



# PMEG3002TV

0.2 A very low  $V_F$  MEGA Schottky barrier dual rectifier in SOT666 package

Rev. 02 — 15 January 2010

Product data sheet

## 1. Product profile

### 1.1 General description

Planar Maximum Efficiency General Application (MEGA) Schottky barrier dual rectifier with an integrated guard ring for stress protection, encapsulated in a SOT666 ultra small and flat lead Surface Mounted Device (SMD) plastic package.

Table 1. Product overview

Type number	Package		Configuration
	Nexperia	JEITA	
PMEG3002TV	SOT666	-	dual isolated

### 1.2 Features

- Forward current:  $\leq 0.2$  A
- Reverse voltage:  $\leq 30$  V
- Very low forward voltage
- Ultra small and flat lead SMD plastic package

### 1.3 Applications

- Low voltage rectification
- High efficiency DC-to-DC conversion
- Switch mode power supply
- Inverse polarity protection
- Low power consumption applications

### 1.4 Quick reference data

Table 2. Quick reference data

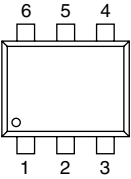
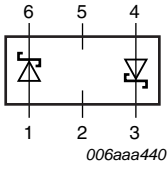
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Per diode</b>						
$I_F$	forward current	$T_{amb} \leq 25$ °C	[1] -	-	0.2	A
$V_R$	reverse voltage		-	-	30	V
$V_F$	forward voltage	$I_F = 200$ mA	[2] -	420	480	mV

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

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

## 2. Pinning information

Table 3. Pinning

Pin	Description	Simplified outline	Symbol
1	anode (diode 1)		
2	not connected		
3	cathode (diode 2)		
4	anode (diode 2)		
5	not connected		
6	cathode (diode 1)		

## 3. Ordering information

Table 4. Ordering information

Type number	Package		
	Name	Description	Version
PMEG3002TV	-	plastic surface mounted package; 6 leads	SOT666

## 4. Marking

Table 5. Marking codes

Type number	Marking code
PMEG3002TV	2M

## 5. Limiting values

**Table 6. Limiting values**

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

Symbol	Parameter	Conditions	Min	Max	Unit
<b>Per diode</b>					
$V_R$	reverse voltage		-	30	V
$I_F$	forward current	$T_{amb} \leq 25\text{ °C}$	[1] -	0.2	A
$I_{FRM}$	repetitive peak forward current	$t_p \leq 1\text{ ms}$ ; $\delta \leq 0.25$	-	1	A
$I_{FSM}$	non-repetitive peak forward current	square wave; $t_p = 8\text{ ms}$	[1] -	2.5	A
$P_{tot}$	total power dissipation	$T_{amb} \leq 25\text{ °C}$	[1] -	200	mW
			[2] -	300	mW
<b>Per device</b>					
$P_{tot}$	total power dissipation	$T_{amb} \leq 25\text{ °C}$	[1] -	300	mW
			[2] -	400	mW
$T_j$	junction temperature		-	150	°C
$T_{amb}$	ambient temperature		-65	+150	°C
$T_{stg}$	storage temperature		-65	+150	°C

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

[2] Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for cathode 1 cm<sup>2</sup>.

## 6. Thermal characteristics

**Table 7. Thermal characteristics**

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Per device</b>						
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air	[1][2] -	-	416	K/W
			[1][3] -	-	318	K/W
$R_{th(j-sp)}$	thermal resistance from junction to solder point		[4] -	-	195	K/W

[1] For Schottky barrier diodes thermal runaway 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 are available on request.

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

[3] Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for cathode 1 cm<sup>2</sup>.

[4] Soldering point of cathode tab.

