



# PMEG3005EL-Q

30 V, 0.5 A very low VF Schottky barrier rectifier

10 September 2024

Product data sheet

## 1. General description

Planar Schottky barrier rectifier with an integrated guard ring for stress protection, encapsulated in an ultra small SOD882 (DFN1006-2) Surface-Mounted Device (SMD) plastic package.

## 2. Features and benefits

- Forward current:  $I_F \leq 0.5$  A
- Reverse voltage:  $V_R \leq 30$  V
- Very low forward voltage
- Ultra small SMD plastic package
- Qualified according to AEC-Q101 and recommended for use in automotive applications

## 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
$I_F$	forward current	$T_{sp} \leq 55$ °C	-	-	0.5	A
$V_R$	reverse voltage	$T_j = 25$ °C	-	-	30	V
$V_F$	forward voltage	$I_F = 500$ mA	[1]	430	500	mV

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

## 5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	cathode[1]	<p>Transparent top view <b>DFN1006-2 (SOD882)</b></p>	<p>K  A <i>sym001</i></p>
2	A	anode		

[1] The marking bar indicates the cathode

## 6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
<a href="#">PMEG3005EL-Q</a>	DFN1006-2	plastic, leadless ultra small package; 2 terminals; 0.65 mm pitch; 1 mm x 0.6 mm x 0.48 mm body	<a href="#">SOD882</a>

## 7. Marking

Table 4. Marking codes

Type number	Marking code
PMEG3005EL-Q	AM

## 8. 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	$T_j = 25\text{ °C}$	-	30	V
$I_F$	forward current	$T_{sp} \leq 55\text{ °C}$	-	0.5	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	$t_p = 8\text{ ms}$ ; square wave	-	3	A
$P_{tot}$	total power dissipation	$T_{amb} \leq 25\text{ °C}$	[1]	250	mW
$T_j$	junction temperature		-	150	°C
$T_{amb}$	ambient temperature		-55	150	°C
$T_{stg}$	storage temperature		-65	150	°C

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

## 9. 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]	-	500	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.

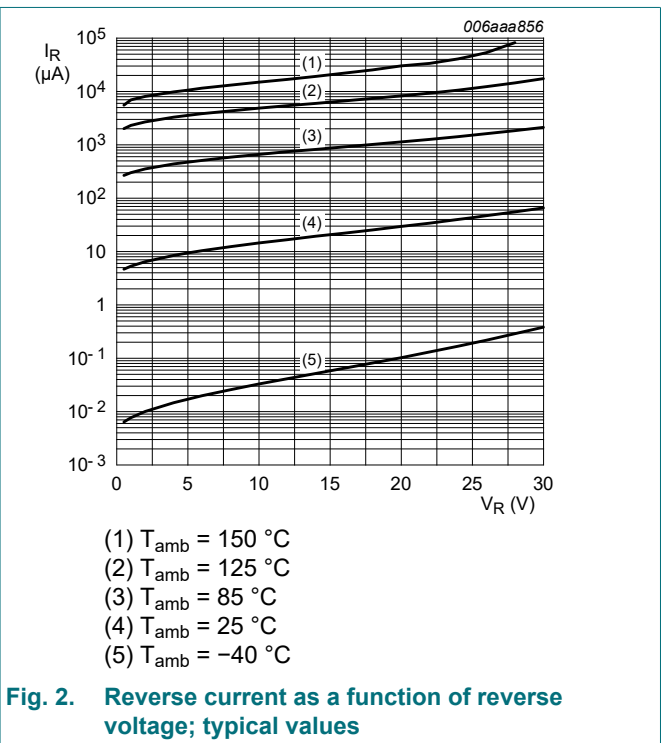
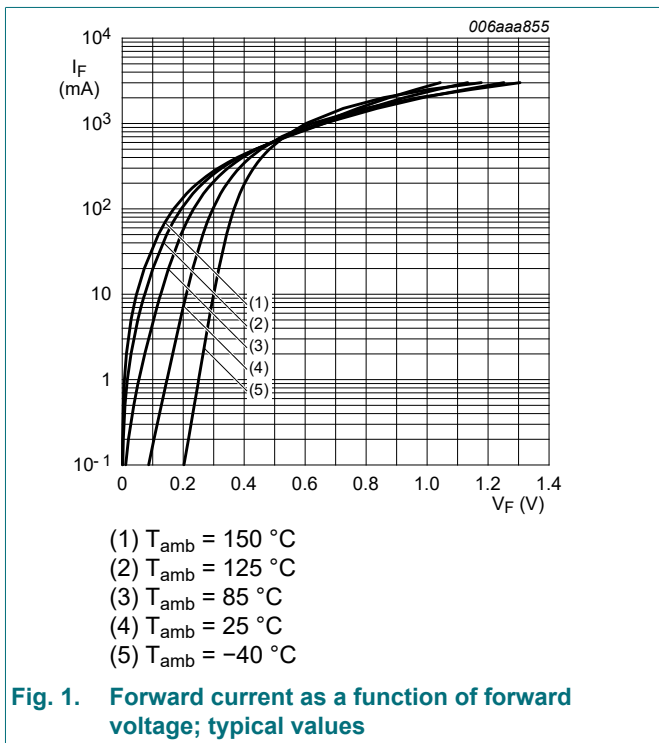
## 10. Characteristics

