



# PMEG3005ELS

30 V, 0.5 A very low VF Schottky barrier rectifier

21 April 2022

Product data sheet

## 1. General description

Planar Schottky barrier rectifier with an integrated guard ring for stress protection, encapsulated in an ultra small SOD882BD (DFN1006BD-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
- Ultra small SMD plastic package
- Very low forward voltage
- Suitable for Automatic Optical Inspection (AOI) of solder joint

## 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		-	-	30	V
$V_F$	forward voltage	$I_F = 0.5$ A; $t_p \leq 300$ $\mu$ s; $\delta \leq 0.02$ ; pulsed; $T_{amb} = 25$ °C	-	430	500	mV
$I_R$	reverse current	$V_R = 30$ V; $T_{amb} = 25$ °C	-	70	500	$\mu$ A

## 5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	cathode[1]	<p>Transparent top view DFN1006BD-2 (SOD882BD)</p>	<p>K  A sym001</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="#">PMEG3005ELS</a>	DFN1006BD-2	Leadless ultra small plastic package with side-wettable flanks (SWF); 2 terminals; 0.65 mm pitch; 1 mm x 0.6 mm x 0.47 mm body	<a href="#">SOD882BD</a>

## 7. Marking

Table 4. Marking codes

Type number	Marking code
PMEG3005ELS	9A

## 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			-	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]	-	335	mW
			[2]	-	610	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 Printed-Circuit Board (PCB), 70  $\mu\text{m}$  single-sided copper, tin-plated and standard footprint.

[2] Device mounted on an FR4 PCB, 70  $\mu\text{m}$  single-sided copper, tin-plated mounting pad for cathode 1  $\text{cm}^2$ .

## 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]	-	-	375	K/W
			[3]	-	-	205	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, 70  $\mu\text{m}$  single-sided copper, tin-plated and standard footprint.

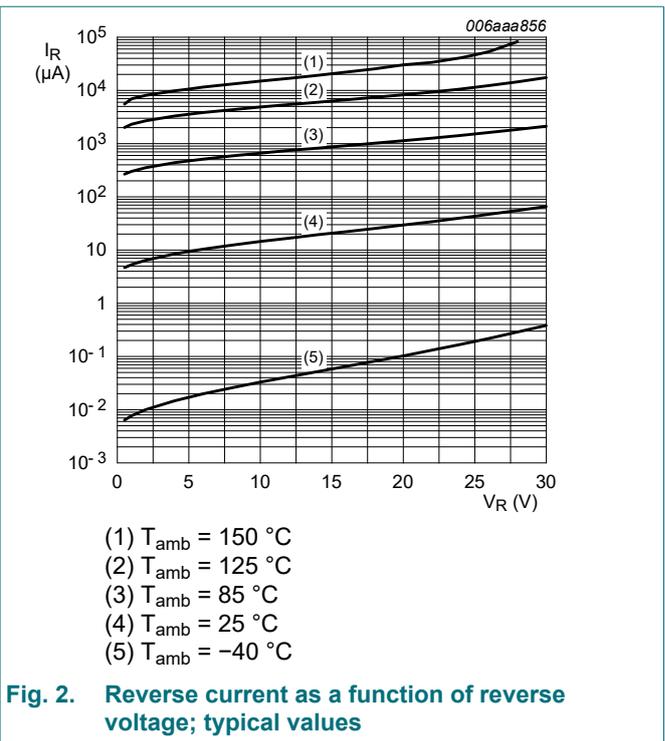
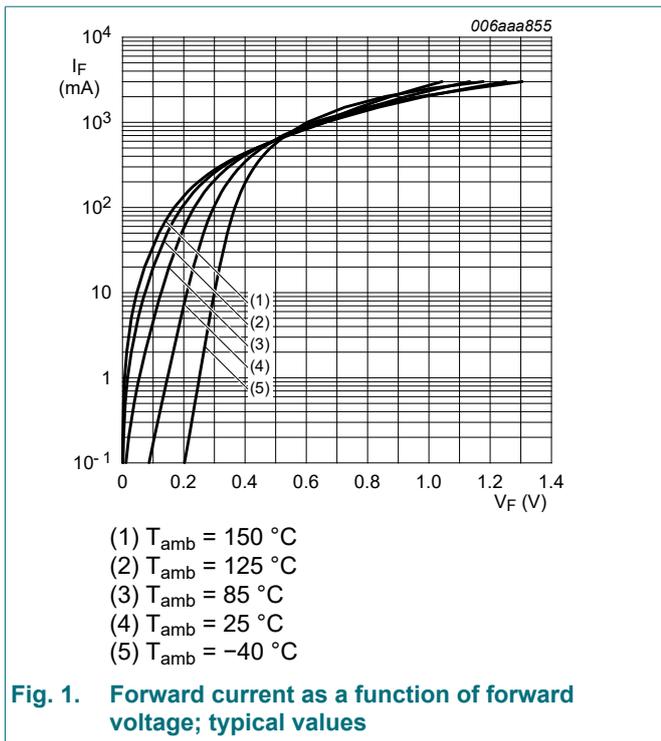
[3] Device mounted on an FR4 PCB, 70  $\mu\text{m}$  single-sided copper, tin-plated mounting pad for cathode 1  $\text{cm}^2$ .

