



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

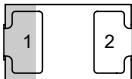
4. Quick reference data

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	 Transparent top view DFN1006BD-2 (SOD882BD)	 sym001
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; $t_p \leq 10\text{ ms}$; $T_{j(init)} = 25\text{ °C}$		-	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 µm copper, tin-plated and standard footprint.

[2] Device mounted on an FR4 Printed-Circuit Board (PCB), 70 µm single-sided copper, tin-plated; mounting pad for collector 1cm².

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 µm 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 µm single-sided copper, tin-plated; mounting pad for collector 1cm².

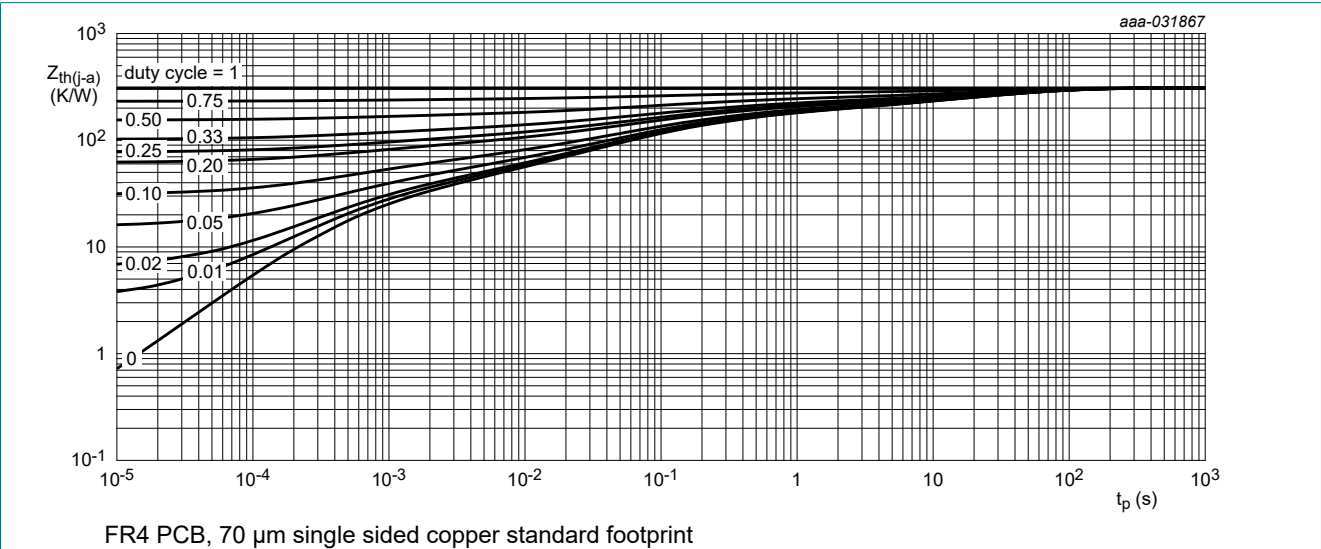


Fig. 1. Transient thermal impedance from junction to ambient as a function of pulse duration; typical values

