



# BAS16LD-Q

## Single high-speed switching diode

11 June 2024

Product data sheet

## 1. General description

Single high-speed switching diode, encapsulated in a SOD882D leadless ultra small Surface-Mounted Device (SMD) plastic package with visible and solderable side pads.

## 2. Features and benefits

- High switching speed:  $t_{rr} \leq 4$  ns
- Low capacitance
- Low leakage current
- Reverse voltage:  $V_R \leq 100$  V
- Repetitive peak reverse voltage:  $V_{RRM} \leq 100$  V
- Ultra small and leadless SMD plastic package
- Solderable side pads
- Qualified according to AEC-Q101 and recommended for use in automotive applications

## 3. Applications

- High-speed switching
- General-purpose switching

## 4. Quick reference data

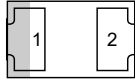
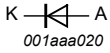
Table 1. Quick reference data

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
$I_F$	forward current		[1]	-	-	215	mA
$I_R$	reverse current	$V_R = 80$ V; $T_{amb} = 25$ °C		-	-	0.5	µA
$V_R$	reverse voltage			-	-	100	V
$t_{rr}$	reverse recovery time	$I_F = 10$ mA; $I_R = 10$ mA; $R_L = 100$ Ω; $I_{R(meas)} = 1$ mA; $T_{amb} = 25$ °C		-	-	4	ns

[1] Device mounted on an FR4 Printed-Circuit Board (PCB) with 60 µm copper strip line.

## 5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	Cathode	 <p>Transparent top view</p> <p><b>DFN1006D-2 (SOD882D)</b></p>	 <p>001aaa020</p>
2	A	Anode		

## 6. Ordering information

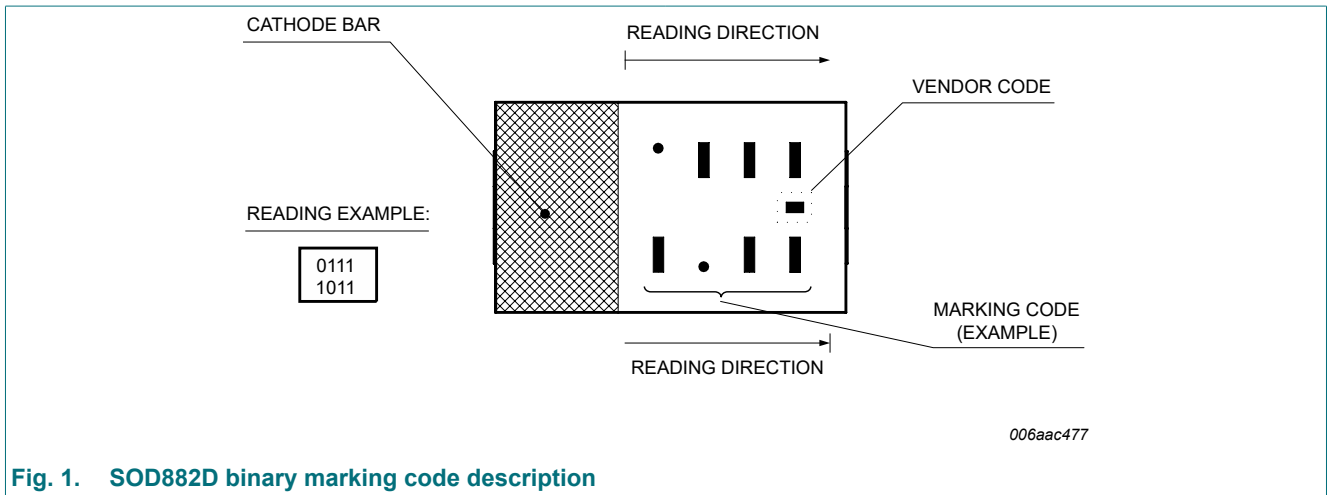
Table 3. Ordering information

Type number	Package		
	Name	Description	Version
<a href="#">BAS16LD-Q</a>	DFN1006D-2	leadless ultra small plastic package with side-wettable flanks (SWF); 2 terminals; 0.65 mm pitch; 1 mm x 0.6 mm x 0.4 mm body	<a href="#">SOD882D</a>

