

# PMEG2005AEL

0.5 A ultra low  $V_F$  MEGA Schottky barrier rectifier in leadless ultra small SOD882 package

Rev. 02 — 27 April 2004

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
- Ultra 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
PMEG2005AEL	-	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
PMEG2005AEL	F2

## 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	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	[1] [2] 500	K/W

- [1] Refer to SOD882 standard mounting conditions (footprint), FR4 with 60  $\mu$ 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.

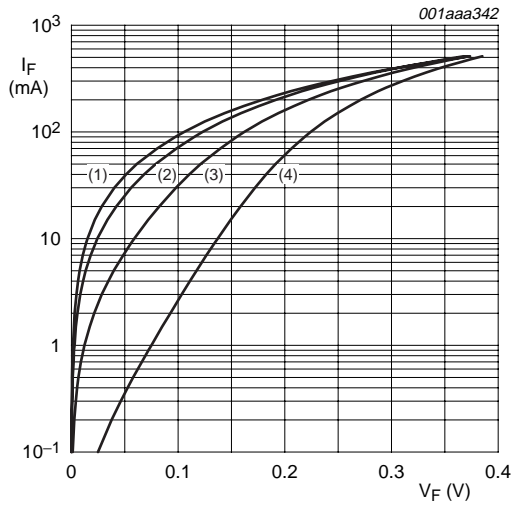
## 7. Characteristics

**Table 7: Characteristics**

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

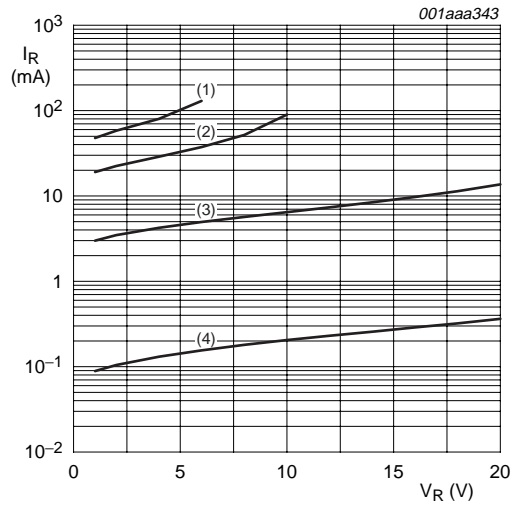
Symbol	Parameter	Conditions	Typ	Max	Unit
$V_F$	continuous forward voltage	see <a href="#">Figure 1</a> ;			
		$I_F = 0.1$ mA	25	60	mV
		$I_F = 1$ mA	75	110	mV
		$I_F = 10$ mA	135	190	mV
		$I_F = 100$ mA	220	290	mV
		$I_F = 500$ mA	375	440	mV
$I_R$	continuous reverse current	see <a href="#">Figure 2</a> ; [1]			
		$V_R = 10$ V	210	600	$\mu$ A
		$V_R = 20$ V	370	1500	$\mu$ A
$C_d$	diode capacitance	$V_R = 1$ V; $f = 1$ MHz; see <a href="#">Figure 3</a>	19	25	pF

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



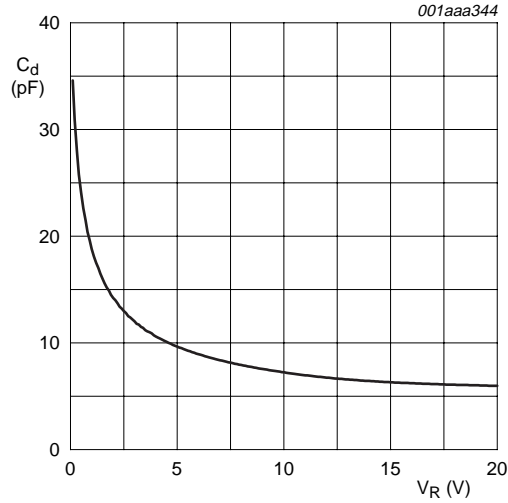
- (1)  $T_j = 150^\circ\text{C}$ .
- (2)  $T_j = 125^\circ\text{C}$ .
- (3)  $T_j = 85^\circ\text{C}$ .
- (4)  $T_j = 25^\circ\text{C}$ .

