



BAS321-Q

General purpose diode

29 January 2025

Product data sheet

1. General description

General purpose diode fabricated in planar technology and encapsulated in a very small SOD323 (SC-76) plastic package.

2. Features and benefits

- Small plastic SMD package
- Switching speed: max. 50 ns
- General application
- Continuous reverse voltage: max. 200 V
- Repetitive peak reverse voltage: max. 250 V
- Repetitive peak forward current: max. 625 mA
- Qualified according to AEC-Q101 and recommended for use in automotive applications

3. Applications

- General purpose switching in surface mounted circuits

4. Quick reference data


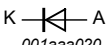
Table 1. Quick reference data

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
I_F	forward current		[1]	-	-	250	mA
V_R	reverse voltage			-	-	200	V
P_{tot}	total power dissipation	$T_{amb} = 25\text{ °C}$	[1]	-	-	300	mW
V_F	forward voltage	$I_F = 200\text{ mA}; T_j = 25\text{ °C}$		-	-	1.25	V
t_{rr}	reverse recovery time	$I_F = 30\text{ mA}; I_R = 30\text{ mA}; R_L = 100\text{ }\Omega;$ $I_{R(meas)} = 3\text{ mA}; T_j = 25\text{ °C}$		-	-	50	ns

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

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	Cathode	 SOD323	 001aaa020
2	A	Anode		

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
BAS321-Q	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
BAS321-Q	A7

8. Limiting values

Table 5. Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions		Min	Max	Unit
V _{RRM}	repetitive peak reverse voltage			-	250	V
V _R	reverse voltage			-	200	V
I _F	forward current		[1]	-	250	mA
I _{FSM}	non-repetitive peak forward current	t _p = 50 µs; square wave; T _{j(init)} = 25 °C		-	14.1	A
		t _p = 10 ms; square wave; T _{j(init)} = 25 °C		-	1.8	A
I _{FRM}	repetitive peak forward current	t _p ≤ 0.5 ms; δ ≤ 0.25		-	625	mA
P _{tot}	total power dissipation	T _{amb} = 25 °C	[1]	-	300	mW
T _j	junction temperature			-	150	°C
T _{stg}	storage temperature			-65	150	°C

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

9. Thermal characteristics

Table 6. Thermal characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
R _{th(j-a)}	thermal resistance from junction to ambient		[1]	-	-	366	K/W
R _{th(j-sp)}	thermal resistance from junction to solder point		[2]	-	-	130	K/W

