



PMEG3005ELS-Q

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
- 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

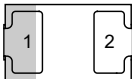
4. Quick reference data

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		-	-	30	V
V_F	forward voltage	$I_F = 0.5$ A; $t_p \leq 300$ μ 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	μ A

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	cathode[1]	 Transparent top view DFN1006BD-2 (SOD882BD)	 sym001
2	A	anode		

[1] The marking bar indicates the cathode

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
PMEG3005ELS-Q	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	SOD882BD

7. Marking

Table 4. Marking codes

Type number	Marking code
PMEG3005ELS-Q	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	$T_{sp} \leq 55\text{ }^{\circ}\text{C}$		-	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	$T_{amb} \leq 25\text{ }^{\circ}\text{C}$	[1]	-	335	mW
			[2]	-	610	mW
T_j	junction temperature			-	150	$^{\circ}\text{C}$
T_{amb}	ambient temperature			-55	150	$^{\circ}\text{C}$
T_{stg}	storage temperature			-65	150	$^{\circ}\text{C}$

- [1] Device mounted on an FR4 Printed-Circuit Board (PCB), 70 μm single-sided copper, tin-plated and standard footprint.
- [2] Device mounted on an FR4 PCB, 70 μm single-sided copper, tin-plated mounting pad for cathode 1 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

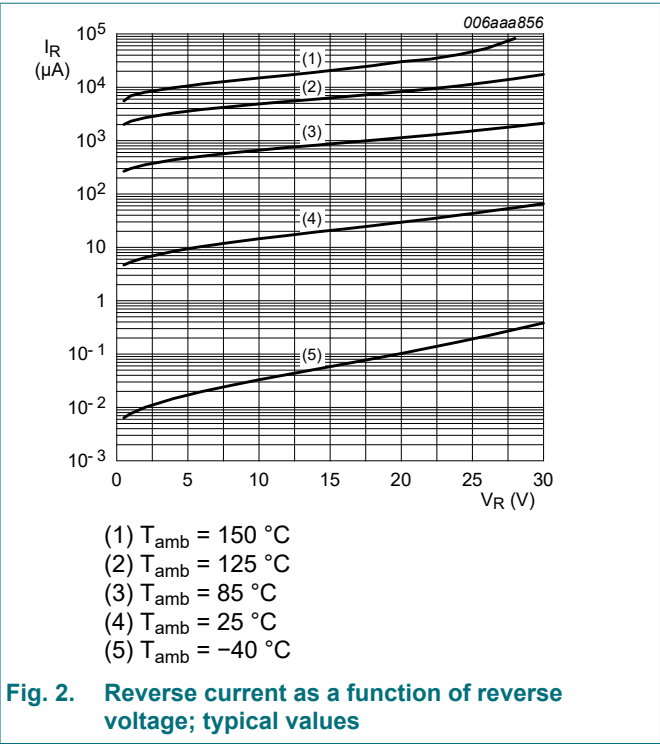
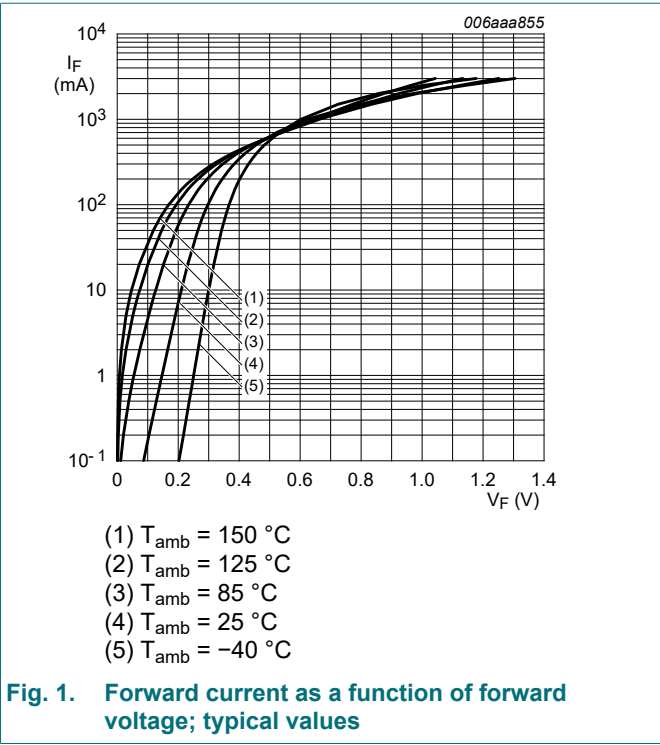
- [1] For Schottky barrier diodes thermal runaway has to be considered, as in some applications the reverse power losses P_R are a significant part of the total power losses.
- [2] Device mounted on an FR4 PCB, 70 μm single-sided copper, tin-plated and standard footprint.
- [3] Device mounted on an FR4 PCB, 70 μm single-sided copper, tin-plated mounting pad for cathode 1 cm^2 .

