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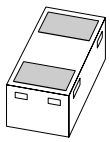


PMEG4002EL

40 V, 0.2 A low V_F MEGA Schottky barrier rectifier

Rev. 02 — 11 March 2009 Product data sheet

1. Product profile

1.1 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.

1.2 Features

- 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

1.3 Applications

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

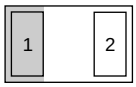
1.4 Quick reference data

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

2. Pinning information

Table 2. Pinning

Pin	Description	Simplified outline	Graphic symbol
1	cathode [1]	 Transparent top view	 sym001
2	anode		

[1] The marking bar indicates the cathode.

3. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
PMEG4002EL	-	leadless ultra small plastic package; 2 terminals; body 1.0 × 0.6 × 0.5 mm	SOD882

4. Marking

Table 4. Marking

Type number	Marking code
PMEG4002EL	F4

5. 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	$t_p \leq 1$ ms; $\delta \leq 0.25$		-	1	A
I_{FSM}	non-repetitive peak forward current	square wave; $t_p = 8$ ms		-	3	A
T_j	junction temperature		[1]	-	150	°C
T_{amb}	ambient temperature		[1]	–65	+150	°C
T_{stg}	storage temperature			–65	+150	°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 $I_{F(AV)}$ rating are available on request.

6. Thermal characteristics

Table 6. Thermal characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
$R_{th(j-a)}$	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 $I_{F(AV)}$ rating are available on request.

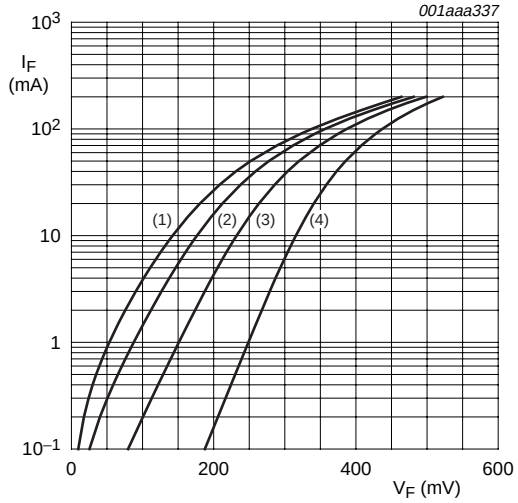
7. Characteristics

Table 7. Characteristics

T_{amb} = 25 °C unless otherwise specified.

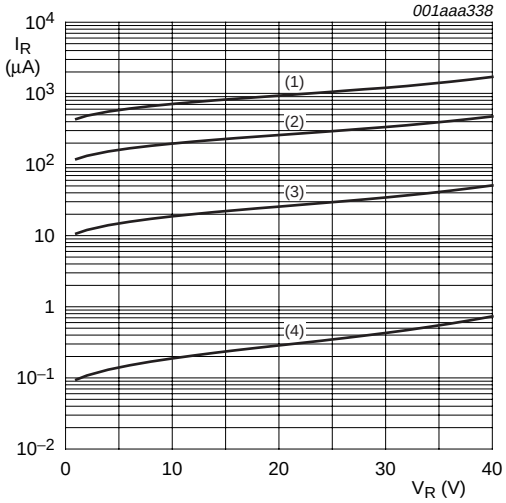
Symbol	Parameter	Conditions		Min	Typ	Max	Unit
V_F	forward voltage	I_F = 0.1 mA			190	220	mV
		I_F = 1 mA			250	290	mV
		I_F = 10 mA			320	360	mV
		I_F = 100 mA			440	500	mV
		I_F = 200 mA			520	600	mV
I_R	reverse current		[1]				
		V_R = 25 V			0.3	0.5	µA
		V_R = 40 V			0.7	10	µA
C_d	diode capacitance	V_R = 1 V; f = 1 MHz			14	20	pF

[1] Pulse test: $t_p \leq 300$ µs; $\delta \leq 0.02$.



