



# 1PS76SB10-Q

Schottky barrier single diode

16 June 2021

Product data sheet

## 1. General description

Planar Schottky barrier diode with an integrated guard ring for stress protection, encapsulated in a very small SOD323 Surface-Mounted Device (SMD) plastic package.

## 2. Features and benefits

- Low forward voltage
- Low capacitance
- Qualified according to AEC-Q101 and recommended for use in automotive applications

## 3. Applications

- Ultra high-speed switching
- Line termination
- Voltage clamping
- Reverse polarity protection



## 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	$I_F = 10 \text{ mA}$ ; $t_p = 300 \text{ } \mu\text{s}$ ; $\delta = 0.02$ ; pulsed; $T_{amb} = 25 \text{ } ^\circ\text{C}$	-	-	400	mV

## 5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	cathode[1]	 SOD323	 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
1PS76SB10-Q	SOD323	plastic, surface-mounted package; 2 leads; 1.3 mm pitch; 1.7 mm x 1.25 mm x 0.95 mm body	SOD323

## 7. Marking

Table 4. Marking codes

Type number	Marking code
1PS76SB10-Q	S0

## 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	$t_p \leq 1 \text{ s}$ ; $\delta \leq 0.5$	-	300	mA
$I_{FSM}$	non-repetitive peak forward current	$t_p < 10 \text{ ms}$ ; $T_{j(\text{init})} = 25 \text{ }^\circ\text{C}$	-	600	mA
$T_j$	junction temperature		-	125	$^\circ\text{C}$
$T_{\text{amb}}$	ambient temperature		-55	125	$^\circ\text{C}$
$T_{\text{stg}}$	storage temperature		-65	150	$^\circ\text{C}$

## 9. Thermal characteristics

**Table 6. Thermal characteristics**

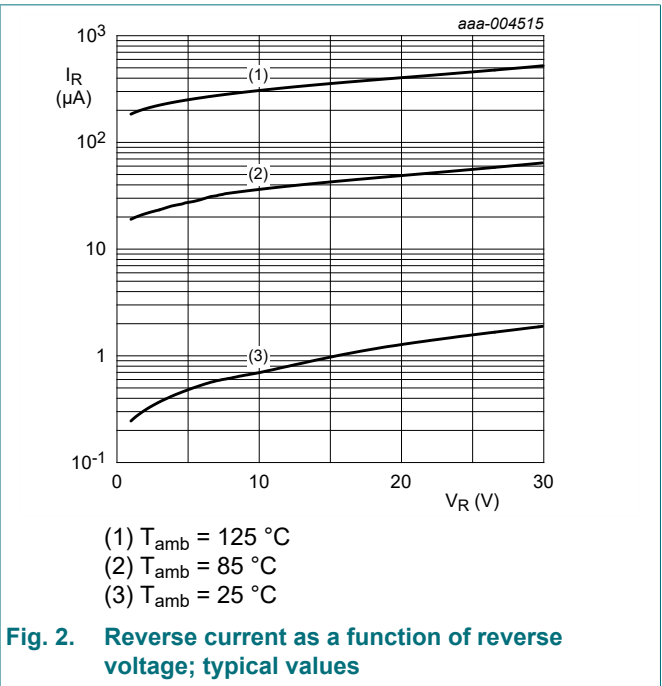
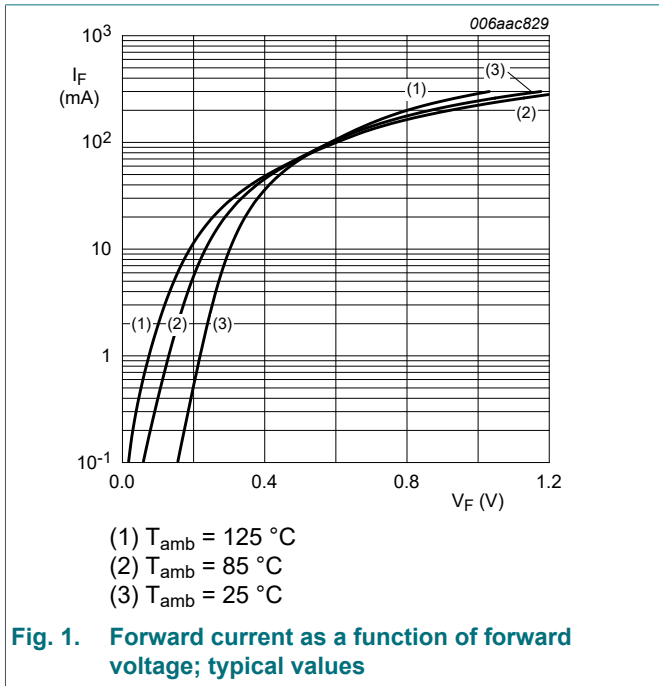
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$R_{\text{th}(j-a)}$	thermal resistance from junction to ambient	in free air	[1]	-	450	K/W

