



# BAS70LS-Q

## General-purpose Schottky diode

4 May 2021

Product data sheet

### 1. General description

General-purpose Schottky diode in a leadless ultra small DFN1006BD-2 (SOD882BD) SurfaceMounted Device (SMD) plastic package with side-wettable flanks.

### 2. Features and benefits

- High switching speed
- High breakdown voltage
- Low leakage current
- Low capacitance
- Suitable for Automatic Optical Inspection (AOI) of solder joint
- Qualified according to AEC-Q101 and recommended for use in automotive applications

### 3. Applications

- Ultra high-speed switching
- Voltage clamping

### 4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$I_F$	forward current	$T_{amb} = 25\text{ °C}$	-	-	70	mA
$V_R$	reverse voltage		-	-	70	V
$V_F$	forward voltage	$I_F = 1\text{ mA}; t_p \leq 300\text{ }\mu\text{s}; \delta \leq 0.02;$ pulsed; $T_{amb} = 25\text{ °C}$	-	-	410	mV

### 5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	cathode	<p>Transparent top view DFN1006BD-2 (SOD882BD)</p>	<p>K  A sym001</p>
2	A	anode		

## 6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
BAS70LS-Q	DFN1006BD-2	Leadless ultra small plastic package with side-wettable flanks (SWF); 2 terminals; 0.65 mm pitch; 1 mm x 0.6 mm x 0.47 mm body	SOD882BD

## 7. Marking

Table 4. Marking codes

Type number	Marking code
BAS70LS-Q	8K

## 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			-	70	V
$I_F$	forward current	$T_{amb} = 25\text{ °C}$		-	70	mA
$I_{FRM}$	repetitive peak forward current	$t_p \leq 1\text{ s}$ ; $\delta \leq 0.5$ ; $T_{amb} = 25\text{ °C}$		-	70	mA
$I_{FSM}$	non-repetitive peak forward current	square-wave pulse; $t_p \leq 10\text{ ms}$ ; $T_{j(\text{init})} = 25\text{ °C}$		-	100	mA
$P_{tot}$	total power dissipation	$T_{amb} \leq 25\text{ °C}$	[1]	-	345	mW
			[2]	-	640	mW
$T_j$	junction temperature			-	150	°C
$T_{amb}$	ambient temperature			-55	150	°C
$T_{stg}$	storage temperature			-65	150	°C

[1] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided 70  $\mu\text{m}$  copper, tin-plated and standard footprint.

[2] Device mounted on an FR4 Printed-Circuit Board (PCB), 70  $\mu\text{m}$  single-sided copper, tin-plated; mounting pad for collector 1cm<sup>2</sup>.

## 9. Thermal characteristics

Table 6. Thermal characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air	[1] [2]	-	-	360	K/W
			[3]	-	-	195	K/W

- [1] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided 70  $\mu\text{m}$  copper, tin-plated and standard footprint.
- [2] For Schottky barrier diodes thermal runaway has to be considered, as in some applications the reverse power losses PR are a significant part of the total power losses.
- [3] Device mounted on an FR4 Printed-Circuit Board (PCB), 70  $\mu\text{m}$  single-sided copper, tin-plated; mounting pad for collector 1  $\text{cm}^2$ .

