1. General description

Planar Schottky barrier rectifier with an integrated guard ring for stress protection, encapsulated in small and flat lead SOD123F SMD plastic package.

2. Features and benefits

- Forward current: ≤ 1.5 A
- Reverse voltage: ≤ 30 V
- Ultra low forward voltage
- · Small and flat lead SMD plastic package

3. Applications

- · Low voltage rectification
- High efficiency DC-to-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	Тур	Max	Unit
V_R	reverse voltage		-	-	30	V
I _F	forward current	T _{sp} ≤ 55 °C	-	-	1.5	Α
V _F	forward voltage	I_F = 1.5 A; pulsed; $t_p \le 300 \mu s$; δ ≤ 0.02; T_{amb} = 25 °C	-	440	550	mV
I _R	reverse current	V _R = 30 V; 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]	1 2	К -]С - А
2	А	anode	SOD123F	sym001

[1] The marking bar indicates the cathode.



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6. Ordering information

Table 3. Ordering information

Type number	Package					
	Name	Description	Version			
PMEG3015EH		plastic, surface-mounted package; 2 leads; 2.6 mm x 1.6 mm x 1.1 mm body	SOD123F			

7. Marking

Table 4. Marking codes

Type number	Marking code
PMEG3015EH	AE

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
l _F	forward current	T _{sp} ≤ 55 °C		-	1.5	Α
I _{FRM}	repetitive peak forward current	$t_p \le 1 \text{ ms}; \delta \le 0.25$		-	4.5	А
I _{FSM}	non-repetitive peak forward current	t_p = 8 ms; square wave; $T_{j(init)}$ = 25 °C		-	9	А
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C	[1]	-	375	mW
			[2]	-	830	mW
Tj	junction temperature			-	150	°C
T _{amb}	ambient temperature			-65	150	°C
T _{stg}	storage temperature			-65	150	°C

^[1] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint.

9. Thermal characteristics

Table 6. Thermal characteristics

Symbol	Parameter	Conditions		Min	Тур	Max	Unit
R _{th(j-a)}	thermal resistance from junction to ambient	in free air	[1] [2]	-	-	330	K/W
			[1] [3]	-	-	150	K/W
R _{th(j-sp)}	thermal resistance from junction to solder point			-	-	60	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, mounting pad for cathode 1 cm².

^[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 cm².

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10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions	Min	Тур	Max	Unit
V _F	forward voltage	I_F = 1 mA; pulsed; $t_p \le 300$ μs; $\delta \le 0.02$; T_{amb} = 25 °C	-	125	160	mV
		I _F = 10 mA; pulsed; t _p ≤ 300 μs; δ ≤ 0.02 ; T _{amb} = 25 °C	-	185	220	mV
		I _F = 100 mA; pulsed; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C	-	255	290	mV
		I_F = 500 mA; pulsed; t_p ≤ 300 μs; δ ≤ 0.02; T_{amb} = 25 °C	-	330	380	mV
		I_F = 1 A; pulsed; $t_p \le 300$ μs; $δ \le 0.02$; T_{amb} = 25 °C	-	400	480	mV
		I_F = 1.5 A; pulsed; t_p ≤ 300 μs; δ ≤ 0.02; T_{amb} = 25 °C	-	440	550	mV
I _R	reverse current	V _R = 10 V; T _{amb} = 25 °C	-	60	150	μA
		V _R = 30 V; T _{amb} = 25 °C	-	400	1000	μΑ
C _d	diode capacitance	V _R = 1 V; f = 1 MHz; T _{amb} = 25 °C	-	60	72	pF

