



# PMEG2005EB

Low VF MEGA Schottky barrier diode

27 September 2019

Product data sheet

## 1. General description

Planar Maximum Efficiency General Application (MEGA) Schottky barrier diode, encapsulated in a SOD523 (SC-79) ultra small SMD plastic package.

## 2. Features and benefits

- Forward current: 0.5 A
- Reverse voltage: 20 V
- Very low forward voltage
- Guard ring protected
- Ultra small SMD package.
- AEC-Q101 qualified

## 3. Applications

- Ultra high-speed switching
- Voltage clamping
- Protection circuits
- Low current rectification
- Low power consumption applications (e.g. handheld devices).

## 4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$V_R$	reverse voltage	$T_j = 25\text{ °C}$	-	-	20	V
$V_F$	forward voltage	$I_F = 500\text{ mA}$ ; $t_p \leq 300\text{ }\mu\text{s}$ ; $\delta \leq 0.02$ ; $T_{amb} = 25\text{ °C}$	-	430	480	mV

## 5. Pinning information

Table 2. Pinning information

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

[1] The marking bar indicates the cathode.

## 6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
PMEG2005EB	SC-79	plastic, surface-mounted package; 2 leads; 1.2 mm x 0.8 mm x 0.6 mm body	SOD523

## 7. Marking

Table 4. Marking codes

Type number	Marking code
PMEG2005EB	L5

## 8. Limiting values

Table 5. Limiting values

In accordance with the Absolute Maximum Rating System (IEC60134).

Symbol	Parameter	Conditions	Min	Max	Unit
$V_R$	reverse voltage	$T_j = 25\text{ °C}$	-	20	V
$I_F$	forward current		-	500	mA
$I_{FRM}$	repetitive peak forward current	$t_p = 1\text{ ms}$ ; $\delta \leq 0.25$	-	3.5	A
$I_{FSM}$	non-repetitive peak forward current	$t_p = 8\text{ ms}$ ; square wave; $T_{j(\text{init})} = 25\text{ °C}$	-	6	A
$T_j$	junction temperature		-	125	°C
$T_{\text{amb}}$	ambient temperature		-65	125	°C
$T_{\text{stg}}$	storage temperature		-65	150	°C

## 9. Thermal characteristics

Table 6. Thermal characteristics

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

[1] Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.

### 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>p</sub> ≤ 300 μs; δ ≤ 0.02; T <sub>amb</sub> = 25 °C	-	120	180	mV
		I <sub>F</sub> = 1 mA; t <sub>p</sub> ≤ 300 μs; δ ≤ 0.02; T <sub>amb</sub> = 25 °C	-	180	240	mV
		I <sub>F</sub> = 10 mA; t <sub>p</sub> ≤ 300 μs; δ ≤ 0.02; T <sub>amb</sub> = 25 °C	-	245	290	mV
		I <sub>F</sub> = 100 mA; t <sub>p</sub> ≤ 300 μs; δ ≤ 0.02; T <sub>amb</sub> = 25 °C	-	320	380	mV
		I <sub>F</sub> = 500 mA; t <sub>p</sub> ≤ 300 μs; δ ≤ 0.02; T <sub>amb</sub> = 25 °C	-	430	480	mV
I <sub>R</sub>	reverse current	V <sub>R</sub> = 10 V; t <sub>p</sub> ≤ 300 μs; δ ≤ 0.02; T <sub>amb</sub> = 25 °C	-	7	30	μA
C <sub>d</sub>	diode capacitance	V <sub>R</sub> = 1 V; f = 1 MHz; T <sub>amb</sub> = 25 °C	-	24	30	pF