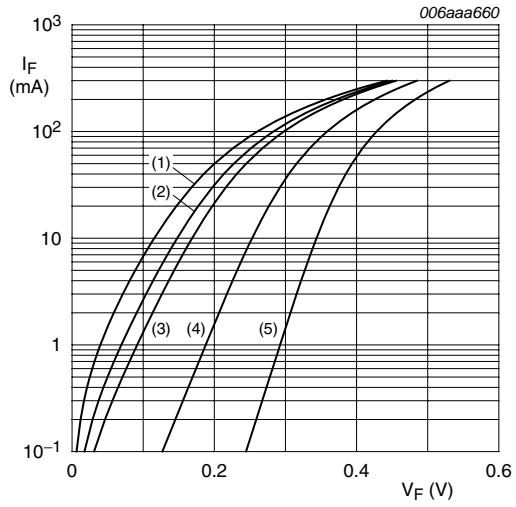
## 7. Characteristics

**Table 8. Characteristics**

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

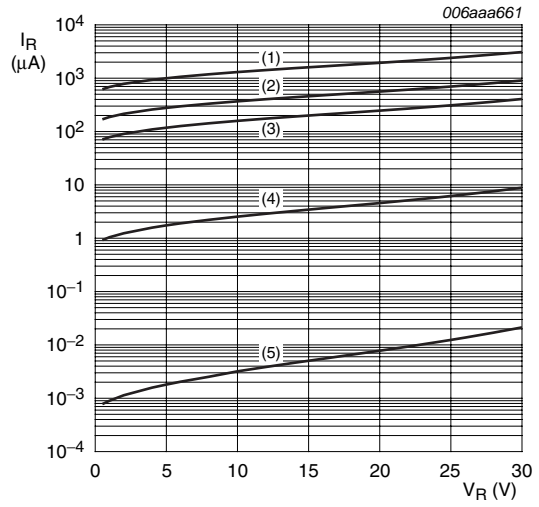
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Per diode</b>						
$V_F$	forward voltage		[1]			
		$I_F = 0.1\text{ mA}$	-	130	190	mV
		$I_F = 1\text{ mA}$	-	190	250	mV
		$I_F = 10\text{ mA}$	-	255	300	mV
		$I_F = 100\text{ mA}$	-	355	400	mV
		$I_F = 200\text{ mA}$	-	420	480	mV
$I_R$	reverse current	$V_R = 10\text{ V}$	-	3	10	$\mu\text{A}$
		$V_R = 30\text{ V}$	-	10	30	$\mu\text{A}$
		$V_R = 10\text{ V}; T_{amb} = 100\text{ °C}$	-	400	-	$\mu\text{A}$
$C_d$	diode capacitance	$V_R = 1\text{ V}; f = 1\text{ MHz}$	-	20	25	pF

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



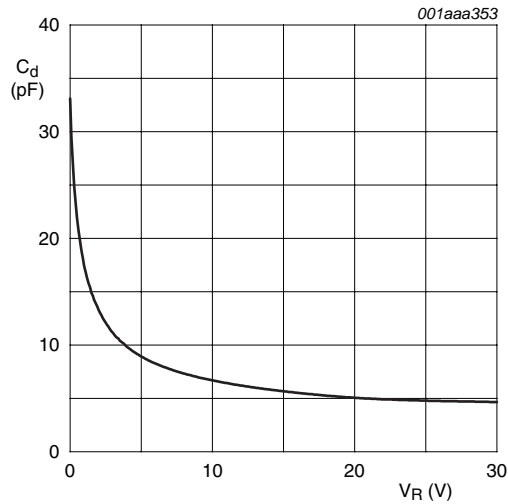
- (1)  $T_{amb} = 125\text{ °C}$
- (2)  $T_{amb} = 100\text{ °C}$
- (3)  $T_{amb} = 85\text{ °C}$
- (4)  $T_{amb} = 25\text{ °C}$
- (5)  $T_{amb} = -40\text{ °C}$

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



- (1)  $T_{amb} = 125\text{ °C}$
- (2)  $T_{amb} = 100\text{ °C}$
- (3)  $T_{amb} = 85\text{ °C}$
- (4)  $T_{amb} = 25\text{ °C}$
- (5)  $T_{amb} = -40\text{ °C}$

