



# PMEG2005AEV

20 V, 0.5 A very low VF Schottky barrier rectifier

28 December 2022

Product data sheet

## 1. General description

Planar Schottky barrier rectifier with an integrated guard ring for stress protection, encapsulated in a SOT666 ultra small SMD plastic package.

## 2. Features and benefits

- Very low forward voltage
- High surge current
- Ultra small plastic SMD package

## 3. Applications

- Low voltage rectification
- High efficiency DC/DC conversion
- Voltage clamping
- Inverse polarity protection
- Low power consumption applications.

## 4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$V_R$	reverse voltage	$T_j = 25\text{ °C}$	-	-	20	V
$V_F$	forward voltage	$I_F = 500\text{ mA}$ ; $t_p \leq 300\text{ }\mu\text{s}$ ; $\delta \leq 0.02$ ; $T_{amb} = 25\text{ °C}$	-	355	390	mV
$I_R$	reverse current	$V_R = 20\text{ V}$ ; $t_p \leq 300\text{ }\mu\text{s}$ ; $\delta \leq 0.02$ ; pulsed	-	40	200	$\mu\text{A}$

## 5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	cathode	<p style="text-align: center;"><b>SOT666</b></p>	<p style="text-align: center;"><i>sym038</i></p>
2	K	cathode		
3	A	anode		
4	A	anode		
5	K	cathode		
6	K	cathode		

## 6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
PMEG2005AEV	SOT666	plastic, surface-mounted package; 6 leads; 0.5 mm pitch; 1.6 mm x 1.2 mm x 0.55 mm body	<a href="#">SOT666</a>

## 7. Limiting values

Table 4. Limiting values

In accordance with the Absolute Maximum Rating System (IEC60134).

Symbol	Parameter	Conditions		Min	Max	Unit
$V_R$	reverse voltage	$T_j = 25\text{ °C}$		-	20	V
$I_F$	forward current		[1]	-	0.5	A
$I_{FRM}$	repetitive peak forward current	$t_p \leq 1\text{ ms}$ ; $\delta \leq 0.5$	[2]	-	3.5	A
$I_{FSM}$	non-repetitive peak forward current	$t_p = 8\text{ ms}$ ; square wave; $T_{j(\text{init})} = 25\text{ °C}$	[2]	-	10	A
$T_j$	junction temperature		[3]	-	150	°C
$T_{\text{amb}}$	ambient temperature		[3]	-65	150	°C
$T_{\text{stg}}$	storage temperature			-65	150	°C

- [1] Refer to SOT666 standard mounting conditions.  
 [2] Only valid if pins 3 and 4 are connected in parallel.  
 [3] 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 determination of the reverse power losses  $P_R$  and  $I_{F(AV)}$  rating will be available on request.