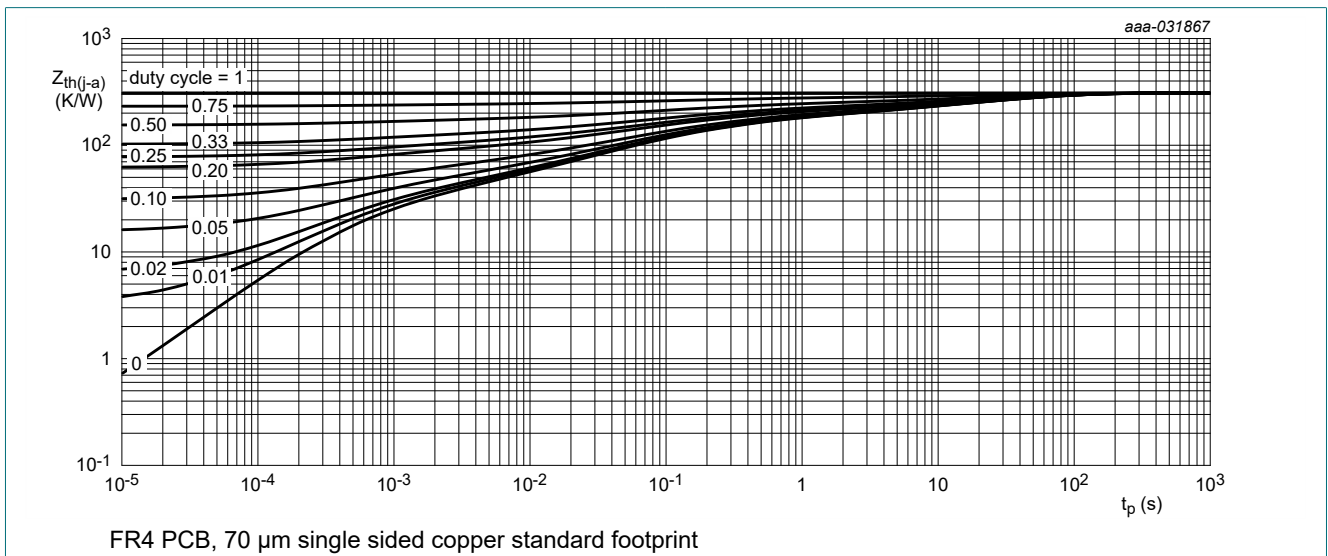


Fig. 1. Transient thermal impedance from junction to ambient as a function of pulse duration; typical values

