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Electronic Components Sourcing Information

Product Reference Information

Part Number: PMEG1030EJ,115
Manufacturer: Nexperia USA Inc.
Package: SC-90, SOD-323F
Availability: Please confirm with sales

Product Page:

<https://antrexco.com/product/details/nexperia-usa-inc/pmeg1030ej-115.html>

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Note:

This PDF includes an ANTREX product reference cover page.

The original manufacturer datasheet follows from the next page.



PMEG1030EJ

10 V, 3 A ultra low VF Schottky barrier rectifier

8 October 2024

Product data sheet

1. General description

Planar Schottky barrier rectifier with an integrated guard ring for stress protection, encapsulated in a very small and flat lead SOD323F Surface-Mounted Device (SMD) plastic package.

2. Features and benefits

- Forward current: 3 A
- Reverse voltage: 10 V
- Ultra low forward voltage
- Small and flat lead SMD package

3. Applications

- Low voltage rectification
- High efficiency DC-to-DC conversion
- Switched-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	$T_{sp} \leq 55\text{ °C}$	-	-	3	A
V_R	reverse voltage		-	-	10	V
V_F	forward voltage	$I_F = 3\text{ A}$; pulsed; $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$; $T_{amb} = 25\text{ °C}$	-	390	530	mV

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	cathode[1]	 SC-90 (SOD323F)	 aaa-003679
2	A	anode		

[1] The marking bar indicates the cathode.

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
PMEG1030EJ	SC-90	plastic, surface-mounted package; 2 leads; 1.7 mm x 1.25 mm x 0.7 mm body	SOD323F

7. Marking

Table 4. Marking codes

Type number	Marking code
PMEG1030EJ	E 7

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			-	10	V
I _F	forward current	T _{sp} ≤ 55 °C		-	3	A
I _{FRM}	repetitive peak forward current	t _p ≤ 1 ms; δ ≤ 0.25		-	5.5	A
I _{FSM}	non-repetitive peak forward current	t _p = 8 ms; square wave; T _{j(init)} = 25 °C		-	9	A
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C	[1]	-	360	mW
			[2]	-	830	mW
T _j	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.
- [2] Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for cathode 1 cm².

