



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
- $t_{rr} = 3$ μ s (typ).

2. Pinning information

Table 1: Discrete pinning

Pin	Description	Simplified outline	Symbol
a	anode (a)	 SOD87	 001aaa020
k	cathode (k)		

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3. Ordering information

Table 2: Ordering information

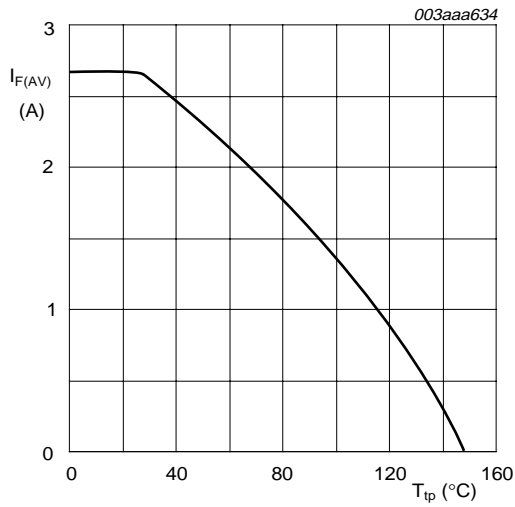
Type number	Package		
	Name	Description	Version
PS07D	SOD87	Hermetically sealed glass surface mounted package; Implotec™ technology; 2 connectors	SOD87
PS07G			
PS07J			

4. Limiting values

Table 3: Limiting values

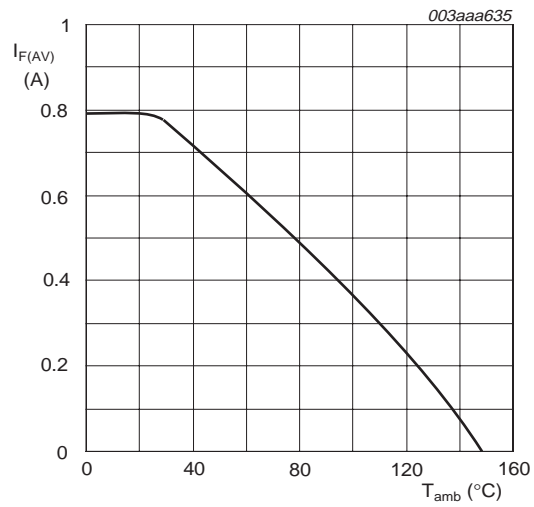
In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions	Min	Max	Unit	
V_{RRM}	repetitive peak reverse voltage					
	PS07D		-	200	V	
	PS07G		-	400	V	
	PS07J		-	600	V	
V_{RWM}	crest working reverse voltage					
	PS07D		-	200	V	
	PS07G		-	400	V	
	PS07J		-	600	V	
V_R	reverse voltage					
	PS07D		-	200	V	
	PS07G		-	400	V	
	PS07J		-	600	V	
$I_{F(AV)}$	average forward current		$T_{tp} = 75\text{ °C}$; Figure 1	-	1.8	A
			averaged over any 20 ms period			
I_{FSM}	non-repetitive peak forward current		$T_{amb} = 65\text{ °C}$; Figure 2	-	0.6	A
			mounted on a printed-circuit board; averaged over any 20 ms period			
T_{stg}	storage temperature			-65	+150	°C
T_j	junction temperature			-65	+150	°C



a = 1.42; V_R = V_{R_{RRM}(max)}; 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_R = V_{R_{RRM}(max)}; 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

