

# PMEG2005EL

20 V, 0.5 A very low V<sub>F</sub> MEGA Schottky barrier rectifier in leadless ultra small SOD882 package

Rev. 02 — 15 January 2010

Product data sheet

# 1. Product profile

## 1.1 General description

Planar Maximum Efficiency General Application (MEGA) Schottky barrier diode with an integrated guard ring for stress protection encapsulated in a SOD882 leadless ultra small plastic package.

### **1.2 Features**

- Forward current: 0.5 A
- Reverse voltage: 20 V
- Very low forward voltage
- Leadless ultra small plastic package
- Power dissipation comparable to SOT23

## 1.3 Applications

- Ultra high-speed switching
- Voltage clamping
- Protection circuits
- Low voltage rectification
- High efficiency DC-to-DC conversion
- Low power consumption applications

## 1.4 Quick reference data

Table 1.	Quick reference data		
Symbol	Parameter	Value	Unit
I <sub>F</sub>	forward current	0.5	А
V <sub>R</sub>	reverse voltage	20	V



# 2. Pinning information

Table 2.	Discrete pinning		
Pin	Description	Simplified outline Symbol	
1	cathode		
2	anode	1 2 2 sym001 Bottom view	
		Top view 001aaa332	

[1] The marking bar indicates the cathode.

# 3. Ordering information

#### Table 3.Ordering information

Type number	number Package			
	Name	Description	Version	
PMEG2005EL	-	leadless ultra small plastic package; 2 terminals; body $1.0\times0.6\times0.5~\text{mm}$	SOD882	

# 4. Marking

Table 4. Marking	
Type number	Marking code
PMEG2005EL	F5

# 5. Limiting values

#### Table 5. Limiting values

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

Symbol	Parameter	Conditions	Min	Max	Unit
V <sub>R</sub>	continuous reverse voltage		-	20	V
I <sub>F</sub>	continuous forward current		-	0.5	А
I <sub>FRM</sub>	repetitive peak forward current	$\begin{array}{l} t_p \leq 1 \text{ ms;} \\ \delta \leq 0.25 \end{array}$	-	2.5	А
I <sub>FSM</sub>	non-repetitive peak forward current	t = 8 ms square wave	-	3.0	А
Tj	junction temperature		<u>[1]</u> _	150	°C
T <sub>amb</sub>	operating ambient temperature		<u>[1]</u> –65	+150	°C
T <sub>stg</sub>	storage temperature		-65	+150	°C

[1] For Schottky barrier diodes thermal run-away has to be considered, as in some applications the reverse power losses P<sub>R</sub> are a significant part of the total power losses. Nomograms for determining the reverse power losses P<sub>R</sub> and I<sub>F(AV)</sub> rating will be available on request.

## 6. Thermal characteristics

Table 6.	Thermal characteristics			
Symbol	Parameter	Conditions	Value	Unit
R <sub>th(j-a)</sub>	thermal resistance from junction to ambient	in free air	<u>[1][2]</u> 500	K/W

[1] Refer to SOD882 standard mounting conditions (footprint), FR4 with 60 µm copper strip line.

[2] For Schottky barrier diodes thermal run-away has to be considered, as in some applications the reverse power losses P<sub>R</sub> are a significant part of the total power losses. Nomograms for determining the reverse power losses P<sub>R</sub> and I<sub>F (AV)</sub> rating will be available on request.

## 7. Characteristics

#### Table 7.Characteristics

 $T_{amb} = 25 \ ^{\circ}C$  unless otherwise specified.

Symbol	Parameter	Conditions	Тур	Max	Unit
V <sub>F</sub>	continuous forward voltage	see <u>Figure 1</u> I <sub>F</sub> = 0.1 mA	125	180	mV
		I <sub>F</sub> = 1 mA	185	240	mV
		I <sub>F</sub> = 10 mA	250	290	mV
		I <sub>F</sub> = 100 mA	325	380	mV
		I <sub>F</sub> = 500 mA	450	500	mV
I <sub>R</sub>	continuous reverse current	$V_R = 10 V$ ; see <u>Figure 2</u>	[1] 4	30	μΑ
C <sub>d</sub>	diode capacitance	V <sub>R</sub> = 1 V; f = 1 MHz; see <u>Figure 3</u>	24	30	pF

[1] Pulse test:  $t_p \le 300 \ \mu s$ ;  $\delta \le 0.02$ .

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# PMEG2005EL

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# 8. Package outline



#### Fig 4. Package outline

PMEG2005EL\_2 Product data sheet

# 9. Revision history

Table 8. Revision histo	ry			
Document ID	Release date	Data sheet status	Change notice	Supersedes
PMEG2005EL_2	20100115	Product specification	-	PMEG2005EL_1
Modifications:	<ul> <li>This data sheet including new le content.</li> </ul>	was changed to reflect the gal definitions and disclain	new company name ners. No changes wer	NXP, e made to the technical
PMEG2005EL_1	20040211	Product specification	-	-

# **10. Legal information**

### **10.1** Data sheet status

Document status[1][2]	Product status <sup>[3]</sup>	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".

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