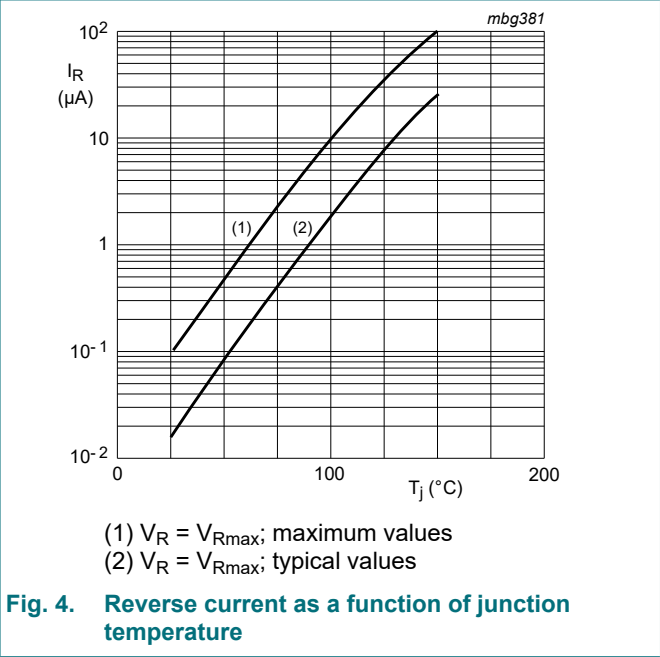
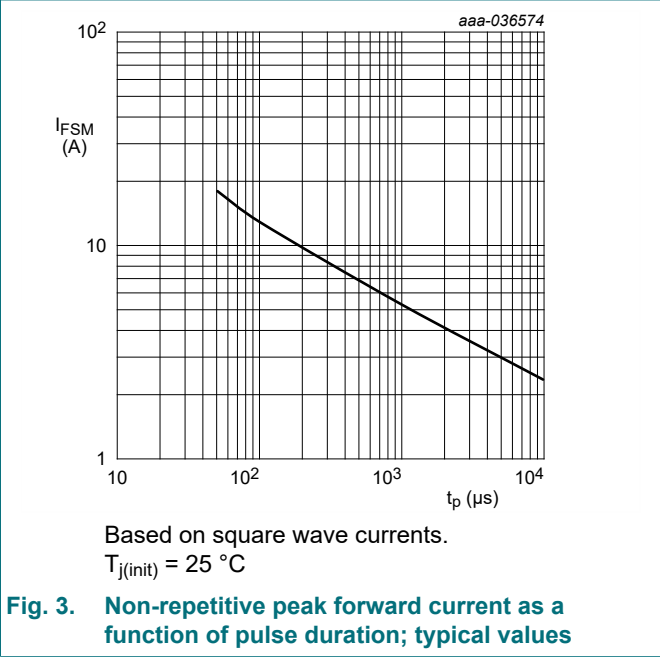
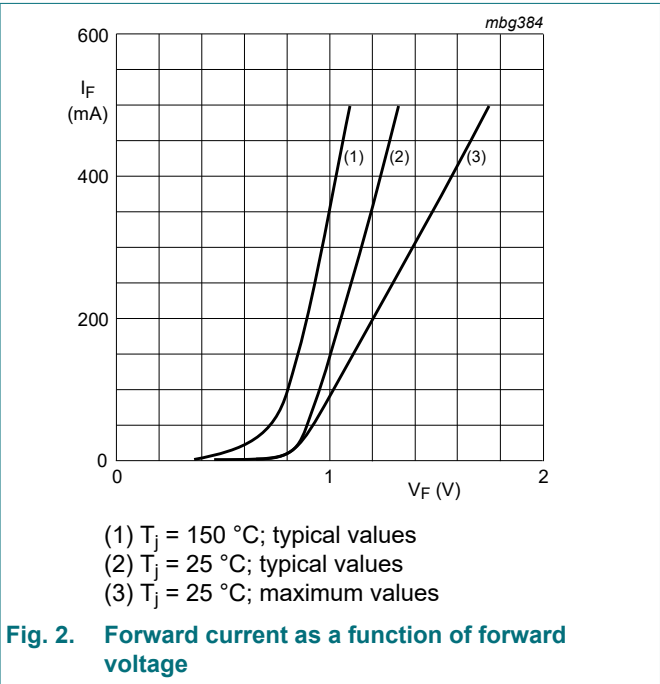
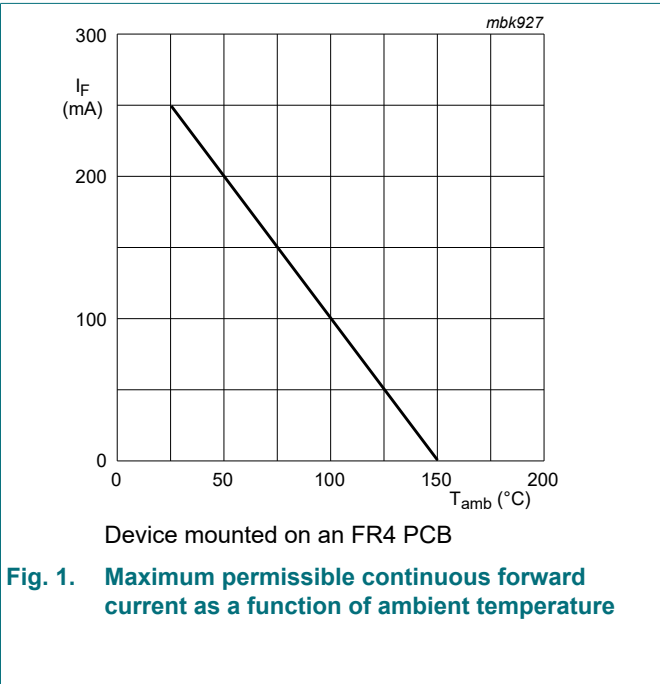
[1] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint.