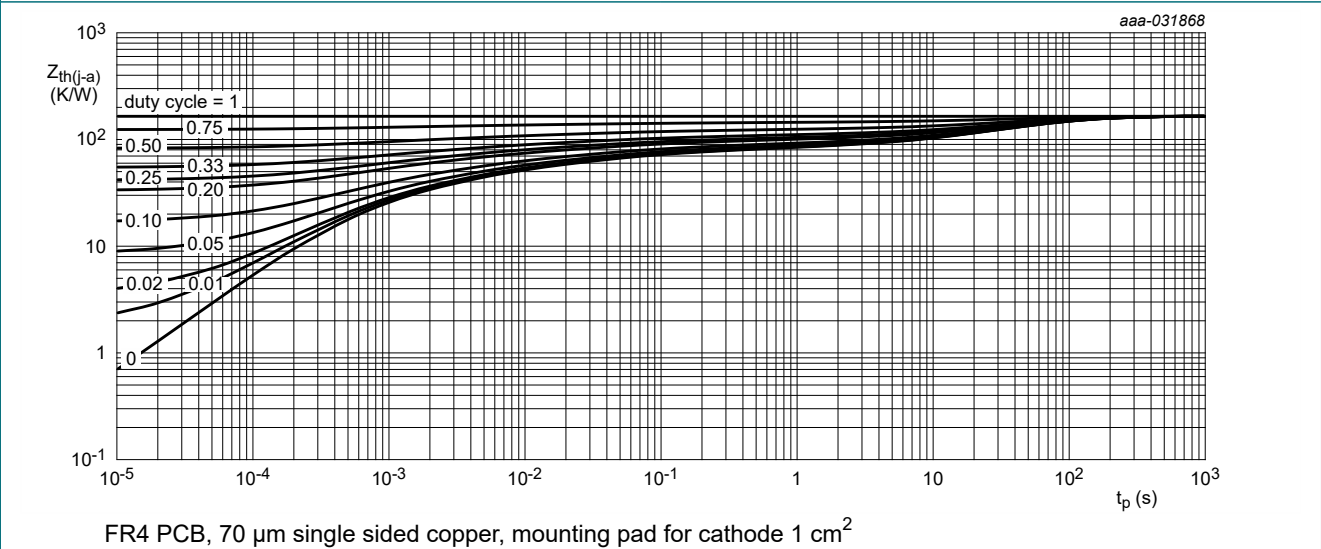
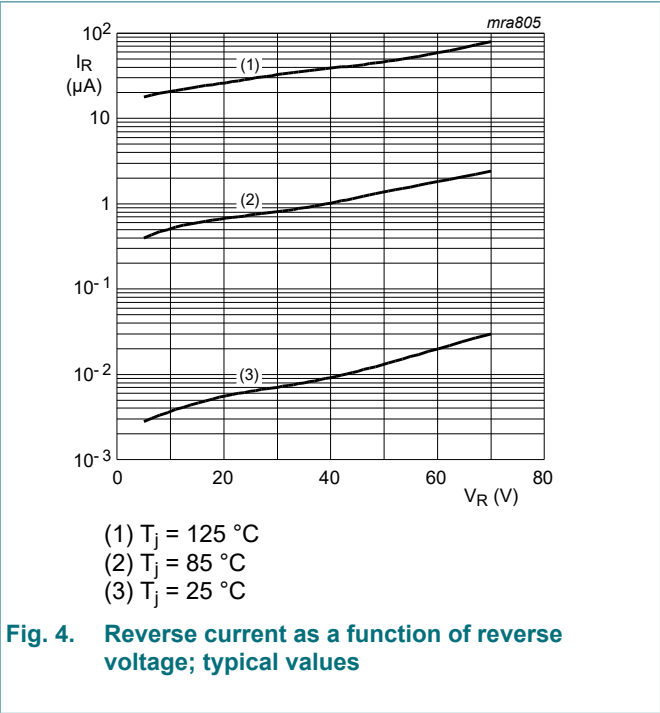
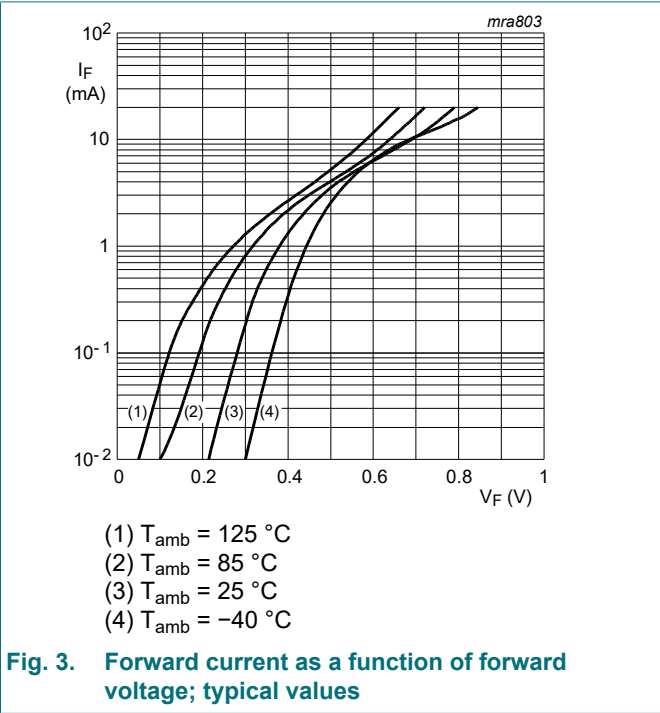


