



PMEG2005EB-Q

20 V, 500 mA low VF Schottky barrier diode

2 October 2024

Product data sheet

1. General description

Planar Schottky barrier diode, encapsulated in a SOD523 (SC-79) ultra small Surface-Mounted Device (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
- Qualified according to AEC-Q101 and recommended for use in automotive applications

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
I_F	forward current		-	-	500	mA
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
I_R	reverse current	$V_R = 10\text{ V}$; $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$; $T_{amb} = 25\text{ °C}$	-	7	30	μA

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-Q	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-Q	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 °C		-	20	V
I _F	forward current			-	500	mA
I _{FRM}	repetitive peak forward current	t _p = 1 ms; δ ≤ 0.25		-	3.5	A
I _{FSM}	non-repetitive peak forward current	t _p = 8 ms; square wave; T _{j(init)} = 25 °C		-	6	A
T _j	junction temperature			-	125	°C
T _{amb}	ambient temperature			-65	125	°C
T _{stg}	storage temperature			-65	150	°C

9. Thermal characteristics

Table 6. Thermal characteristics

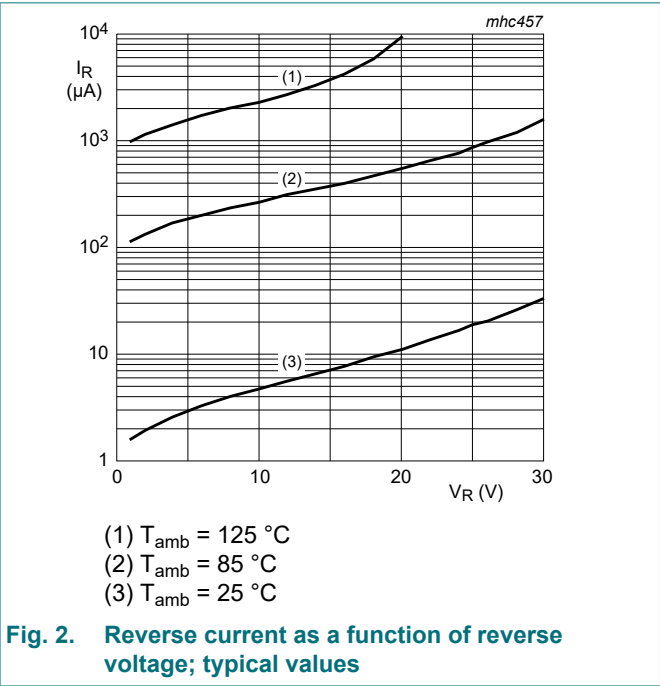
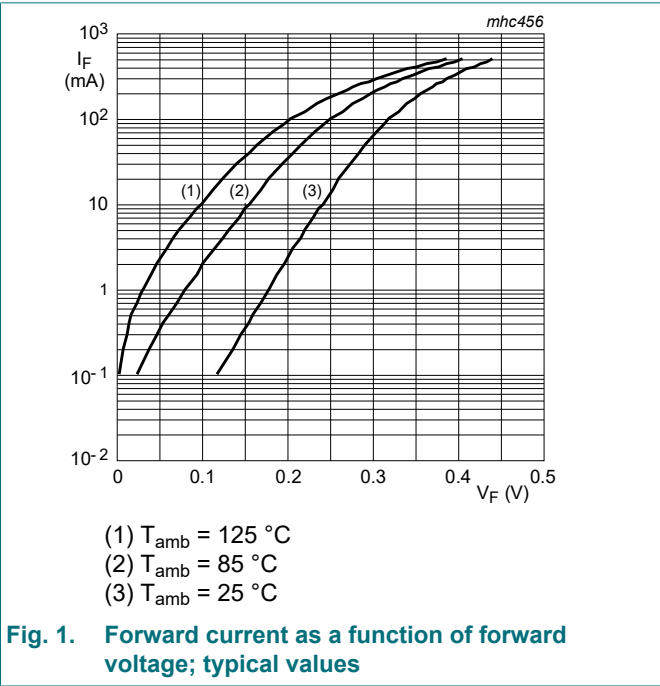
Symbol	Parameter	Conditions		Min	Typ	Max	Unit
R _{th(j-a)}	thermal resistance from junction to ambient	in free air	[1]	-	-	400	K/W

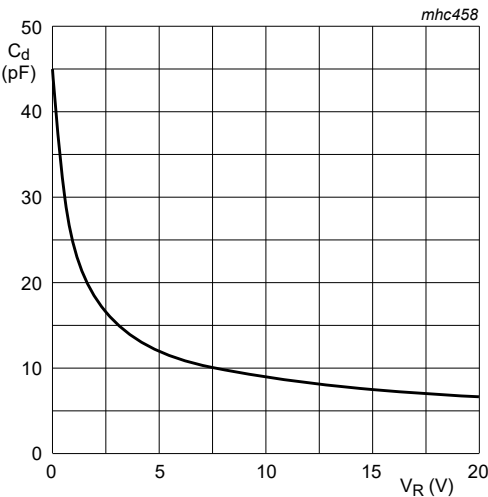
[1] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint.