9. Thermal characteristics

Table 6. Thermal characteristics

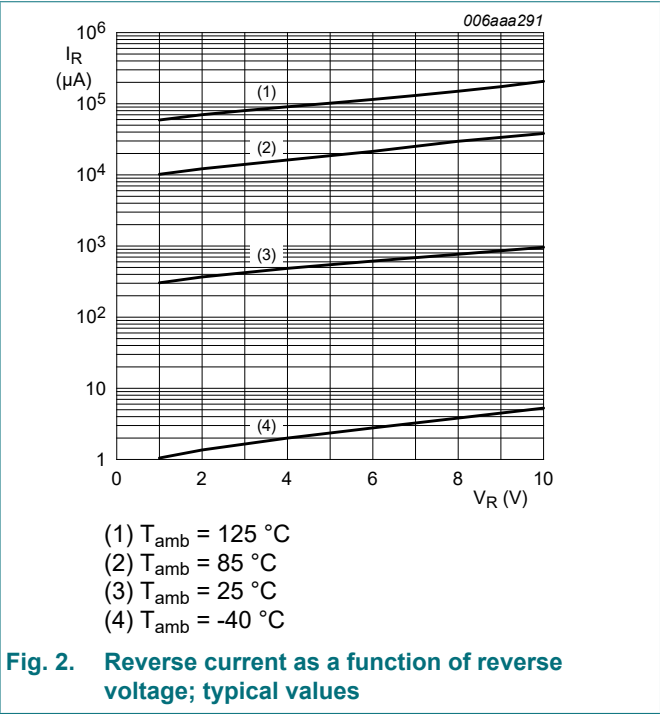
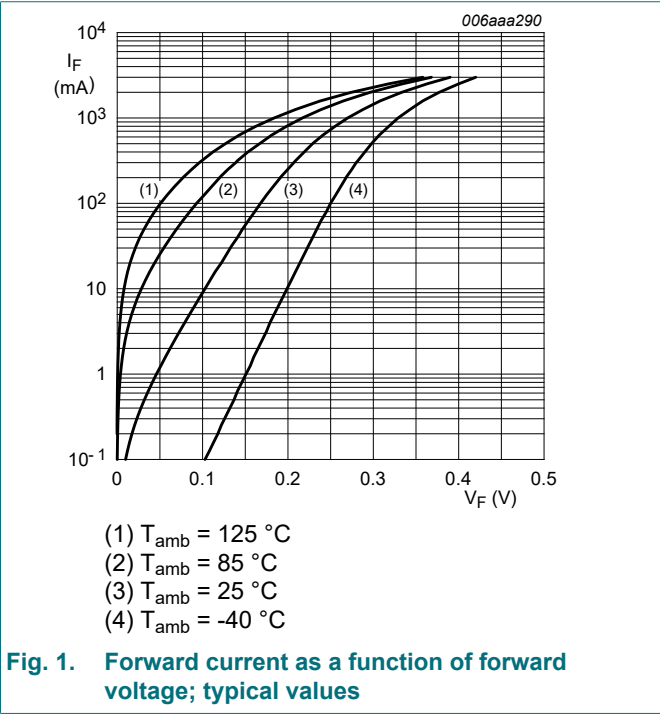
Symbol	Parameter	Conditions		Min	Typ	Max	Unit
R _{th(j-a)}	thermal resistance from junction to ambient	in free air	[1] [2]	-	-	350	K/W
			[1] [3]	-	-	150	K/W
R _{th(j-sp)}	thermal resistance from junction to solder point			-	-	55	K/W

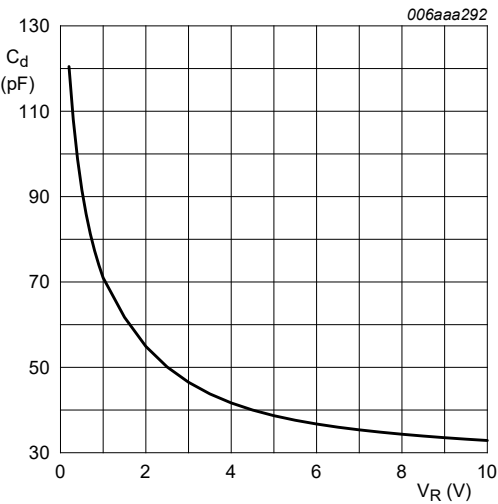
- [1] For Schottky barrier diodes thermal runaway has to be considered, as in some applications the reverse power losses P_R are a significant part of the total power losses.
- [2] Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.
- [3] Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for cathode 1 cm².

10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V _F	forward voltage	I _F = 10 mA; pulsed; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C	-	100	130	mV
		I _F = 100 mA; pulsed; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C	-	170	200	mV
		I _F = 1 A; pulsed; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C	-	280	350	mV
		I _F = 3 A; pulsed; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C	-	390	530	mV
I _R	reverse current	V _R = 5 V; T _{amb} = 25 °C	-	0.55	2	mA
		V _R = 8 V; T _{amb} = 25 °C	-	0.8	2.5	mA
		V _R = 10 V; T _{amb} = 25 °C	-	1	3	mA
C _d	diode capacitance	V _R = 1 V; f = 1 MHz; T _{amb} = 25 °C	-	70	85	pF





