



1PS70SB20-Q

Schottky barrier diode

7 March 2025

Product data sheet

1. General description

Planar Schottky barrier diode with an integrated guard ring for stress protection, encapsulated in a very small SOT323 (SC-70) 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		-	-	500	mA
V_R	reverse voltage		-	-	40	V
V_F	forward voltage	$I_F = 500 \text{ mA}$; $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	-	550	mV

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	A	anode	 SC-70 (SOT323)	 aaa-005805
2	n.c.	not connected		
3	K	cathode		

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
1PS70SB20-Q	SC-70	plastic, surface-mounted package; 3 leads; 1.3 mm pitch; 2 mm x 1.25 mm x 0.95 mm body	SOT323

7. Marking

Table 4. Marking codes

Type number	Marking code[1]
1PS70SB20-Q	7%2

[1] % = placeholder for manufacturing site code

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			-	40	V
I _F	forward current			-	500	mA
I _{FSM}	non-repetitive peak forward current	t _p = 8.3 ms; half sine wave; T _{j(init)} = 25 °C		-	2	A
T _j	junction temperature			-	125	°C
T _{amb}	ambient temperature			-55	125	°C
T _{stg}	storage temperature			-65	150	°C

9. Thermal characteristics

Table 6. Thermal characteristics

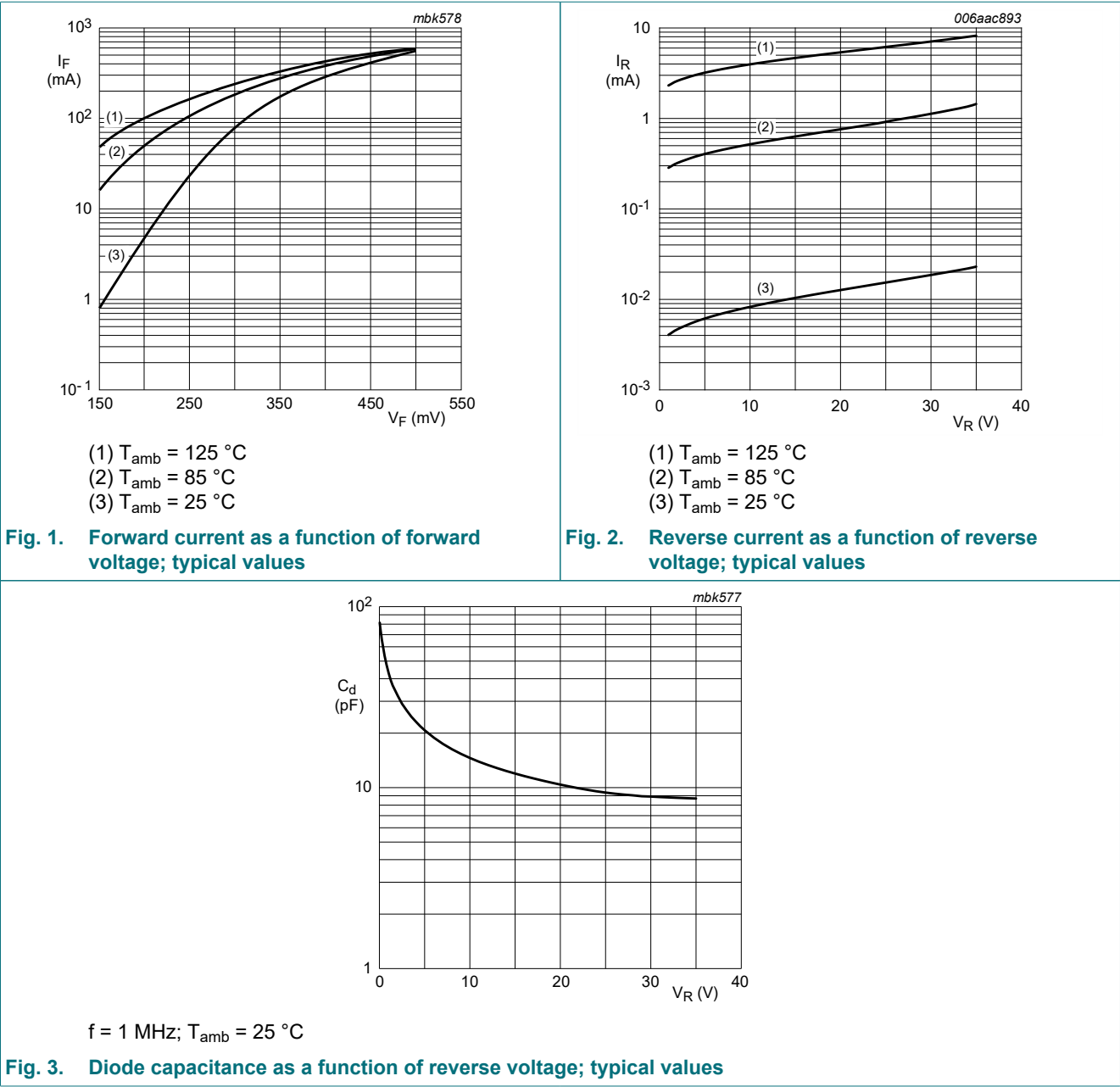
Symbol	Parameter	Conditions		Min	Typ	Max	Unit
R _{th(j-a)}	thermal resistance from junction to ambient	in free air	[1]	-	-	500	K/W

