



PMEG4002EL

40 V, 0.2 A low Vf MEGA Schottky barrier rectifier

1 October 2022

Product data sheet

1. General description

Planar Maximum Efficiency General Application (MEGA) Schottky barrier rectifier with an integrated guard ring for stress protection, encapsulated in a SOD882 leadless ultra small Surface-Mounted Device (SMD) plastic package.

2. Features and benefits

- Forward current: $I_F \leq 0.2$ A
- Reverse voltage: $V_R \leq 40$ V
- Low forward voltage
- Leadless ultra small SMD plastic package
- Power dissipation comparable to SOT23

3. Applications

- Ultra high-speed switching
- Voltage clamping
- Protection circuits
- Low voltage rectification
- Blocking diodes
- Low power consumption applications

4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
I_F	forward current		-	-	0.2	A
V_R	reverse voltage		-	-	40	V

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	cathode[1]	<p>Transparent top view</p> <p>DFN1006-2 (SOD882)</p>	<p>K A</p> <p><i>sym001</i></p>
2	A	anode		

[1] The marking bar indicates the cathode.

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
PMEG4002EL	DFN1006-2	plastic, leadless ultra small package; 2 terminals; 0.65 mm pitch; 1 mm x 0.6 mm x 0.48 mm body	SOD882

7. Marking

Table 4. Marking codes

Type number	Marking code
PMEG4002EL	F4

8. Limiting values

Table 5. Limiting values

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

Symbol	Parameter	Conditions	Min	Max	Unit
V_R	reverse voltage		-	40	V
I_F	forward current		-	0.2	A
I_{FRM}	repetitive peak forward current	$t_p \leq 1 \text{ ms}$; $\delta \leq 0.25$	-	1	A
I_{FSM}	non-repetitive peak forward current	$t_p = 8 \text{ ms}$; square wave; $T_{j(\text{init})} = 25 \text{ }^\circ\text{C}$	-	3	A
T_j	junction temperature		[1]	150	$^\circ\text{C}$
T_{amb}	ambient temperature		[1]	150	$^\circ\text{C}$
T_{stg}	storage temperature		-65	150	$^\circ\text{C}$

- [1] For Schottky barrier diodes thermal runaway has to be considered, as in some applications the reverse power losses P_R are a significant part of the total power losses. Nomograms for determining the reverse power losses P_R and $I_{F(\text{AV})}$ rating are available on request.

9. Thermal characteristics

Table 6. Thermal characteristics

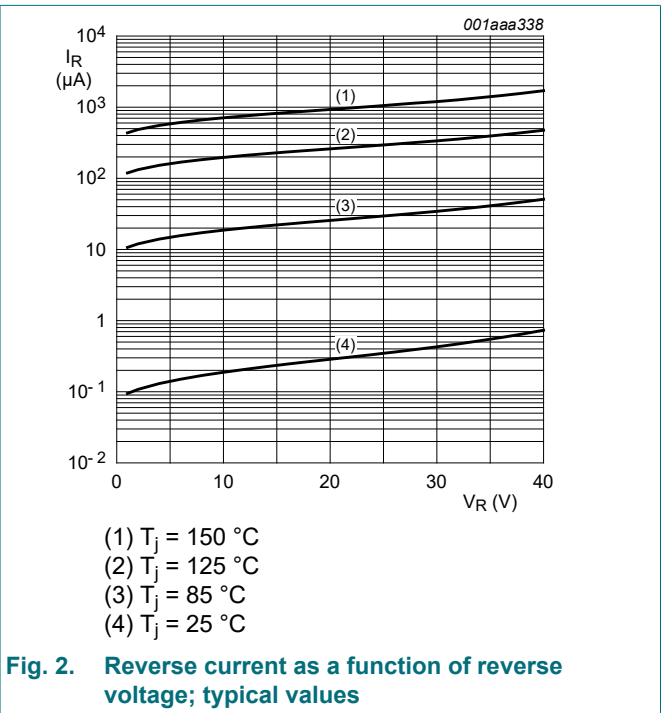
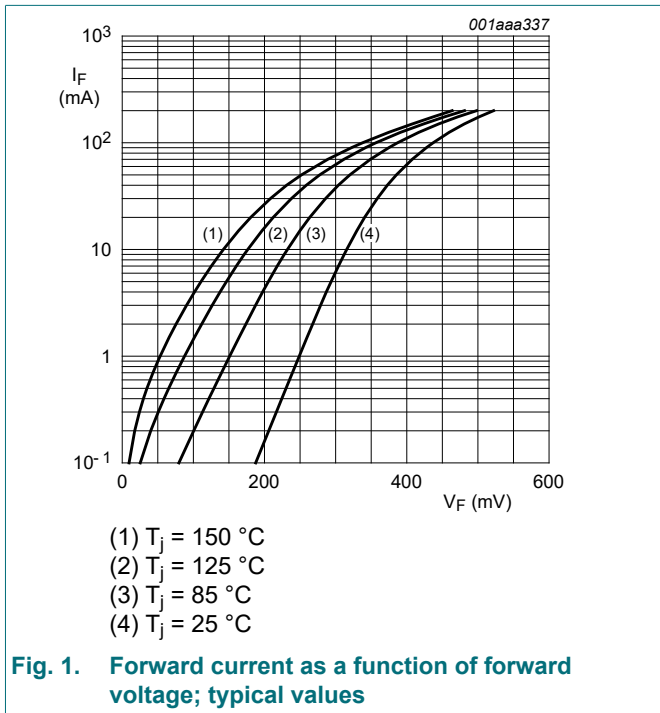
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$R_{\text{th}(j-a)}$	thermal resistance from junction to ambient	in free air	[1] [2]	-	500	K/W

