



# PMEG2010AEB

20 V, 1 A low VF MEGA Schottky barrier rectifier

1 October 2022

Product data sheet

## 1. General description

Planar Maximum Efficiency General Application (MEGA) Schottky barrier rectifier with an integrated guard ring for stress protection, encapsulated in a SOD523 (SC-79) ultra small plastic SMD package.

## 2. Features and benefits

- Forward current: 1.0 A
- Reverse voltage: 20 V
- Ultra low forward voltage
- Ultra small SMD package

## 3. Applications

- Low voltage rectification
- High efficiency DC/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
$V_R$	reverse voltage		-	-	20	V
$V_F$	forward voltage	$I_F = 1 \text{ A}; T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	510	620	mV
$I_F$	forward current	$T_{\text{sp}} \leq 55 \text{ }^\circ\text{C}$	-	-	1	A

## 5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	cathode	 SC-79 (SOD523)	 sym001
2	A	anode		

## 6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
<a href="#">PMEG2010AEB</a>	SC-79	plastic, surface-mounted package; 2 leads; 1.2 mm x 0.8 mm x 0.6 mm body	<a href="#">SOD523</a>

## 7. Marking

Table 4. Marking codes

Type number	Marking code
PMEG2010AEB	L6

## 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	A
$I_{FRM}$	repetitive peak forward current	$t_p \leq 1\text{ ms}$ ; $\delta \leq 0.5$	-	3.5	A
$I_{FSM}$	non-repetitive peak forward current	square-wave pulse; $t_p = 8\text{ ms}$	-	6	A
$T_j$	junction temperature		[1]	150	°C
$T_{amb}$	ambient temperature		[1]	150	°C
$T_{stg}$	storage temperature		-65	150	°C

- [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. Nomograms for determining the reverse power losses  $P_R$  and  $I_{F(AV)}$  rating will be available on request.

## 9. Thermal characteristics

Table 6. Thermal characteristics

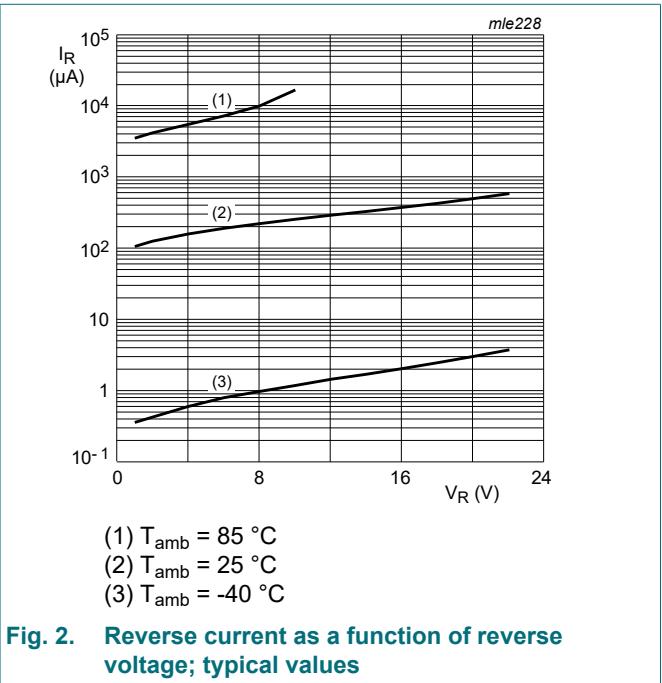
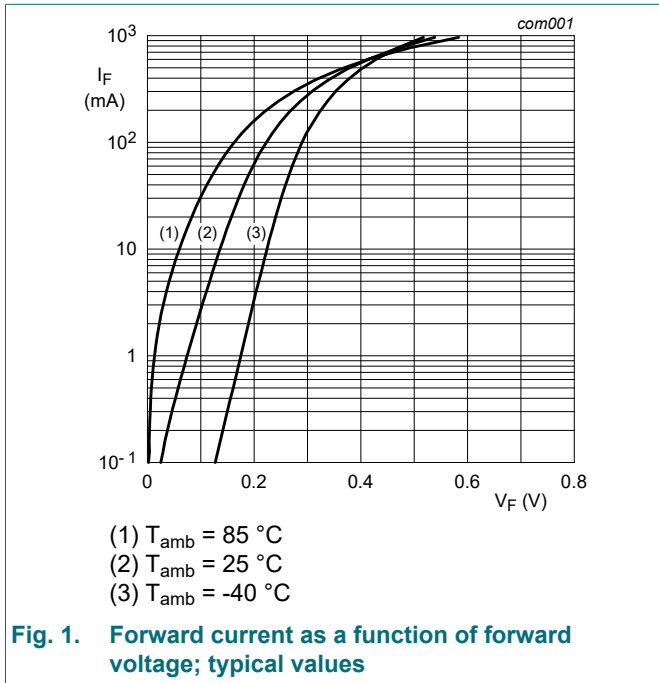
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air	[1] [2]	-	400	K/W
$R_{th(j-sp)}$	thermal resistance from junction to solder point		[2] [3]	-	75	K/W