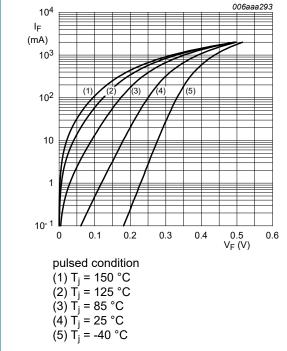


Fig. 1. Forward current as a function of forward voltage; typical values

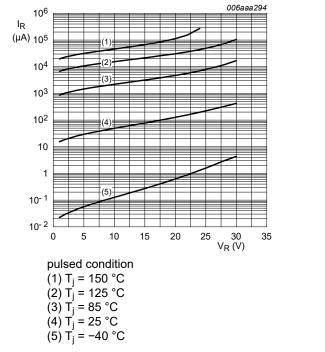
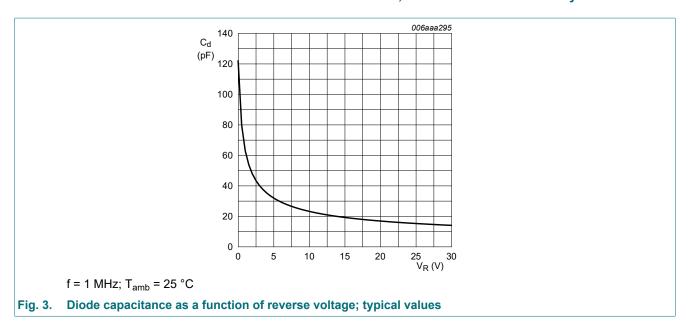
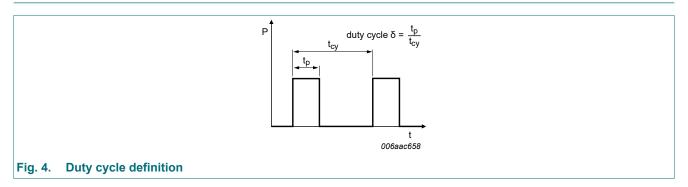


Fig. 2. Reverse current as a function of reverse voltage; typical values

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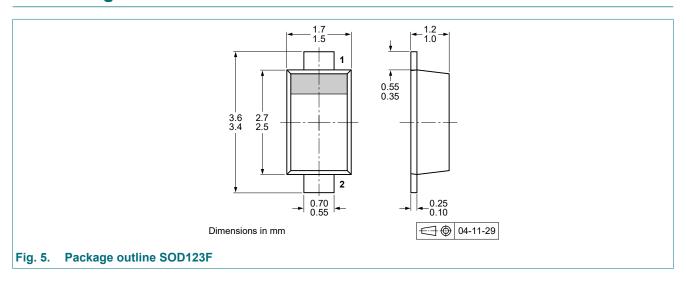


11. Test information



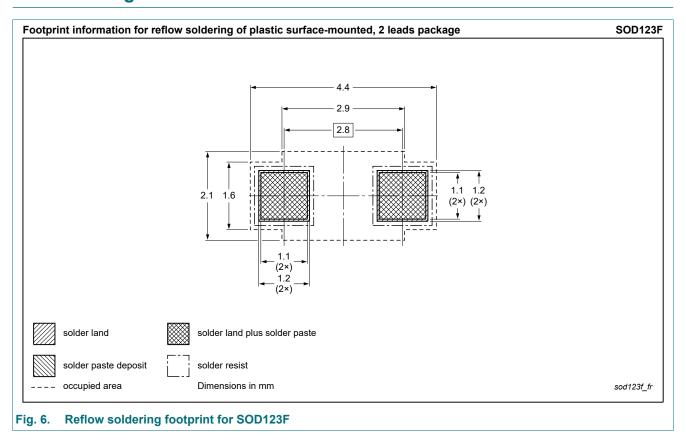
The current ratings for the typical waveforms are calculated according to the equations: $I_{F(AV)} = I_M \times \delta$ with I_M defined as peak current, $I_{RMS} = I_{F(AV)}$ at DC, and $I_{RMS} = I_M \times \sqrt{\delta}$ with I_{RMS} defined as RMS current.

12. Package outline



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13. Soldering



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14. Revision history

Table 8. Revision history

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Data sheet ID	Release date	Data sheet status	Change notice	Supersedes				
PMEG3015EH v.5	20241009	Product data sheet	-	PMEG3015EH v.4				
Modifications:	Product(s) changed to non-automotive qualification. Please refer to nexperia.com for automotive (-Q) product alternative(s).							
PMEG3015EH v.4	20230626	Product data sheet	-	PMEG3015EH_EJ_3				
PMEG3015EH_EJ_3	20100113	Product data sheet	-	PMEG3015EH_EJ_2				
PMEG3015EH_EJ_2	20050408	Product data sheet	-	PMEG3015EJ_1				
PMEG3015EJ_1	20050303	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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