**Product data sheet** 

# 1. General description

Dual Planar Schottky barrier diode in series configuration 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	Тур	Max	Unit
Per diode						
I <sub>F</sub>	forward current		-	-	200	mA
V <sub>R</sub>	reverse voltage		-	-	30	V
V <sub>F</sub>	forward voltage	I <sub>F</sub> = 10 mA; T <sub>amb</sub> = 25 °C	-	-	400	mV

# 5. Pinning information

**Table 2. Pinning information** 

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	A1	anode (diode1)	3	
2	K2	cathode (diode2)		K1, A2
3	K1, A2	cathode (diode 1) and anode (diode 2)		A1 K2
			1 2 SC-70 (SOT323)	aaa-004973



**Dual Schottky barrier diode** 

# 6. Ordering information

#### **Table 3. Ordering information**

Type number	Package				
	Name	Description	Version		
1PS70SB14-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]
1PS70SB14-Q	7%4

<sup>[1] % =</sup> 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			
Per diode	Per diode							
V <sub>R</sub>	reverse voltage		-	30	V			
I <sub>F</sub>	forward current		-	200	mA			
I <sub>FRM</sub>	repetitive peak forward current	$t_p \le 1 \text{ s}; \delta \le 0.5$	-	300	mA			
I <sub>FSM</sub>	non-repetitive peak forward current	$t_p < 10 \text{ ms}; T_{j(init)} = 25 \text{ °C}$	-	600	mA			
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> < 25 °C	-	200	mW			
Tj	junction temperature		-	150	°C			
T <sub>amb</sub>	ambient temperature		-55	150	°C			
T <sub>stg</sub>	storage temperature		-65	150	°C			

## 9. Thermal characteristics

#### **Table 6. Thermal characteristics**

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

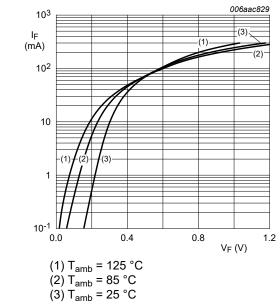
<sup>[1]</sup> Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint.

### **Dual Schottky barrier diode**

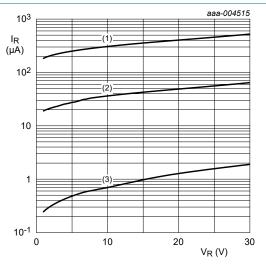
## 10. Characteristics

**Table 7. Characteristics** 

Symbol	Parameter	Conditions	Min	Тур	Max	Unit
Per diode						
V <sub>F</sub>	forward voltage	I <sub>F</sub> = 0.1 mA; T <sub>amb</sub> = 25 °C	-	-	240	mV
		I <sub>F</sub> = 1 mA; T <sub>amb</sub> = 25 °C	-	-	320	mV
		I <sub>F</sub> = 10 mA; T <sub>amb</sub> = 25 °C	-	-	400	mV
		I <sub>F</sub> = 30 mA; T <sub>amb</sub> = 25 °C	-	-	500	mV
		I <sub>F</sub> = 100 mA; T <sub>amb</sub> = 25 °C	-	-	800	mV
I <sub>R</sub>	reverse current	$V_R$ = 25 V; pulsed; $t_p$ = 300 $\mu$ s; $\delta$ = 0.02; $T_{amb}$ = 25 °C	-	-	2	μΑ
C <sub>d</sub>	diode capacitance	V <sub>R</sub> = 1 V; f = 1 MHz; T <sub>amb</sub> = 25 °C	-	-	10	pF





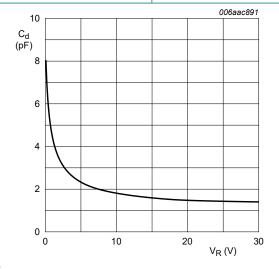


(1)  $T_{amb} = 125 \, ^{\circ}C$ 

(2)  $T_{amb} = 85 \, ^{\circ}C$ 

(3)  $T_{amb} = 25 \, ^{\circ}C$ 

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



 $T_{amb}$  = 25 °C; f = 1 MHz

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

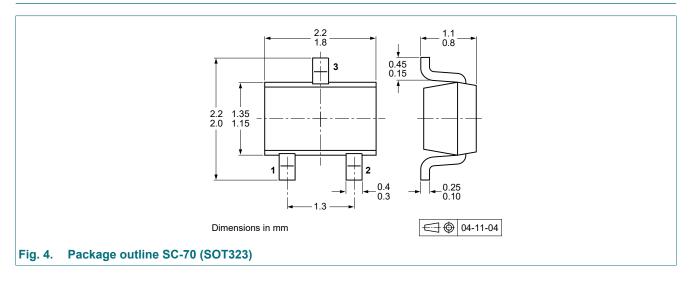
**Dual Schottky barrier diode** 

## 11. Test information

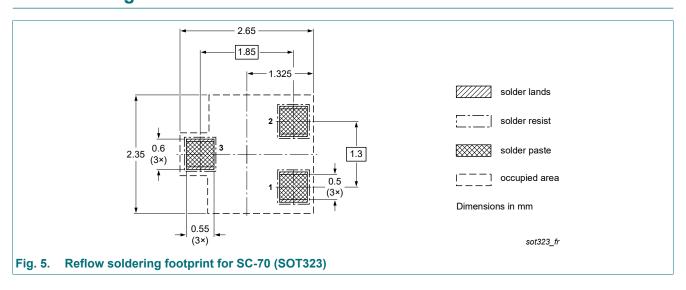
#### **Quality information**

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.

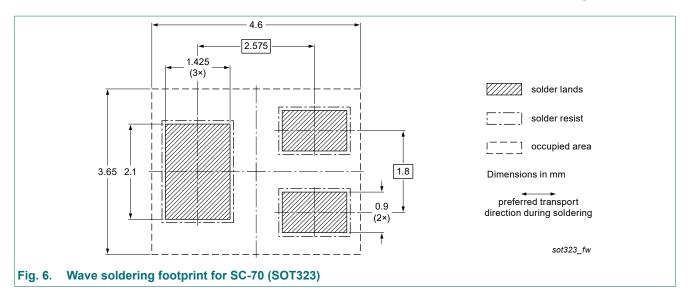
# 12. Package outline



## 13. Soldering



## **Dual Schottky barrier diode**



**Dual Schottky barrier diode** 

# 14. Revision history

### **Table 8. Revision history**

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
1PS70SB14-Q v.1	20241028	Product data sheet	-	-

#### **Dual Schottky barrier diode**

## 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.

- Please consult the most recently issued document before initiating or completing a design.
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