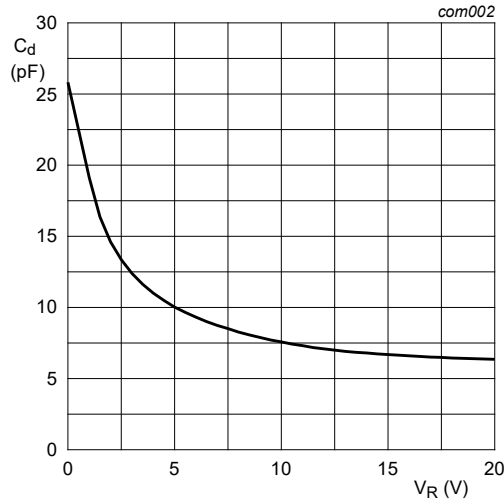
- [1] Refer to SOD523 (SC-79) standard mounting conditions.  
 [2] For Schottky barrier diodes thermal runaway has to be considered, as in some applications the reverse power losses  $P_R$  are a significant part of the total power losses. Nomograms for determining the reverse power losses  $P_R$  and  $I_{F(AV)}$  rating will be available on request.  
 [3] Solder point of cathode tab.

## 10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V <sub>F</sub>	forward voltage	I <sub>F</sub> = 0.1 mA; T <sub>amb</sub> = 25 °C	-	30	60	mV
		I <sub>F</sub> = 1 mA; T <sub>amb</sub> = 25 °C	-	80	110	mV
		I <sub>F</sub> = 10 mA; T <sub>amb</sub> = 25 °C	-	140	190	mV
		I <sub>F</sub> = 100 mA; T <sub>amb</sub> = 25 °C	-	230	290	mV
		I <sub>F</sub> = 1 A; T <sub>amb</sub> = 25 °C	-	510	620	mV
I <sub>R</sub>	reverse current	V <sub>R</sub> = 10 V; t <sub>p</sub> ≤ 300 μs; δ ≤ 0.02; pulsed; T <sub>amb</sub> = 25 °C	-	0.17	0.6	mA
		V <sub>R</sub> = 20 V; t <sub>p</sub> ≤ 300 μs; δ ≤ 0.02; pulsed; T <sub>amb</sub> = 25 °C	-	0.32	1.5	mA
C <sub>d</sub>	diode capacitance	V <sub>R</sub> = 1 V; f = 1 MHz	-	19	25	pF





f = 1 MHz; T<sub>amb</sub> = 25 °C.