[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	$I_F = 500\text{ mA}$; $T_{\text{amb}} = 25\text{ }^{\circ}\text{C}$		-	-	550	mV
I_R	reverse current	$V_R = 35\text{ V}$; $T_{\text{amb}} = 25\text{ }^{\circ}\text{C}$		-	-	100	μA
		$V_R = 35\text{ V}$; pulsed; $t_p = 300\text{ }\mu\text{s}$; $\delta = 0.02$; $T_j = 100\text{ }^{\circ}\text{C}$		-	-	10	mA
C_d	diode capacitance	$V_R = 0\text{ V}$; $f = 1\text{ MHz}$; $T_{\text{amb}} = 25\text{ }^{\circ}\text{C}$		60	-	90	pF



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

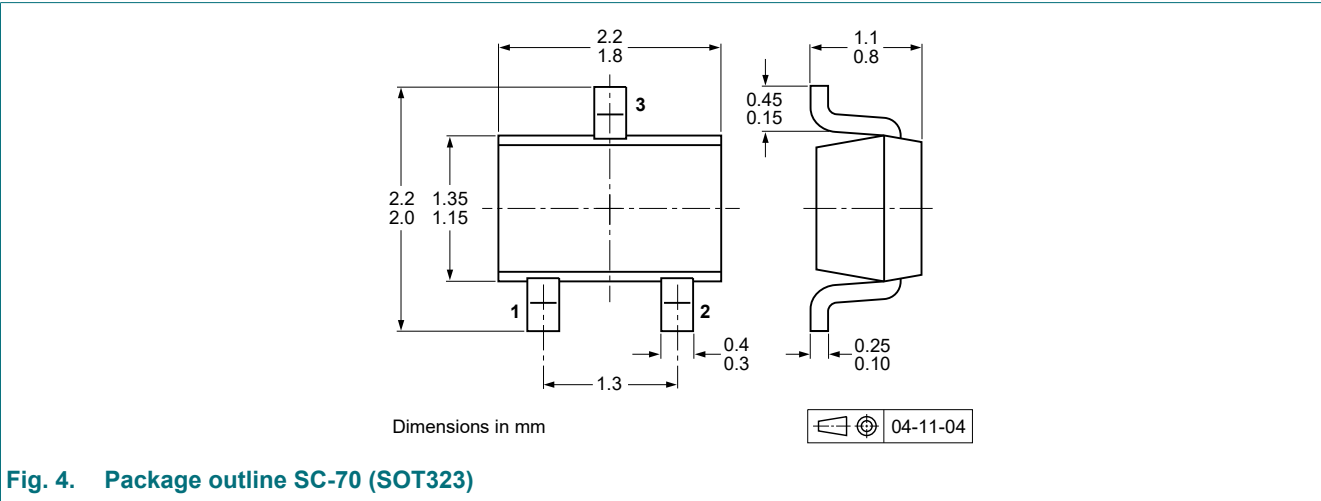


Fig. 4. Package outline SC-70 (SOT323)

