PMEG3002AEL

30 V, 0.2 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

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: 0.2 A
- Reverse voltage: 30 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

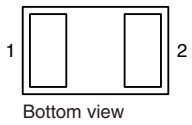
1.4 Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
I_F	forward current		-	-	0.2	A
V_R	reverse voltage		-	-	30	V

2. Pinning information

Table 2. Discrete pinning

Pin	Description	Simplified outline	Symbol
1	cathode [1]	 Bottom view	 sym001
2	anode	 Top view 001aaa332	

[1] The marking bar indicates the cathode.

3. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
PMEG3002AEL	-	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
PMEG3002AEL	F3

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		-	30	V
I_F	continuous 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	t_p = 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		Typ	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 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_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.

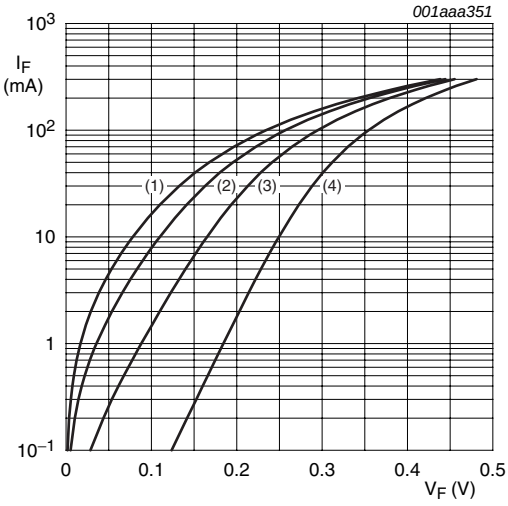
7. Characteristics

Table 7. Characteristics

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

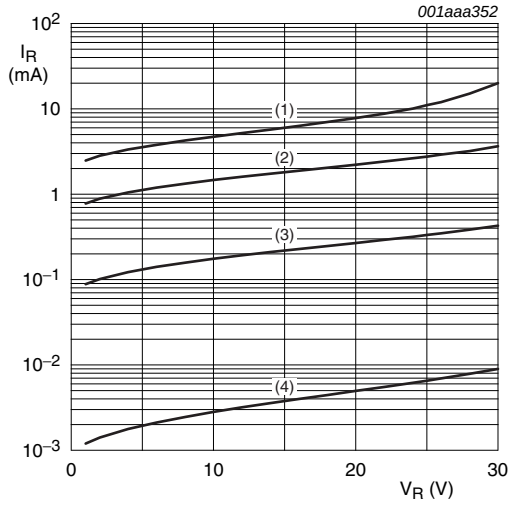
Symbol	Parameter	Conditions		Min	Typ	Max	Unit
V_F	continuous forward voltage	see Figure 1;					
		I_F = 0.1 mA		-	125	190	mV
		I_F = 1 mA		-	185	250	mV
		I_F = 10 mA		-	250	300	mV
		I_F = 100 mA		-	350	400	mV
		I_F = 200 mA		-	420	480	mV
I_R	continuous reverse current	see Figure 2;	[1]				
		V_R = 10 V		-	2.5	10	μA
		V_R = 30 V		-	10	50	μA
C_d	diode capacitance	V_R = 1 V; f = 1 MHz; see Figure 3		-	17	25	pF

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



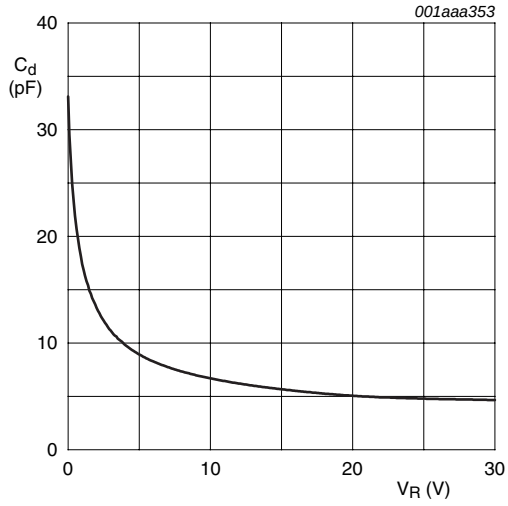
(1) T_j = 150 °C
(2) T_j = 125 °C
(3) T_j = 85 °C
(4) T_j = 25 °C

