PMEG3015EV

30 V, 1.5 A ultra 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 an ultra small Surface-Mounted Device (SMD) SOT666 plastic package.

2. Features and benefits

- Forward current: 1.5 A
- Reverse voltage: 30 V
- Ultra low forward voltage
- Ultra small SMD package

3. Applications

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

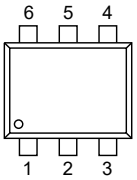
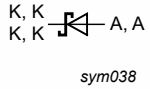
4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
I_F	forward current	$T_{sp} \leq 55$ °C		-	-	1.5	A
V_R	reverse voltage			-	-	30	V
V_F	forward voltage	I_F = 1.5 A; $t_p \leq 300$ µs; $\delta \leq 0.02$; pulsed; T_{amb} = 25 °C		-	480	550	mV
I_R	reverse current	V_R = 30 V; pulsed; T_{amb} = 25 °C		-	400	1000	µA

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	cathode[1]		
2	K	cathode		
3	A	anode		
4	A	anode		
5	K	cathode		
6	K	cathode		

SOT666

sym038

[1] The marking bar indicates the cathode.

nexperia

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
PMEG3015EV	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
PMEG3015EV	1A

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	$T_{sp} \leq 55$ °C		-	1.5	A
I_{FRM}	repetitive peak forward current	$t_p = 1$ ms; $\delta \leq 0.25$		-	4.5	A
I_{FSM}	non-repetitive peak forward current	$t_p = 8$ ms; square wave; $T_{j(init)} = 25$ °C	[1]	-	9.5	A
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C	[2]	-	0.31	W
			[3]	-	0.58	W
T_j	junction temperature			-	150	°C
T_{amb}	ambient temperature			-65	150	°C
T_{stg}	storage temperature			-65	150	°C

[1] For SOT666 only valid, if pins 3 and 4 are connected in parallel.
[2] Device mounted on an FR4 Printed-Circuit Board (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 cm^2.

9. Thermal characteristics

Table 6. Thermal characteristics

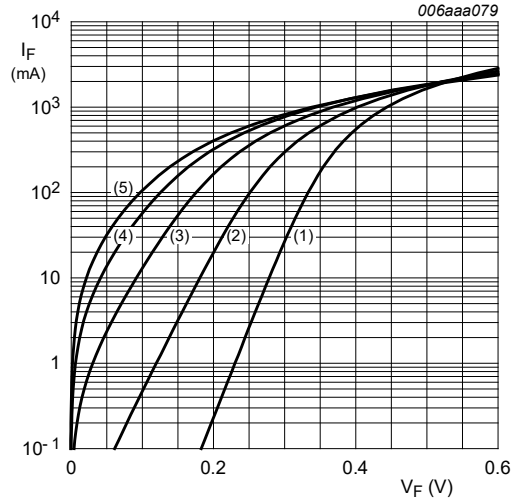
Symbol	Parameter	Conditions		Min	Typ	Max	Unit
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air	[1] [2]	-	-	405	K/W
			[1] [3]	-	-	215	K/W
$R_{th(j-sp)}$	thermal resistance from junction to solder point			-	-	80	K/W

[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 cm^2.

10. Characteristics

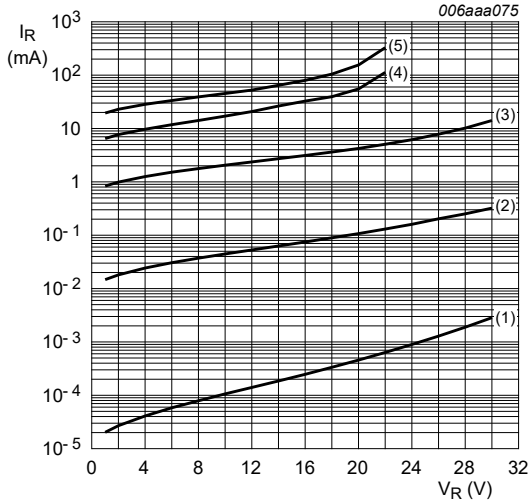
Table 7. Characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
V_F	forward voltage	I_F = 1 mA; $t_p \leq$ 300 µs; $\delta \leq$ 0.02; pulsed; T_{amb} = 25 °C		-	125	160	mV
		I_F = 10 mA; $t_p \leq$ 300 µs; $\delta \leq$ 0.02; pulsed; T_{amb} = 25 °C		-	185	220	mV
		I_F = 100 mA; $t_p \leq$ 300 µs; $\delta \leq$ 0.02; pulsed; T_{amb} = 25 °C		-	255	290	mV
		I_F = 500 mA; $t_p \leq$ 300 µs; $\delta \leq$ 0.02; pulsed; T_{amb} = 25 °C		-	340	380	mV
		I_F = 1 A; $t_p \leq$ 300 µs; $\delta \leq$ 0.02; pulsed; T_{amb} = 25 °C		-	410	480	mV
		I_F = 1.5 A; $t_p \leq$ 300 µs; $\delta \leq$ 0.02; pulsed; T_{amb} = 25 °C		-	480	550	mV
I_R	reverse current	V_R = 10 V; pulsed; T_{amb} = 25 °C		-	60	150	µA
		V_R = 30 V; pulsed; T_{amb} = 25 °C		-	400	1000	µA
C_d	diode capacitance	V_R = 1 V; f = 1 MHz; T_{amb} = 25 °C		-	60	72	pF