Fig. 2. Transient thermal impedance from junction to ambient as a function of pulse duration; typical values

10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_F	forward voltage	$I_F = 1\text{ mA}$; $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$; pulsed; $T_{\text{amb}} = 25\text{ }^\circ\text{C}$	-	-	410	mV
		$I_F = 10\text{ mA}$; $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$; pulsed; $T_{\text{amb}} = 25\text{ }^\circ\text{C}$	-	-	750	mV
		$I_F = 15\text{ mA}$; $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$; pulsed; $T_{\text{amb}} = 25\text{ }^\circ\text{C}$	-	-	1	V
I_R	reverse current	$V_R = 50\text{ V}$; $T_J = 25\text{ }^\circ\text{C}$	-	-	100	nA
		$V_R = 70\text{ V}$; $T_J = 25\text{ }^\circ\text{C}$	-	-	10	μA
C_d	diode capacitance	$V_R = 0\text{ V}$; $f = 1\text{ MHz}$; $T_{\text{amb}} = 25\text{ }^\circ\text{C}$	-	-	2	pF



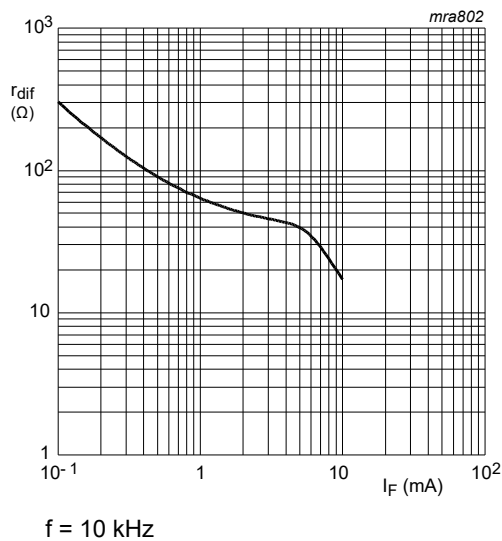


Fig. 5. Differential forward resistance as a function of forward current; typical values

