



1PS76SB17

4 V, 30 mA low capacitance Schottky barrier diode

27 December 2022

Product data sheet

1. General description

Planar low capacitance Schottky barrier diode encapsulated in a SOD323 (SC-76) very small Surface-Mounted Device (SMD) plastic package.

2. Features and benefits

- Very low diode capacitance
- Very low forward voltage
- Very small SMD plastic package
- AEC-Q101 qualified

3. Applications

- Digital applications:
 - Ultra high-speed switching
 - Clamping circuits
- RF applications:
 - Diode ring mixer
 - RF detector
 - RF voltage doubler



4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
I_F	forward current		-	-	30	mA
V_R	reverse voltage		-	-	4	V
C_d	diode capacitance	$V_R = 0\text{ V}$; $f = 1\text{ MHz}$; $T_{\text{amb}} = 25\text{ °C}$	-	0.8	1	pF

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	cathode[1]	 SOD323	 sym001
2	A	anode		

[1] The marking bar indicates the cathode.

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
1PS76SB17	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
1PS76SB17	S7

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			-	4	V
I_F	forward current			-	30	mA
T_j	junction temperature			-	150	°C
T_{amb}	ambient temperature			-65	150	°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] [2]	-	-	450	K/W

- [1] For Schottky barrier diodes, thermal run-away 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
- [2] Refer to SOD323 (SC-76) standard mounting conditions.

10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_F	forward voltage	$I_F = 0.1\text{ mA}$; $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$; pulsed; $T_{\text{amb}} = 25\text{ }^\circ\text{C}$	-	300	350	mV
		$I_F = 1\text{ mA}$; $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$; pulsed; $T_{\text{amb}} = 25\text{ }^\circ\text{C}$	-	360	450	mV
		$I_F = 10\text{ mA}$; $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$; pulsed; $T_{\text{amb}} = 25\text{ }^\circ\text{C}$	-	470	600	mV
I_R	reverse current	$V_R = 3\text{ V}$; $T_{\text{amb}} = 25\text{ }^\circ\text{C}$	-	-	250	nA
C_d	diode capacitance	$V_R = 0\text{ V}$; $f = 1\text{ MHz}$; $T_{\text{amb}} = 25\text{ }^\circ\text{C}$	-	0.8	1	pF
		$V_R = 0.5\text{ V}$; $f = 1\text{ MHz}$; $T_{\text{amb}} = 25\text{ }^\circ\text{C}$	-	0.65	-	pF

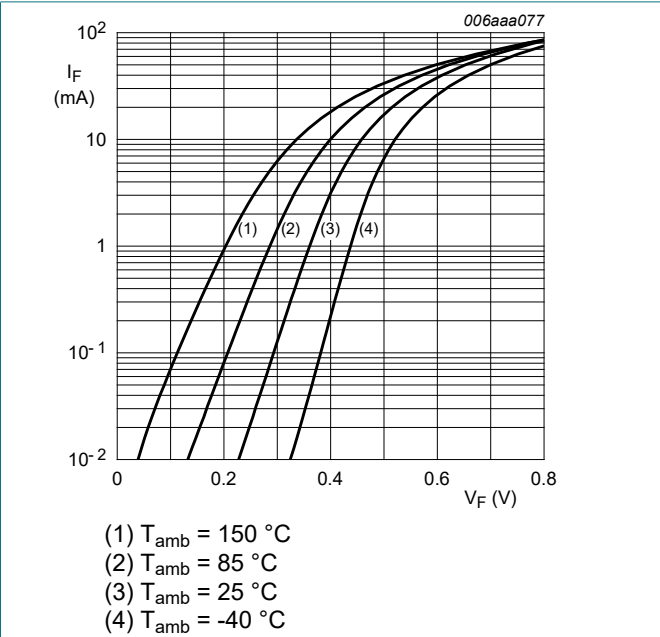


Fig. 1. Forward current as a function of forward voltage; typical values.