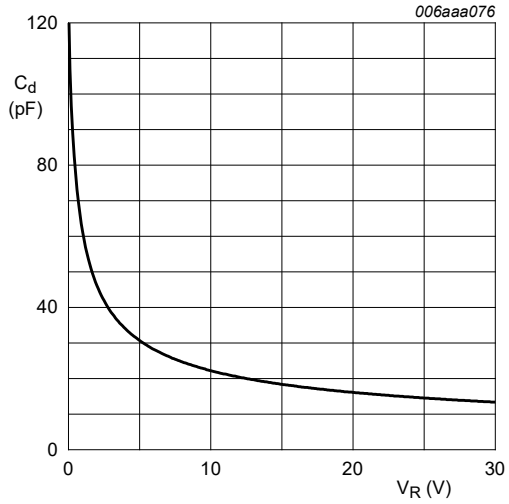
(1) T_j = -40 °C
(2) T_j = 25 °C
(3) T_j = 85 °C
(4) T_j = 125 °C
(5) T_j = 150 °C

Fig. 1. Forward current as a function of forward voltage; typical values



(1) T_{amb} = -40 °C
(2) T_{amb} = 25 °C
(3) T_{amb} = 85 °C
(4) T_{amb} = 125 °C
(5) T_{amb} = 150 °C

Fig. 2. Reverse current as a function of reverse voltage; typical values



f = 1 MHz; T_{amb} = 25 °C

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

11. Package outline

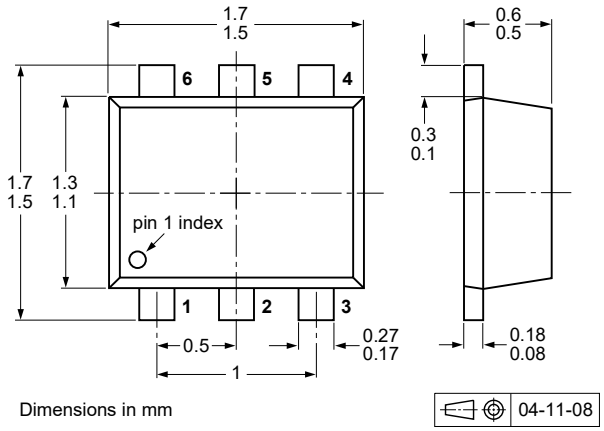


Fig. 4. Package outline SOT666

12. Soldering

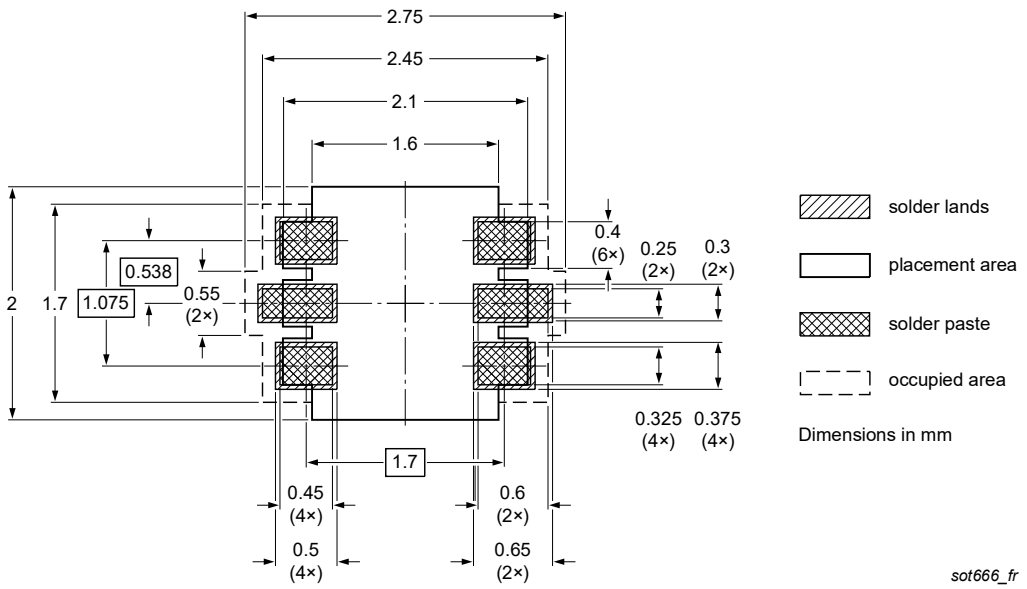


Fig. 5. Reflow soldering footprint for SOT666

13. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
PMEG3015EV v.3	20221228	Product data sheet	-	PMEG3015EV v.2
Modifications:	• The format of this data sheet has been redesigned to comply with the identity guidelines of Nexperia. • Legal texts have been adapted to the new company name where appropriate. • Packing information removed. • Product(s) changed to non-automotive qualification.			
PMEG3015EV v.2	20100204	Product data sheet	-	PMEG3015EV v.1
PMEG3015EV v.1	20050404	Product data sheet	-	-

14. 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.

[1] Please consult the most recently issued document before initiating or completing a design.
[2] The term 'short data sheet' is explained in section "Definitions".
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Date of release: 28 December 2022