

# PMEG3015EV

30 V, 1.5 A ultra low  $V_F$  MEGA Schottky barrier rectifier in SOT666 package

Rev. 02 — 4 February 2010

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 an ultra small SMD SOT666 plastic package.

### 1.2 Features

- Forward current: 1.5 A
- Reverse voltage: 30 V
- Ultra low forward voltage
- Ultra small SMD packages

### 1.3 Applications

- Low voltage rectification
- High efficiency DC-to-DC conversion
- Voltage clamping
- Inverse polarity protection
- 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	$T_{sp} \leq 55\text{ °C}$	-	-	1.5	A
$V_R$	reverse voltage		-	-	30	V
$V_F$	forward voltage	$I_F = 1.5\text{ A}$	[1] -	480	550	mV

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

## 2. Pinning information

Table 2. Pinning

Pin	Description	Simplified outline	Symbol
1	cathode		
2	cathode		
3	anode		
4	anode		
5	cathode		
6	cathode		

## 3. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
PMEG3015EV	-	plastic surface mounted package; 6 leads	SOT666

## 4. Marking

Table 4. Marking codes

Type number	Marking code
PMEG3015EV	1A

## 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		-	30	V
$I_F$	forward current	$T_{sp} \leq 55\text{ °C}$	-	1.5	A
$I_{FRM}$	repetitive peak forward current	$t_p \leq 1\text{ ms}; \delta \leq 0.25$	[1] -	4.5	A
$I_{FSM}$	non-repetitive peak forward current	$t_p = 8\text{ ms};$ square wave	[1] -	9.5	A
$P_{tot}$	total power dissipation	$T_{amb} \leq 25\text{ °C}$	[2] -	0.31	W
			[3] -	0.58	W
$T_j$	junction temperature		-	150	°C
$T_{amb}$	ambient temperature		-65	+150	°C
$T_{stg}$	storage temperature		-65	+150	°C

[1] For SOT666 only valid, if pins 3 and 4 are connected in parallel.

[2] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint.

[3] Device mounted on an FR4 PCB, single-sided copper, tin-plated and mounting pad for cathode  $1\text{ cm}^2$ .

## 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]			
			[3] -	-	405	K/W
			[4] -	-	215	K/W
$R_{th(j-sp)}$	thermal resistance from junction to solder point		-	-	80	K/W

[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.

[2] Reflow soldering is the only recommended soldering method.

[3] Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.

[4] Device mounted on an FR4 PCB, single-sided copper, tin-plated and mounting pad for cathode  $1\text{ cm}^2$ .