## 7. Marking

Table 4. Marking codes

Type number	Marking code
BAS16LD-Q	1000 0000



## 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			-	100	V
$V_R$	reverse voltage			-	100	V
$I_F$	forward current		[1]	-	215	mA
$I_{FSM}$	non-repetitive peak forward current	$t_p = 1 \mu\text{s}$ ; square wave; $T_{j(\text{init})} = 25 \text{ }^\circ\text{C}$	[2]	-	4	A
		$t_p = 1 \text{ ms}$ ; square wave; $T_{j(\text{init})} = 25 \text{ }^\circ\text{C}$	[2]	-	1	A
		$t_p = 1 \text{ s}$ ; square wave; $T_{j(\text{init})} = 25 \text{ }^\circ\text{C}$	[2]	-	0.5	A
$I_{FRM}$	repetitive peak forward current	$t_p \leq 0.5 \mu\text{s}$ ; $\delta \leq 0.25$		-	500	mA
$P_{\text{tot}}$	total power dissipation	$T_{\text{amb}} \leq 25 \text{ }^\circ\text{C}$	[1]	-	250	mW
$T_j$	junction temperature			-	150	$^\circ\text{C}$
$T_{\text{amb}}$	ambient temperature			-55	150	$^\circ\text{C}$
$T_{\text{stg}}$	storage temperature			-65	150	$^\circ\text{C}$

[1] Device mounted on an FR4 Printed-Circuit Board (PCB) with 60  $\mu\text{m}$  copper strip line.

[2] Reflow soldering is the only recommended soldering method.

## 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] [2]	-	-	500	K/W

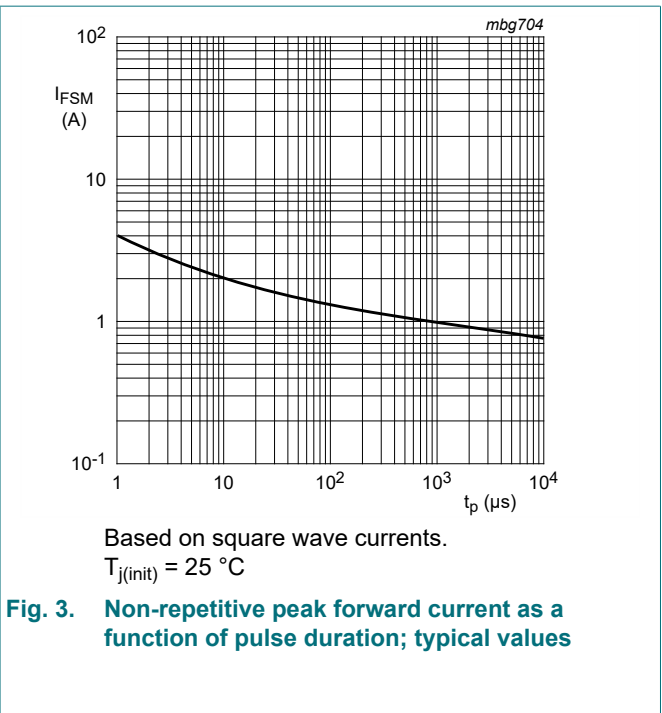
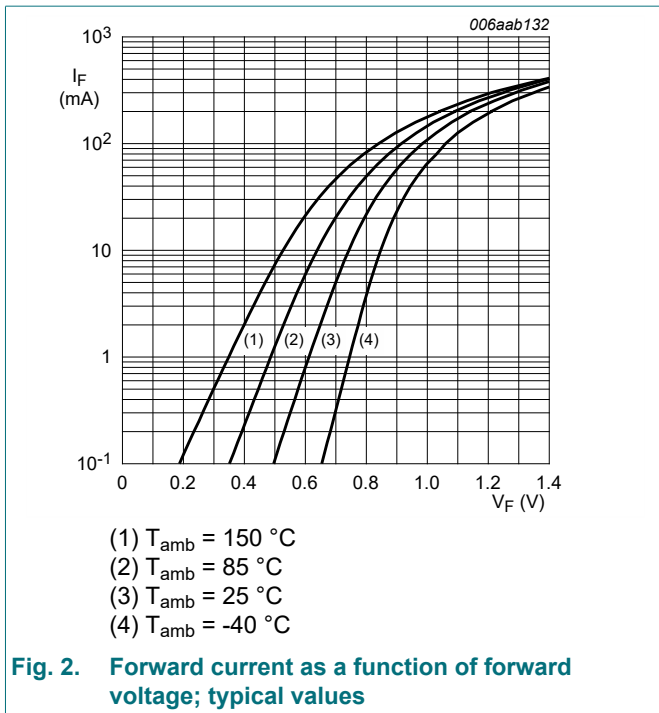
[1] Device mounted on an FR4 PCB with 60  $\mu\text{m}$  copper strip line.