[2] Soldering point of cathode tab.

10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_F	forward voltage	$I_F = 100\text{ mA}; T_j = 25\text{ }^{\circ}\text{C}$	-	-	1	V
		$I_F = 200\text{ mA}; T_j = 25\text{ }^{\circ}\text{C}$	-	-	1.25	V
I_R	reverse current	$V_R = 200\text{ V}; T_j = 25\text{ }^{\circ}\text{C}$	-	-	100	nA
		$V_R = 200\text{ V}; T_j = 150\text{ }^{\circ}\text{C}$	-	-	100	μA
C_d	diode capacitance	$V_R = 0\text{ V}; f = 1\text{ MHz}; T_j = 25\text{ }^{\circ}\text{C}$	-	-	2	pF
t_{rr}	reverse recovery time	$I_F = 30\text{ mA}; I_R = 30\text{ mA}; R_L = 100\text{ }\Omega;$ $I_{R(\text{meas})} = 3\text{ mA}; T_j = 25\text{ }^{\circ}\text{C}$	-	-	50	ns



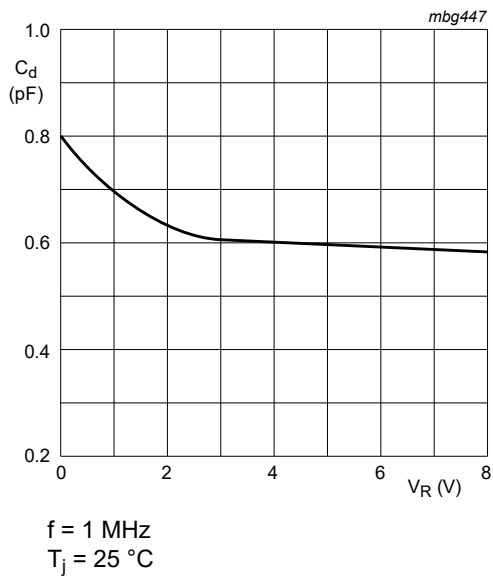


Fig. 5. Diode capacitance as a function of reverse voltage; typical values

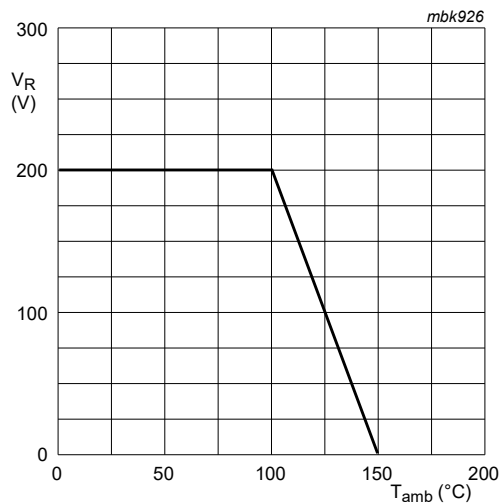


Fig. 6. Maximum permissible continuous reverse voltage as a function of the ambient temperature

