



# PMEG2005EL

20 V, 0.5 A very low  $V_F$  MEGA Schottky barrier rectifier in leadless ultra small SOD882 package

Rev. 02 — 15 January 2010

Product data sheet

## 1. Product profile

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### 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
$I_F$	forward current	0.5	A
$V_R$	reverse voltage	20	V

## 2. Pinning information

Table 2. Discrete pinning

Pin	Description	Simplified outline	Symbol
1	cathode	<p>Bottom view</p> <p>Top view</p> <p>001aaa332</p>	<p>sym001</p>
2	anode		

[1] The marking bar indicates the cathode.

## 3. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
PMEG2005EL	-	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
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
$V_R$	continuous reverse voltage		-	20	V
$I_F$	continuous forward current		-	0.5	A
$I_{FRM}$	repetitive peak forward current	$t_p \leq 1$ ms; $\delta \leq 0.25$	-	2.5	A
$I_{FSM}$	non-repetitive peak forward current	$t = 8$ ms square wave	-	3.0	A
$T_j$	junction temperature	[1]	-	150	°C
$T_{amb}$	operating ambient temperature	[1]	-65	+150	°C
$T_{stg}$	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  $P_R$  are a significant part of the total power losses. Nomograms for determining the reverse power losses  $P_R$  and  $I_{F(AV)}$  rating will be available on request.

## 6. Thermal characteristics

**Table 6. Thermal characteristics**

Symbol	Parameter	Conditions	Value	Unit
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air	<a href="#">[1]</a> <a href="#">[2]</a> 500	K/W

- [1] Refer to SOD882 standard mounting conditions (footprint), FR4 with 60  $\mu\text{m}$  copper strip line.
- [2] For Schottky barrier diodes thermal run-away 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 will be available on request.

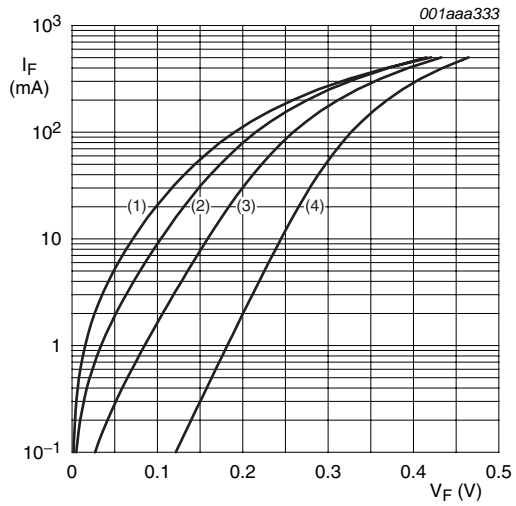
## 7. Characteristics

**Table 7. Characteristics**

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

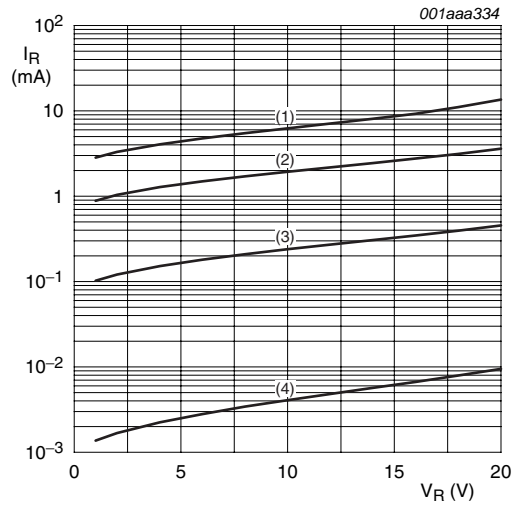
Symbol	Parameter	Conditions	Typ	Max	Unit
$V_F$	continuous forward voltage	see <a href="#">Figure 1</a> $I_F = 0.1\text{ mA}$	125	180	mV
		$I_F = 1\text{ mA}$	185	240	mV
		$I_F = 10\text{ mA}$	250	290	mV
		$I_F = 100\text{ mA}$	325	380	mV
		$I_F = 500\text{ mA}$	450	500	mV
$I_R$	continuous reverse current	$V_R = 10\text{ V}$ ; see <a href="#">Figure 2</a>	<a href="#">[1]</a> 4	30	$\mu\text{A}$
$C_d$	diode capacitance	$V_R = 1\text{ V}$ ; $f = 1\text{ MHz}$ ; see <a href="#">Figure 3</a>	24	30	pF

- [1] Pulse test:  $t_p \leq 300\text{ }\mu\text{s}$ ;  $\delta \leq 0.02$ .