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

### 11. Package outline

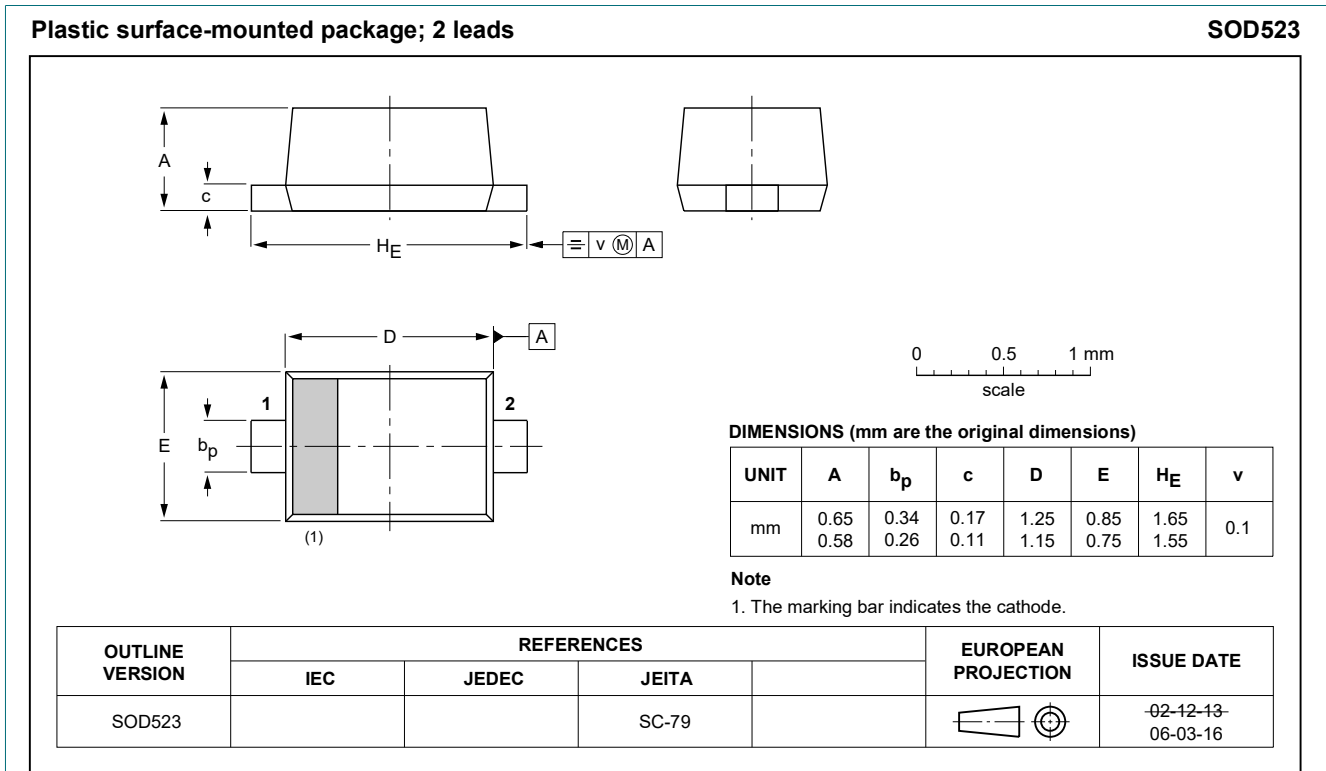


Fig. 4. Package outline SC-79 (SOD523)

## 12. Soldering

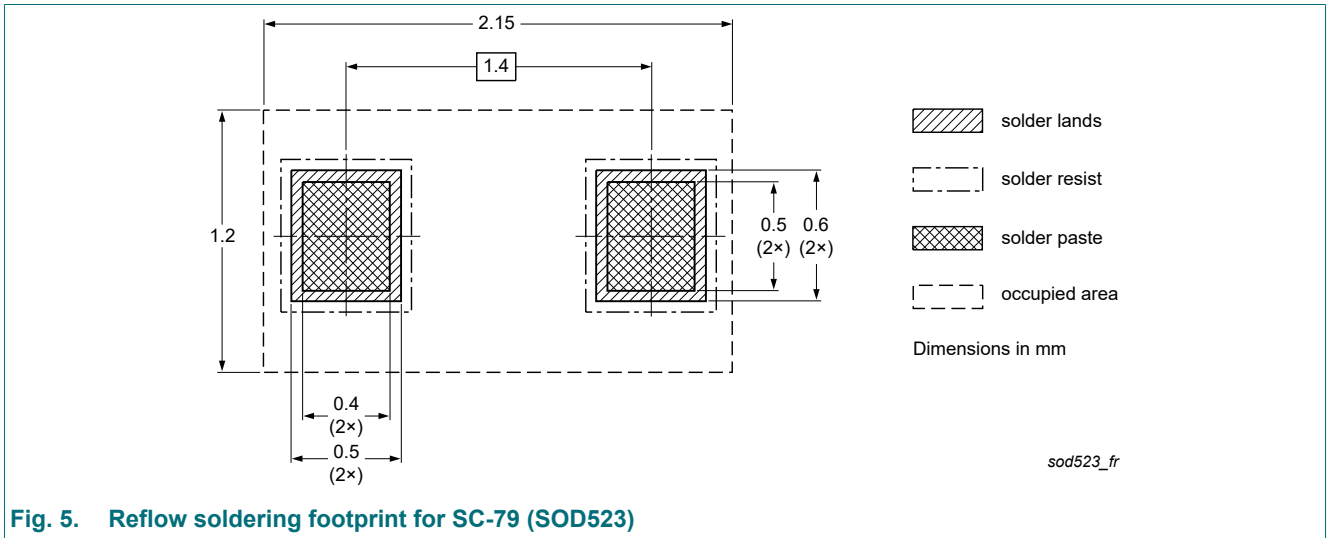


Fig. 5. Reflow soldering footprint for SC-79 (SOD523)

## 13. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
PMEG2010AEB v.2	20221001	Product data sheet	-	PMEG2010AEB v.1
Modifications:	<ul style="list-style-type: none"><li>The format of this data sheet has been redesigned to comply with the identity guidelines of Nexperia.</li><li>Legal texts have been adapted to the new company name where appropriate.</li><li>Product changed to non-automotive qualification. Please refer to <a href="http://nexperia.com">nexperia.com</a> for automotive(-Q) product alternative(s).</li></ul>			
PMEG2010AEB v.1	20190924	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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