



PMEG6002TV

0.2 A very low VF dual MEGA Schottky barrier rectifier

7 April 2021

Product data sheet

1. General description

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

2. Features and benefits

- Forward current: $I_F \leq 0.2$ A
- Reverse voltage: $V_R \leq 60$ V
- Very low forward voltage
- Ultra small and flat lead SMD plastic package
- AEC-Q101 qualified

3. Applications

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

4. Quick reference data

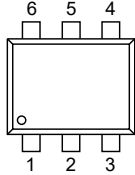
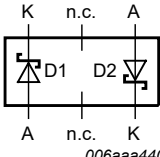
Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Per diode						
I_F	forward current	$T_{amb} \leq 25$ °C	-	-	0.2	A
V_R	reverse voltage	$T_j = 25$ °C	-	-	60	V
V_F	forward voltage	$I_F = 200$ mA	[1]	540	600	mV

[1] Pulsed test: $t_p \leq 300$ μ s; $\delta \leq 0.02$

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	A	anode (D1)	 <p>SOT666</p>	
2	n.c.	not connected		
3	K	cathode (D2)		
4	A	anode (D2)		
5	n.c.	not connected		
6	K	cathode (D1)		

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
PMEG6002TV	SOT666	plastic, surface-mounted package; 6 leads; 0.5 mm pitch; 1.6 mm x 1.2 mm x 0.55 mm body	SOT666

7. Marking

Table 4. Marking codes

Type number	Marking code
PMEG6002TV	1B

8. Limiting values

Table 5. Limiting values

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

Symbol	Parameter	Conditions		Min	Max	Unit
Per diode						
V_R	reverse voltage	$T_j = 25\text{ °C}$		-	60	V
I_F	forward current	$T_{amb} \leq 25\text{ °C}$		-	0.2	A
I_{FRM}	repetitive peak forward current	$t_p \leq 1\text{ ms}; \delta \leq 0.25$		-	2	A
I_{FSM}	non-repetitive peak forward current	$t_p = 8\text{ ms};$ square wave		-	2.5	A
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ °C}$	[1]	-	200	mW
			[2]	-	300	mW
Per device						
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 cm².

9. Thermal characteristics

Table 6. Thermal characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
Per device							
$R_{th(j-a)}$	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.

[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 cm².

[4] Soldering point of cathode tab.

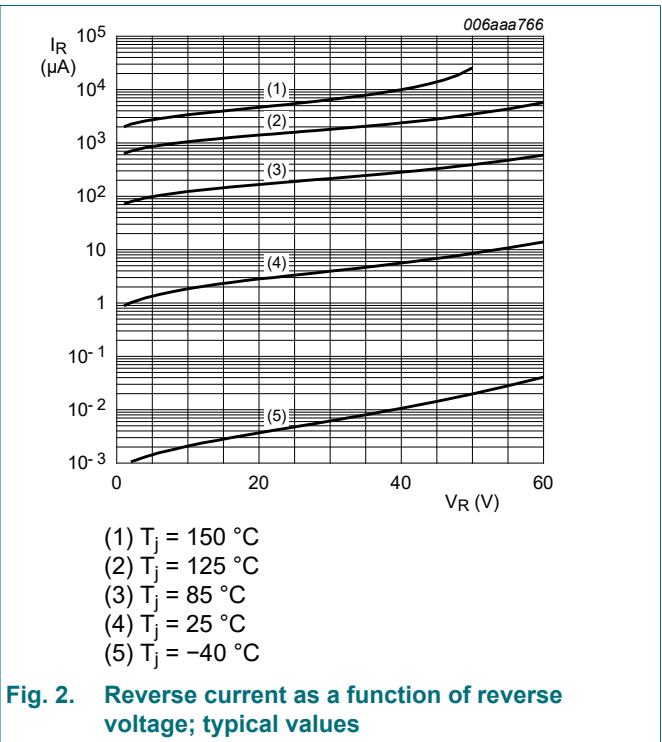
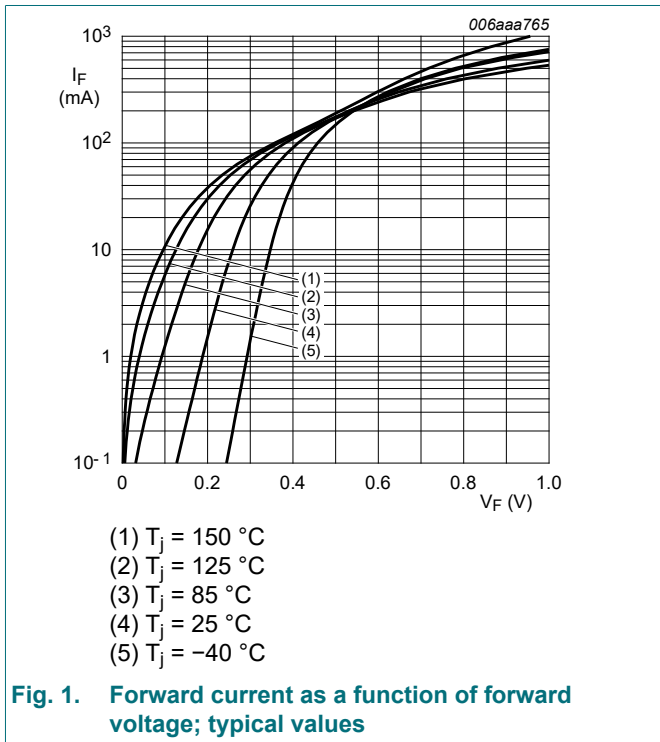
10. Characteristics