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



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

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

## 8. Package outline

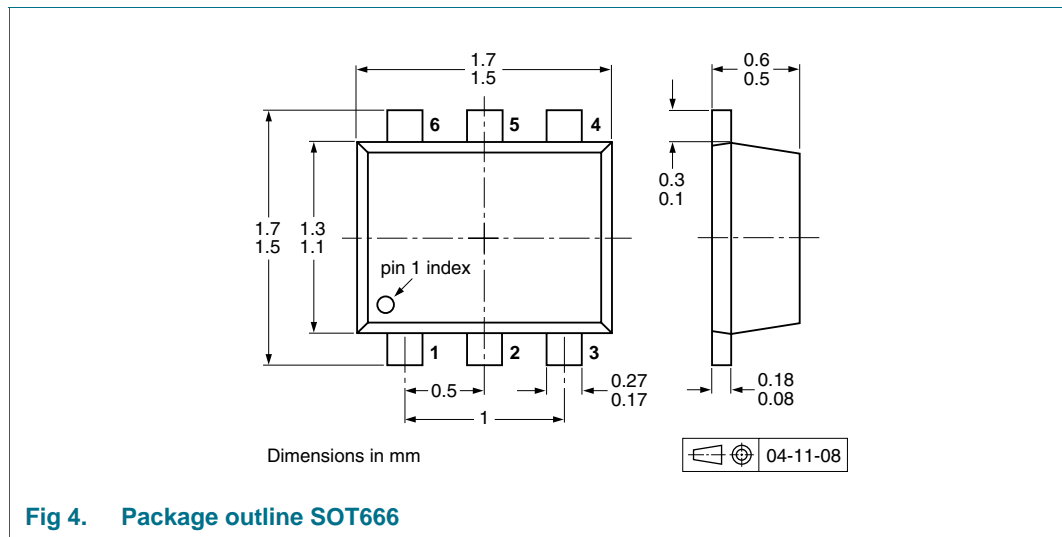


Fig 4. Package outline SOT666

## 9. Packing information

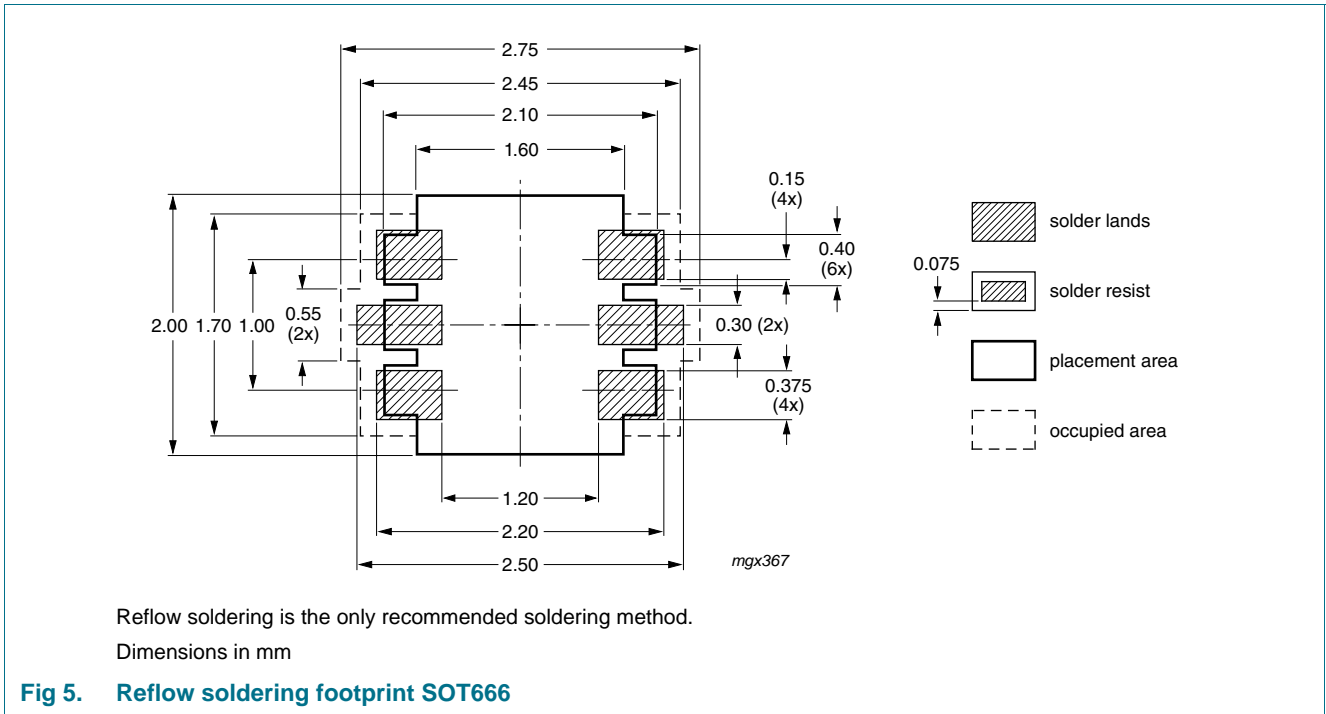
Table 9. Packing methods

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

Type number	Package	Description	Packing quantity	
			4000	8000
PMEG3002TV	SOT666	2 mm pitch, 8 mm tape and reel	-	-315
		4 mm pitch, 8 mm tape and reel	-115	-

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

## 10. Soldering



## 11. Revision history

Table 10. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
PMEG3002TV_2	20100115	Product data sheet	-	PMEG3002TV_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>			
PMEG3002TV_1	20051021	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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