



PMEG1020EJ

10 V, 2 A ultra low VF Schottky barrier rectifier

30 September 2025

Product data sheet

1. General description

Planar Schottky barrier rectifier with an integrated guard ring for stress protection, encapsulated in a SOD323F (SC-90) small Surface-Mounted Device (SMD) plastic package.

2. Features and benefits

- Forward current: ≤ 2 A
- Reverse voltage: ≤ 10 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 | Typ | Max | Unit |
|--------|-----------------|--------------------------------|-----|-----|-----|------|
| V_R | reverse voltage | | - | - | 10 | V |
| I_F | forward current | $T_{sp} \leq 55$ °C | - | - | 2 | A |
| I_R | reverse current | $V_R = 5$ V; $T_{amb} = 25$ °C | - | 0.7 | 2 | mA |

5. Pinning information

Table 2. Pinning information

| Pin | Symbol | Description | Simplified outline | Graphic symbol |
|-----|--------|-------------|--|---|
| 1 | K | cathode |  SC-90 (SOD323F) |  sym001 |
| 2 | A | anode | | |

6. Ordering information

Table 3. Ordering information

| Type number | Package | | |
|-------------|---------|---|---------|
| | Name | Description | Version |
| PMEG1020EJ | 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 |
|-------------|--------------|
| PMEG1020EJ | CB |

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 | | - | 2 | A |
| I _{FRM} | repetitive peak forward current | t _p ≤ 1 ms; δ ≤ 0.25 | | - | 7 | A |
| I _{FSM} | non-repetitive peak forward current | t _p = 8 ms; square wave | | - | 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

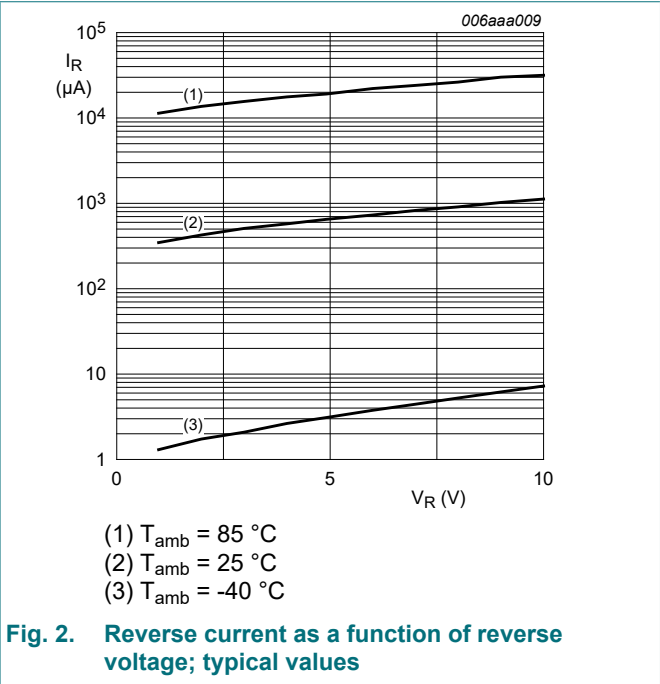
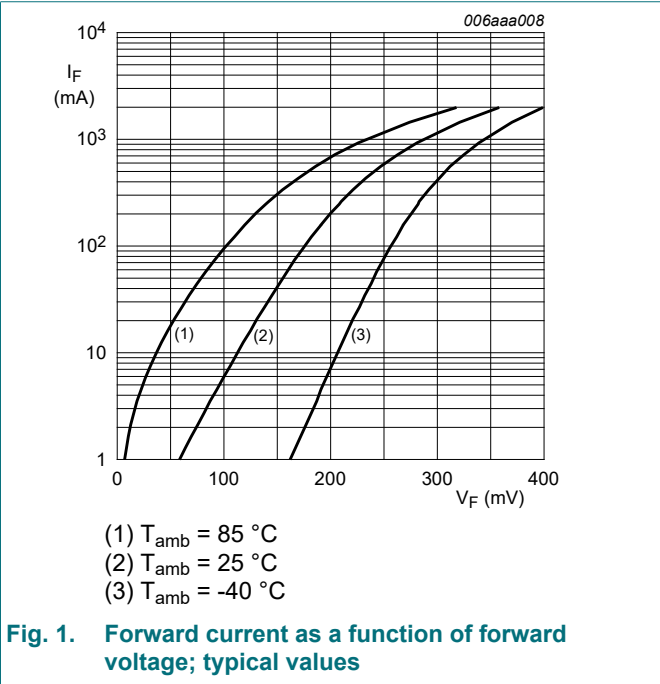
| Symbol | Parameter | Conditions | | Min | Typ | Max | Unit |
|-----------------------|--|------------|---------|-----|-----|-----|------|
| R _{th(j-a)} | thermal resistance from junction to ambient | | [1] [2] | - | - | 350 | K/W |
| | | | [3] [2] | - | - | 150 | K/W |
| R _{th(j-sp)} | thermal resistance from junction to solder point | | [4] | - | - | 55 | K/W |

