



PMEG2015EV

20 V, 1.5 A low VF Schottky barrier diode

28 December 2022

Product data sheet

1. General description

Planar Schottky barrier diode with an integrated guard ring for stress protection, encapsulated in a SOT666 ultra small Surface-Mounted Device (SMD) plastic package.

2. Features and benefits

- Forward current: 1.5 A
- Reverse voltage: 20 V
- Very low forward voltage
- Ultra small plastic SMD package
- Flat leads: excellent coplanarity and improved thermal behaviour

3. Applications

- Low voltage rectification
- High efficiency DC-DC conversion
- Switch mode power supply
- Inverse polarity protection
- Low power consumption applications

4. Quick reference data

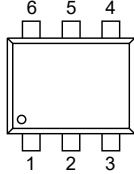

Table 1. Quick reference data

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
I_F	forward current	$T_{sp} \leq 55\text{ °C}$		-	-	1.5	A
V_R	reverse voltage			-	-	20	V
V_F	forward voltage	$I_F = 1.5\text{ A}; T_{amb} = 25\text{ °C}$	[1]	-	530	660	mV
I_R	reverse current	$V_R = 15\text{ V}; t_p \leq 300\text{ }\mu\text{s}; \delta \leq 0.02;$ pulsed; $T_{amb} = 25\text{ °C}$		-	10	50	μA

[1] Only valid if pins 1, 2 and 5, 6 are soldered on 1 cm² copper solder land.

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	cathode[1]	 <p style="text-align: center;">SOT666</p>	 <p style="text-align: center;"><i>mhc310</i></p>
2	K	cathode		
3	A	anode		
4	A	anode		
5	K	cathode		
6	K	cathode		

[1] The marking bar indicates the cathode.

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
PMEG2015EV	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
PMEG2015EV	F5

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		-	20	V
I_F	forward current	$T_{sp} \leq 55\text{ °C}$	-	1.5	A
I_{FRM}	repetitive peak forward current	$t_p = 1\text{ ms}$; $\delta \leq 0.25$	-	4.5	A
I_{FSM}	non-repetitive peak forward current	$t_p = 8\text{ ms}$; square wave; $T_{j(\text{init})} = 25\text{ °C}$	[1]	10	A
T_j	junction temperature		-	150	°C
T_{amb}	ambient temperature		-65	125	°C
T_{stg}	storage temperature		-65	150	°C

[1] Only valid if pins 3 and 4 are connected in parallel.

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] [3]	-	-	405	K/W
			[1] [4]	-	-	215	K/W
$R_{th(j-sp)}$	thermal resistance from junction to solder point		[5]	-	-	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] Refer to SOT666 standard mounting conditions.
 [4] Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for cathode 1 cm².
 [5] Soldering point of cathode tab.

10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
V_F	forward voltage	$I_F = 10 \text{ mA}; T_{amb} = 25 \text{ }^\circ\text{C}$	[1]	-	240	270	mV
		$I_F = 100 \text{ mA}; T_{amb} = 25 \text{ }^\circ\text{C}$	[1]	-	300	350	mV
		$I_F = 1 \text{ A}; T_{amb} = 25 \text{ }^\circ\text{C}$	[1]	-	480	550	mV
		$I_F = 1.5 \text{ A}; T_{amb} = 25 \text{ }^\circ\text{C}$	[1]	-	530	660	mV
I_R	reverse current	$V_R = 5 \text{ V}; t_p \leq 300 \text{ } \mu\text{s}; \delta \leq 0.02; \text{ pulsed}; T_{amb} = 25 \text{ }^\circ\text{C}$		-	5	10	μA
		$V_R = 8 \text{ V}; t_p \leq 300 \text{ } \mu\text{s}; \delta \leq 0.02; \text{ pulsed}; T_{amb} = 25 \text{ }^\circ\text{C}$		-	7	20	μA
		$V_R = 15 \text{ V}; t_p \leq 300 \text{ } \mu\text{s}; \delta \leq 0.02; \text{ pulsed}; T_{amb} = 25 \text{ }^\circ\text{C}$		-	10	50	μA
C_d	diode capacitance	$V_R = 5 \text{ V}; f = 1 \text{ MHz}; T_{amb} = 25 \text{ }^\circ\text{C}$		-	19	25	pF

- [1] Only valid if pins 1, 2 and 5, 6 are soldered on 1 cm² copper solder land.