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

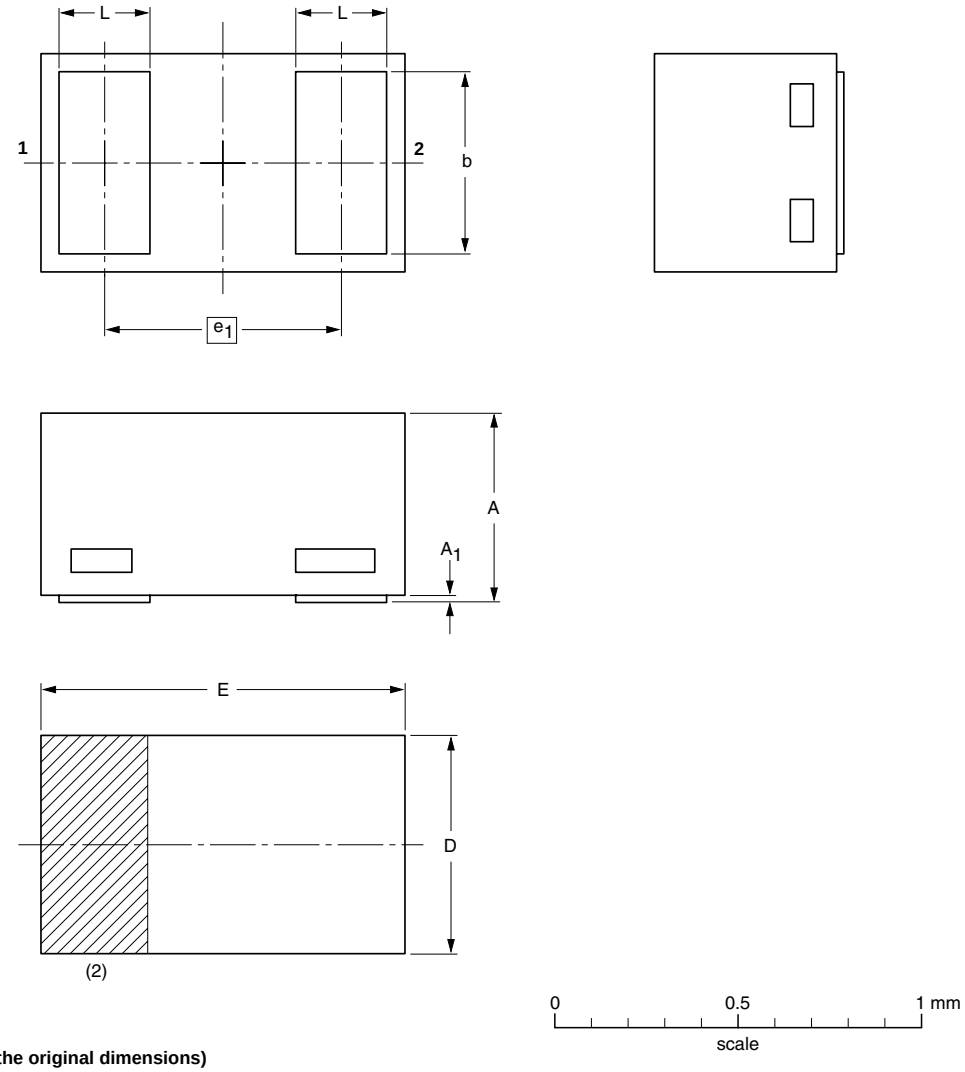


T_{amb} = 25 °C; f = 1 MHz

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**



DIMENSIONS (mm are the original dimensions)

UNIT	A(1)	A_1 max.	b	D	E	e_1	L
mm	0.50 0.46	0.03	0.55 0.47	0.62 0.55	1.02 0.95	0.65	0.30 0.22

Notes

1. Including plating thickness
2. The marking bar indicates the cathode

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOD882						~~03-04-16~~ 03-04-17

Fig 4. Package outline

9. Revision history

Table 8. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
PMEG3002AEL_2	20100115	Product data sheet	-	PMEG3002AEL_1
Modifications:	• 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.			
PMEG3002AEL_1	20040224	Product data	-	-

10. Legal information

10.1 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.nexperia.com.

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