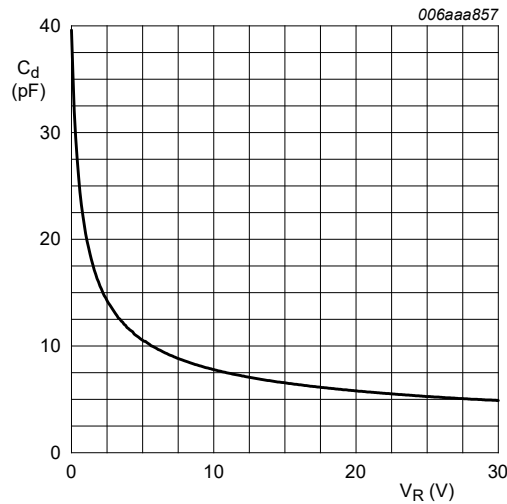
**Table 7. Characteristics**

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

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
$V_F$	forward voltage	$I_F = 0.1\text{ mA}$	[1]	-	90	180	mV
		$I_F = 1\text{ mA}$	[1]	-	150	200	mV
		$I_F = 10\text{ mA}$	[1]	-	210	270	mV
		$I_F = 100\text{ mA}$	[1]	-	295	360	mV
		$I_F = 500\text{ mA}$	[1]	-	430	500	mV
$I_R$	reverse current	$V_R = 10\text{ V}$		-	15	200	$\mu\text{A}$
		$V_R = 30\text{ V}$		-	70	500	$\mu\text{A}$
$C_d$	diode capacitance	$V_R = 1\text{ V}; f = 1\text{ MHz}$		-	24	30	pF

