



# BAS29

## General purpose switching diode

24 April 2025

Product data sheet

### 1. General description

General purpose switching diode encapsulated in a small SOT23 Surface-Mounted Device (SMD) plastic package.

### 2. Features and benefits

- Small plastic SMD package
- Switching speed: max. 50 ns
- General application
- Continuous reverse voltage: max. 90 V
- Repetitive peak reverse voltage: max. 110 V
- Repetitive peak forward current: max. 600 mA
- Repetitive peak reverse current: max. 600 mA
- AEC-Q101 qualified

### 3. Applications

- General purpose switching in e.g. surface mounted circuits

### 4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$V_R$	reverse voltage		-	-	90	V
$t_{rr}$	reverse recovery time	$I_F = 30 \text{ mA}$ ; $I_R = 30 \text{ mA}$ ; $R_L = 100 \Omega$ ; $I_{R(\text{meas})} = 3 \text{ mA}$ ; $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	-	50	ns
$I_R$	reverse current	$V_R = 90 \text{ V}$ ; $T_j = 150 \text{ }^\circ\text{C}$	-	-	100	$\mu\text{A}$

### 5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	A	anode	<p>SOT23</p>	<p>006aaa764</p>
2	n.c.	not connected		
3	K	cathode		

## 6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
<a href="#">BAS29</a>	SOT23	plastic, surface-mounted package; 3 terminals; 1.9 mm pitch; 2.9 mm x 1.3 mm x 1 mm body	<a href="#">SOT23</a>

## 7. Marking

Table 4. Marking codes

Type number	Marking code[1]
BAS29	%A8

[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
$V_{RRM}$	repetitive peak reverse voltage			-	110	V
$V_R$	reverse voltage			-	90	V
$I_F$	forward current	continuous; per diode		-	250	mA
				-	150	mA
$I_{FSM}$	non-repetitive peak forward current	$t_p = 1 \mu\text{s}$ ; square wave; $T_{j(\text{init})} = 25 \text{ }^\circ\text{C}$		-	10	A
		$t_p = 100 \mu\text{s}$ ; square wave; $T_{j(\text{init})} = 25 \text{ }^\circ\text{C}$		-	4	A
		$t_p = 1 \text{ s}$ ; square wave; $T_{j(\text{init})} = 25 \text{ }^\circ\text{C}$		-	0.75	A
$I_{FRM}$	repetitive peak forward current			-	600	mA
$P_{\text{tot}}$	total power dissipation	$T_{\text{amb}} \leq 25 \text{ }^\circ\text{C}$	[1]	-	250	mW
$T_j$	junction temperature			-	150	$^\circ\text{C}$
$T_{\text{stg}}$	storage temperature			-65	150	$^\circ\text{C}$

[1] Device mounted on an FR4 printed-circuit board.