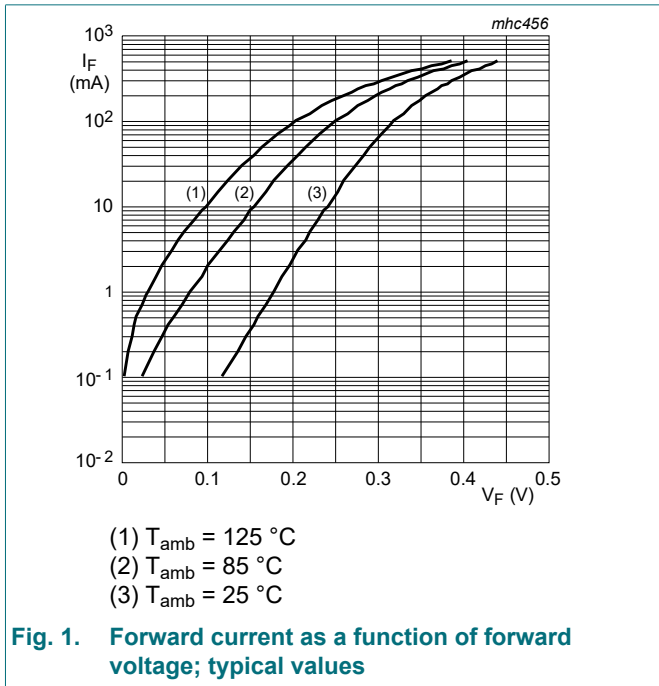


Fig. 1. Forward current as a function of forward voltage; typical values

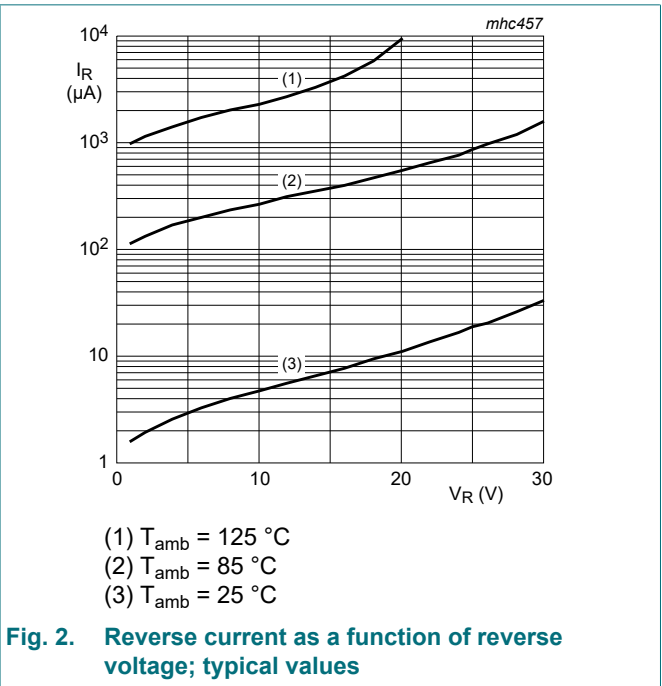
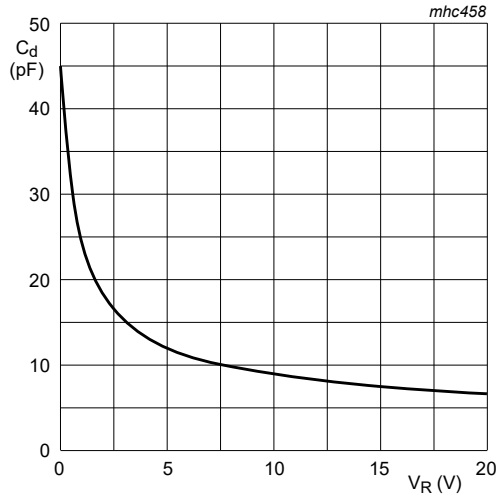