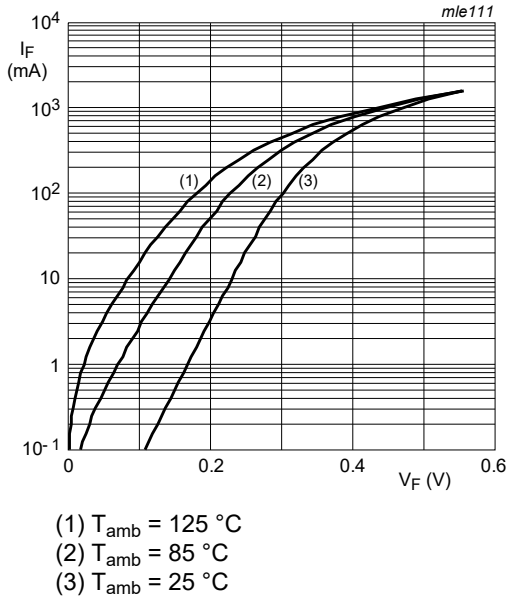


Fig. 1. Forward current as a function of forward voltage; typical values

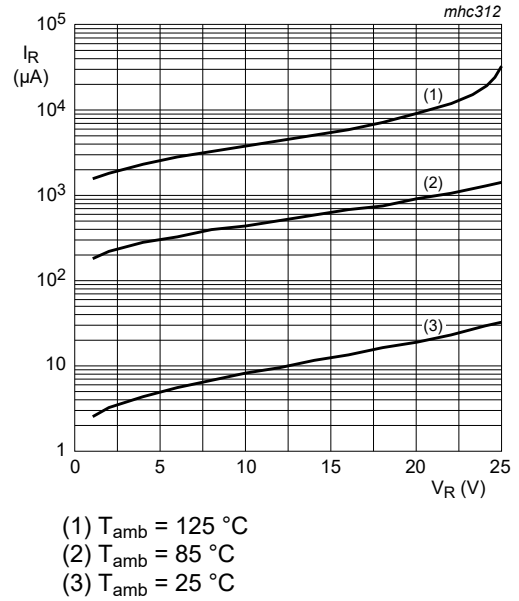
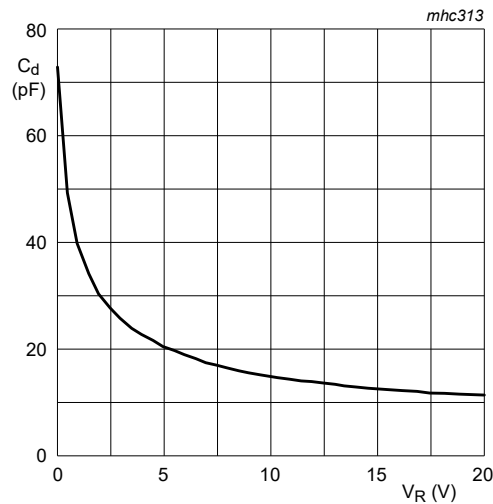