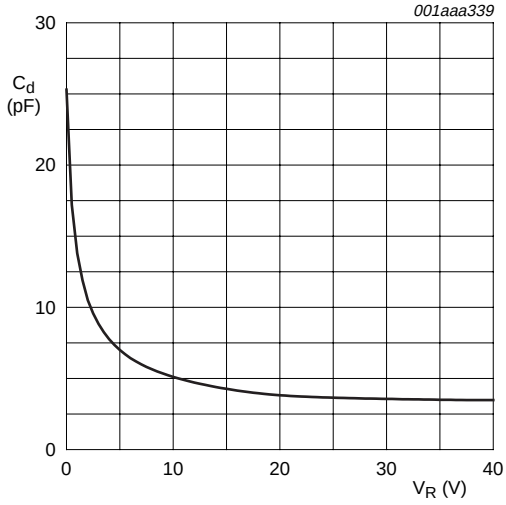
(1) T_j = 150 °C
(2) T_j = 125 °C
(3) T_j = 85 °C
(4) T_j = 25 °C

Fig 1. Forward current as a function of forward voltage; typical values



(1) T_j = 150 °C
(2) T_j = 125 °C
(3) T_j = 85 °C
(4) T_j = 25 °C

Fig 2. Reverse current as a function of reverse voltage; typical values



f = 1 MHz; T_{amb} = 25 °C

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

8. Package outline

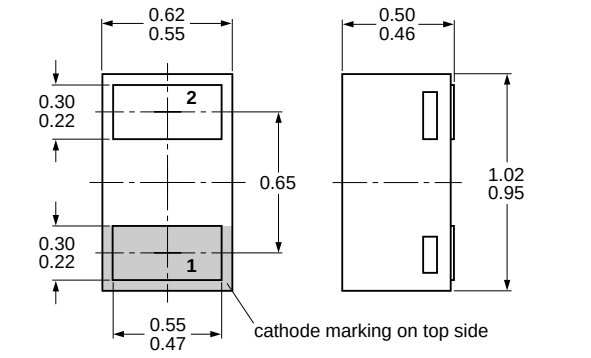


Fig 4. Package outline SOD882

9. Packing information

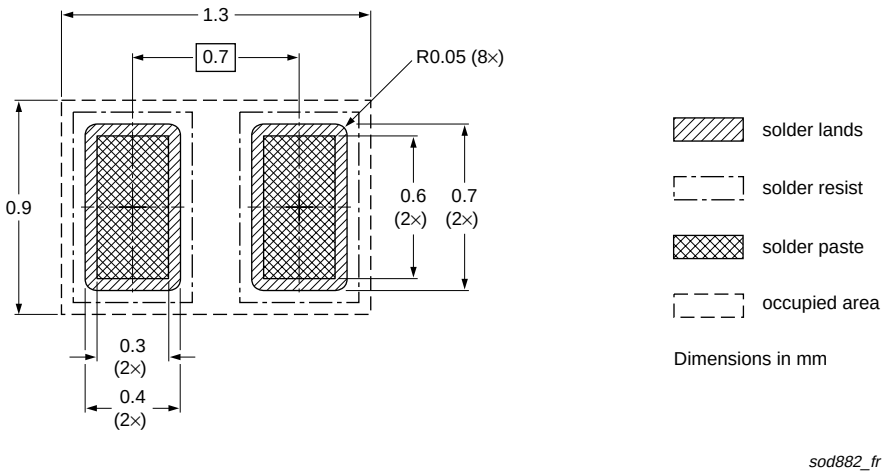
Table 8. Packing methods

The indicated -xxx are the last three digits of the 12NC ordering code.[1]

Type number	Package	Description	Packing quantity
			10000
PMEG4002EL	SOD882	2 mm pitch, 8 mm tape and reel	-315

[1] For further information and the availability of packing methods, see Section 13.

10. Soldering



Reflow soldering is the only recommended soldering method.

Fig 5. Reflow soldering footprint SOD882

11. Revision history

Table 9. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
PMEG4002EL_2	20090311	Product data sheet	-	PMEG4002EL_1
Modifications:	• The format of this data sheet has been redesigned to comply with the new identity guidelines of NXP Semiconductors. • Legal texts have been adapted to the new company name where appropriate. • Figure 4: superseded by minimized package outline drawing • Section 9 “Packing information”: added • Section 10 “Soldering”: added • Section 12 “Legal information”: updated			
PMEG4002EL_1	20040217	Product data sheet	-	-

12. Legal information

12.1 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 URL http://www.nxp.com.

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14. Contents

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