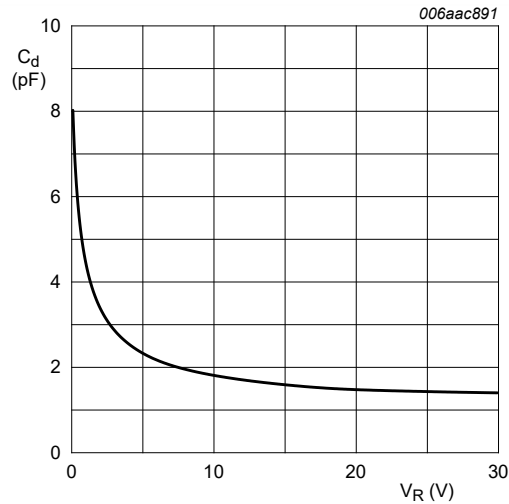
[1] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint.

### 10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V <sub>F</sub>	forward voltage	I <sub>F</sub> = 0.1 mA; t <sub>p</sub> = 300 μs; δ = 0.02; pulsed; T <sub>amb</sub> = 25 °C	-	-	240	mV
		I <sub>F</sub> = 1 mA; t <sub>p</sub> = 300 μs; δ = 0.02; pulsed; T <sub>amb</sub> = 25 °C	-	-	320	mV
		I <sub>F</sub> = 10 mA; t <sub>p</sub> = 300 μs; δ = 0.02; pulsed; T <sub>amb</sub> = 25 °C	-	-	400	mV
		I <sub>F</sub> = 30 mA; t <sub>p</sub> = 300 μs; δ = 0.02; pulsed; T <sub>amb</sub> = 25 °C	-	-	500	mV
		I <sub>F</sub> = 100 mA; t <sub>p</sub> = 300 μs; δ = 0.02; pulsed; T <sub>amb</sub> = 25 °C	-	-	800	mV
I <sub>R</sub>	reverse current	V <sub>R</sub> = 25 V; t <sub>p</sub> = 300 μs; δ = 0.02; pulsed; T <sub>amb</sub> = 25 °C	-	-	2	μA
C <sub>d</sub>	diode capacitance	V <sub>R</sub> = 1 V; f = 1 MHz; T <sub>amb</sub> = 25 °C	-	-	10	pF





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

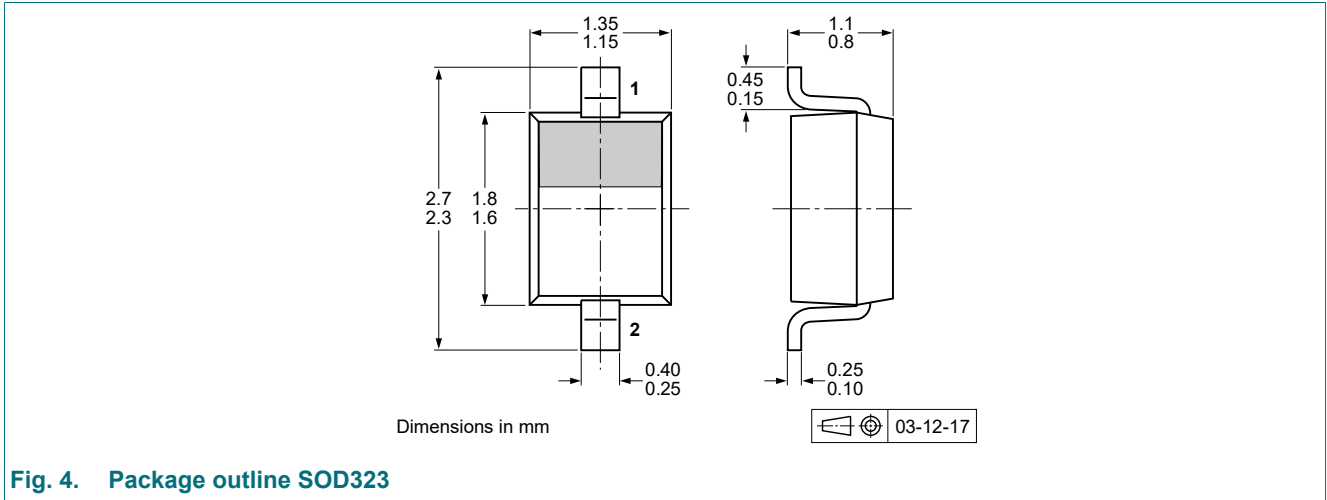
**Fig. 3.** Diode capacitance as a function of reverse voltage; typical values