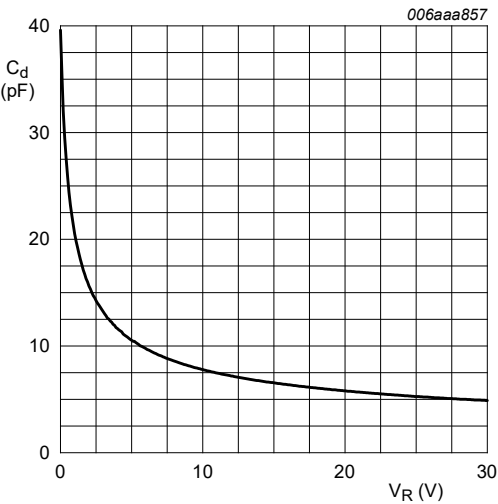
10. Characteristics

Table 7. Characteristics

$T_{amb} = 25\text{ }^{\circ}\text{C}$ 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; $T_{amb} = 25\text{ }^{\circ}\text{C}$	-	90	180	mV
		$I_F = 1\text{ mA}$; $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$; pulsed; $T_{amb} = 25\text{ }^{\circ}\text{C}$	-	150	200	mV
		$I_F = 10\text{ mA}$; $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$; pulsed; $T_{amb} = 25\text{ }^{\circ}\text{C}$	-	210	270	mV
		$I_F = 0.1\text{ A}$; $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$; pulsed; $T_{amb} = 25\text{ }^{\circ}\text{C}$	-	295	360	mV
		$I_F = 0.5\text{ A}$; $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$; pulsed; $T_{amb} = 25\text{ }^{\circ}\text{C}$	-	430	500	mV
I_R	reverse current	$V_R = 10\text{ V}$; $T_{amb} = 25\text{ }^{\circ}\text{C}$	-	15	200	μA
		$V_R = 30\text{ V}$; $T_{amb} = 25\text{ }^{\circ}\text{C}$	-	70	500	μA
C_d	diode capacitance	$V_R = 1\text{ V}$; $f = 1\text{ MHz}$	-	24	30	pF
t_{rr}	reverse recovery time ramp recovery	$dI_F/dt = 125\text{ A}/\mu\text{s}$; $I_F = 0.5\text{ A}$; $V_R = 26\text{ V}$; $T_{amb} = 25\text{ }^{\circ}\text{C}$	-	-	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