Fig. 2. Reverse current as a function of reverse voltage; typical values



$T_{amb} = 25\text{ °C}$
 $f = 1\text{ MHz}$

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

11. Package outline

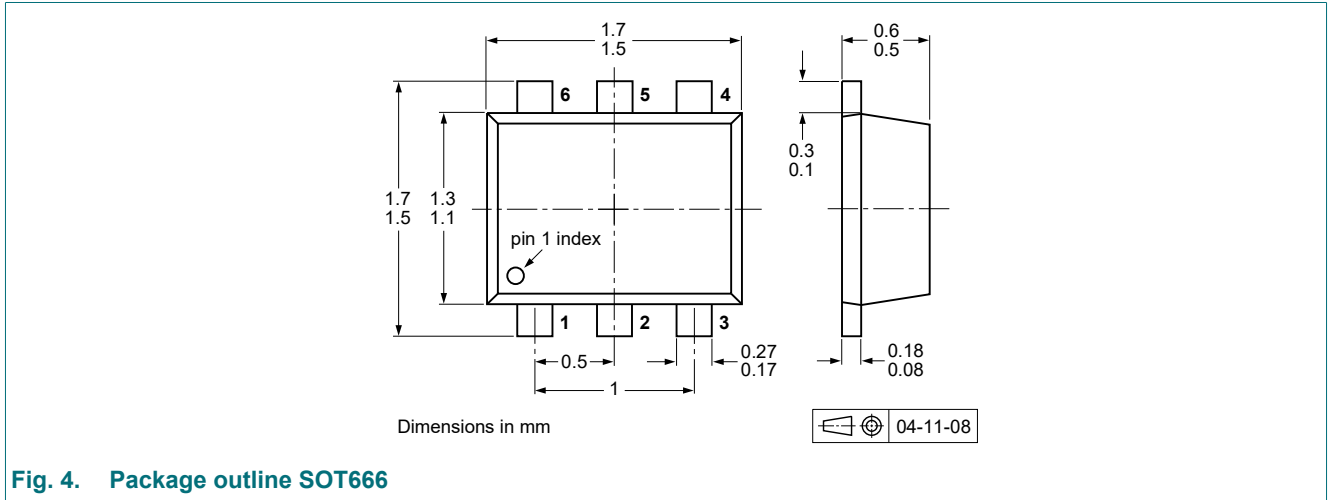


Fig. 4. Package outline SOT666

12. Soldering

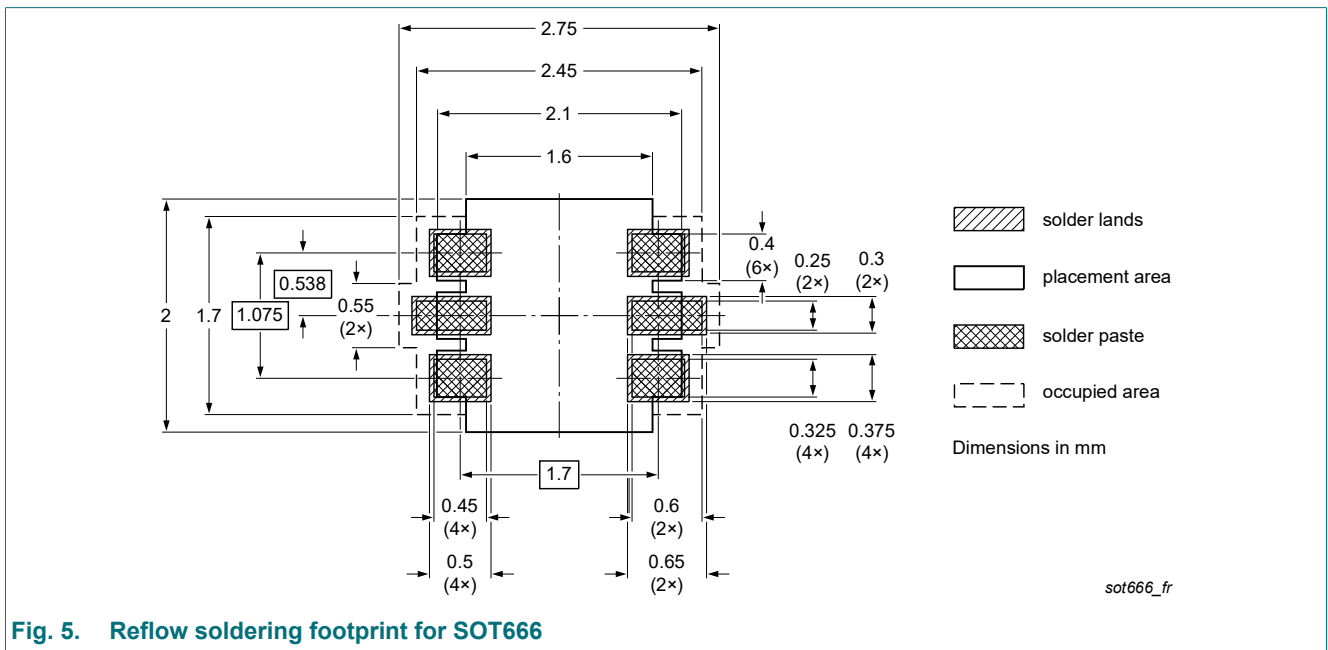


Fig. 5. Reflow soldering footprint for SOT666

13. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
PMEG2015EV v.3	20221228	Product data sheet	-	PMEG2015EV v.2
Modifications:	<ul style="list-style-type: none">• 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.• Product(s) changed to non-automotive qualification.			
PMEG2015EV v.2	20030603	Product data sheet	-	PMEG2015EV v.1
PMEG2015EV v.1	20030521	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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