## 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



### 13. Soldering

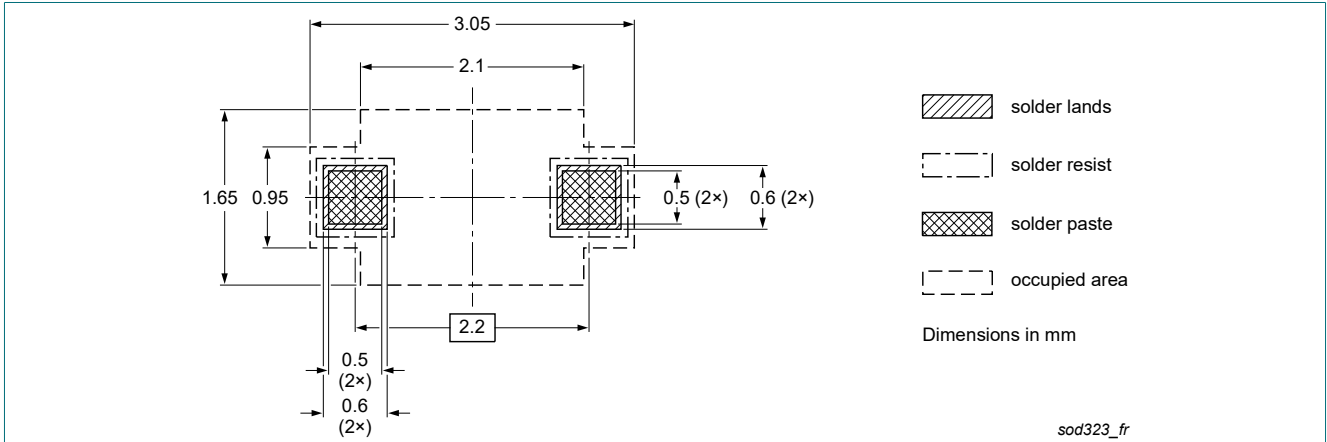


Fig. 5. Reflow soldering footprint for SOD323

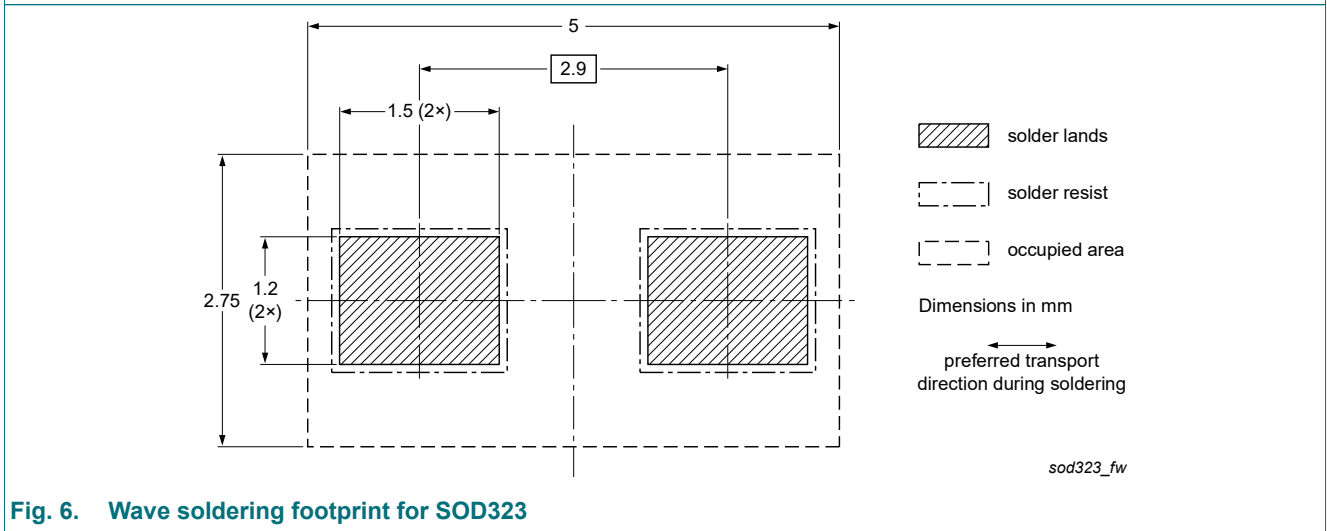


Fig. 6. Wave soldering footprint for SOD323

## 14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
1PS76SB10-Q v.1	20210616	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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Date of release: 16 June 2021

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