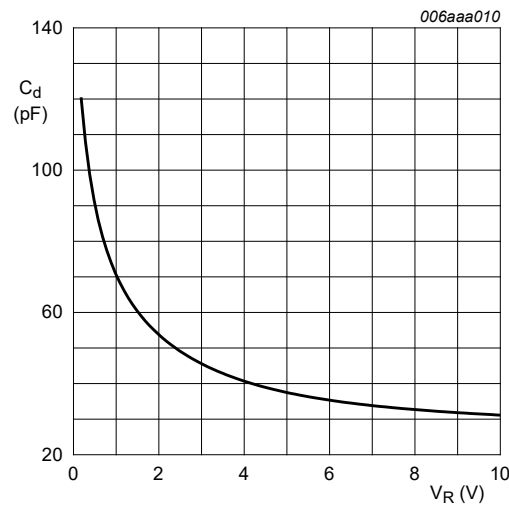
- [1] Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.
[2] For Schottky barrier diodes thermal runaway has to be considered, as in some applications the reverse power losses P_R are a significant part of the total power losses.
[3] Device mounted on an FR4 PCB, single-sided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

10. Characteristics

Table 7. Characteristics

| Symbol | Parameter | Conditions | | Min | Typ | Max | Unit |
|----------------|-------------------|--|--|-----|-----|-----|------|
| V _F | forward voltage | I _F = 0.01 A; pulsed; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C | | - | 100 | 130 | mV |
| | | I _F = 0.1 A; 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 = 2 A; pulsed; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C | | - | 350 | 460 | mV |
| I _R | reverse current | V _R = 5 V; T _{amb} = 25 °C | | - | 0.7 | 2 | mA |
| | | V _R = 8 V; T _{amb} = 25 °C | | - | 1 | 2.5 | mA |
| | | V _R = 10 V; T _{amb} = 25 °C | | - | 1.2 | 3 | mA |
| C _d | diode capacitance | V _R = 5 V; f = 1 MHz; T _{amb} = 25 °C | | - | 40 | 50 | pF |





$f = 1\text{ MHz}$; $T_{\text{amb}} = 25\text{ }^{\circ}\text{C}$

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

11. Package outline

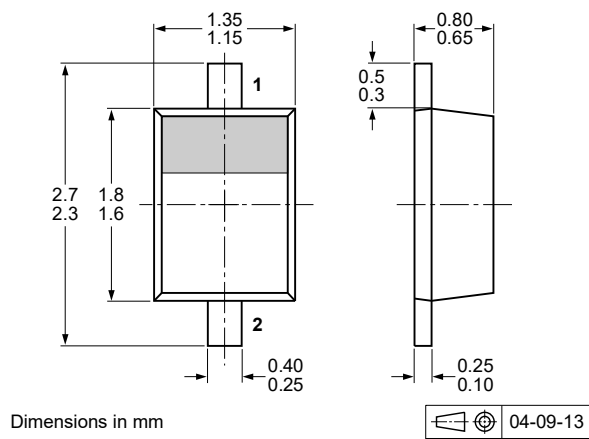


Fig. 4. Package outline SC-90 (SOD323F)

