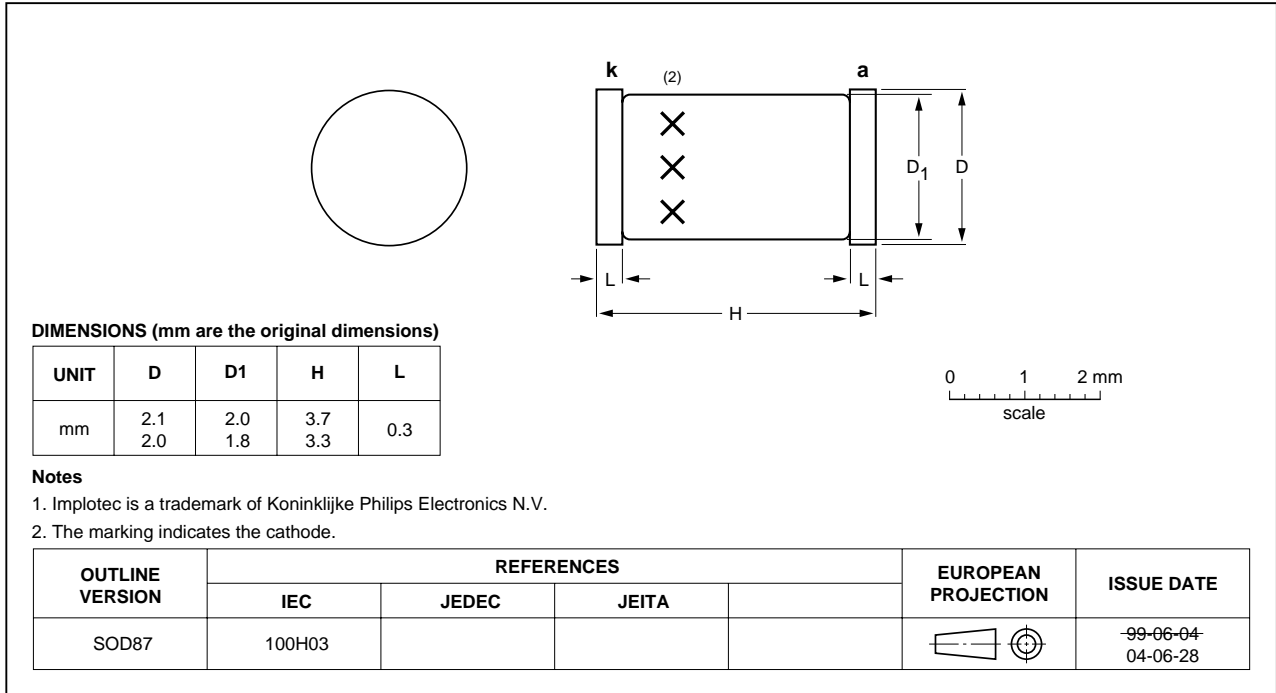


Fig 8. SOD87 package outline.

## 8. Revision history

Table 6: Revision history

Document ID	Release date	Data sheet status	Change notice	Document number	Supersedes
PS07_SERIES_2	20040726	Product data sheet	-	9397 750 13203	PS07_SERIES_1
Modifications:					
<ul style="list-style-type: none"> <li>• <math>I_{F(AV)}</math> data and conditions revised in <a href="#">Section 1.4 "Quick reference data"</a> and <a href="#">Table 3 "Limiting values"</a></li> <li>• <a href="#">Figure 1 2</a> and <a href="#">3</a> updated</li> <li>• <math>T_{stg}</math> and <math>T_j</math> data revised in <a href="#">Table 3 "Limiting values"</a></li> <li>• <math>V_F</math> data and conditions revised in <a href="#">Table 5 "Characteristics"</a></li> </ul>					
PS07_SERIES_1	20040203	Product data sheet	-	9397 750 12711	-

## 9. Data sheet status

Level	Data sheet status <sup>[1]</sup>	Product status <sup>[2]</sup> <sup>[3]</sup>	Definition
I	Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
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