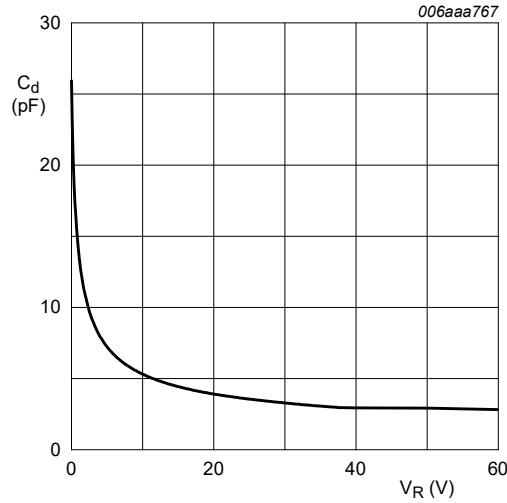
Table 7. Characteristics

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit	
Per diode							
V_F	forward voltage	$I_F = 0.1\text{ mA}$	[1]	-	130	170	mV
		$I_F = 1\text{ mA}$	[1]	-	190	230	mV
		$I_F = 10\text{ mA}$	[1]	-	260	300	mV
		$I_F = 100\text{ mA}$	[1]	-	420	470	mV
		$I_F = 200\text{ mA}$	[1]	-	540	600	mV
I_R	reverse current	$V_R = 10\text{ V}$		-	2	10	μA
		$V_R = 60\text{ V}$		-	20	100	μA
		$V_R = 10\text{ V}; T_{amb} = 100\text{ °C}$		-	310	-	μA
C_d	diode capacitance	$V_R = 1\text{ V}; f = 1\text{ MHz}$	-	14	20	pF	

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





f = 1 MHz; T_{amb} = 25 °C

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

11. Test information

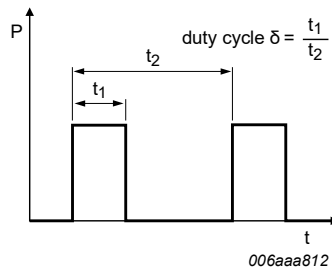


Fig. 4. Duty cycle definition

Quality information

This product has been qualified in accordance with the Automotive Electronics Council (AEC) standard Q101 - *Stress test qualification for discrete semiconductors*, and is suitable for use in automotive applications.