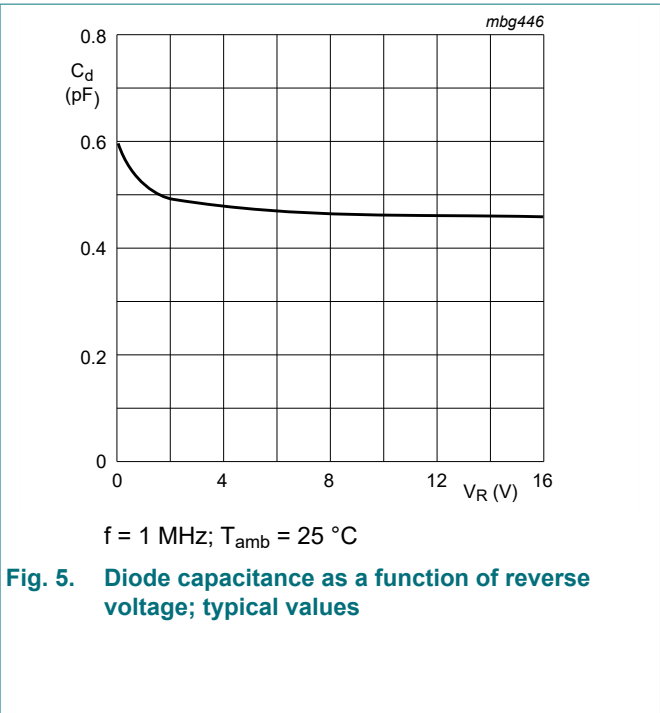
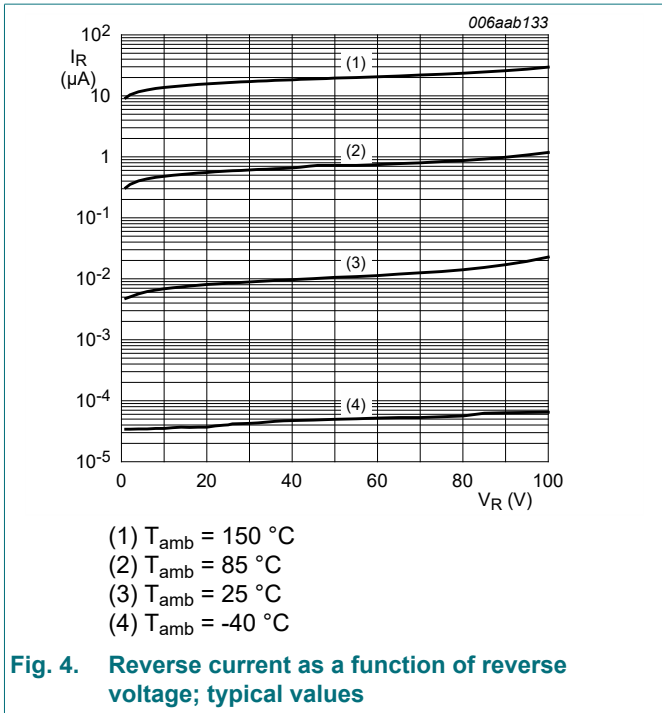
[2] Reflow soldering is the only recommended soldering method.