11. Test information

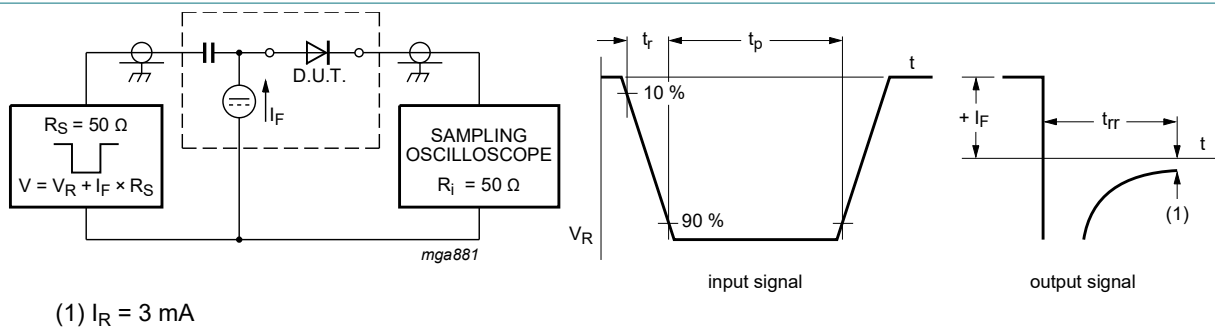
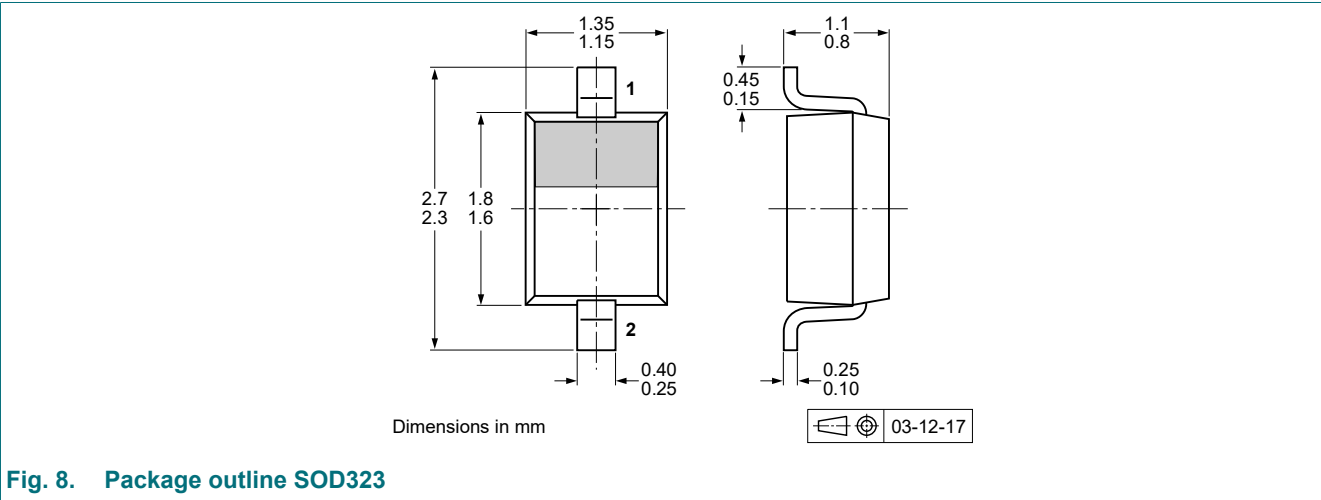