## 9. Thermal characteristics

Table 6. Thermal characteristics

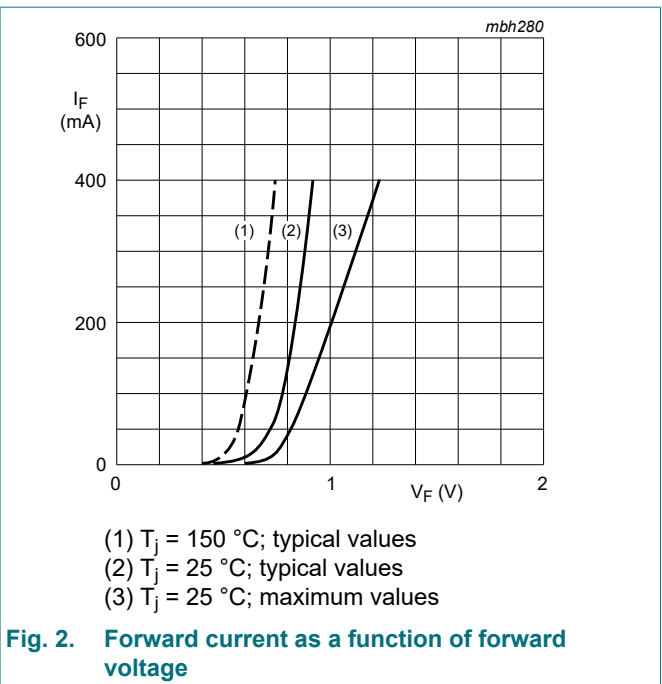
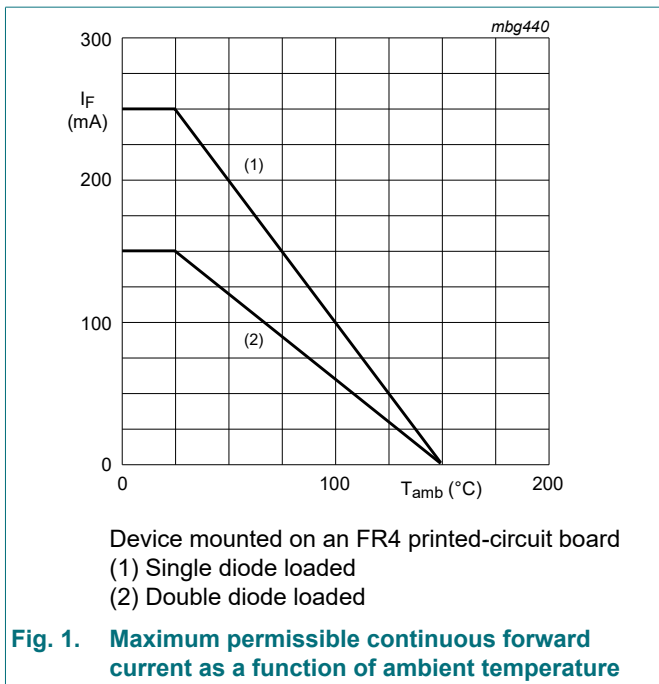
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$R_{th(j-a)}$	thermal resistance from junction to ambient	[1]	-	-	500	K/W
$R_{th(j-sp)}$	thermal resistance from junction to solder point		-	-	360	K/W

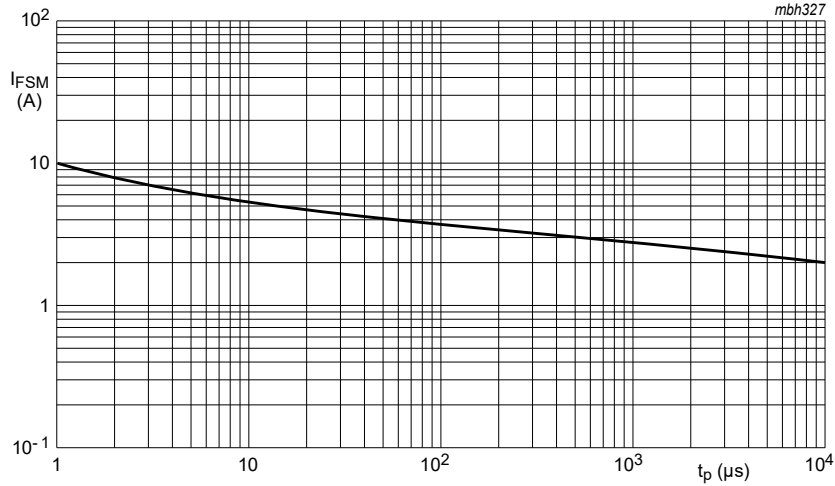
[1] Device mounted on an FR4 printed-circuit board.