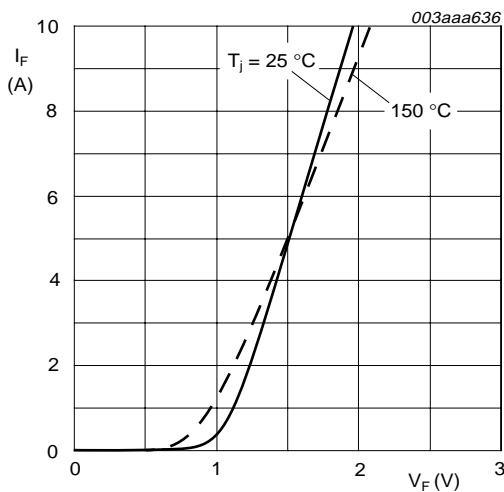
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
R _{th(j-tp)}	thermal resistance from junction to tie-point		-	30	-	K/W
R _{th(j-a)}	thermal resistance from junction to ambient	mounted on a printed-circuit board, 1.5 mm thick; copper thickness ≥ 40 μm; Figure 6	-	150	-	K/W

6. Characteristics

Table 5: Characteristics

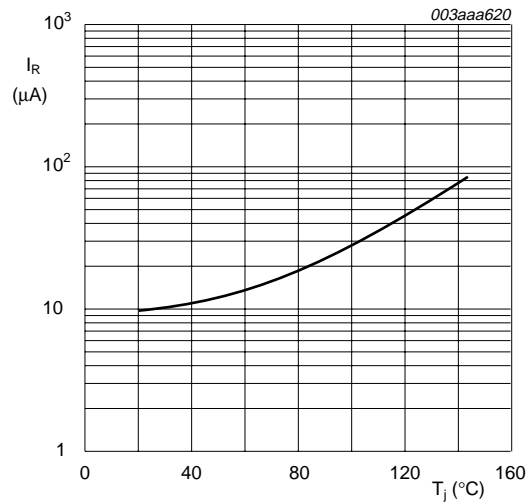
$T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified.

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



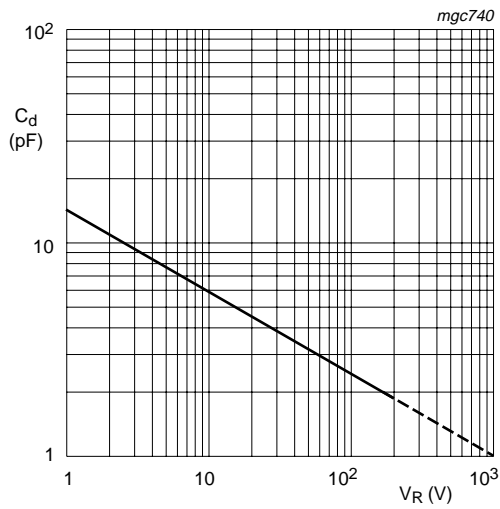
$T_j = 25\text{ }^\circ\text{C}$

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



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

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.

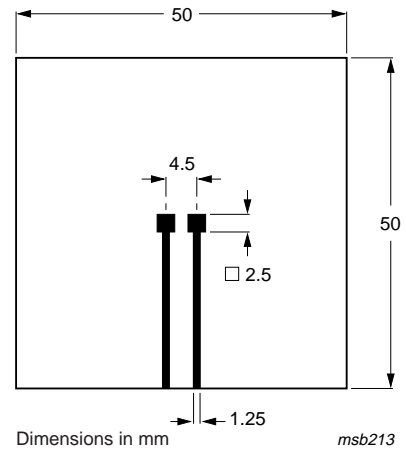
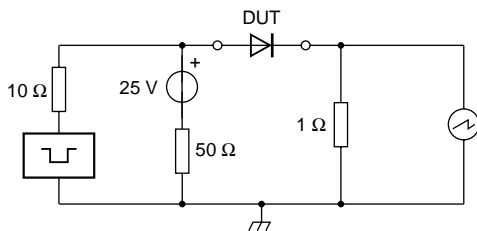
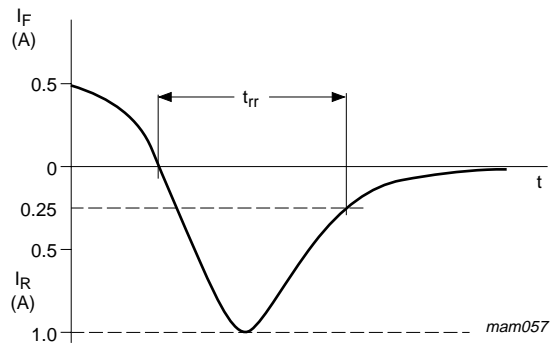


Fig 6. Printed-circuit board for surface mounting.