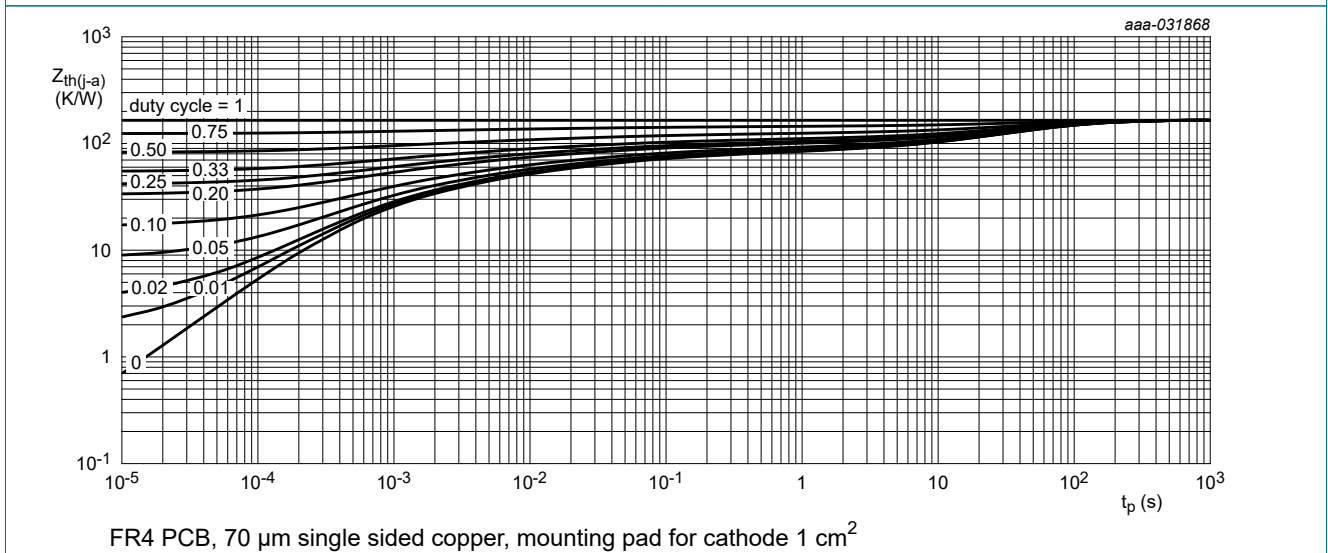
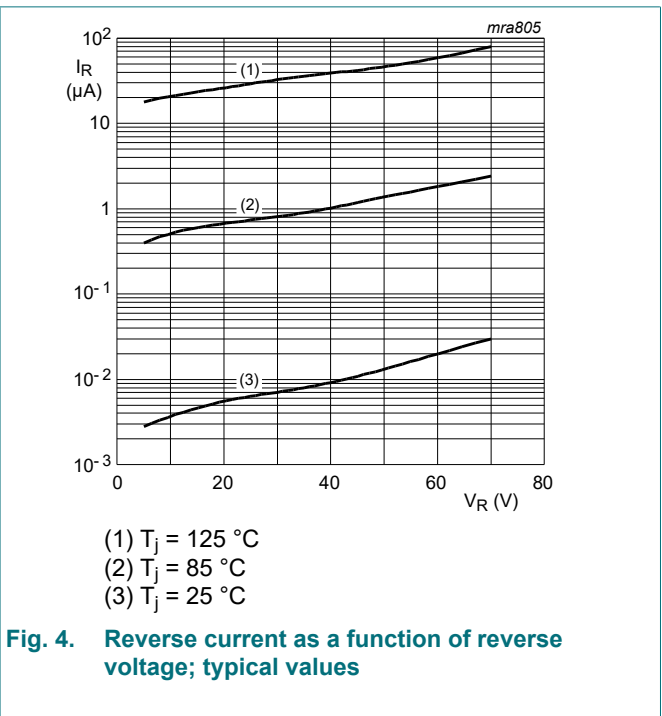
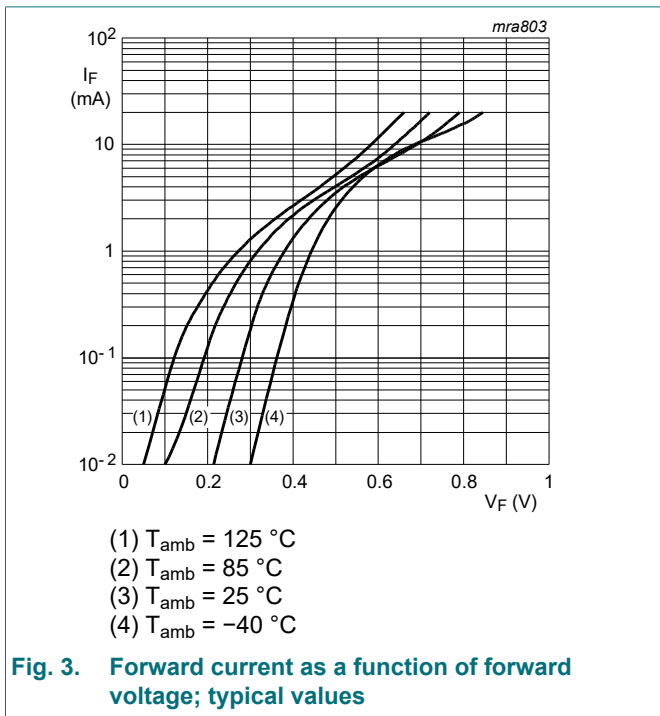


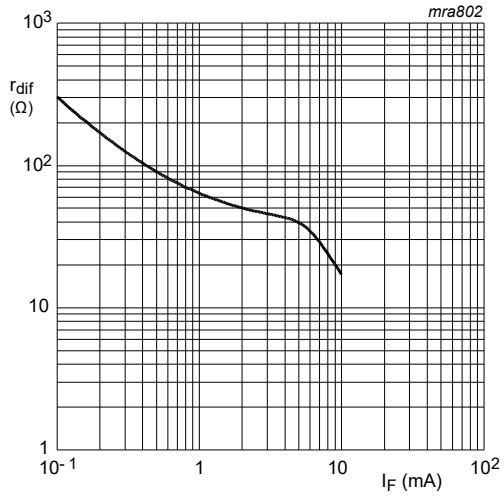
Fig. 2. Transient thermal impedance from junction to ambient as a function of pulse duration; typical values

