



1PS79SB31-Q

Schottky barrier diode

2 June 2022

Product data sheet

1. General description

Planar Schottky barrier diode in a SOD523 (SC-79) ultra small Surface-Mounted Device (SMD) plastic package.

2. Features and benefits

- 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. hand-held devices)

4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
I_F	forward current		-	-	200	mA
V_R	reverse voltage		-	-	30	V
V_F	forward voltage	$I_F = 10 \text{ mA}; T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	255	-	300	mV

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	cathode[1]	 SC-79 (SOD523)	 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
1PS79SB31-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
1PS79SB31-Q	G3

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		-	30	V
I_F	forward current		-	200	mA
I_{FRM}	repetitive peak forward current	$t_p \leq 1$ s; $\delta \leq 0.5$	-	300	mA
I_{FSM}	non-repetitive peak forward current	$t_p = 8.3$ ms; half sine wave; JEDEC method; $T_{j(\text{init})} = 25$ °C	-	1	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
$R_{\text{th}(j-a)}$	thermal resistance from junction to ambient	in free air	[1]	-	450	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 _{amb} = 25 °C	130	-	190	mV
		I _F = 1 mA; T _{amb} = 25 °C	190	-	250	mV
		I _F = 10 mA; T _{amb} = 25 °C	255	-	300	mV
		I _F = 100 mA; T _{amb} = 25 °C	355	-	410	mV
		I _F = 200 mA; T _{amb} = 25 °C	420	-	500	mV
I _R	reverse current	V _R = 10 V; t _p = 300 μs; δ = 0.02; pulsed; T _{amb} = 25 °C	-	2.5	30	μA
C _d	diode capacitance	V _R = 1 V; f = 1 MHz; T _{amb} = 25 °C	20	-	25	pF

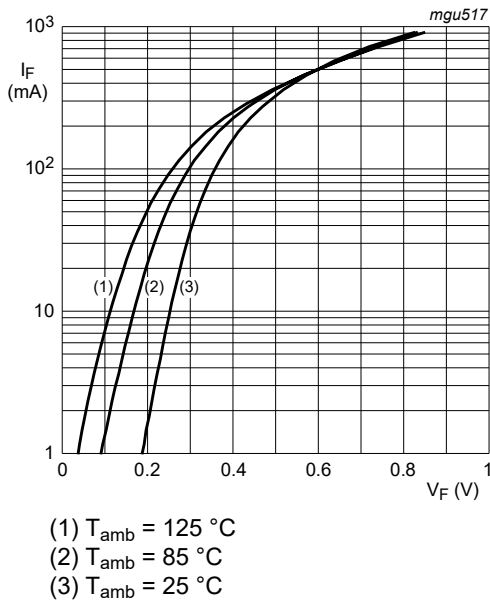


Fig. 1. Forward current as a function of forward voltage; typical values

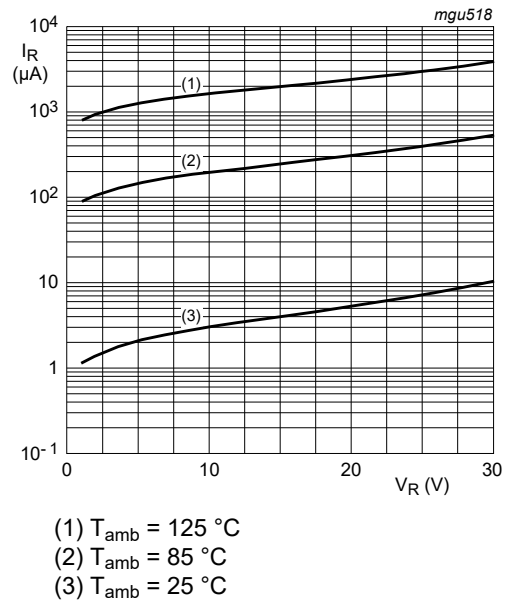
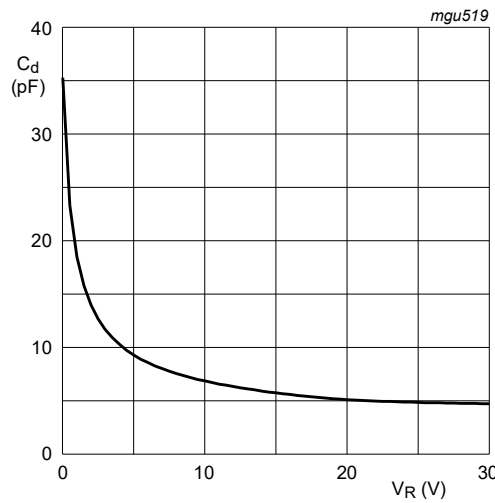