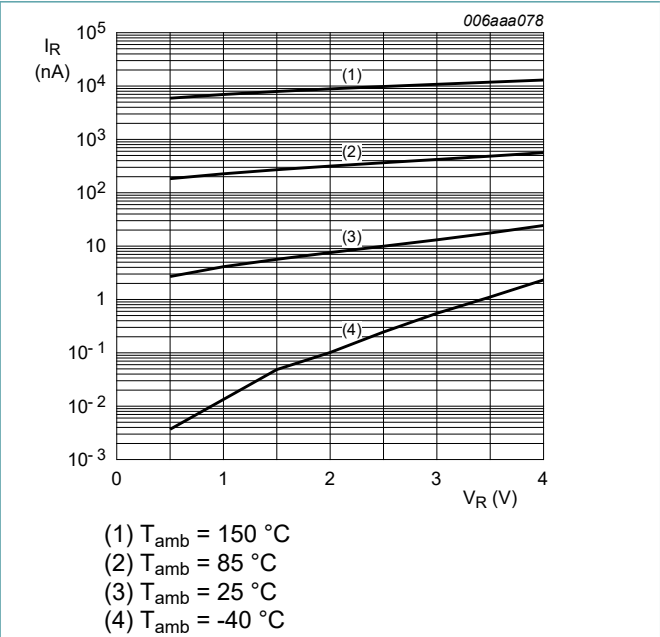


Fig. 2. Reverse current as a function of reverse voltage; typical values.

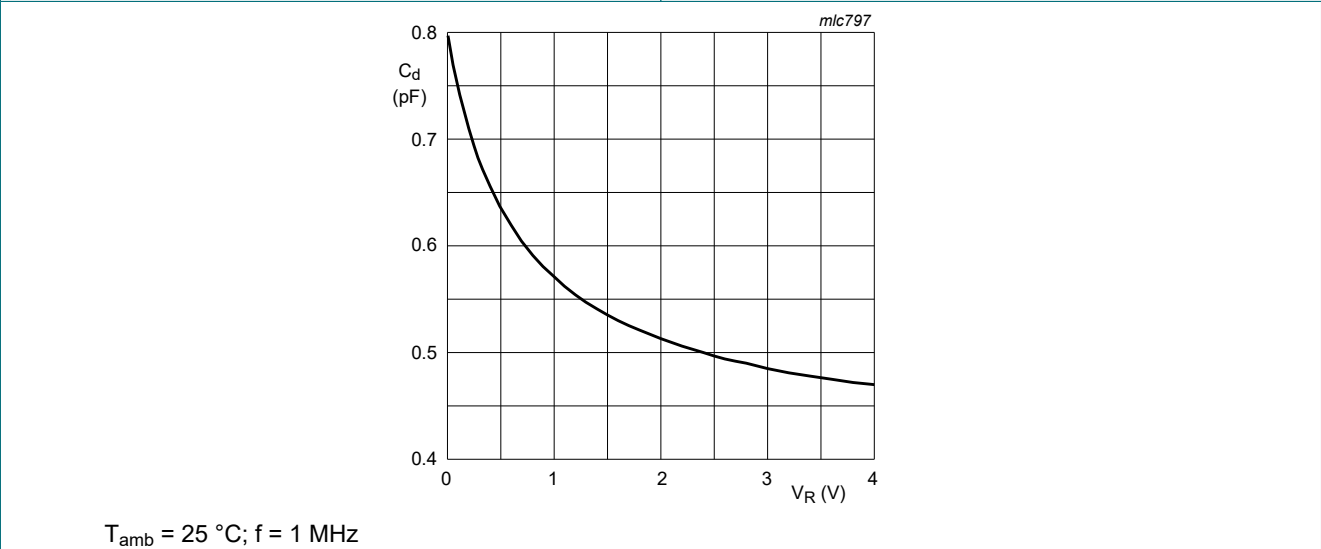


Fig. 3. Diode capacitance as a function of reverse voltage; typical values.