### 10. Characteristics

Table 7. Characteristics

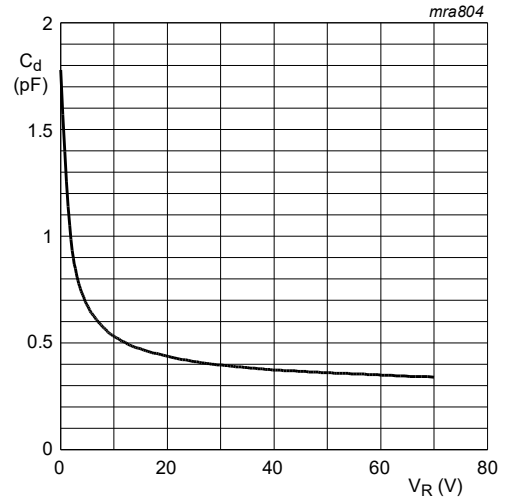
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V <sub>F</sub>	forward voltage	I <sub>F</sub> = 1 mA; t <sub>p</sub> ≤ 300 μs; δ ≤ 0.02; pulsed; T <sub>amb</sub> = 25 °C	-	-	410	mV
		I <sub>F</sub> = 10 mA; t <sub>p</sub> ≤ 300 μs; δ ≤ 0.02; pulsed; T <sub>amb</sub> = 25 °C	-	-	750	mV
		I <sub>F</sub> = 15 mA; t <sub>p</sub> ≤ 300 μs; δ ≤ 0.02; pulsed; T <sub>amb</sub> = 25 °C	-	-	1	V
I <sub>R</sub>	reverse current	V <sub>R</sub> = 50 V; T <sub>j</sub> = 25 °C	-	-	100	nA
		V <sub>R</sub> = 70 V; T <sub>j</sub> = 25 °C	-	-	10	μA
C <sub>d</sub>	diode capacitance	V <sub>R</sub> = 0 V; f = 1 MHz; T <sub>amb</sub> = 25 °C	-	-	2	pF





f = 10 kHz

Fig. 5. Differential forward resistance as a function of forward current; typical values



