



1PS74SB23-Q

Schottky barrier diode

7 March 2025

Product data sheet

1. General description

Planar Schottky barrier diode encapsulated in a SOT457 (SC-74) small Surface-Mounted Device (SMD) plastic package.

2. Features and benefits

- Ultra fast switching speed
- Low forward voltage
- Fast recovery time
- Guard ring protected
- Small plastic SMD package
- Capability of absorbing very high surge current
- Qualified according to AEC-Q101 and recommended for use in automotive applications

3. Applications

- Rectification
- Circuit protection
- Polarity protection
- Switched-mode power supplies

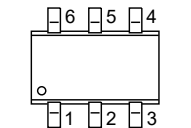
4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
I_F	forward current		-	-	1	A
V_R	reverse voltage		-	-	25	V
V_F	forward voltage	$I_F = 1\text{ A}$; $T_{\text{amb}} = 25\text{ °C}$	-	400	450	mV

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	A	anode	 TSOP6 (SOT457)	 sym001
2	K	cathode		
3	A	anode		
4	A	anode		
5	K	cathode		
6	A	anode		

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
1PS74SB23-Q	TSOP6	plastic, surface-mounted package (SC-74; TSOP6); 6 leads	SOT457

7. Marking

Table 4. Marking codes

Type number	Marking code
1PS74SB23-Q	P1

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			-	25	V
I_F	forward current			-	1	A
I_{FSM}	non-repetitive peak forward current	$t_p = 8.3\text{ ms}$; half sine-wave; $T_{j(\text{init})} = 25\text{ }^{\circ}\text{C}$	[1]	-	25	A
I_{RSM}	non-repetitive peak reverse current	$t_p = 100\text{ }\mu\text{s}$		-	0.5	A
T_j	junction temperature			-	125	$^{\circ}\text{C}$
T_{amb}	ambient temperature			-55	125	$^{\circ}\text{C}$
T_{stg}	storage temperature			-65	150	$^{\circ}\text{C}$

[1] Pins 1, 3, 4 and 6 are connected in parallel; pins 2 and 5 are connected in parallel.