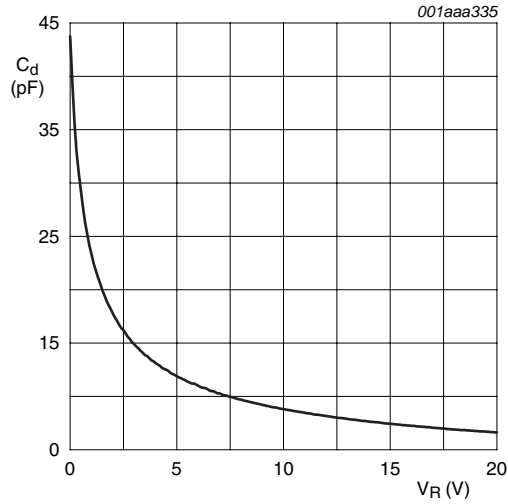
- (1)  $T_j = 150\text{ }^\circ\text{C}$
- (2)  $T_j = 125\text{ }^\circ\text{C}$
- (3)  $T_j = 85\text{ }^\circ\text{C}$
- (4)  $T_j = 25\text{ }^\circ\text{C}$

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



- (1)  $T_j = 150\text{ }^\circ\text{C}$
- (2)  $T_j = 125\text{ }^\circ\text{C}$
- (3)  $T_j = 85\text{ }^\circ\text{C}$
- (4)  $T_j = 25\text{ }^\circ\text{C}$

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



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

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

## 8. Package outline

Leadless ultra small plastic package; 2 terminals; body 1.0 x 0.6 x 0.5 mm

SOD882

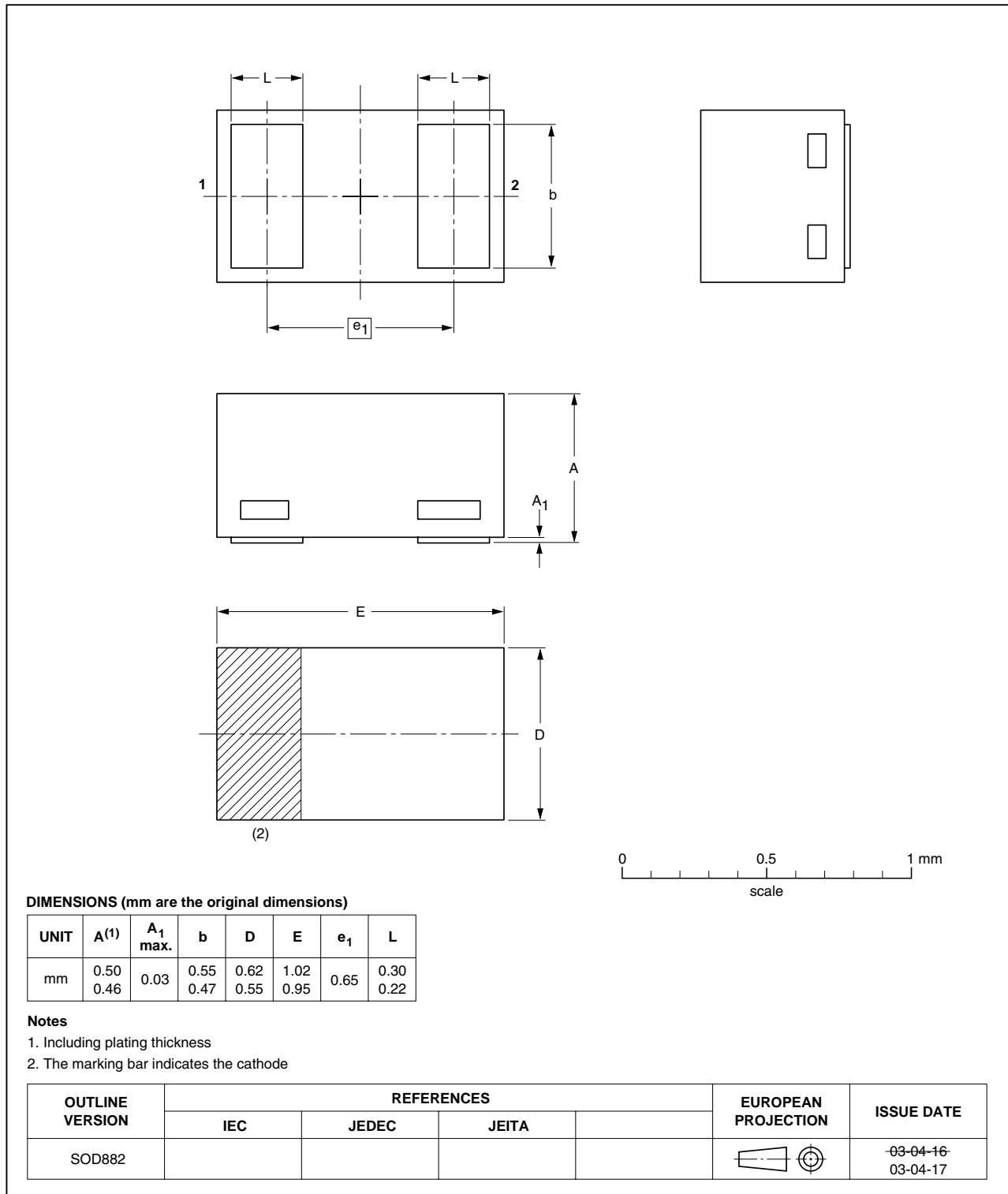


Fig 4. Package outline

## 9. Revision history

Table 8. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
PMEG2005EL_2	20100115	Product specification	-	PMEG2005EL_1
Modifications:	<ul style="list-style-type: none"><li>This data sheet was changed to reflect the new company name NXP, including new legal definitions and disclaimers. No changes were made to the technical content.</li></ul>			
PMEG2005EL_1	20040211	Product specification	-	-

## 10. Legal information

### 10.1 Data sheet status

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

[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.nexperia.com>.

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