$T_{amb} = 25\text{ }^\circ\text{C}$ ; f = 1 MHz

Fig. 6. Diode capacitance as a function of reverse voltage; typical values

## 11. Test information

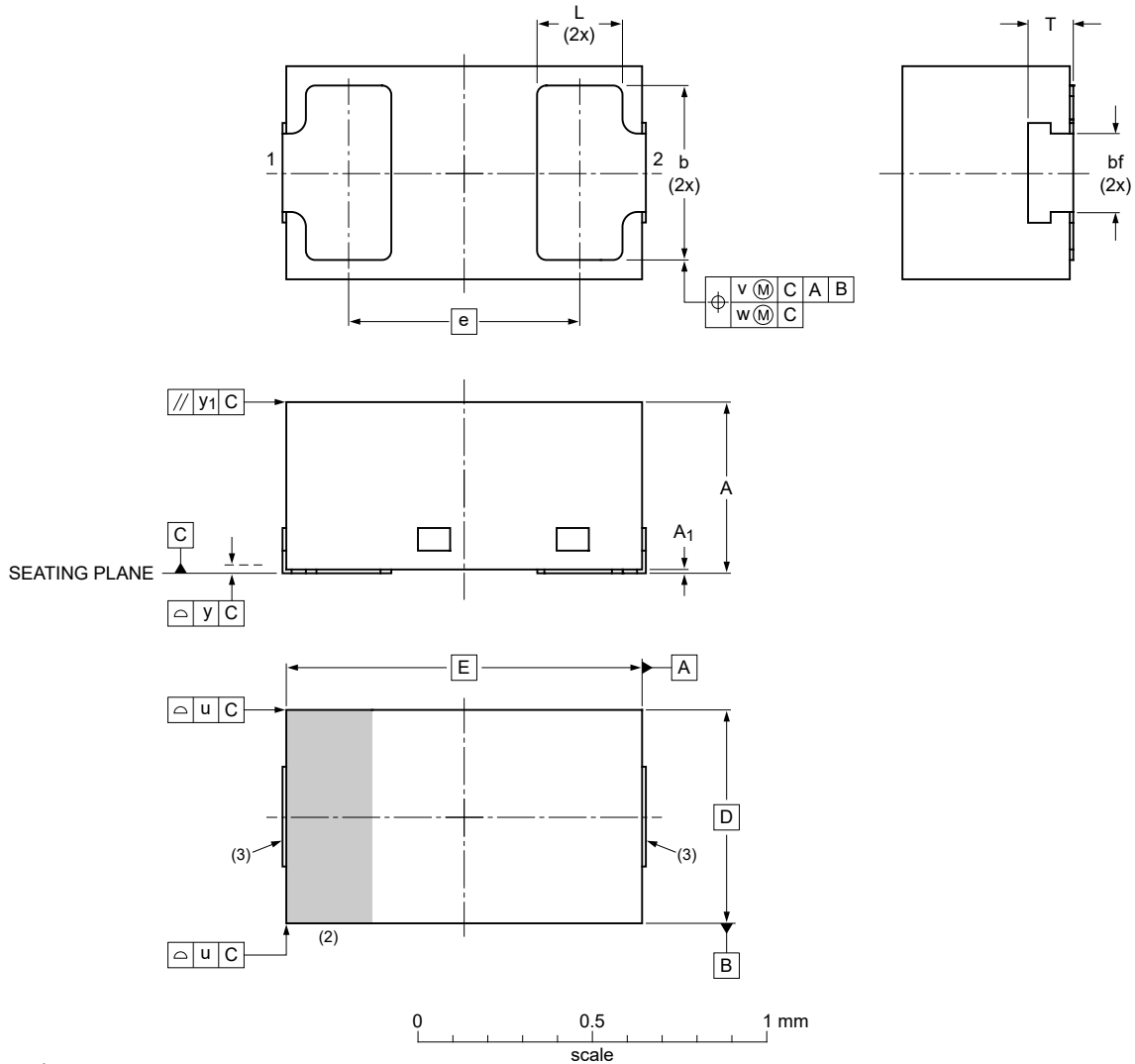
### Quality information

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

**DFN1006BD-2** Leadless ultra small plastic package with side-wettable flanks (SWF); 2 terminals;  
0.65 mm pitch; 1 mm x 0.6 mm x 0.47 mm body

**SOD882BD**



**Dimensions**

Unit	A <sup>(1)</sup>	A <sub>1</sub>	bf <sup>(1)</sup>	b	D	E	e	L	T <sup>(1)</sup>	u	v	w	y	y <sub>1</sub>
max	0.50	0.04		0.55				0.30	0.22					
nom	0.47			0.50	0.60	1.00	0.65	0.25	0.16	0.05	0.10	0.05	0.05	0.05
min	0.44		0.20	0.45				0.22	0.10					

**Note**

1. Dimension including plating thickness.
2. The marking bar indicates the cathode.
3. Solderable lead end, protrusion max. 0.02 mm.

sod882bd\_po

Outline version	References				European projection	Issue date
	IEC	JEDEC	JEITA			
SOD882BD		MO-343AA				20-06-22 20-06-23