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



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

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



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

**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

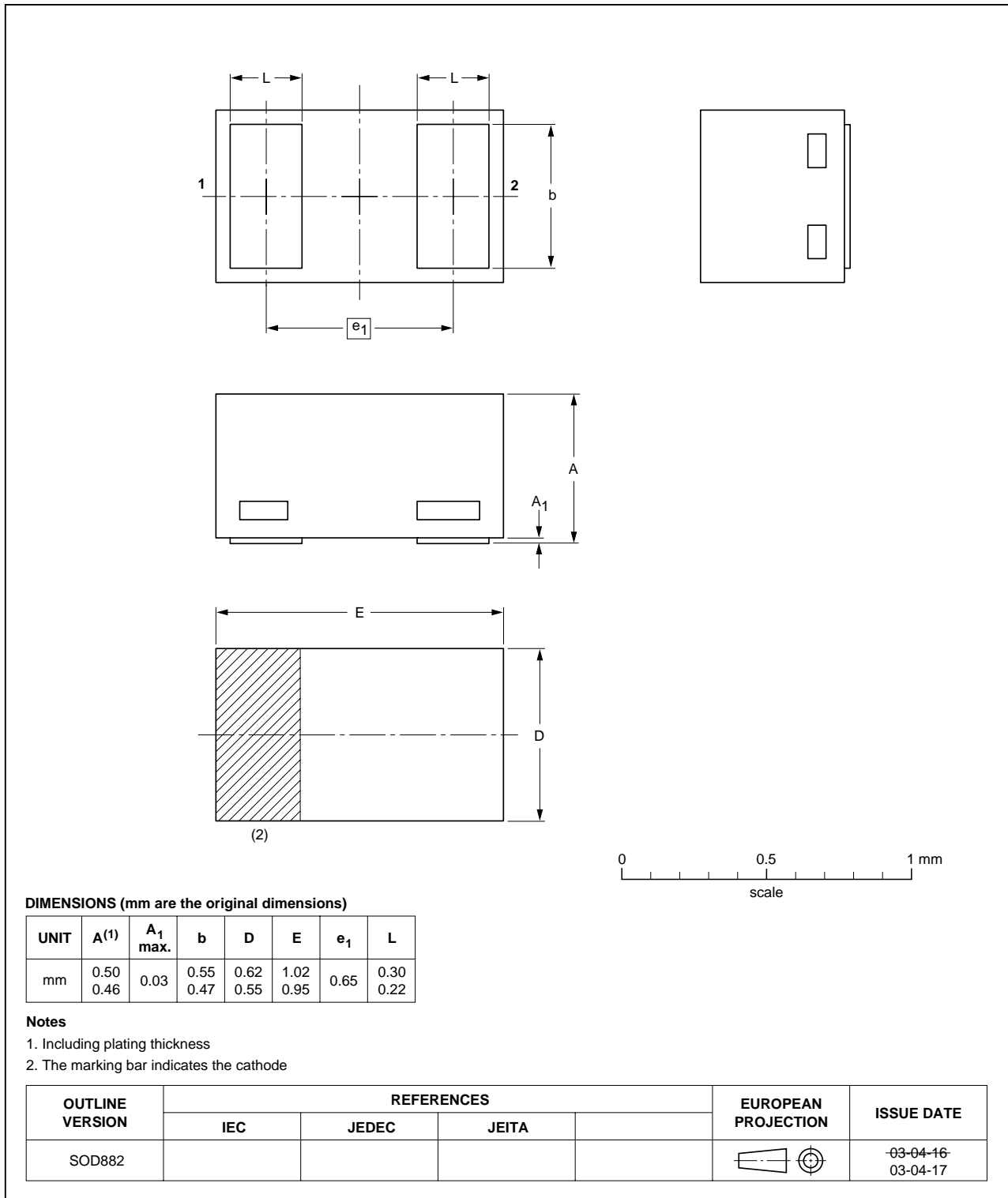


Fig 4. Package outline.

## 9. Revision history

**Table 8: Revision history**

Document ID	Release date	Data sheet status	Change notice	Order number	Supersedes
PMEG2005AEL_2	20040427	Product data	-	9397 750 13201	PMEG2005AEL_1
Modifications:		• General description changed.			
PMEG2005AEL_1	20040419	Product data	-	9397 750 12465	-

## 10. Data sheet status

Level	Data sheet status <sup>[1]</sup>	Product status <sup>[2]</sup> <sup>[3]</sup>	Definition
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## 14. Contents

<b>1</b>	<b>Product profile</b> . . . . .	<b>1</b>
1.1	General description . . . . .	1
1.2	Features . . . . .	1
1.3	Applications . . . . .	1
1.4	Quick reference data . . . . .	1
<b>2</b>	<b>Pinning information</b> . . . . .	<b>2</b>
<b>3</b>	<b>Ordering information</b> . . . . .	<b>2</b>
<b>4</b>	<b>Marking</b> . . . . .	<b>2</b>
<b>5</b>	<b>Limiting values</b> . . . . .	<b>2</b>
<b>6</b>	<b>Thermal characteristics</b> . . . . .	<b>3</b>
<b>7</b>	<b>Characteristics</b> . . . . .	<b>3</b>
<b>8</b>	<b>Package outline</b> . . . . .	<b>5</b>
<b>9</b>	<b>Revision history</b> . . . . .	<b>6</b>
<b>10</b>	<b>Data sheet status</b> . . . . .	<b>7</b>
<b>11</b>	<b>Definitions</b> . . . . .	<b>7</b>
<b>12</b>	<b>Disclaimers</b> . . . . .	<b>7</b>
<b>13</b>	<b>Contact information</b> . . . . .	<b>7</b>



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