12. Soldering

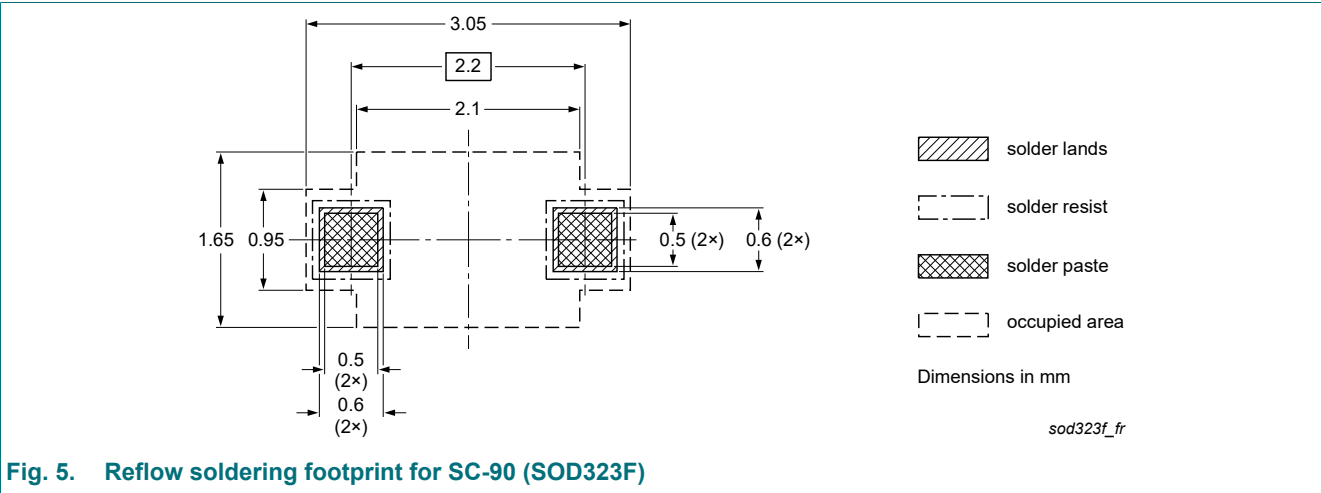


Fig. 5. Reflow soldering footprint for SC-90 (SOD323F)

13. Revision history

Table 8. Revision history

| Data sheet ID | Release date | Data sheet status | Change notice | Supersedes |
|-----------------|--|----------------------|---------------|-----------------|
| PMEG1020EJ v.6 | 20250930 | Product data sheet | - | PMEG1020EJ v.5 |
| Modifications: | <ul style="list-style-type: none">Product(s) changed to non-automotive qualification. Please refer to nexperia.com for automotive (-Q) product alternative(s). | | | |
| PMEG1020EJ v.5 | 20221222 | Product data sheet | - | PMEG1020EH_EJ_4 |
| PMEG1020EH_EJ_4 | 20100115 | Product data sheet | - | PMEG1020EH_EJ_3 |
| PMEG1020EH_EJ_3 | 20050414 | Product data sheet | - | PMEG1020EH_2 |
| PMEG1020EH_2 | 20041001 | Product data sheet | - | PMEG1020EH_1 |
| PMEG1020EH_1 | 20050203 | Objective 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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Contents

1. General description..... 1

2. Features and benefits..... 1

3. Applications..... 1

4. Quick reference data..... 1

5. Pinning information..... 1

6. Ordering information..... 2

7. Marking..... 2

8. Limiting values..... 2

9. Thermal characteristics..... 2

10. Characteristics..... 3

11. Package outline..... 4

12. Soldering..... 5

13. Revision history..... 6

14. Legal information..... 7

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