Fig. 7. Reverse recovery time test circuit and waveforms

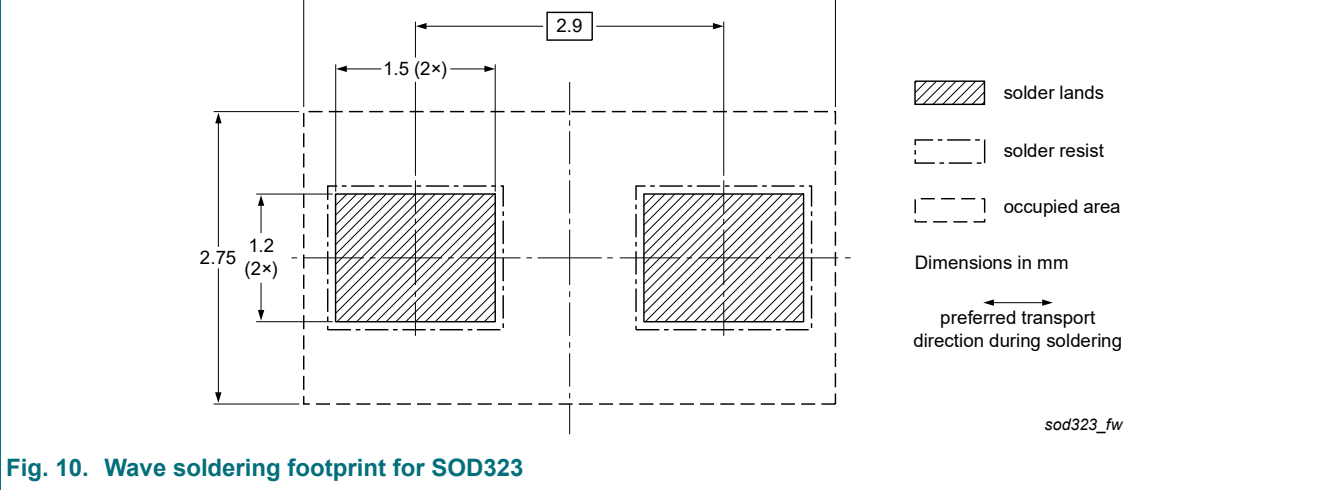
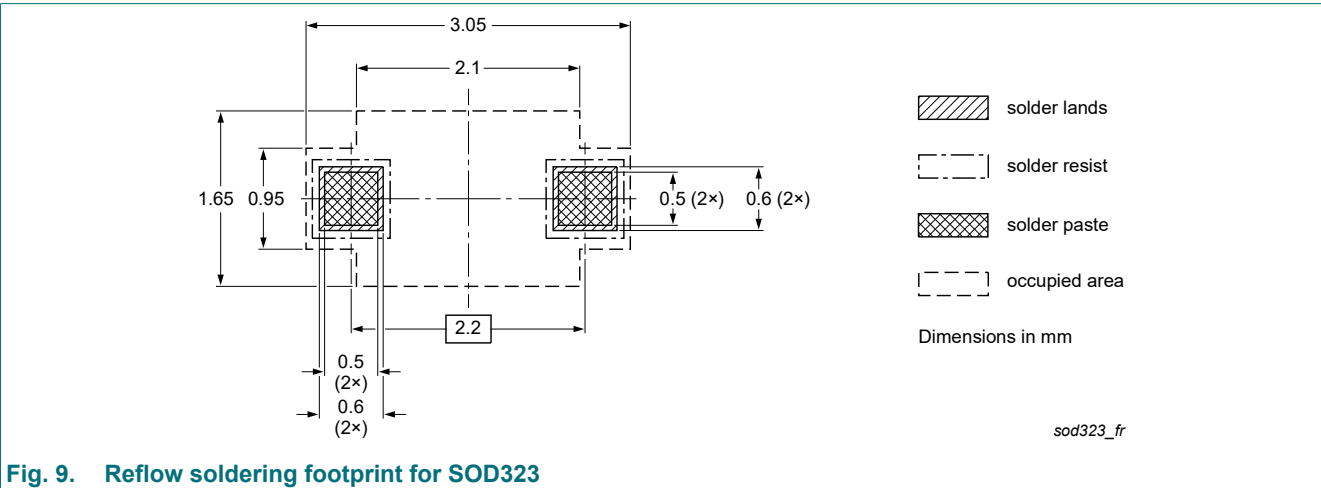
Quality information

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



14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
BAS321-Q v.2	20250129	Product data sheet	-	BAS321-Q v.1
Modifications:	<ul style="list-style-type: none">Limiting values: I_{FSM} values changedCharacteristics Fig. 3: Graph changed			
BAS321-Q v.1	20210602	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.

- [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".
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Date of release: 29 January 2025