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

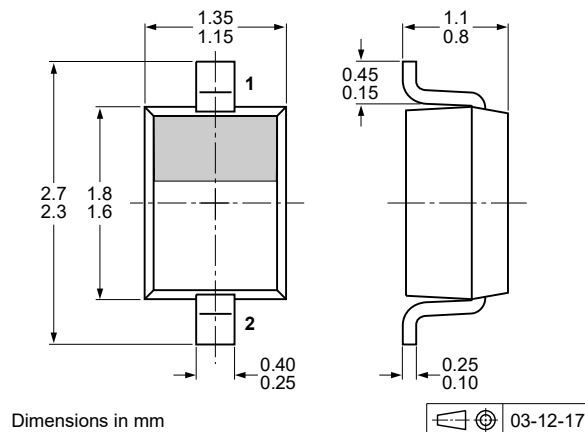


Fig. 4. Package outline SOD323

13. Soldering

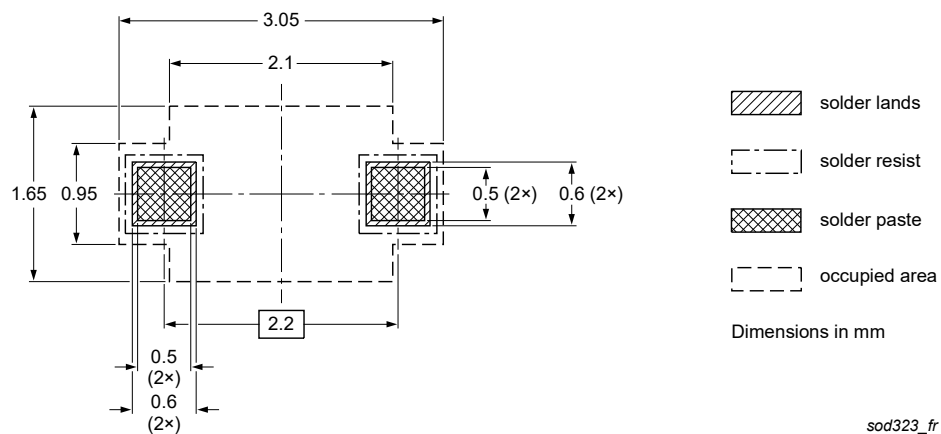
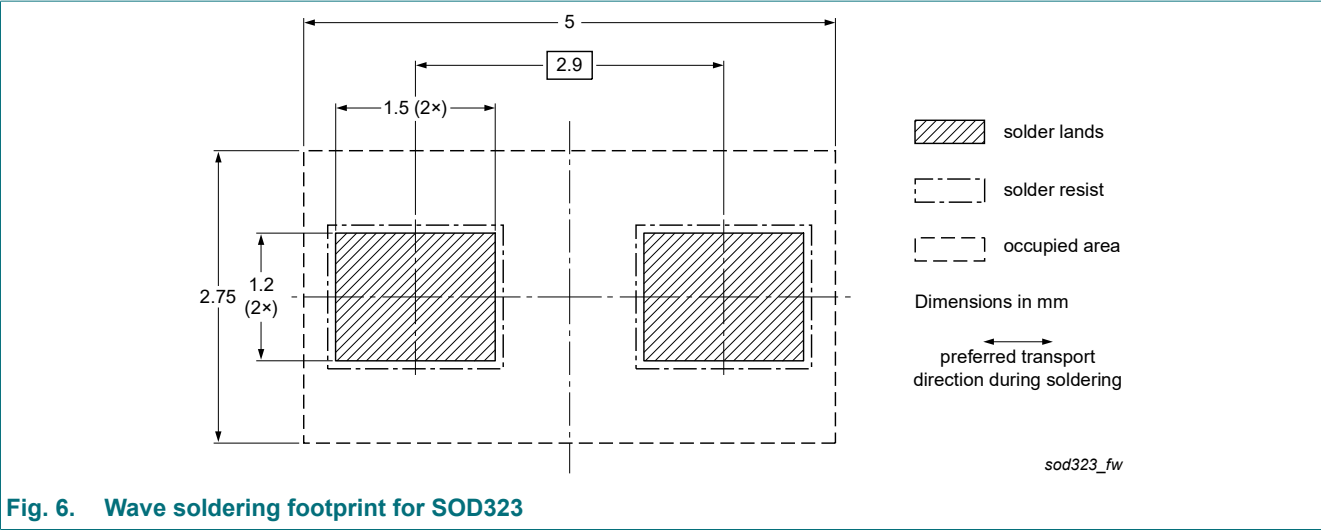


Fig. 5. Reflow soldering footprint for SOD323



14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
1PS76SB17 v.7	20221227	Product data sheet	-	1PSXSB17_6
Modifications:	<ul style="list-style-type: none"> Family data sheet splitted to single type data sheets. Packing information removed. 			
1PSXSB17_6	20050404	Product data sheet	-	1PS76SB17_ 1PS79SB17_5
1PS76SB17_ 1PS79SB17_5	20041028	Product data sheet	-	1PS76SB17_4
1PS76SB17_4	20040126	Product data sheet	-	1PS76SB17_3
1PS76SB21_3	20020809	Product data sheet	-	1PS76SB21_2
1PS76SB17_2	19990525	Preliminary data sheet	-	1PS76SB17_1
1PS76SB17_1	19961014	Preliminary 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.

- [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".
- [3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the internet at <https://www.nexperia.com>.

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