Fig. 2. Reverse current as a function of reverse voltage; typical values



f = 1 MHz; T<sub>amb</sub> = 25 °C

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

### 11. Package outline

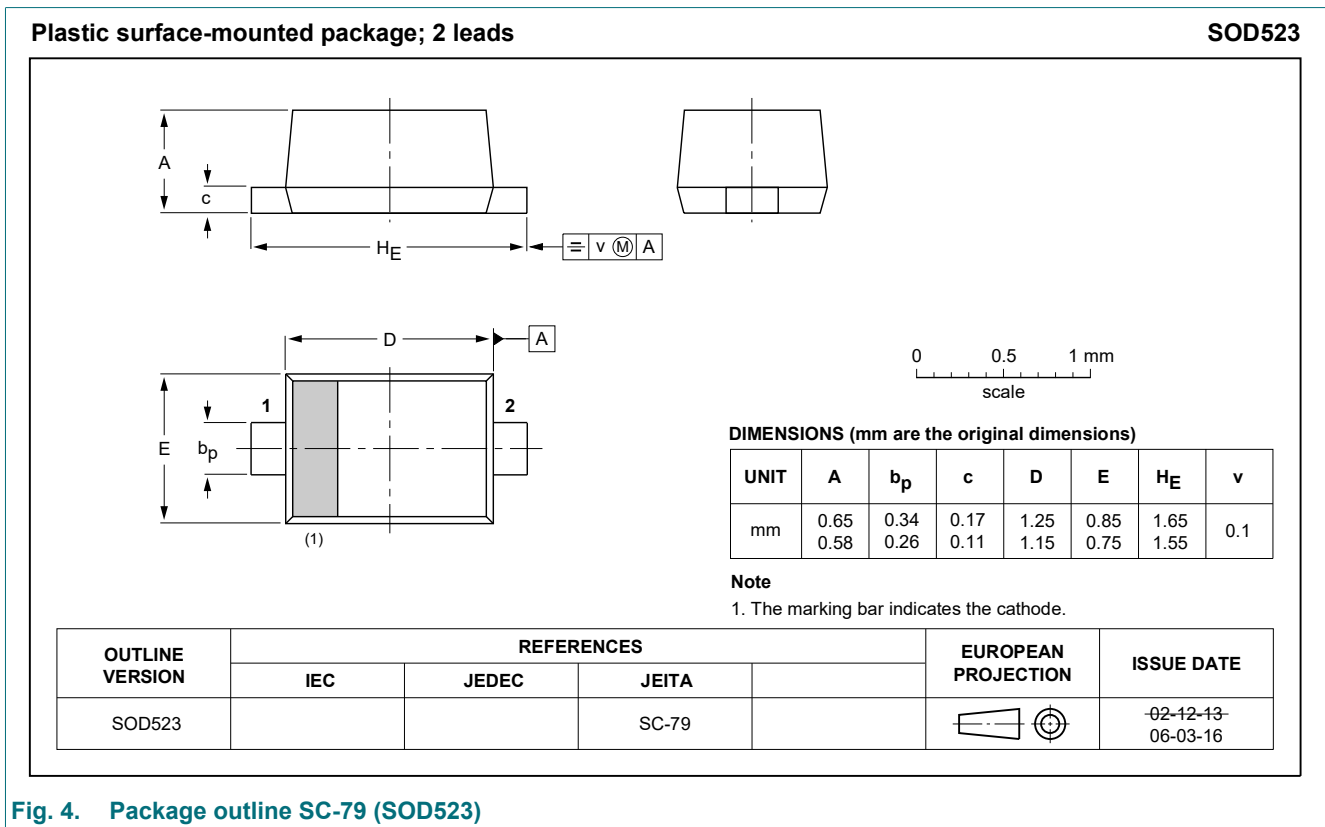


Fig. 4. Package outline SC-79 (SOD523)

## 12. Soldering

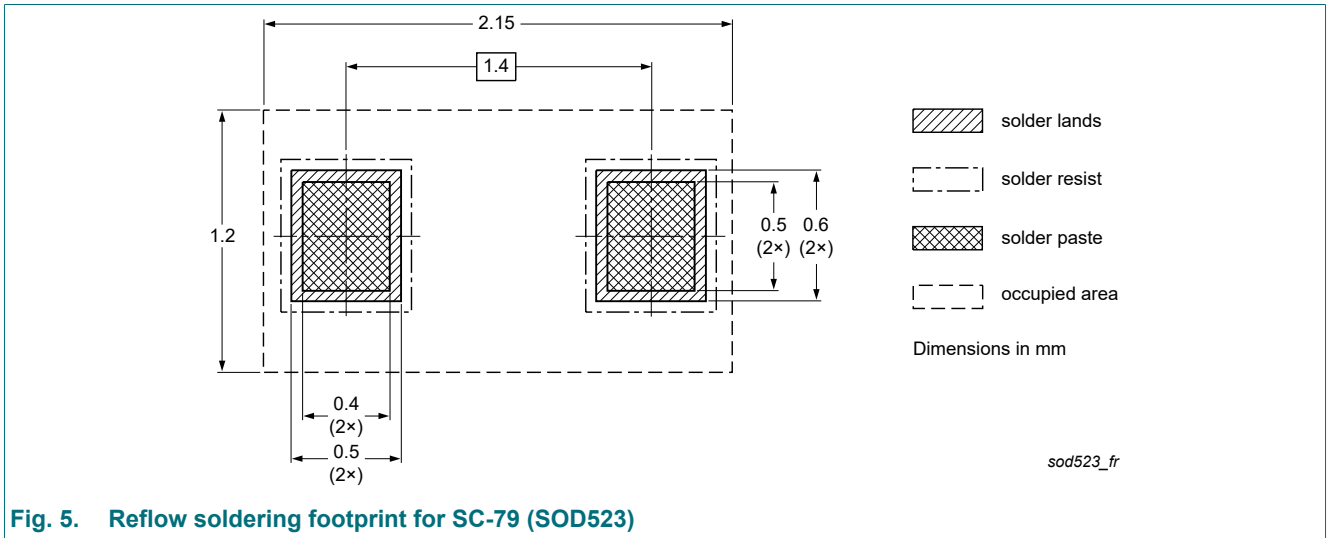


Fig. 5. Reflow soldering footprint for SC-79 (SOD523)

## 13. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
PMEG2005EB v.3	20190927	Product data sheet	-	PMEG2005EB v.2
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></ul>			
PMEG2005EB v.2	20030404	Product data sheet	-	PMEG2005EB v.1
PMEG2005EB v.1	20030220	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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Date of release: 27 September 2019

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