Fig. 2. Reverse current as a function of reverse voltage; typical values



f = 1 MHz; T_{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

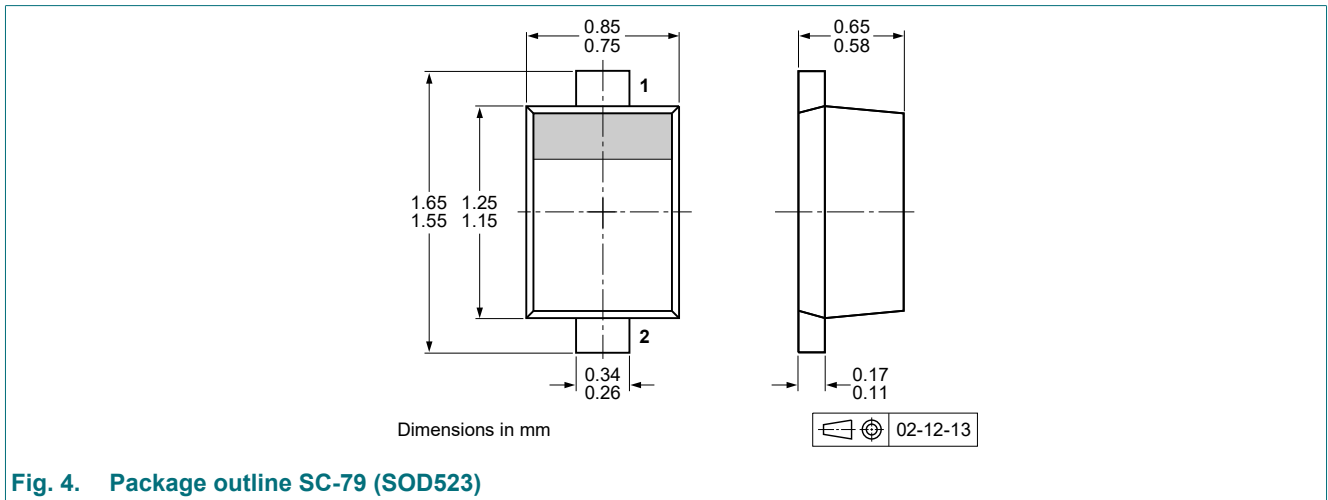


Fig. 4. Package outline SC-79 (SOD523)

13. Soldering

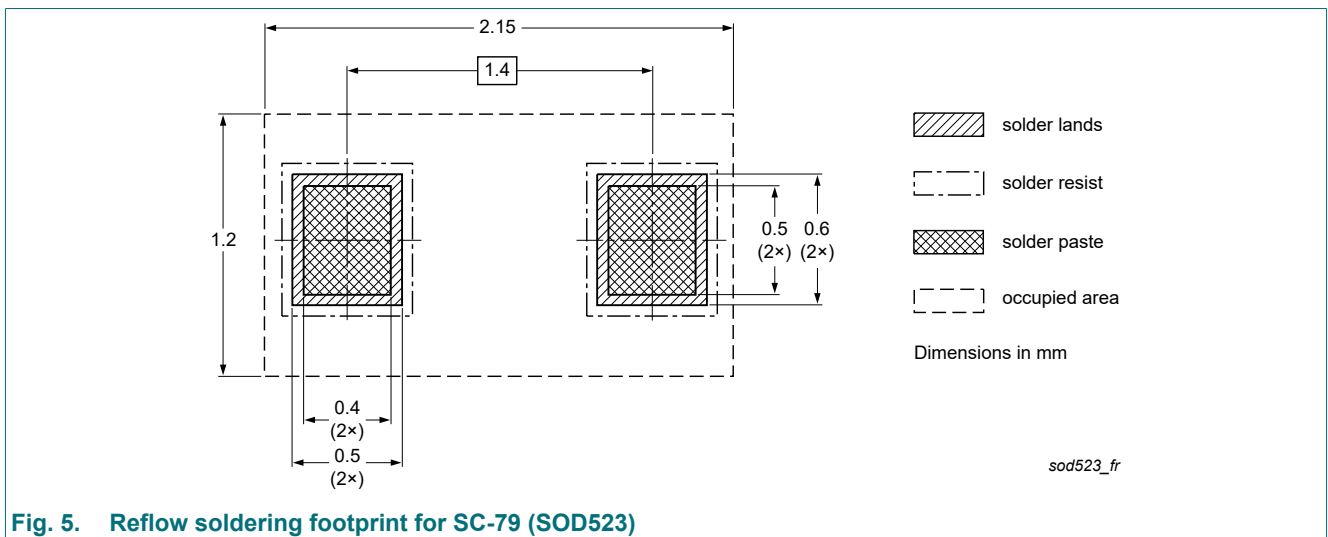


Fig. 5. Reflow soldering footprint for SC-79 (SOD523)

14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
1PS79SB31-Q v.1	20220602	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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