Product data sheet

1. General description

Planar Schottky barrier diode with an integrated guard ring for stress protection, encapsulated in a very small SOT323 Surface-Mounted Device (SMD) plastic package.

2. Features and benefits

- Low forward voltage
- Low capacitance
- AEC-Q101 qualified

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	Тур	Max	Unit
I _F	forward current		-	-	200	mA
V _R	reverse voltage		-	-	30	V
V _F	forward voltage	I_F = 10 mA; T_{amb} = 25 °C	-	-	400	mV

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	Α	anode	3	K I
2	n.c.	not connected		A n.c.
3	K	cathode	1	aaa-005805



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6. Ordering information

Table 3. Ordering information

Type number		Package					
		Name	Description	Version			
1PS70SB1	0	SC-70	plastic surface-mounted package; 3 leads	SOT323			

7. Marking

Table 4. Marking codes

Type number	Marking code [1]
1PS70SB10	7%0

^{[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		-	30	V
I _F	forward current		-	200	mA
I _{FRM}	repetitive peak forward current	$t_p \le 1 \text{ s}; \ \delta \le 0.5$	-	300	mA
I _{FSM}	non-repetitive peak forward current	t_p < 10 ms; $T_{j(init)}$ = 25 °C	-	600	mA
P _{tot}	total power dissipation	T _{amb} < 25 °C	-	200	mW
Tj	junction temperature		-	150	°C
T _{amb}	ambient temperature		-55	150	°C
T _{stg}	storage temperature		-65	150	°C

9. Thermal characteristics

Table 6. Thermal characteristics

Symbol	Parameter	Conditions		Min	Тур	Max	Unit
R _{th(j-a)}	thermal resistance from junction to ambient	in free air	[1]	-	-	625	K/W

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

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10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions	Min	Тур	Max	Unit
V _F	forward voltage	I _F = 0.1 mA; T _{amb} = 25 °C	-	-	240	mV
		I _F = 1 mA; T _{amb} = 25 °C	-	-	320	mV
		I _F = 10 mA; T _{amb} = 25 °C	-	-	400	mV
		I _F = 30 mA; T _{amb} = 25 °C	-	-	500	mV
		I _F = 100 mA; T _{amb} = 25 °C	-	-	800	mV
I _R	reverse current	V_R = 25 V; pulsed; t_p = 300 µs; δ = 0.02; T_{amb} = 25 °C	-	-	2	μΑ
C _d	diode capacitance	V _R = 1 V; f = 1 MHz; T _{amb} = 25 °C	-	-	10	pF

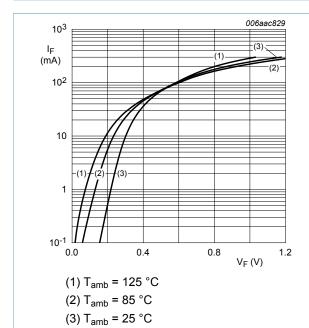
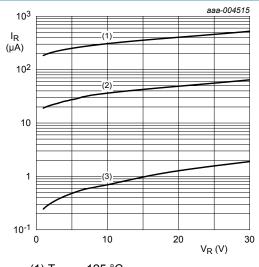


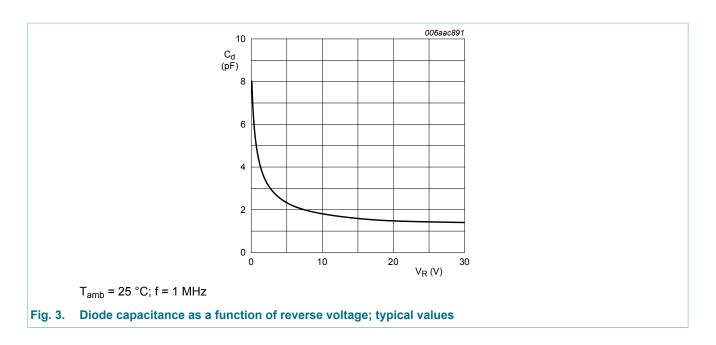
Fig. 1. Forward current as a function of forward voltage; typical values



- (1) $T_{amb} = 125 \, ^{\circ}C$
- (2) $T_{amb} = 85 \, ^{\circ}C$
- (3) $T_{amb} = 25 \, ^{\circ}C$

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

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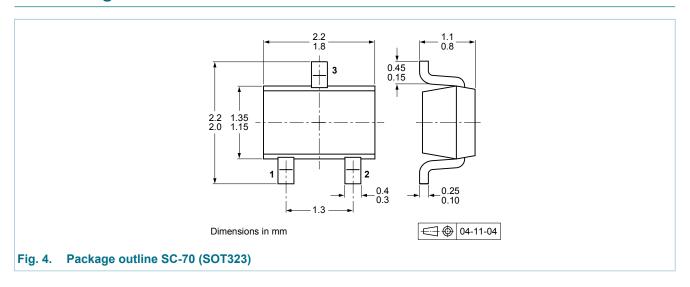


11. Test information

11.1 Quality information

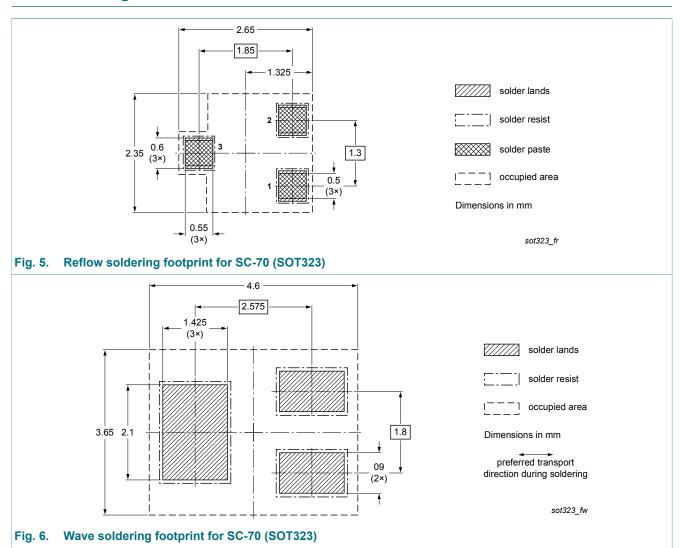
This product has been qualified in accordance with the Automotive Electronics Council (AEC) standard Q101 - Stress test qualification for discrete semiconductors, and is suitable for use in automotive applications.

12. Package outline



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13. Soldering



14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
1PS70SB10 v.2	20121217	Product data sheet	-	1PS70SB10_14_15_16 v.1

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Data sheet ID	Release date	Data sheet status	Change notice	Supersedes		
Modifications:	 The format of this document has been redesigned to comply with the new identity guidelines of NXP Semiconductors. Legal texts have been adapted to the new company name where appropriate. Sections 1 to 3 updated Section 4 "Quick reference data" added 					
	 Section 6 "Ordering information" added Section 7 "Marking" updated Table 5 "Limiting values": ambient temperature T_{amb} and junction temperature T_j minimum value updated 					
	 Figues 1, 2 and 3 up Section 11 "Test info Figure 4: supersede Section 13 "Soldering Section 14 "Legal info 	ormation" added ed by minimized package ng" added	outline drawing			
1PS70SB10_14_15_16 v.1	19990426	Product data sheet	-	-		

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15. Legal information

15.1 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.

- Please consult the most recently issued document before initiating or completing a design.
- [2] The term 'short data sheet' is explained in section "Definitions".
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