13. Soldering

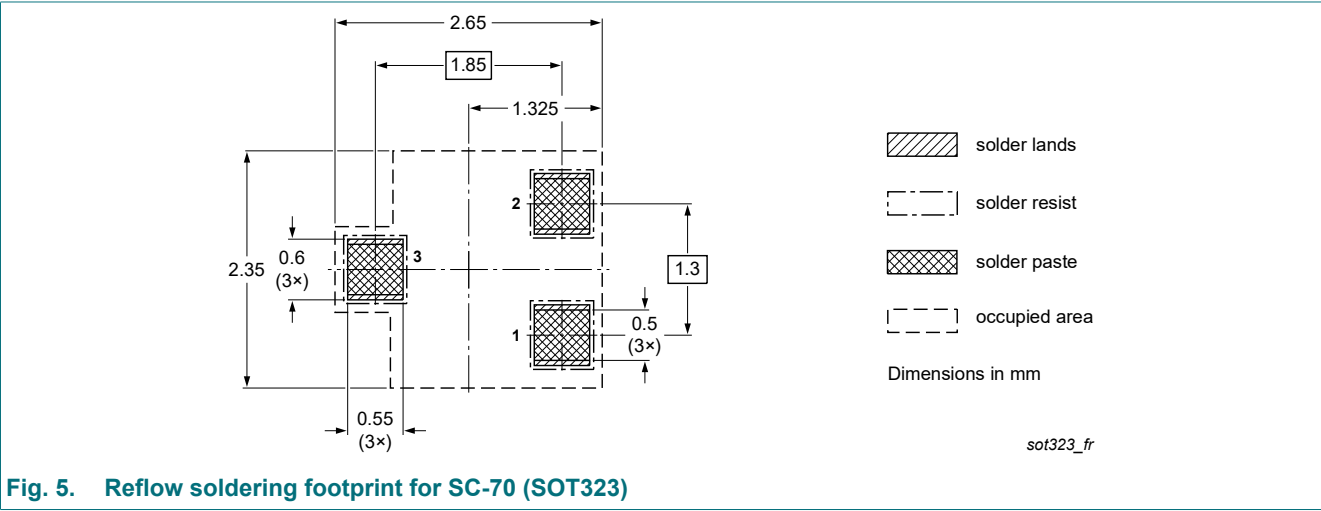
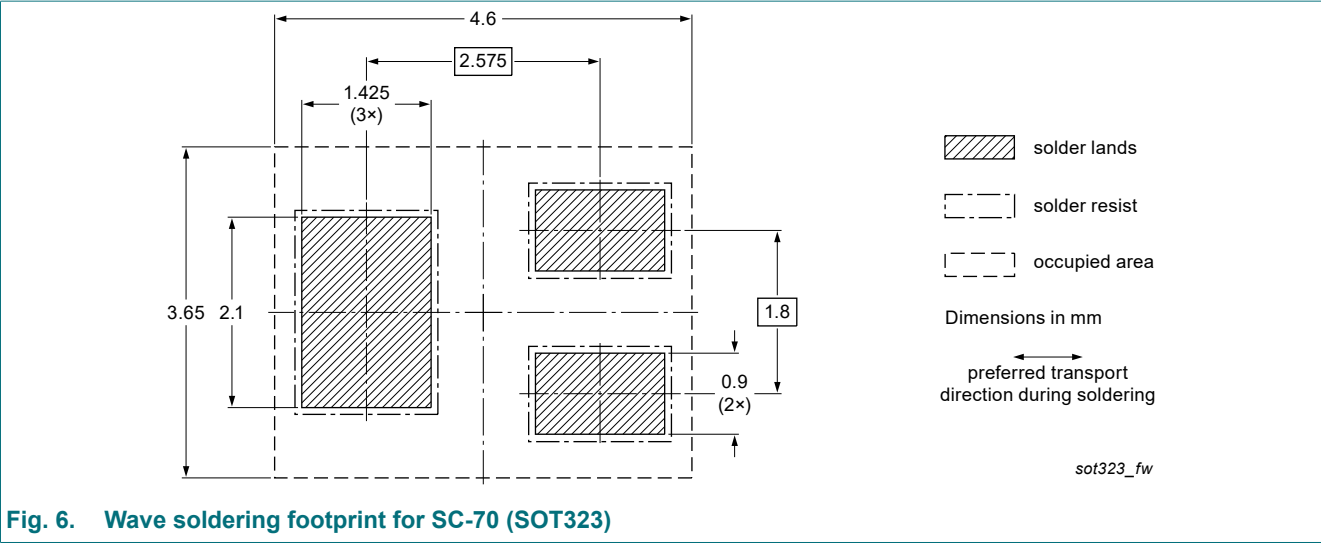


Fig. 5. Reflow soldering footprint for SC-70 (SOT323)



14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
1PS70SB20-Q v.1	20250307	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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Contents

1. General description..... 1

2. Features and benefits..... 1

3. Applications..... 1

4. Quick reference data..... 1

5. Pinning information..... 1

6. Ordering information..... 2

7. Marking..... 2

8. Limiting values..... 2

9. Thermal characteristics..... 2

10. Characteristics..... 3

11. Test information..... 4

12. Package outline..... 4

13. Soldering..... 4

14. Revision history..... 6

15. Legal information..... 7

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