## 8. Thermal characteristics

Table 5. Thermal characteristics

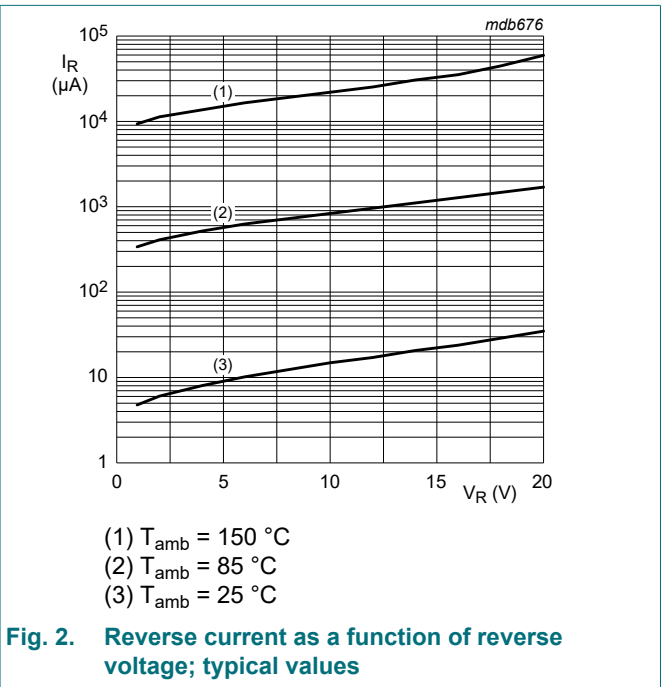
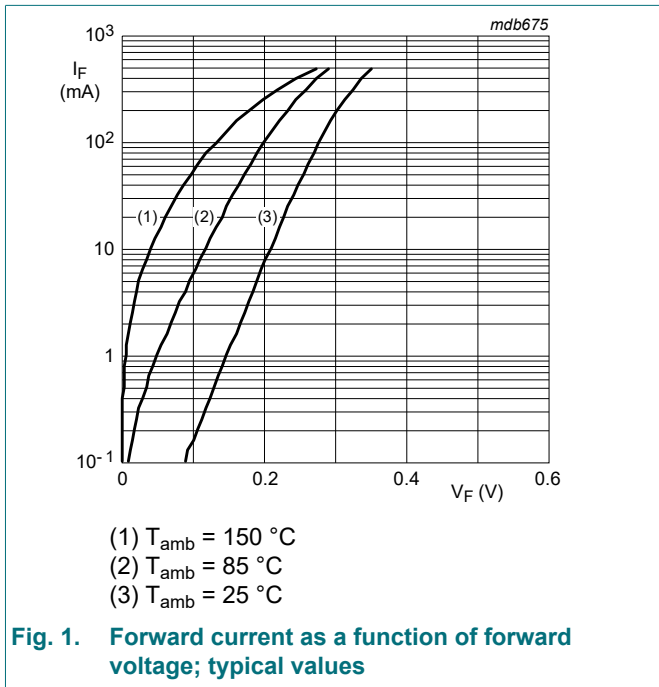
Symbol	Parameter	Conditions		Min	Typ	Max	Unit
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air	[1] [2]	-	-	405	K/W
			[2] [3]	-	-	215	K/W
$R_{th(j-sp)}$	thermal resistance from junction to solder point		[4]	-	-	80	K/W

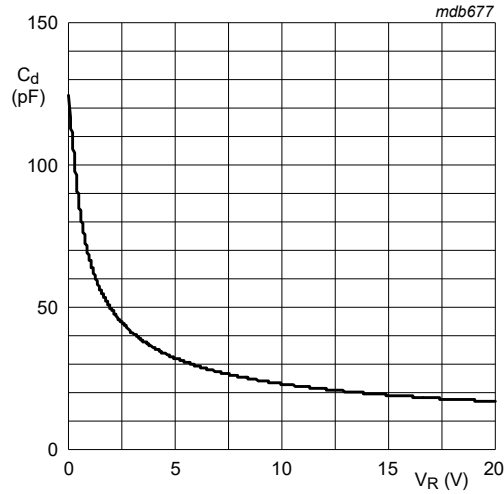
- [1] Refer to SOT666 standard mounting conditions.  
 [2] For Schottky barrier diodes thermal runaway has to be considered, as in some applications, the reverse power losses ( $P_R$ ) are a significant part of the total power losses. Nomograms for determination of the reverse power losses  $P_R$  and  $I_{F(AV)}$  rating will be available on request.  
 [3] Device mounted on an FR4 printed-circuit board with copper clad 10 × 10 mm.  
 [4] Solder point of cathode tab.

## 9. Characteristics

Table 6. Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$V_F$	forward voltage	$I_F = 0.1 \text{ mA}; t_p \leq 300 \mu\text{s}; \delta \leq 0.02;$ $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	90	130	mV
		$I_F = 1 \text{ mA}; t_p \leq 300 \mu\text{s}; \delta \leq 0.02;$ $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	150	190	mV
		$I_F = 10 \text{ mA}; t_p \leq 300 \mu\text{s}; \delta \leq 0.02;$ $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	210	240	mV
		$I_F = 100 \text{ mA}; t_p \leq 300 \mu\text{s}; \delta \leq 0.02;$ $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	280	330	mV
		$I_F = 500 \text{ mA}; t_p \leq 300 \mu\text{s}; \delta \leq 0.02;$ $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	355	390	mV
$I_R$	reverse current	$V_R = 10 \text{ V}; t_p \leq 300 \mu\text{s}; \delta \leq 0.02;$ pulsed; $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	15	40	$\mu\text{A}$
		$V_R = 20 \text{ V}; t_p \leq 300 \mu\text{s}; \delta \leq 0.02;$ pulsed	-	40	200	$\mu\text{A}$
$C_d$	diode capacitance	$V_R = 1 \text{ V}; f = 1 \text{ MHz}; T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	66	80	pF