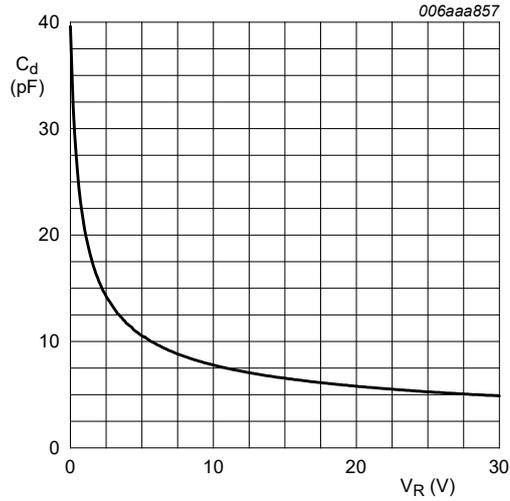
## 10. Characteristics

**Table 7. Characteristics**

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$V_F$	forward voltage	$I_F = 0.1\text{ mA}$ ; $t_p \leq 300\text{ }\mu\text{s}$ ; $\delta \leq 0.02$ ; pulsed; $T_{amb} = 25\text{ °C}$	-	90	180	mV
		$I_F = 1\text{ mA}$ ; $t_p \leq 300\text{ }\mu\text{s}$ ; $\delta \leq 0.02$ ; pulsed; $T_{amb} = 25\text{ °C}$	-	150	200	mV
		$I_F = 10\text{ mA}$ ; $t_p \leq 300\text{ }\mu\text{s}$ ; $\delta \leq 0.02$ ; pulsed; $T_{amb} = 25\text{ °C}$	-	210	270	mV
		$I_F = 0.1\text{ A}$ ; $t_p \leq 300\text{ }\mu\text{s}$ ; $\delta \leq 0.02$ ; pulsed; $T_{amb} = 25\text{ °C}$	-	295	360	mV
		$I_F = 0.5\text{ A}$ ; $t_p \leq 300\text{ }\mu\text{s}$ ; $\delta \leq 0.02$ ; pulsed; $T_{amb} = 25\text{ °C}$	-	430	500	mV
$I_R$	reverse current	$V_R = 10\text{ V}$ ; $T_{amb} = 25\text{ °C}$	-	15	200	$\mu\text{A}$
		$V_R = 30\text{ V}$ ; $T_{amb} = 25\text{ °C}$	-	70	500	$\mu\text{A}$
$C_d$	diode capacitance	$V_R = 1\text{ V}$ ; $f = 1\text{ MHz}$	-	24	30	pF
$t_{rr}$	reverse recovery time ramp recovery	$dI_F/dt = 125\text{ A}/\mu\text{s}$ ; $I_F = 0.5\text{ A}$ ; $V_R = 26\text{ V}$ ; $T_{amb} = 25\text{ °C}$	-	-	5	ns