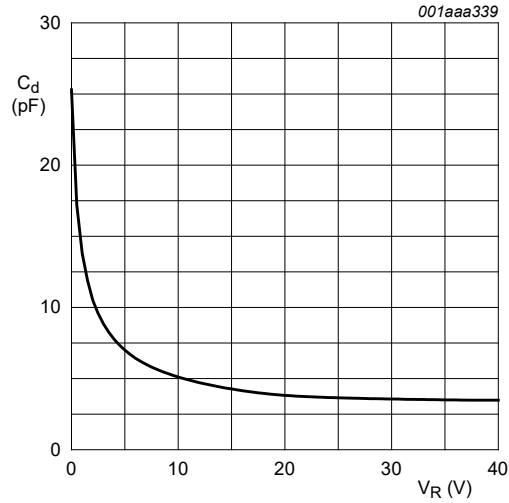
- [1] Refer to SOD882 standard mounting conditions (footprint), FR4 Printed-Circuit Board (PCB) with 60 μm copper strip line.
 [2] For Schottky barrier diodes thermal runaway has to be considered, as in some applications the reverse power losses P_R are a significant part of the total power losses. Nomograms for determining the reverse power losses P_R and $I_{F(\text{AV})}$ rating are available on request.

10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V _F	forward voltage	I _F = 0.1 mA; t _p ≤ 300 μs; δ ≤ 0.02; pulsed; T _{amb} = 25 °C	-	190	220	mV
		I _F = 1 mA; t _p ≤ 300 μs; δ ≤ 0.02; pulsed; T _{amb} = 25 °C	-	250	290	mV
		I _F = 10 mA; t _p ≤ 300 μs; δ ≤ 0.02; pulsed; T _{amb} = 25 °C	-	320	360	mV
		I _F = 100 mA; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C	-	440	500	mV
		I _F = 200 mA; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C	-	520	600	mV
I _R	reverse current	V _R = 25 V; t _p ≤ 300 μs; δ ≤ 0.02; pulsed; T _{amb} = 25 °C	-	0.3	0.5	μA
		V _R = 40 V; t _p ≤ 300 μs; δ ≤ 0.02; pulsed; T _{amb} = 25 °C	-	0.7	10	μA
C _d	diode capacitance	V _R = 1 V; f = 1 MHz; T _{amb} = 25 °C	-	14	20	pF