f = 1 MHz; T<sub>amb</sub> = 25 °C

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

### 10. Package outline

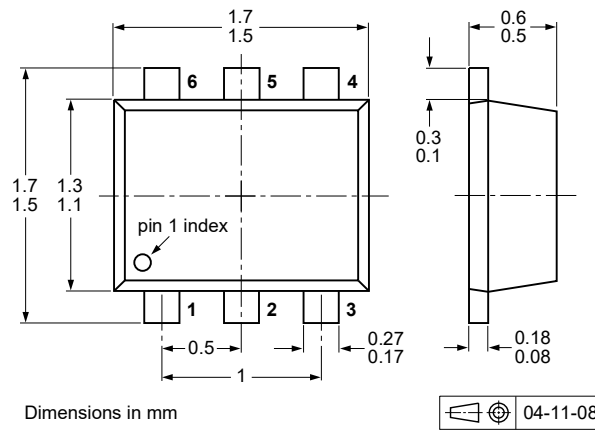


Fig. 4. Package outline SOT666

### 11. Soldering

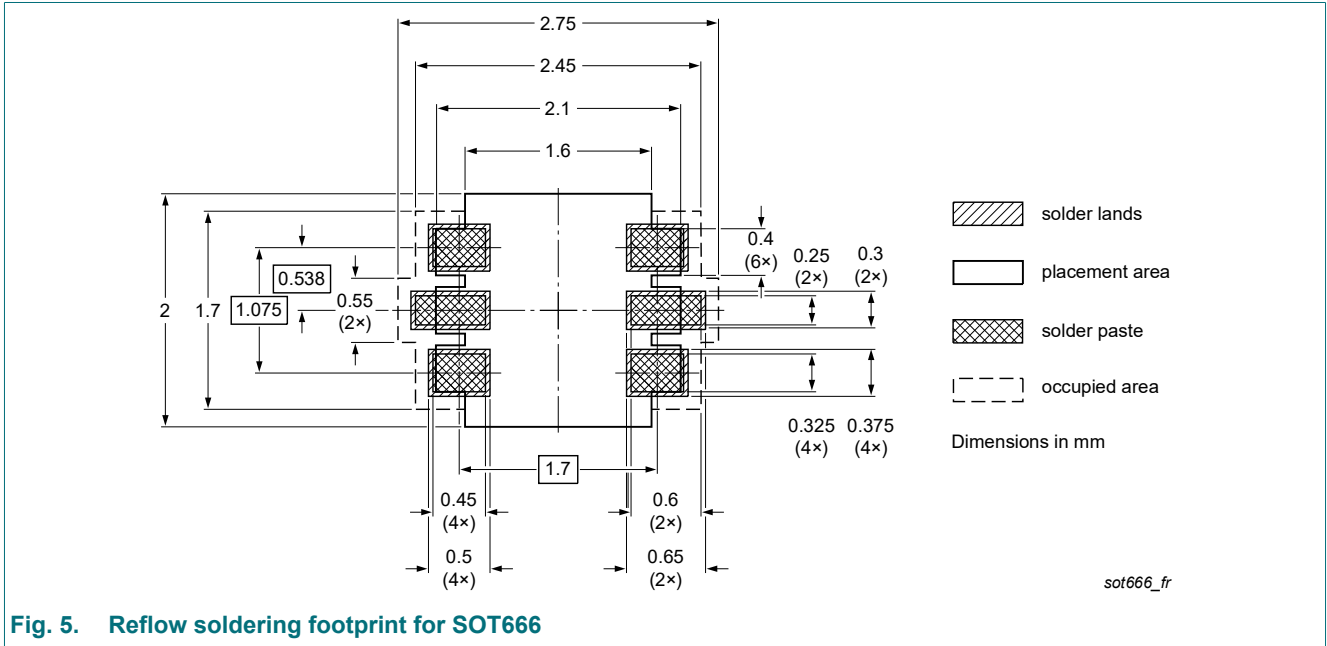


Fig. 5. Reflow soldering footprint for SOT666

## 12. Revision history

Table 7. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
PMEG2005AEV v.2	20221228	Product data sheet	-	PMEG2005AEV_3005_4005 v.1
Modifications:	<ul style="list-style-type: none"><li>The format of this data sheet has been redesigned to comply with the identity guidelines of Nexperia.</li><li>Legal texts have been adapted to the new company name where appropriate.</li><li>Product changed to non-automotive qualification.</li></ul>			
PMEG2005AEV_3005_4005 v.1	20030820	Product data sheet	-	-

## 13. 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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