10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
V _F	forward voltage	I _F = 0.1 mA; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C		-	120	180	mV
		I _F = 1 mA; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C		-	180	240	mV
		I _F = 10 mA; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C		-	245	290	mV
		I _F = 100 mA; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C		-	320	380	mV
		I _F = 500 mA; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C		-	430	480	mV
I _R	reverse current	V _R = 10 V; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C		-	7	30	μA
C _d	diode capacitance	V _R = 1 V; f = 1 MHz; T _{amb} = 25 °C		-	24	30	pF





f = 1 MHz; T_{amb} = 25 °C

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

11. Test information

Quality information

This product has been qualified in accordance with the Automotive Electronics Council (AEC) standard Q101 - *Stress test qualification for discrete semiconductors*, and is suitable for use in automotive applications.

12. Package outline

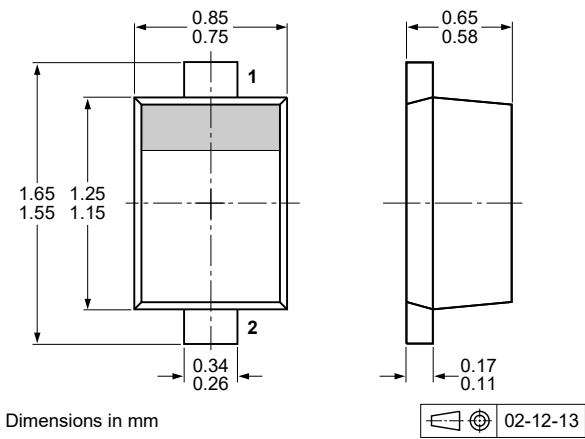


Fig. 4. Package outline SC-79 (SOD523)

13. Soldering

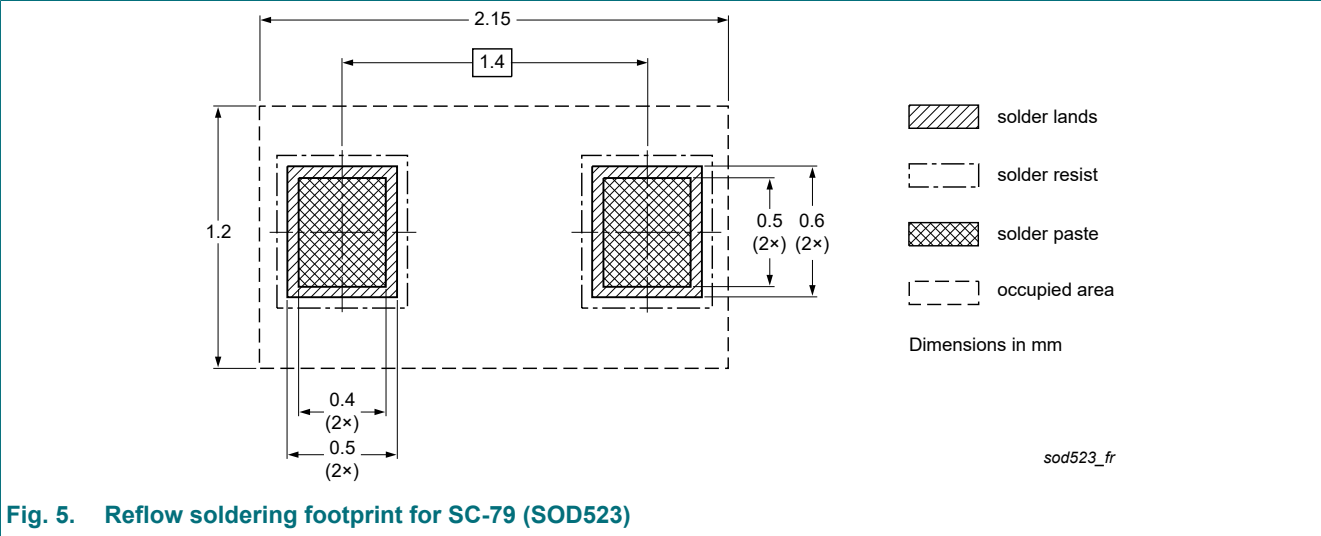


Fig. 5. Reflow soldering footprint for SC-79 (SOD523)

14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
PMEG2005EB-Q v.1	20241002	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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- [2] The term 'short data sheet' is explained in section "Definitions".
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