## 10. Characteristics

Table 7. Characteristics

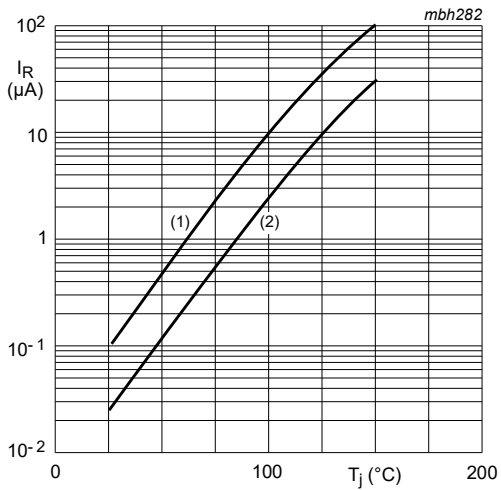
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$V_{(BR)R}$	reverse breakdown voltage	$I_R = 1 \text{ mA}$ ; $T_j = 25 \text{ }^\circ\text{C}$	120	-	170	V
$V_F$	forward voltage	$I_F = 10 \text{ mA}$ ; $T_j = 25 \text{ }^\circ\text{C}$	-	-	750	mV
		$I_F = 50 \text{ mA}$ ; $T_j = 25 \text{ }^\circ\text{C}$	-	-	840	mV
		$I_F = 100 \text{ mA}$ ; $T_j = 25 \text{ }^\circ\text{C}$	-	-	900	mV
		$I_F = 200 \text{ mA}$ ; $T_j = 25 \text{ }^\circ\text{C}$	-	-	1	V
		$I_F = 400 \text{ mA}$ ; $T_j = 25 \text{ }^\circ\text{C}$	-	-	1.25	V
$I_R$	reverse current	$V_R = 90 \text{ V}$ ; $T_j = 25 \text{ }^\circ\text{C}$	-	-	100	nA
		$V_R = 90 \text{ V}$ ; $T_j = 150 \text{ }^\circ\text{C}$	-	-	100	$\mu\text{A}$
$C_d$	diode capacitance	$V_R = 0 \text{ V}$ ; $f = 1 \text{ MHz}$ ; $T_{amb} = 25 \text{ }^\circ\text{C}$	-	-	35	pF
$t_{rr}$	reverse recovery time	$I_F = 30 \text{ mA}$ ; $I_R = 30 \text{ mA}$ ; $R_L = 100 \text{ }\Omega$ ; $I_{R(meas)} = 3 \text{ mA}$ ; $T_{amb} = 25 \text{ }^\circ\text{C}$	-	-	50	ns
$I_{RM}$	peak reverse recovery current		-	-	600	mA





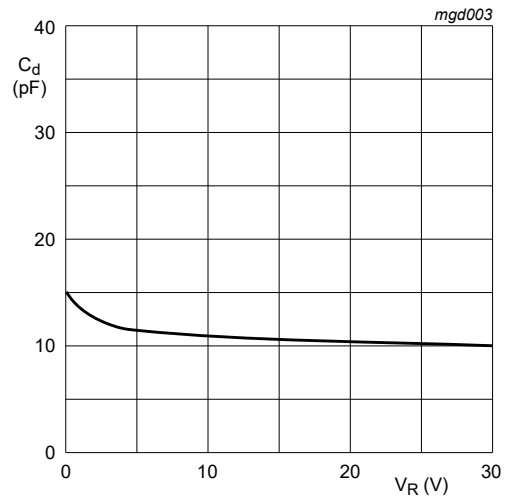
Based on square wave currents  
 $T_j = 25^\circ C$  prior to surge

**Fig. 3. Maximum permissible non-repetitive peak forward current as a function of pulse duration**



(1)  $V_R = 90$  V; maximum values  
 (2)  $V_R = 90$  V; typical values

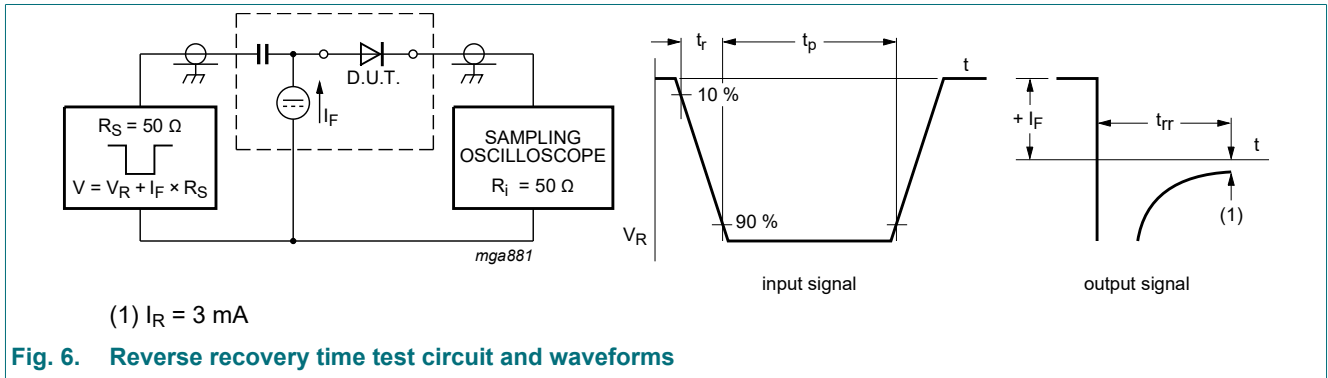
**Fig. 4. Reverse current as a function of junction temperature**