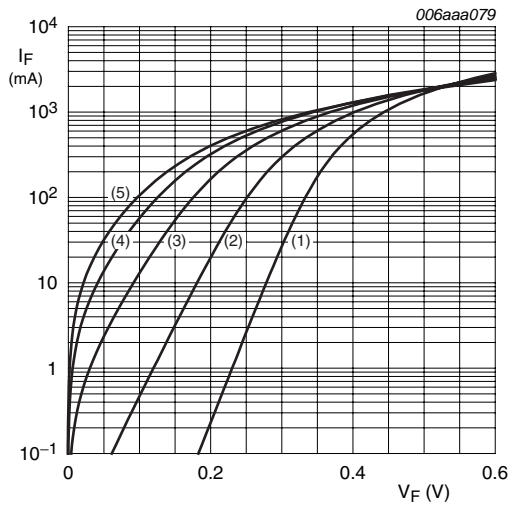
## 7. Characteristics

**Table 7. Characteristics**

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

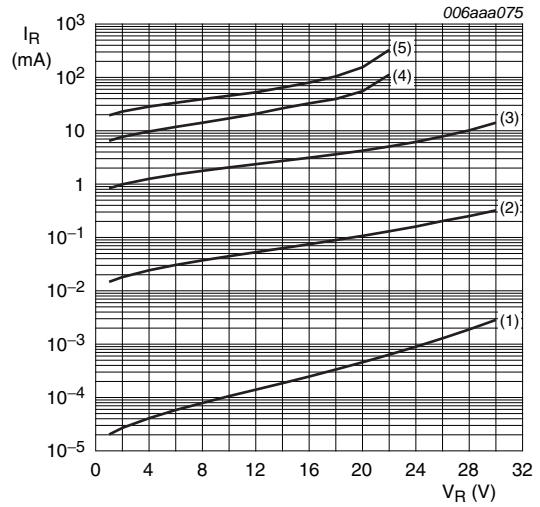
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$V_F$	forward voltage	$I_F = 1\text{ mA}$	[1] -	125	160	mV
		$I_F = 10\text{ mA}$	[1] -	185	220	mV
		$I_F = 100\text{ mA}$	[1] -	255	290	mV
		$I_F = 500\text{ mA}$	[1] -	340	380	mV
		$I_F = 1\text{ A}$	[1] -	410	480	mV
		$I_F = 1.5\text{ A}$	[1] -	480	550	mV
$I_R$	reverse current	$V_R = 10\text{ V}$	-	60	150	$\mu\text{A}$
		$V_R = 30\text{ V}$	-	400	1000	$\mu\text{A}$
$C_d$	diode capacitance	$V_R = 1\text{ V}; f = 1\text{ MHz}$	-	60	72	pF

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



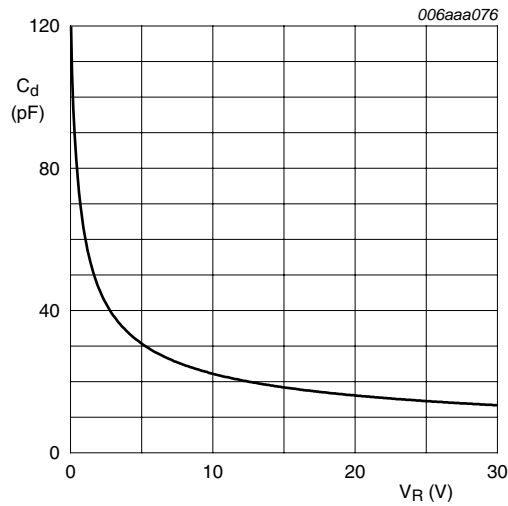
- (1)  $T_{\text{amb}} = -40^\circ\text{C}$
- (2)  $T_{\text{amb}} = 25^\circ\text{C}$
- (3)  $T_{\text{amb}} = 85^\circ\text{C}$
- (4)  $T_{\text{amb}} = 125^\circ\text{C}$
- (5)  $T_{\text{amb}} = 150^\circ\text{C}$

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



- (1)  $T_{\text{amb}} = -40^\circ\text{C}$
- (2)  $T_{\text{amb}} = 25^\circ\text{C}$
- (3)  $T_{\text{amb}} = 85^\circ\text{C}$
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- (5)  $T_{\text{amb}} = 150^\circ\text{C}$

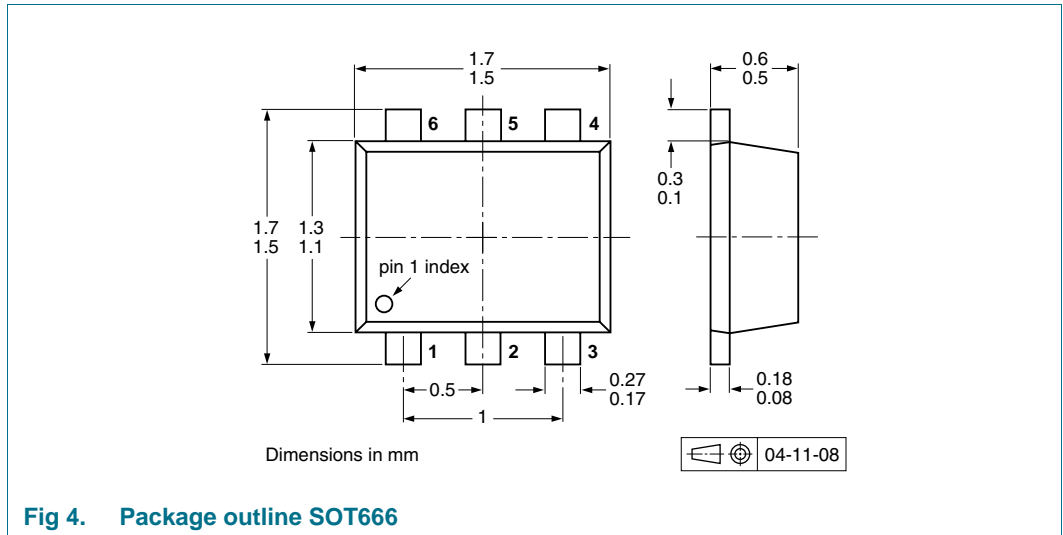
**Fig 2. Reverse current as a function of reverse voltage; typical values**