## 10. Characteristics

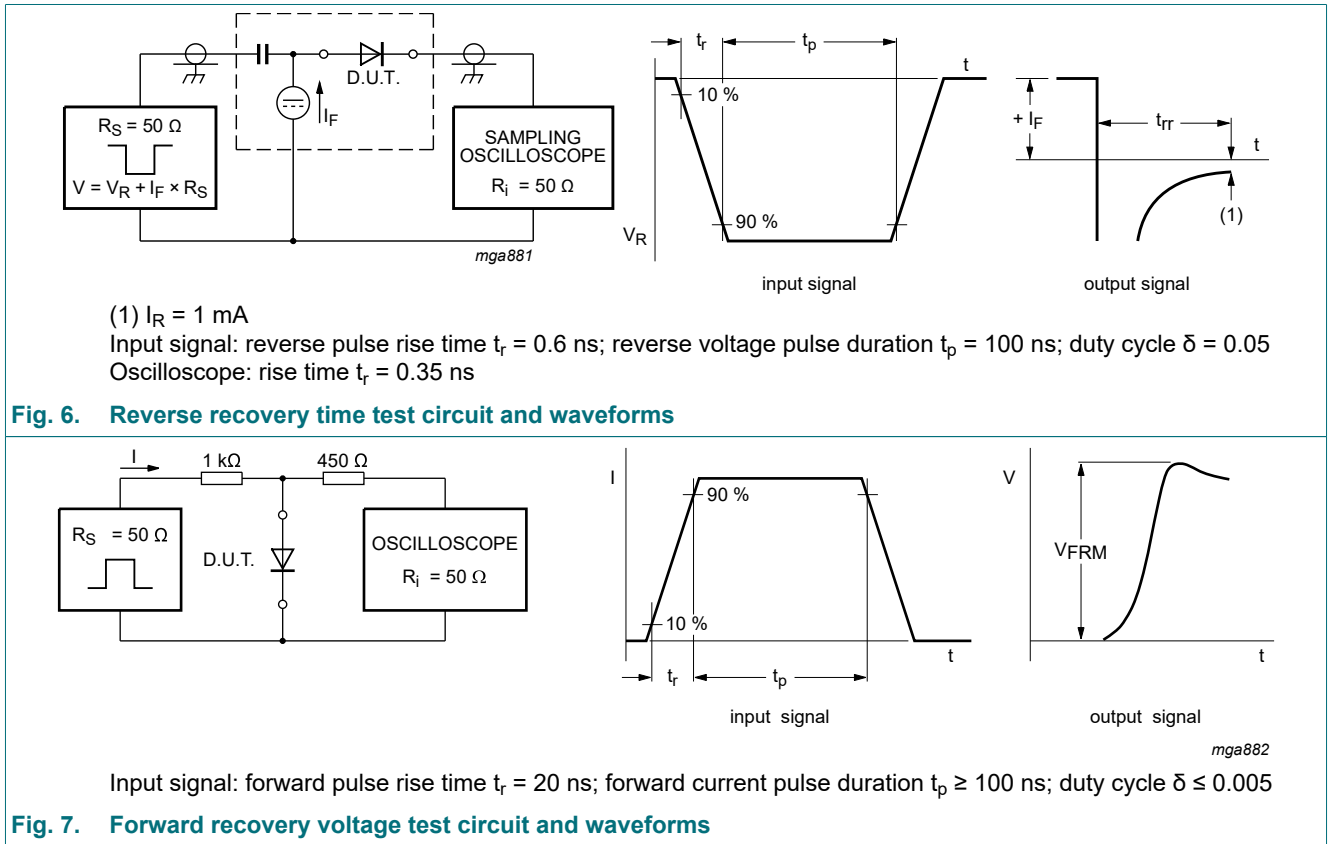
Table 7. Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V <sub>F</sub>	forward voltage	I <sub>F</sub> = 1 mA; t <sub>p</sub> ≤ 300 μs; δ ≤ 0.02; pulsed; T <sub>amb</sub> = 25 °C	-	-	715	mV
		I <sub>F</sub> = 10 mA; t <sub>p</sub> ≤ 300 μs; δ ≤ 0.02; pulsed; T <sub>amb</sub> = 25 °C	-	-	855	mV
		I <sub>F</sub> = 50 mA; t <sub>p</sub> ≤ 300 μs; δ ≤ 0.02; pulsed; T <sub>amb</sub> = 25 °C	-	-	1	V
		I <sub>F</sub> = 150 mA; t <sub>p</sub> ≤ 300 μs; δ ≤ 0.02; pulsed; T <sub>amb</sub> = 25 °C	-	-	1.25	V
I <sub>R</sub>	reverse current	V <sub>R</sub> = 25 V; T <sub>amb</sub> = 25 °C	-	-	30	nA
		V <sub>R</sub> = 80 V; T <sub>amb</sub> = 25 °C	-	-	0.5	μA
		V <sub>R</sub> = 25 V; T <sub>j</sub> = 150 °C	-	-	30	μA
		V <sub>R</sub> = 80 V; T <sub>j</sub> = 150 °C	-	-	50	μA
C <sub>d</sub>	diode capacitance	V <sub>R</sub> = 0 V; f = 1 MHz; T <sub>amb</sub> = 25 °C	-	-	1.5	pF
t <sub>rr</sub>	reverse recovery time	I <sub>F</sub> = 10 mA; I <sub>R</sub> = 10 mA; R <sub>L</sub> = 100 Ω; I <sub>R(meas)</sub> = 1 mA; T <sub>amb</sub> = 25 °C	-	-	4	ns
V <sub>FRM</sub>	peak forward recovery voltage	I <sub>F</sub> = 10 mA; t <sub>r</sub> = 20 ns; T <sub>amb</sub> = 25 °C	-	-	1.75	V