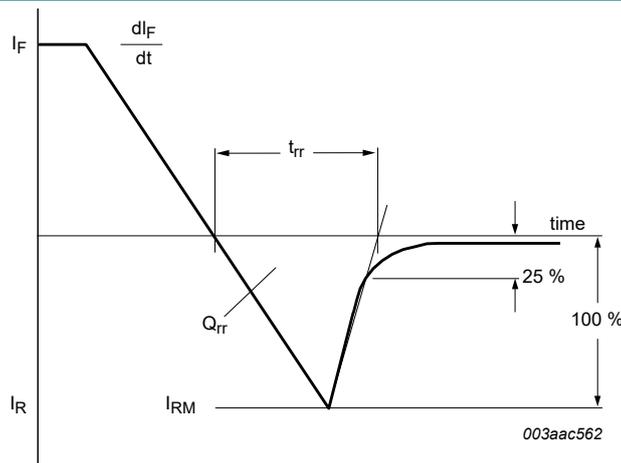




$f = 1 \text{ MHz}; T_{\text{amb}} = 25 \text{ }^\circ\text{C}$

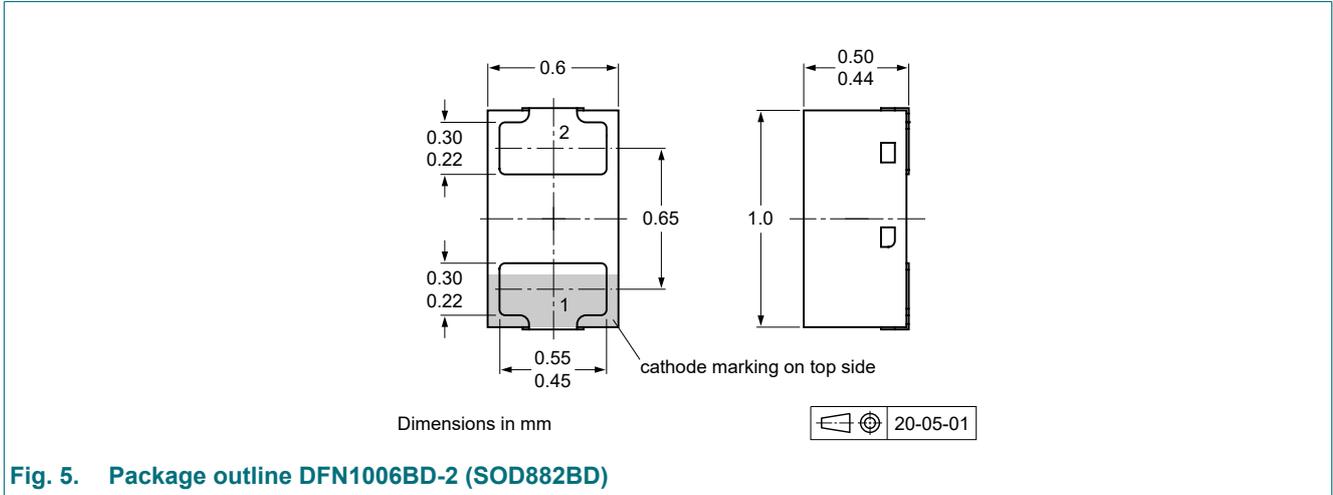
**Fig. 3. Diode capacitance as a function of reverse voltage; typical values**