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





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

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

## 11. Test information

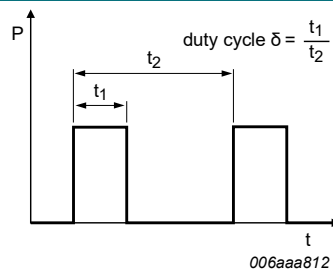
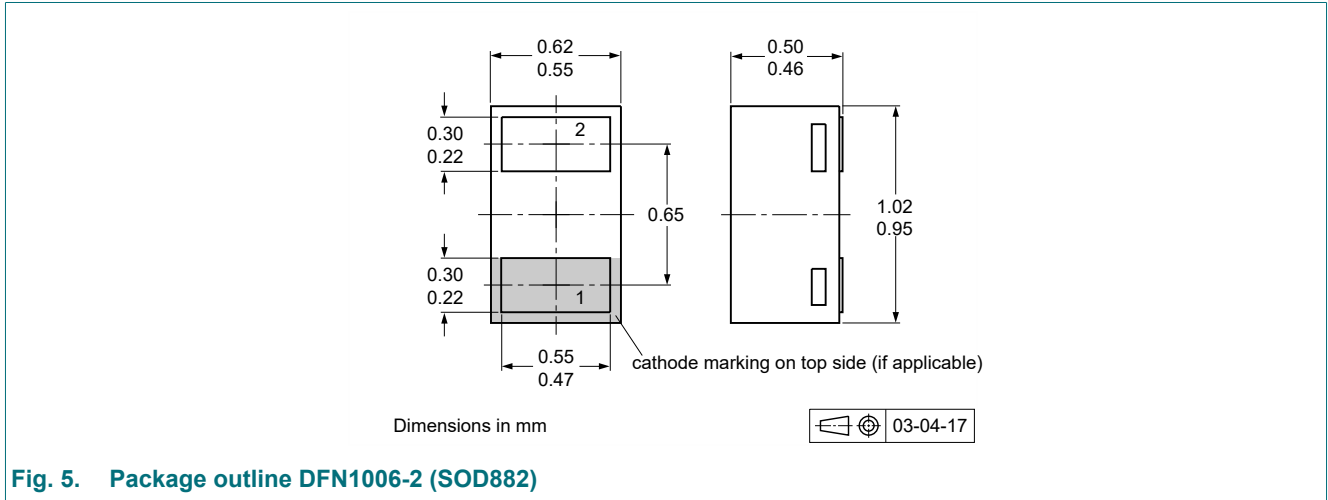


Fig. 4. Duty cycle definition

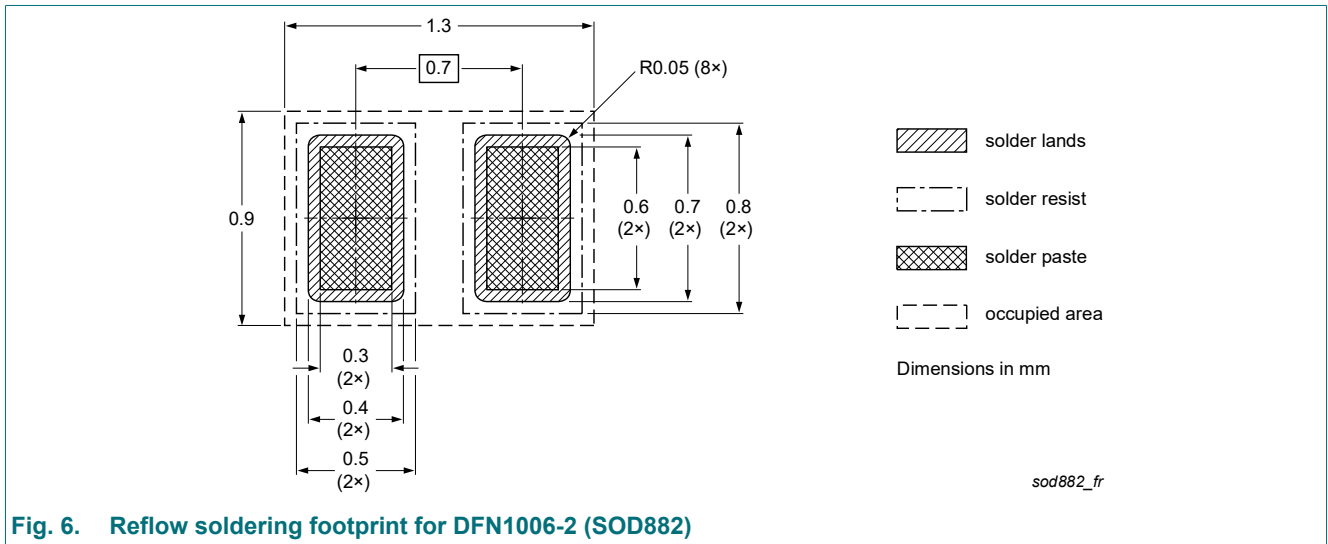
### Quality information

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



## 13. Soldering



## 14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
PMEG3005EL-Q v.1	20240910	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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