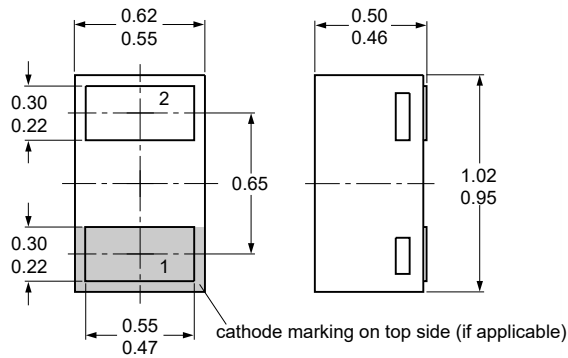




f = 1 MHz; T_{amb} = 25 °C

Fig. 3. Diode capacitance as a function of reverse voltage; typical values

11. Package outline



Dimensions in mm

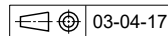


Fig. 4. Package outline DFN1006-2 (SOD882)

12. Soldering

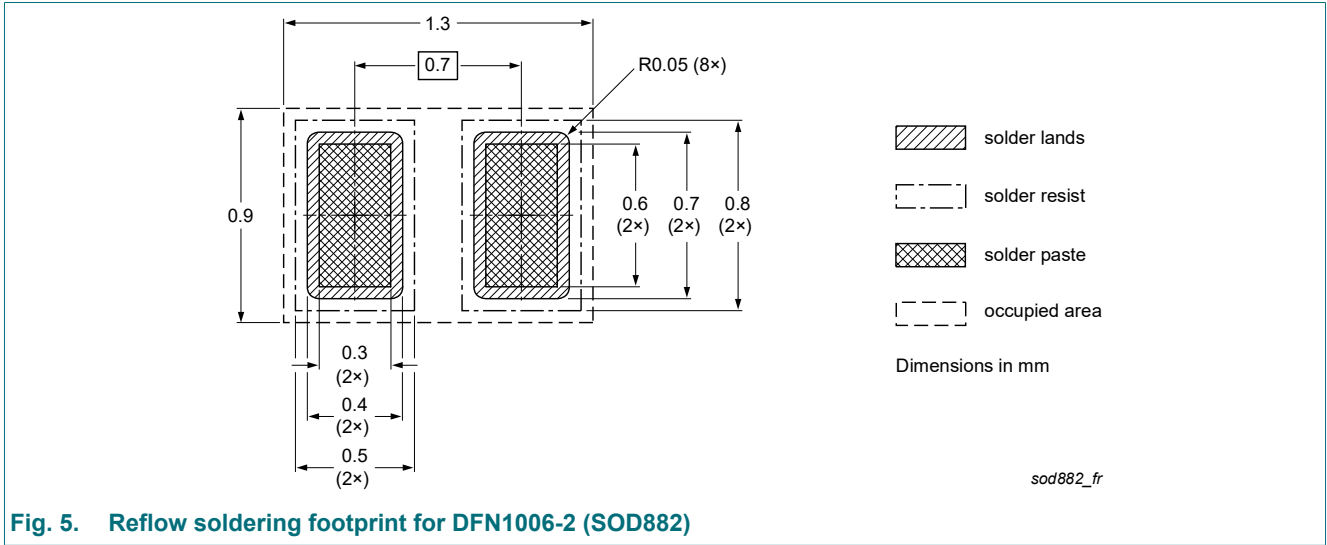


Fig. 5. Reflow soldering footprint for DFN1006-2 (SOD882)

13. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
PMEG4002EL v.3	20221001	Product data sheet	-	PMEG4002EL_2
Modifications:	<ul style="list-style-type: none"> The format of this data sheet has been redesigned to comply with the identity guidelines of Nexperia. Legal texts have been adapted to the new company name where appropriate. Package information: removed Product changed to non-automotive qualification. Please refer to nexperia.com for automotive (-Q) product alternative(s). 			
PMEG4002EL_2	20090311	Product data sheet	-	PMEG4002EL_1
PMEG4002EL_1	20040217	Product data sheet	-	-

14. Legal information

Data sheet status

Document status [1][2]	Product status [3]	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

- [1] Please consult the most recently issued document before initiating or completing a design.
- [2] The term 'short data sheet' is explained in section "Definitions".
- [3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the internet at <https://www.nexperia.com>.

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