## 11. Test information



**Fig. 4. Reverse recovery definition; ramp recovery**

## 12. Package outline



### 13. Soldering

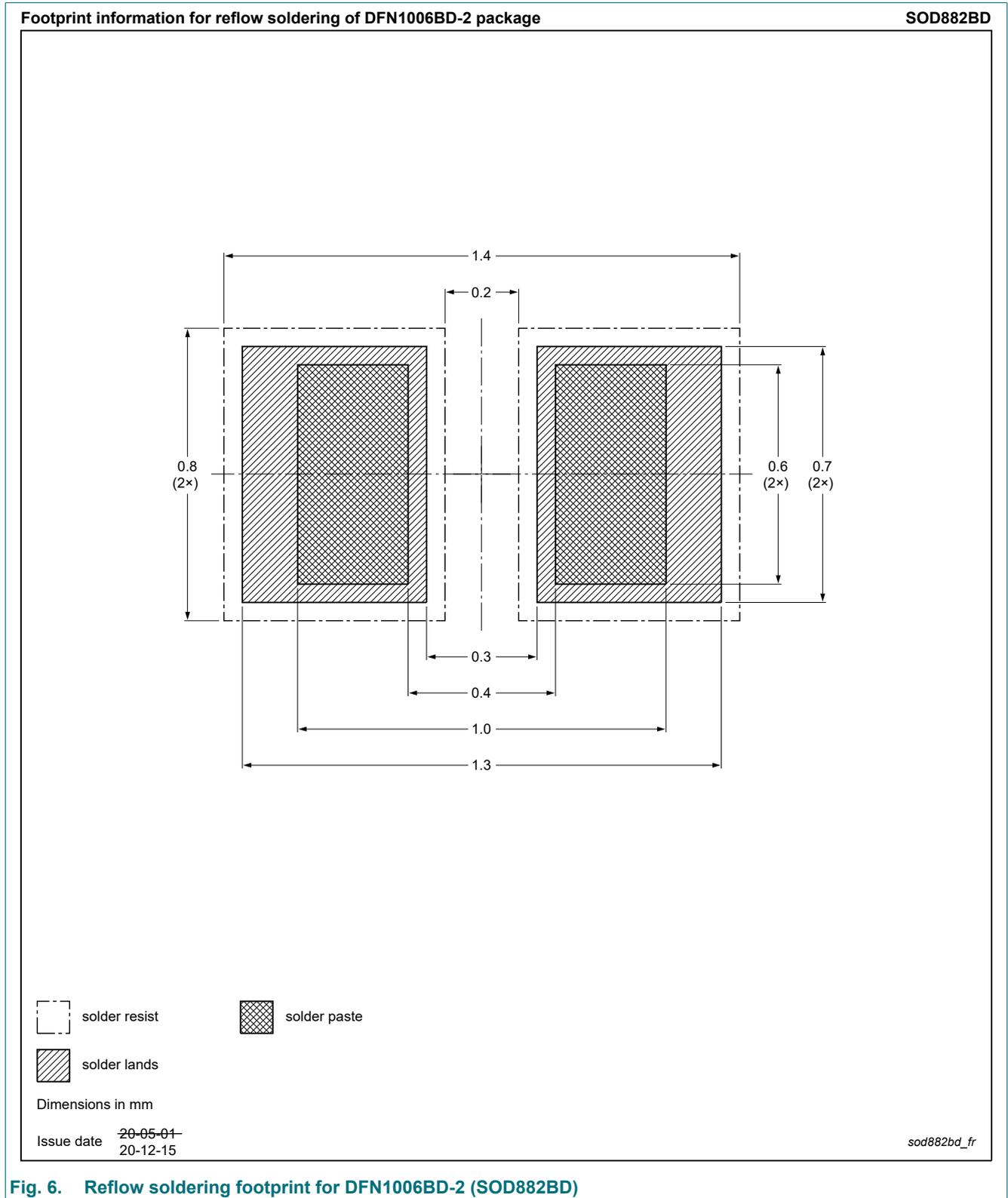


Fig. 6. Reflow soldering footprint for DFN1006BD-2 (SOD882BD)

## 14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
PMEG3005ELS v.1	20220421	Product data sheet	-	-

## 15. Legal information

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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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