**Fig. 7. Package outline DFN1006BD-2 (SOD882BD)**

### 13. Soldering

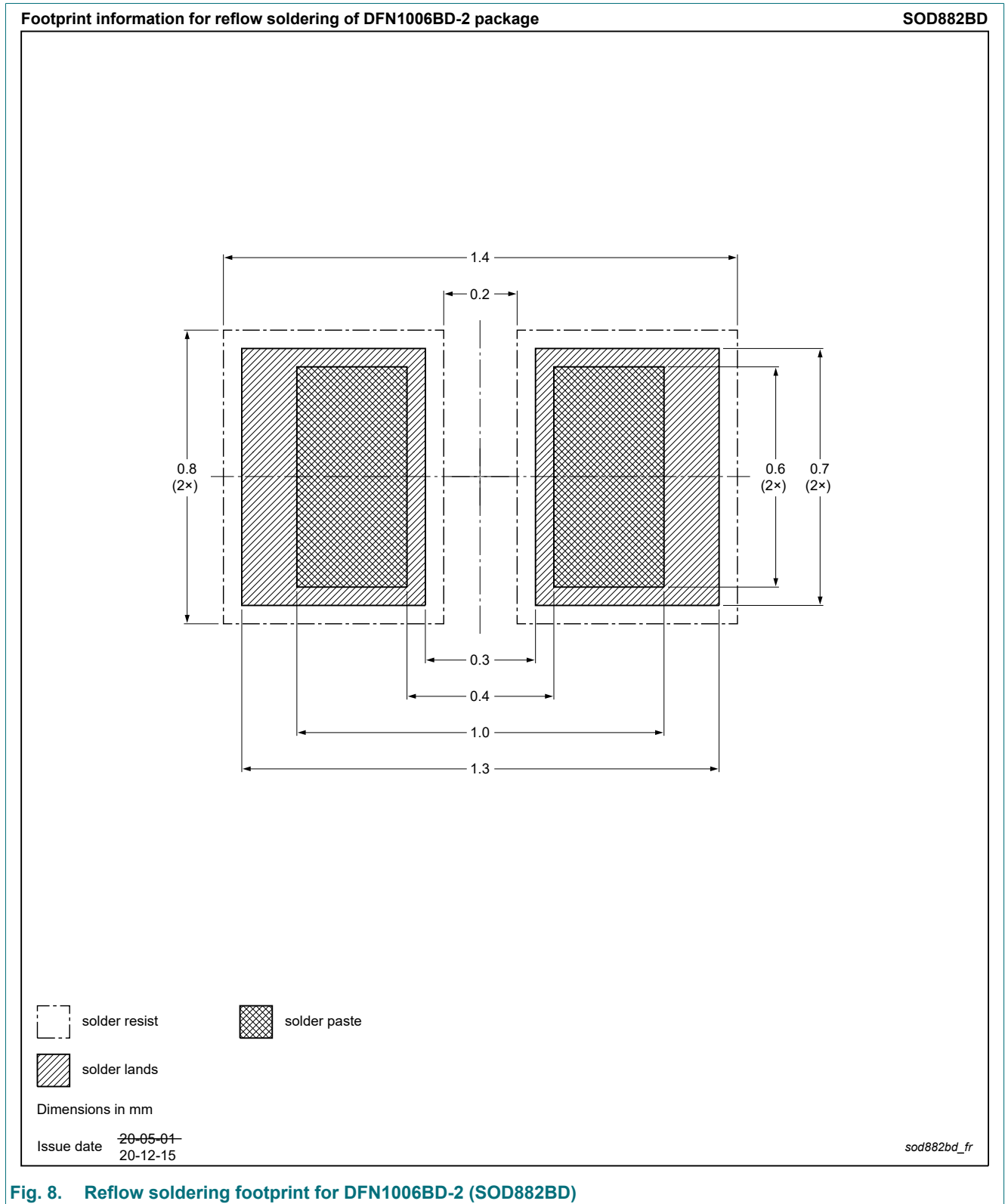


Fig. 8. Reflow soldering footprint for DFN1006BD-2 (SOD882BD)

## 14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
BAS70LS-Q v.2	20210504	Product data sheet	-	BAS70LS-Q v.1
Modifications:	• Features and benefits: added recommendation for automotive applications			
BAS70LS-Q v.1	20210125	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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