9. Thermal characteristics

Table 6. Thermal characteristics

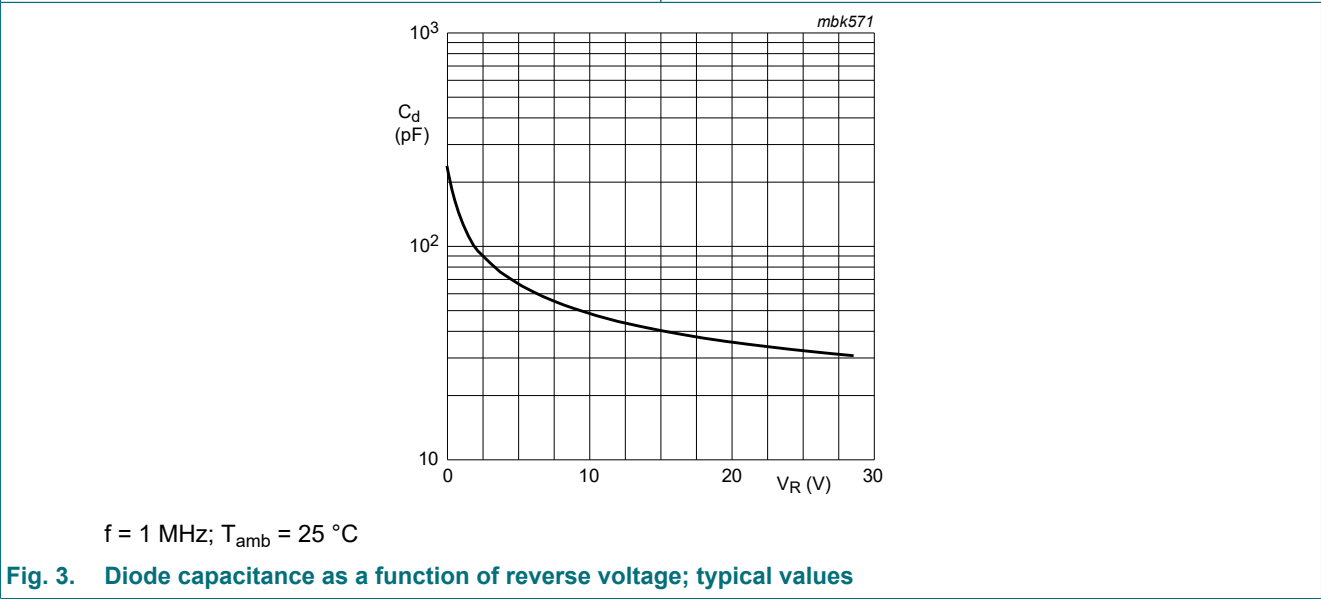
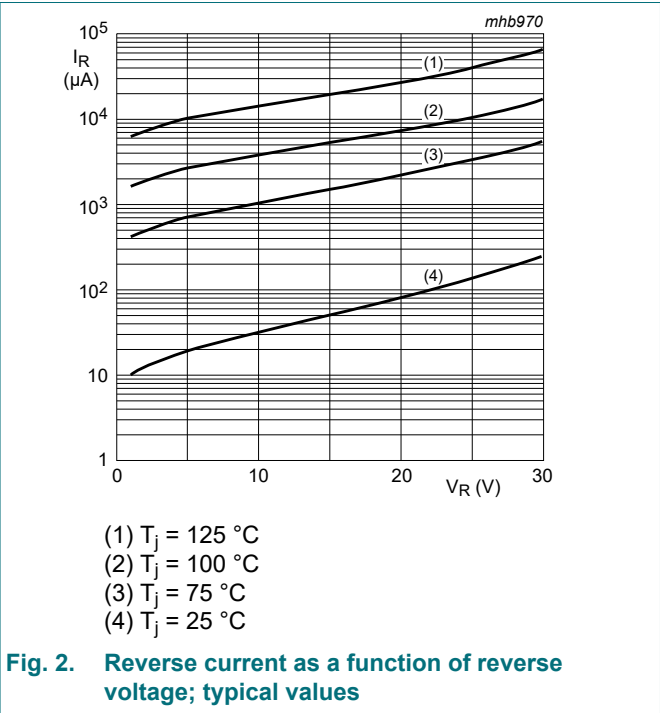
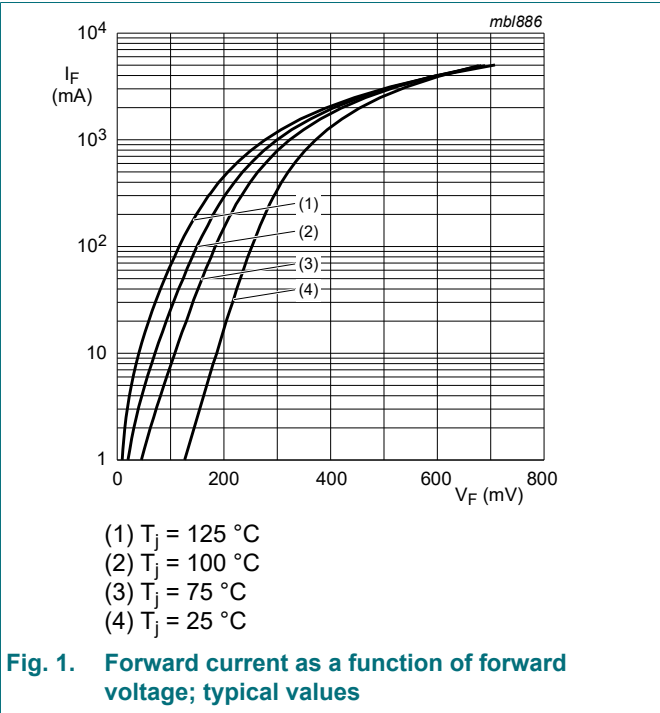
Symbol	Parameter	Conditions		Min	Typ	Max	Unit
$R_{\text{th}(j-a)}$	thermal resistance from junction to ambient	in free air	[1]	-	-	250	K/W