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

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

## 8. Package outline



## 9. Packing information

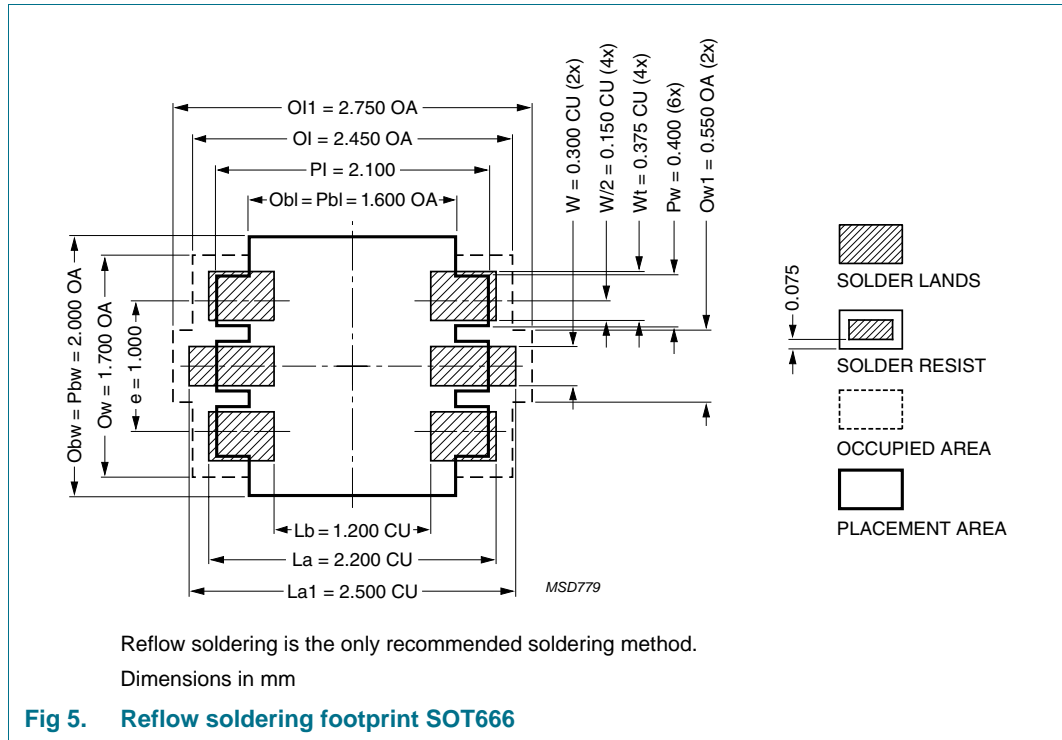
**Table 8. Packing methods**

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

Type number	Package	Description	Packing quantity
			4000
PMEG3015EV	SOT666	4 mm pitch, 8 mm tape and reel	-115

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

**10. Soldering**



**Fig 5. Reflow soldering footprint SOT666**

## 11. Revision history

Table 9. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
PMEG3015EV_2	20100204	Product data sheet	-	PMEG3015EV_1
Modifications:	<ul style="list-style-type: none"><li>This data sheet was changed to reflect the new company name NXP Semiconductors, including new legal definitions and disclaimers. No changes were made to the technical content.</li></ul>			
PMEG3015EV_1	20050404	Product data sheet	-	-



## 12. Legal information

### 12.1 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".

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