12. Package outline

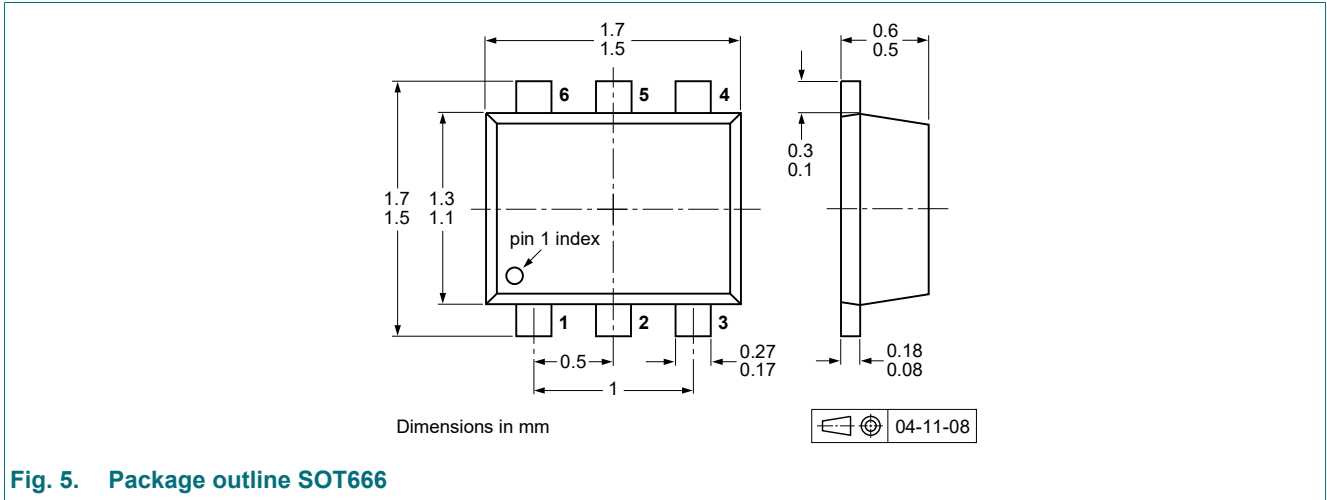


Fig. 5. Package outline SOT666

13. Soldering

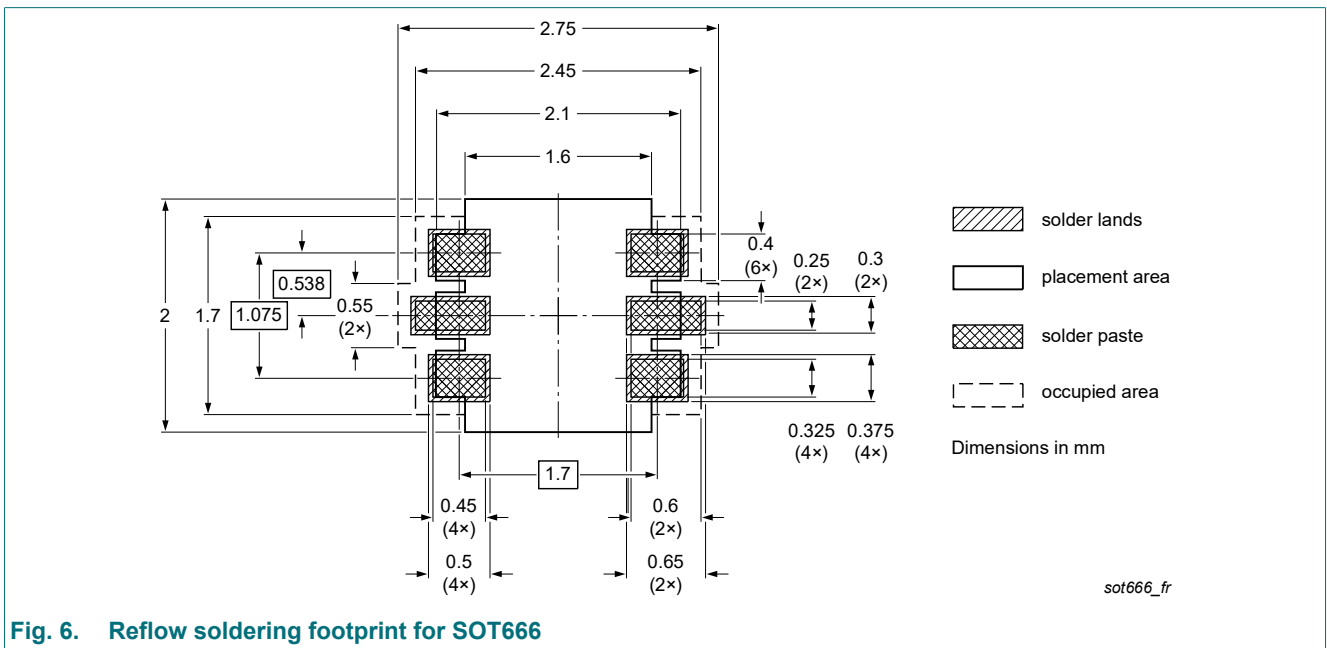


Fig. 6. Reflow soldering footprint for SOT666

14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
PMEG6002TV v.2	20210407	Product data sheet	-	PMEG6002EB_PMEG6002TV v.1
Modifications:	<ul style="list-style-type: none">• Data sheet separated into two data sheets• Packing information: section removed• Changed to AEC-Q101 qualified status in sections: "Limiting values", "Test information" and "Legal information"			
PMEG6002EB_PMEG6002TV v.1	20061124	Product data sheet	-	-

15. Legal information

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.

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- [2] The term 'short data sheet' is explained in section "Definitions".
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