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

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



7. Package outline

Hermetically sealed glass surface mounted package;
Implotec™⁽¹⁾ technology; 2 connectors

SOD87

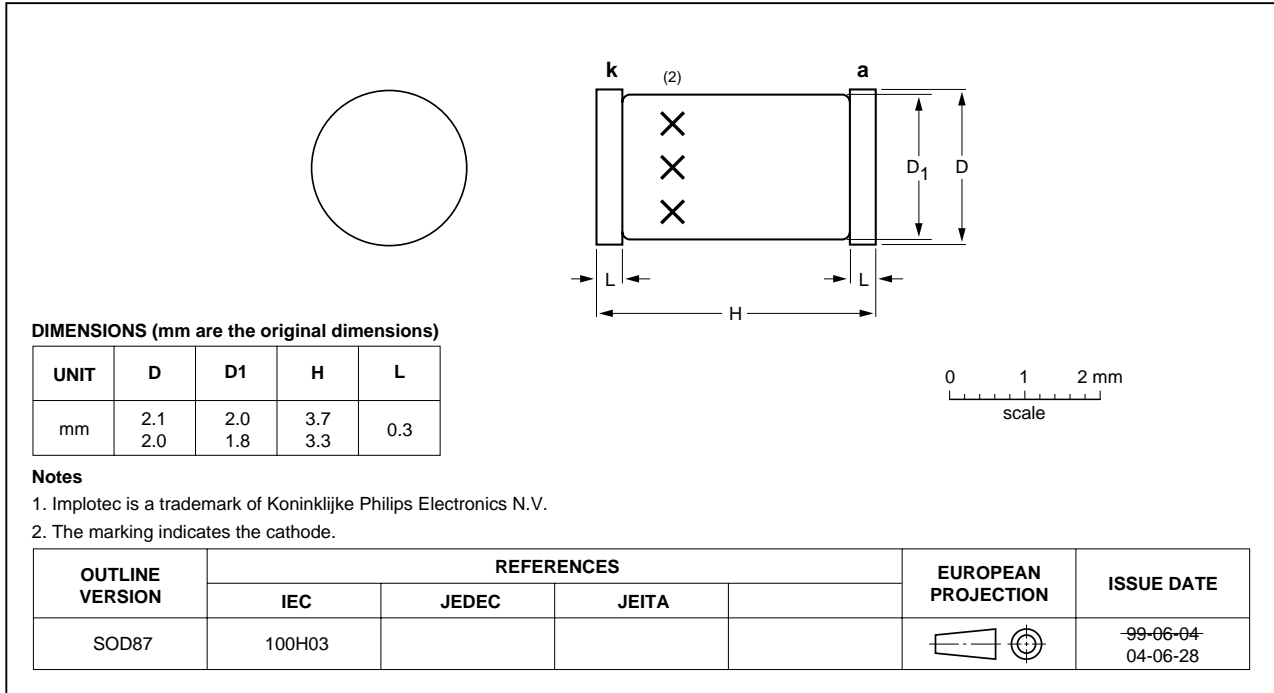


Fig 8. SOD87 package outline.

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"> • $I_{F(AV)}$ data and conditions revised in Section 1.4 "Quick reference data" and Table 3 "Limiting values" • Figure 1 2 and 3 updated • T_{stg} and T_j data revised in Table 3 "Limiting values" • V_F data and conditions revised in Table 5 "Characteristics" 					
PS07_SERIES_1	20040203	Product data sheet	-	9397 750 12711	-

9. Data sheet status

Level	Data sheet status ^[1]	Product status ^[2] ^[3]	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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