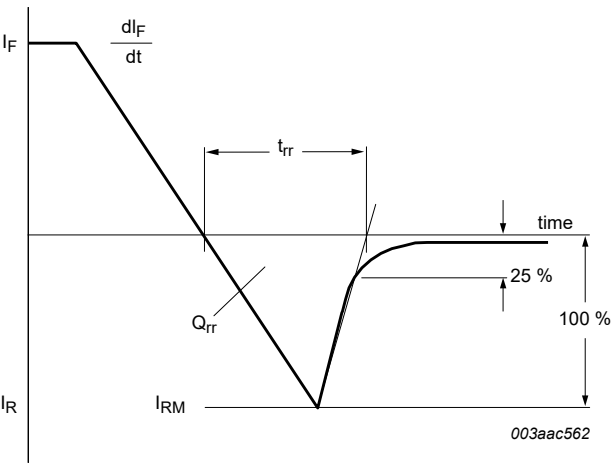


Fig. 4. Reverse recovery definition; ramp recovery

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

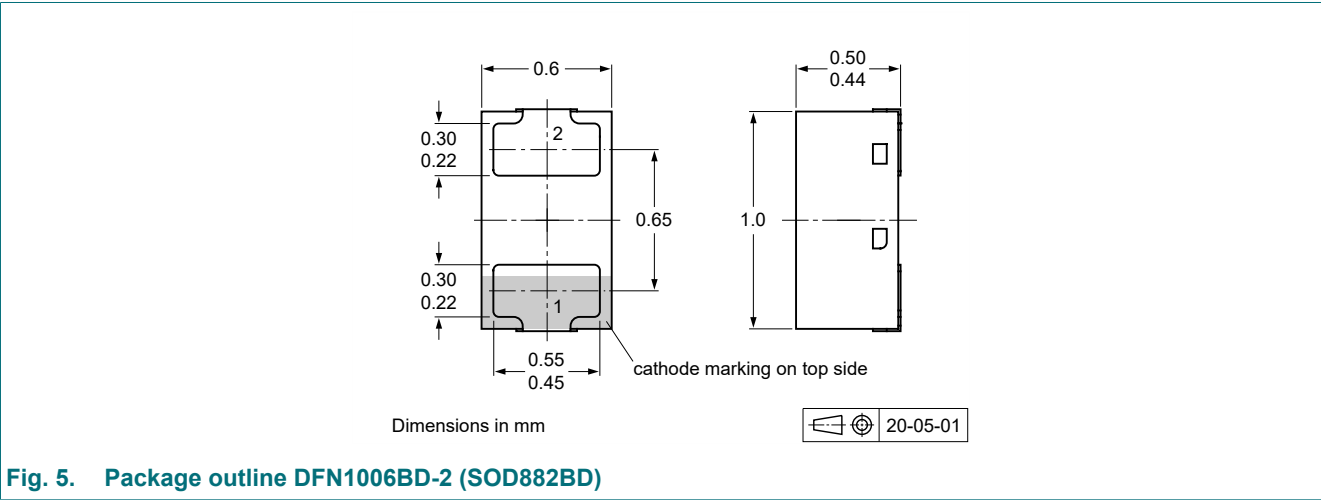


Fig. 5. Package outline DFN1006BD-2 (SOD882BD)

13. Soldering

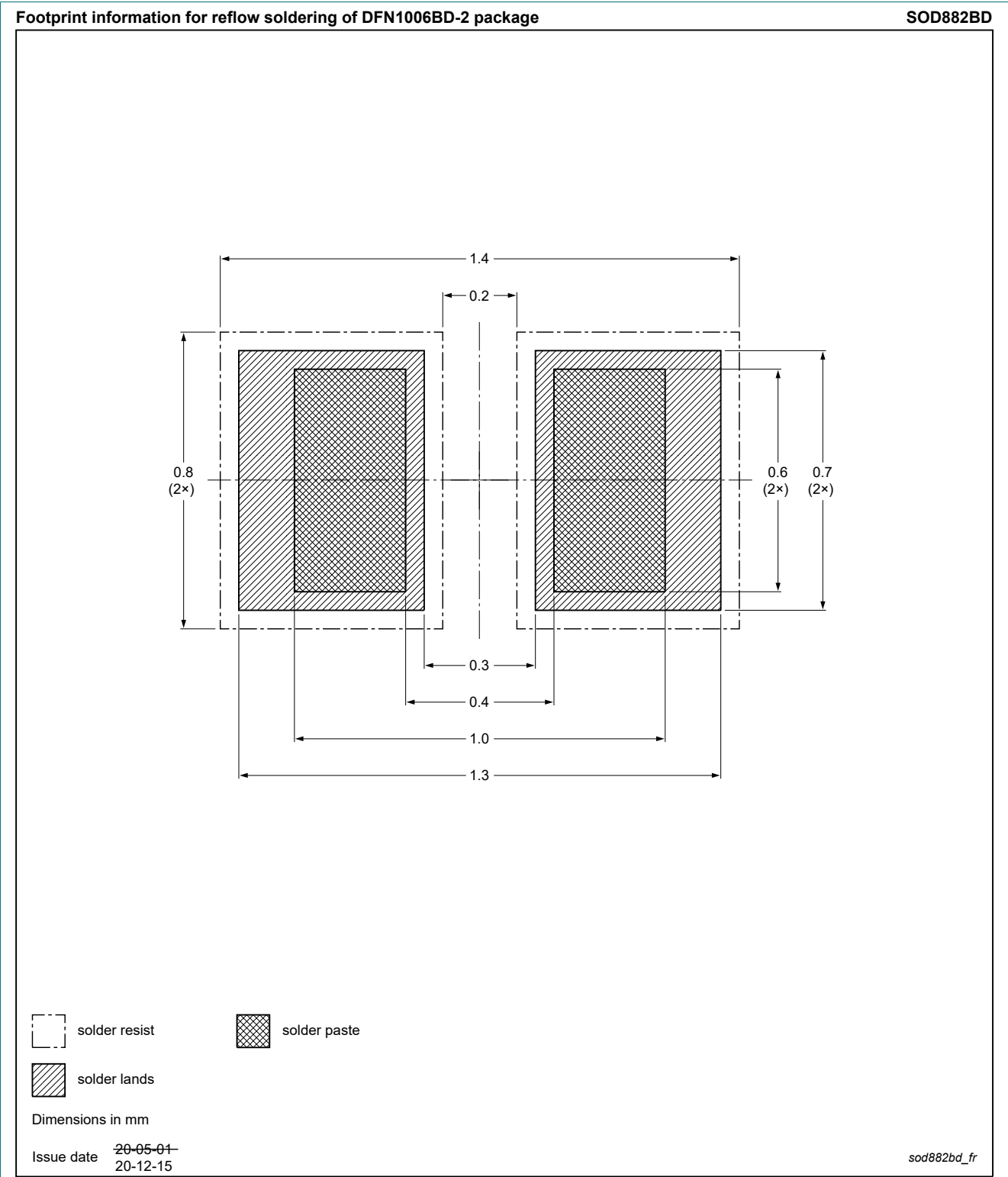


Fig. 6. Reflow soldering footprint for DFN1006BD-2 (SOD882BD)

14. Revision history

Table 8. Revision history

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