$f = 1$  MHz  
 $T_j = 25^\circ C$

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

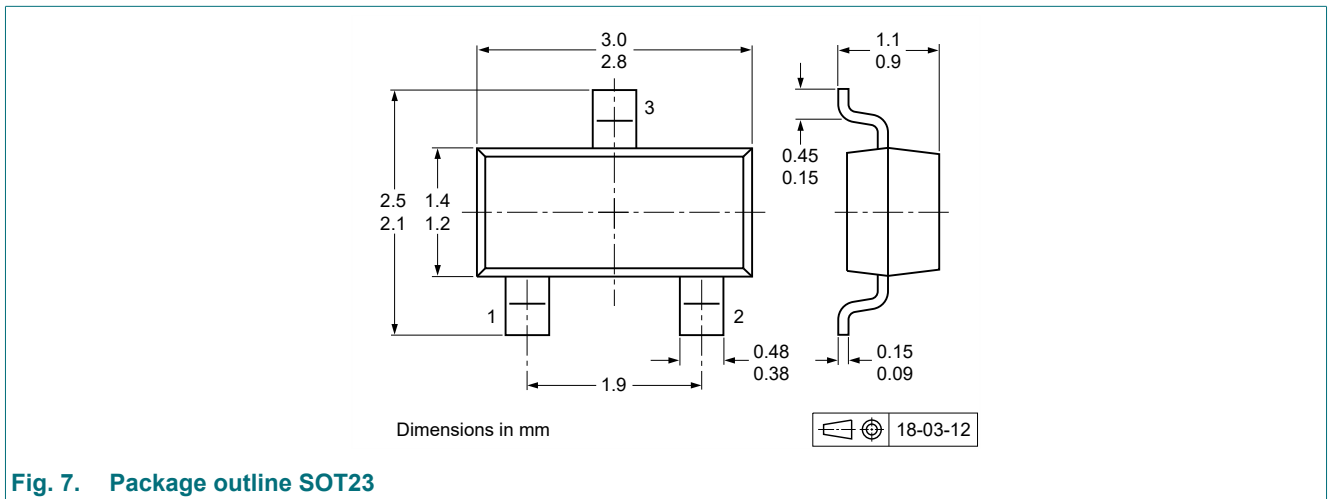
### 11. Test information



#### 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

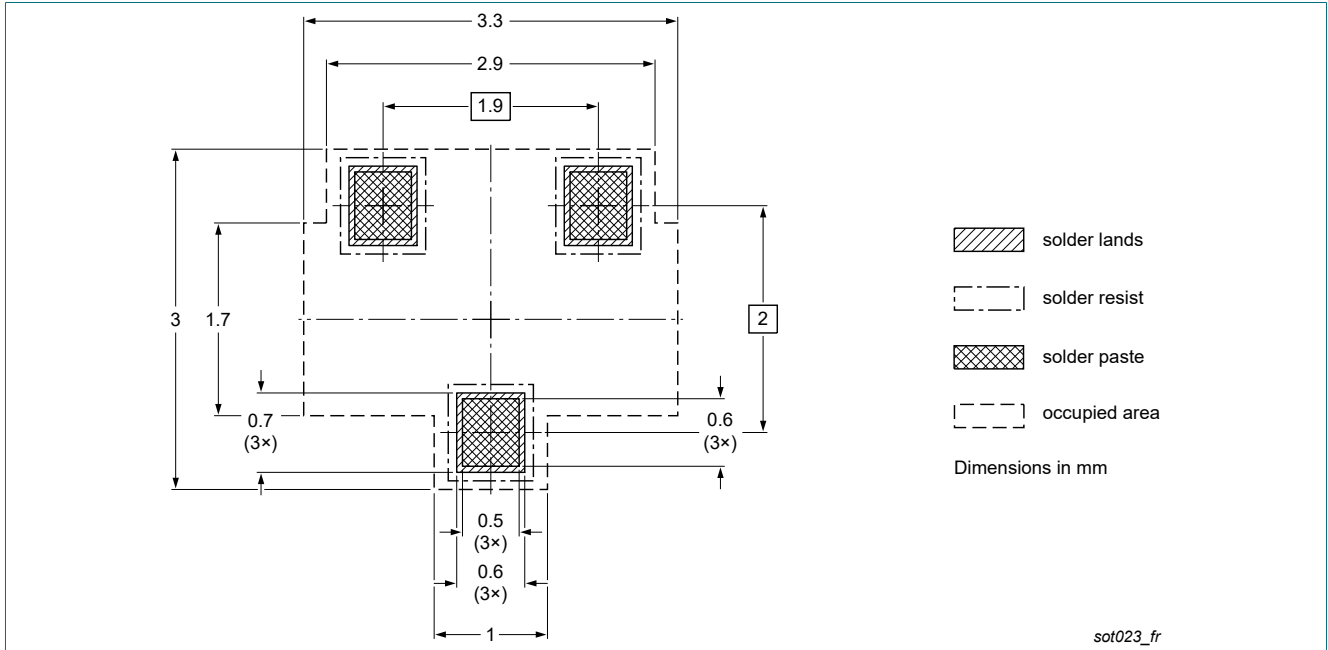


Fig. 8. Reflow soldering footprint for SOT23

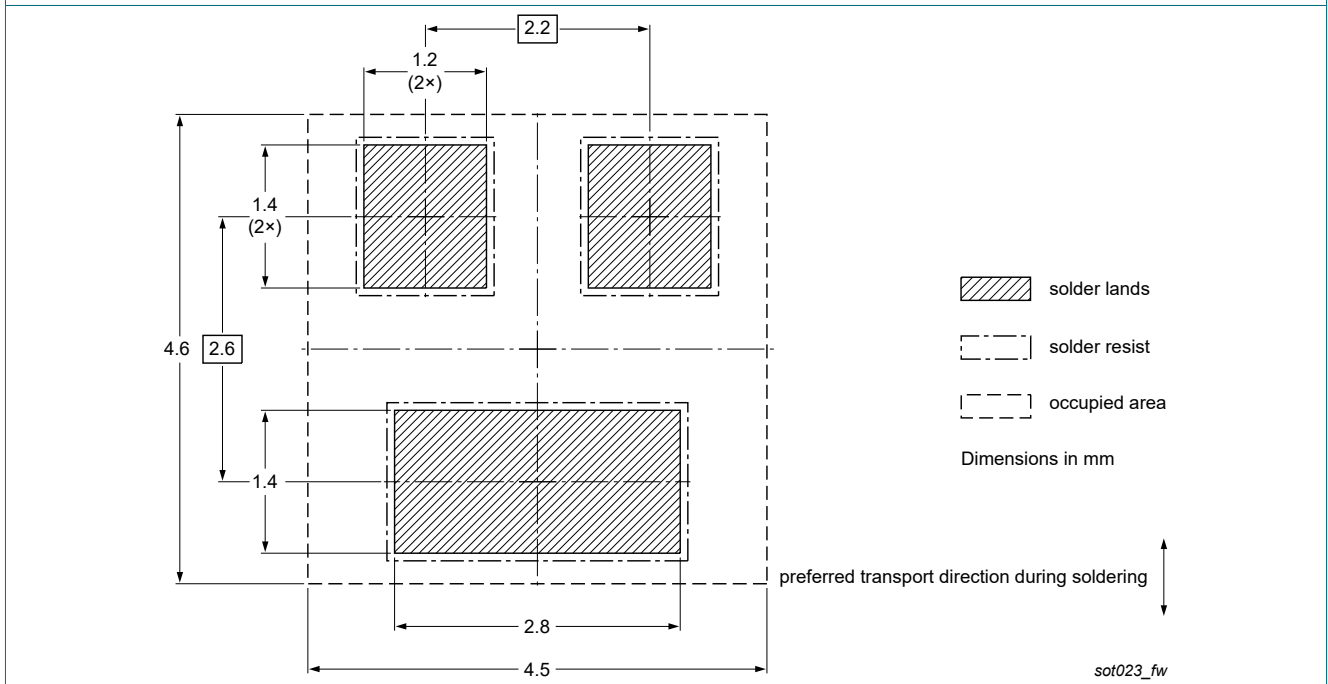


Fig. 9. Wave soldering footprint for SOT23

## 14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
BAS29 v.3	20250424	Product data sheet	-	BAS29_31_35 v.2
Modifications:	<ul style="list-style-type: none"><li>• The format of this data sheet has been redesigned to comply with the identity guidelines of Nexperia.</li><li>• Legal texts have been adapted to the new company name where appropriate.</li><li>• Family data sheet split to single type data sheets.</li></ul>			
BAS29_31_35 v.2	20030320	Product data sheet	-	BAS29_31_35 v.1
BAS29_31_35 v.1	20010910	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".
- [3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the internet at <https://www.nexperia.com>.

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