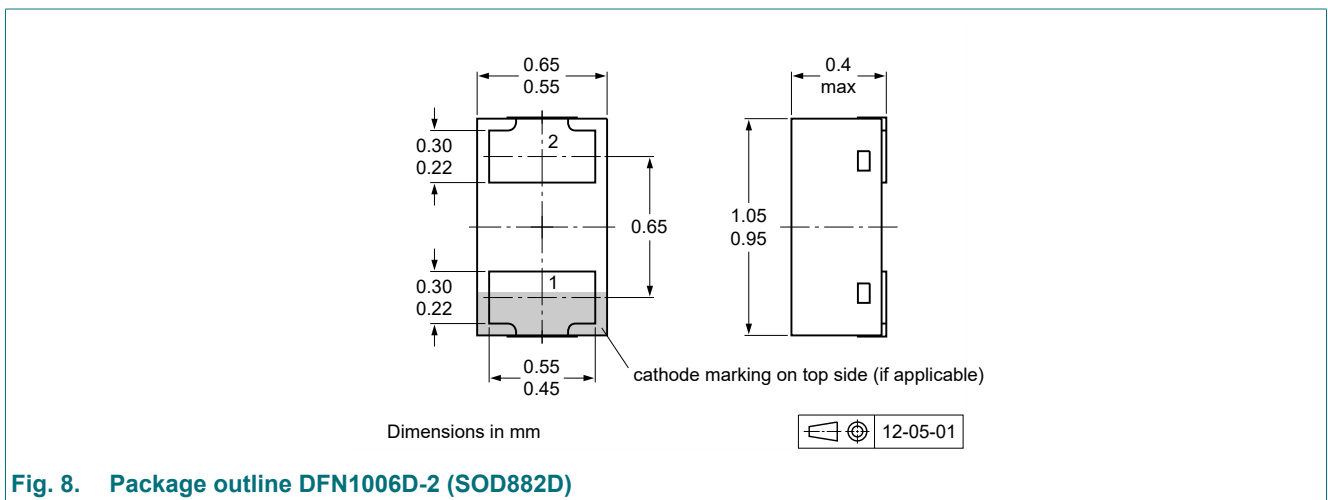
### 11. Test information



#### 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

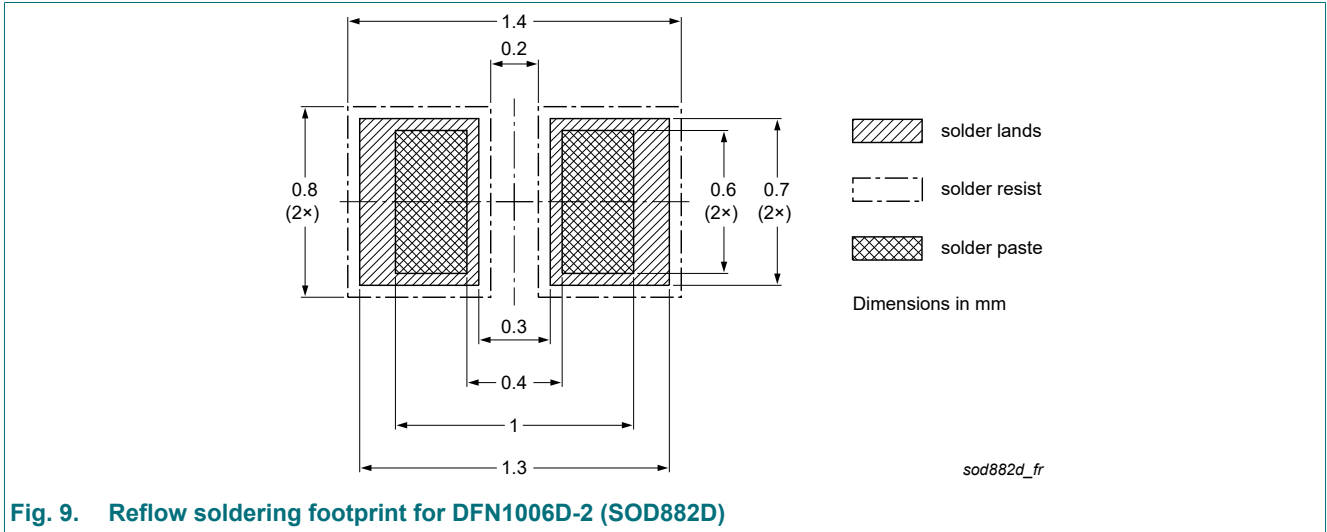


Fig. 9. Reflow soldering footprint for DFN1006D-2 (SOD882D)

## 14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
BAS16LD-Q v.1	20240611	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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Date of release: 11 June 2024

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