[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	$I_F = 100\text{ mA}; T_{\text{amb}} = 25\text{ }^{\circ}\text{C}$	-	260	300	mV
		$I_F = 1\text{ A}; T_{\text{amb}} = 25\text{ }^{\circ}\text{C}$	-	400	450	mV
I_R	reverse current	$V_R = 20\text{ V}; \text{pulsed}; t_p = 300\text{ }\mu\text{s}; \delta = 0.02; T_{\text{amb}} = 25\text{ }^{\circ}\text{C}$	-	80	500	μA
		$V_R = 25\text{ V}; \text{pulsed}; t_p = 300\text{ }\mu\text{s}; \delta = 0.02; T_{\text{amb}} = 25\text{ }^{\circ}\text{C}$	-	-	1	mA
C_d	diode capacitance	$V_R = 4\text{ V}; f = 1\text{ MHz}; T_{\text{amb}} = 25\text{ }^{\circ}\text{C}$	-	100	-	pF

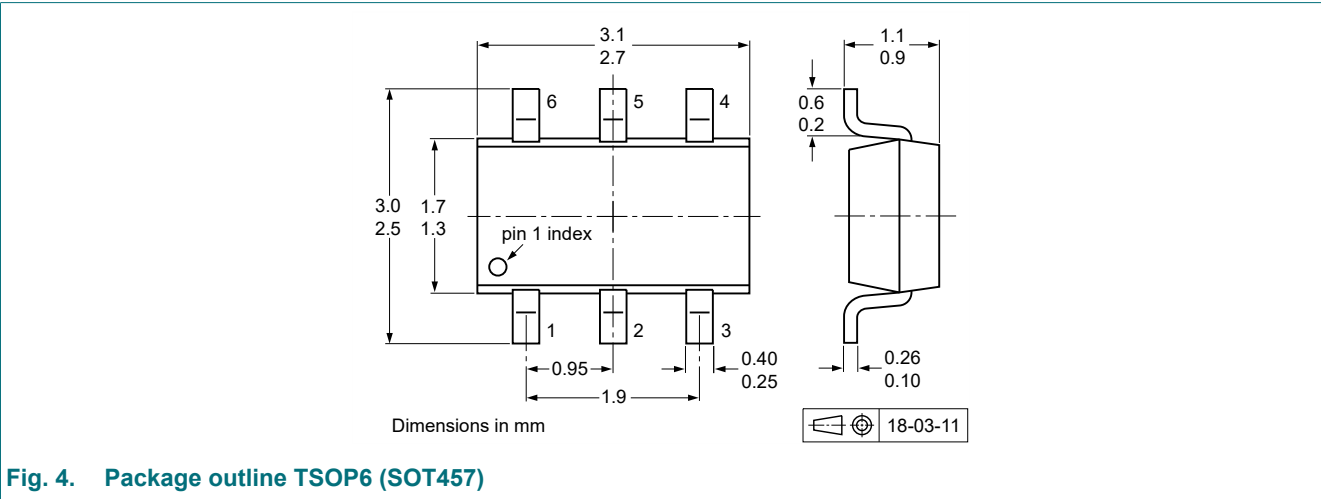


11. Test information

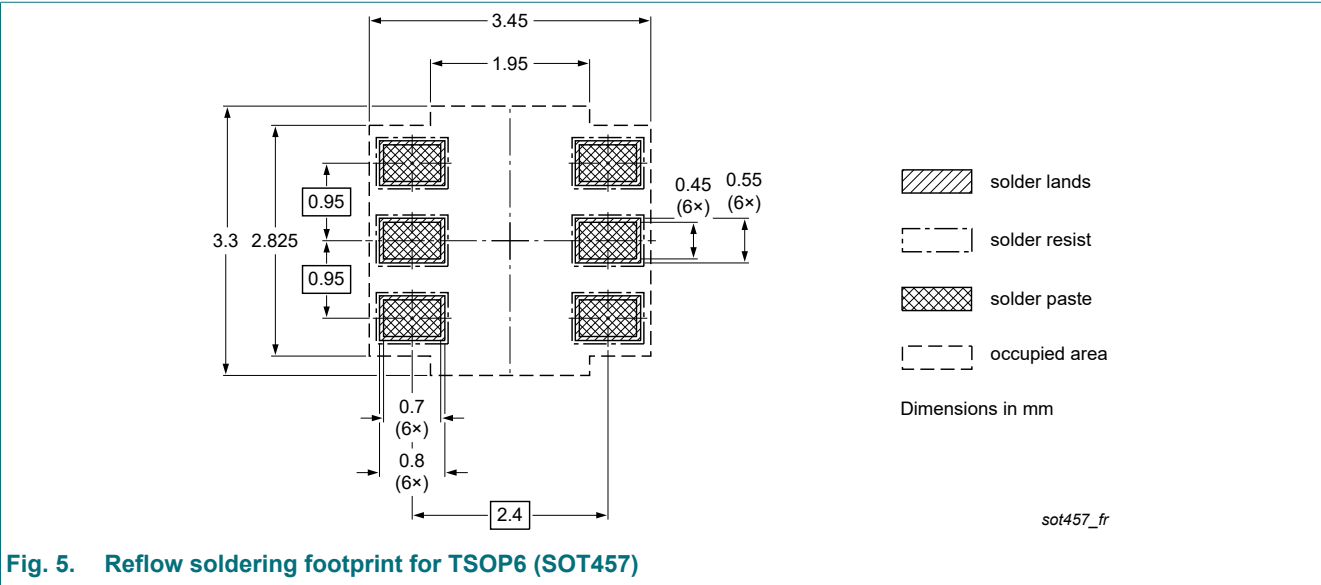
Quality information

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



13. Soldering



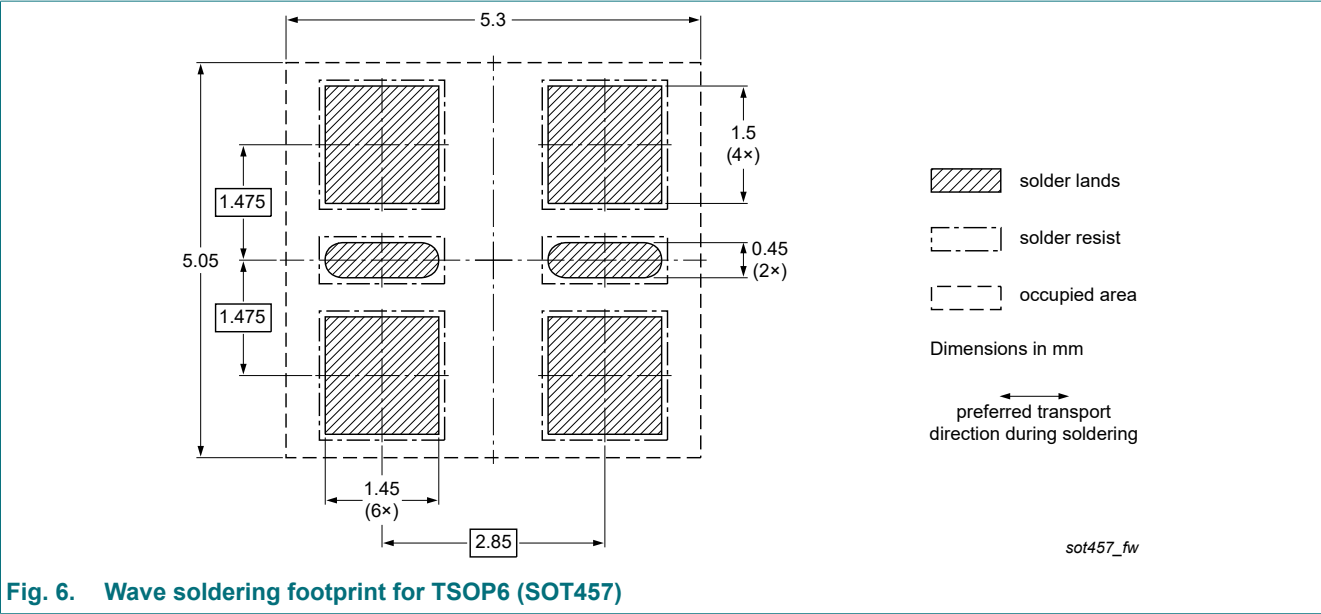


Fig. 6. Wave soldering footprint for TSOP6 (SOT457)

14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
1PS74SB23-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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Date of release: 7 March 2025