f = 1 MHz; T_{amb} = 25 °C

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

11. Test information

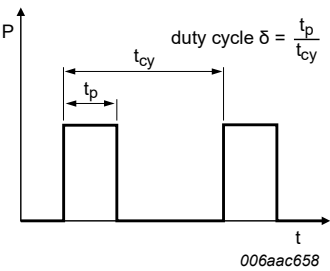


Fig. 4. Duty cycle definition

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

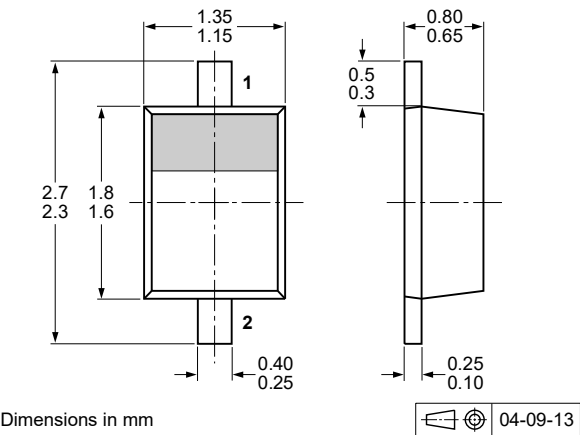


Fig. 5. Package outline SC-90 (SOD323F)

13. Soldering

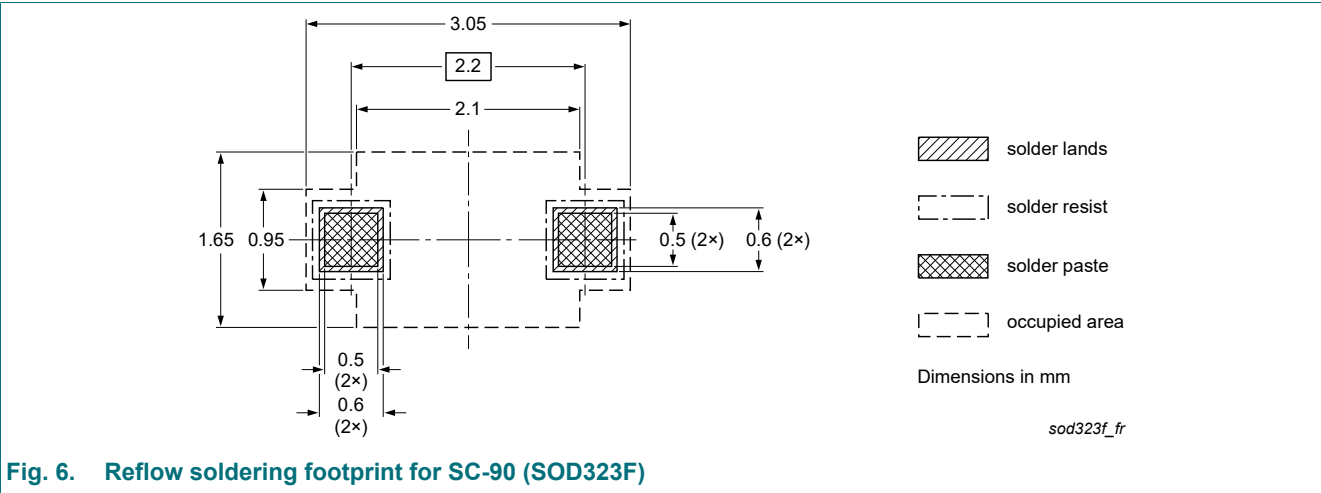


Fig. 6. Reflow soldering footprint for SC-90 (SOD323F)

14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
PMEG1030EJ v. 6	20241008	Product data sheet	-	PMEG1030EJ v. 5
Modifications:	Product(s) changed to non-automotive qualification. Please refer to nexperia.com for automotive (-Q) product alternative(s).			
PMEG1030EJ v. 5	20230421	Product data sheet	-	PMEG1030EH_EJ_4
PMEG1030EH_EJ_4	20100115	Product data sheet	-	PMEG1030EH_EJ_3
PMEG1030EH_EJ_3	20050602	Product data sheet	-	PMEG1030EH_EJ_2
PMEG1030EH_EJ_2	20050405	Product data sheet	-	PMEG1030EJ_1
PMEG1030EJ_1	20050124	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.

- [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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