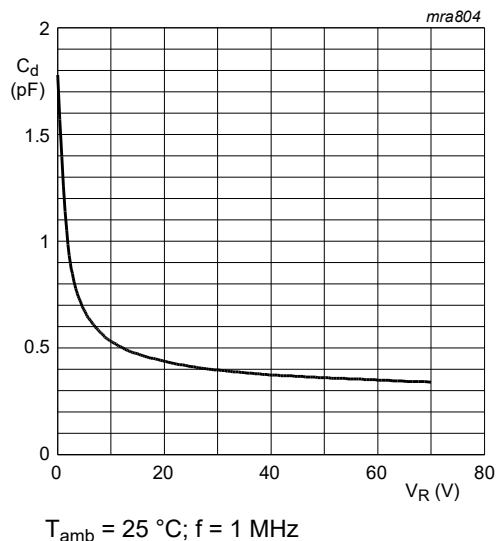


Fig. 6. Diode capacitance as a function of reverse voltage; typical values

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

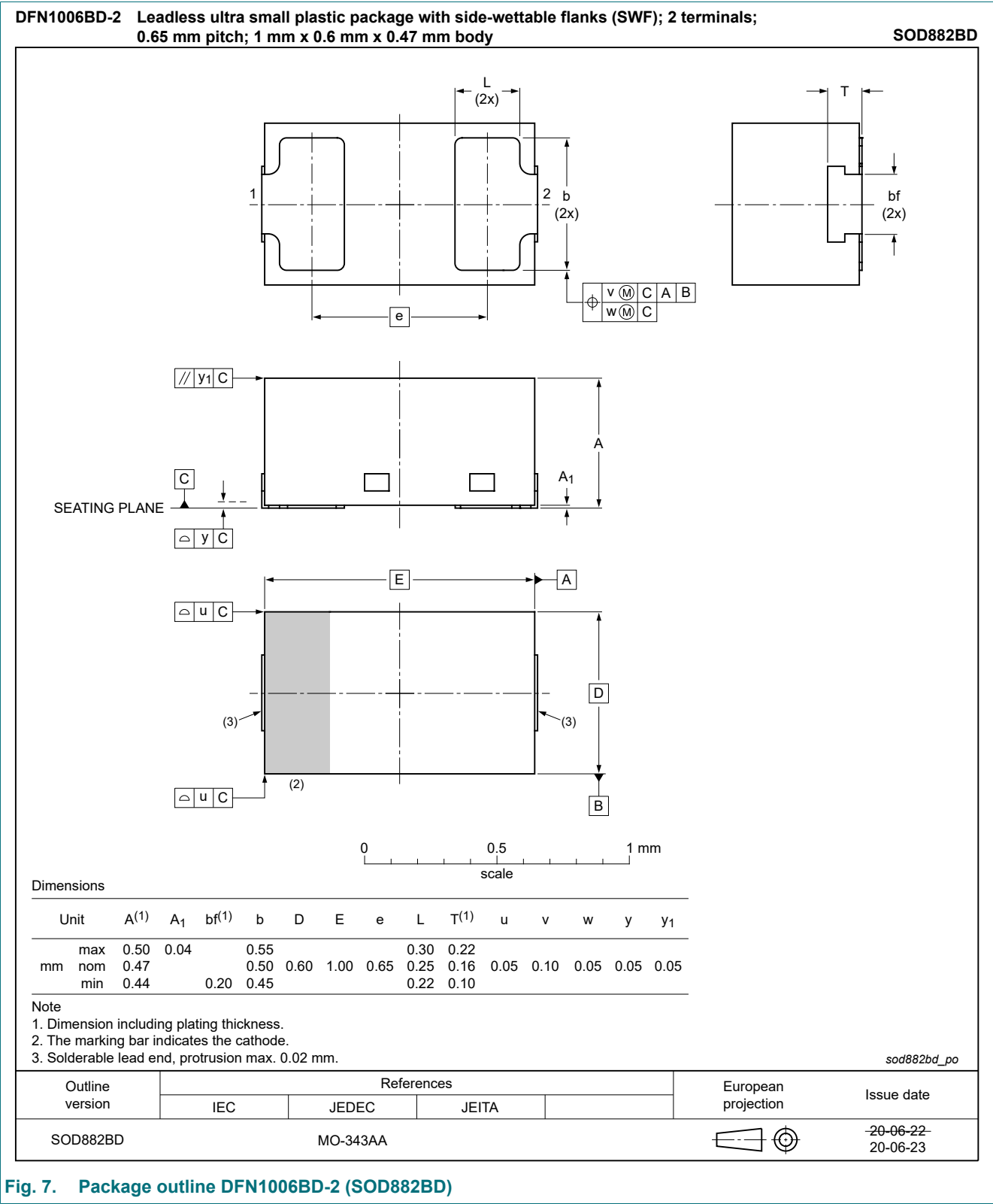


Fig. 7. Package outline DFN1006BD-2 (SOD882BD)

13. Soldering

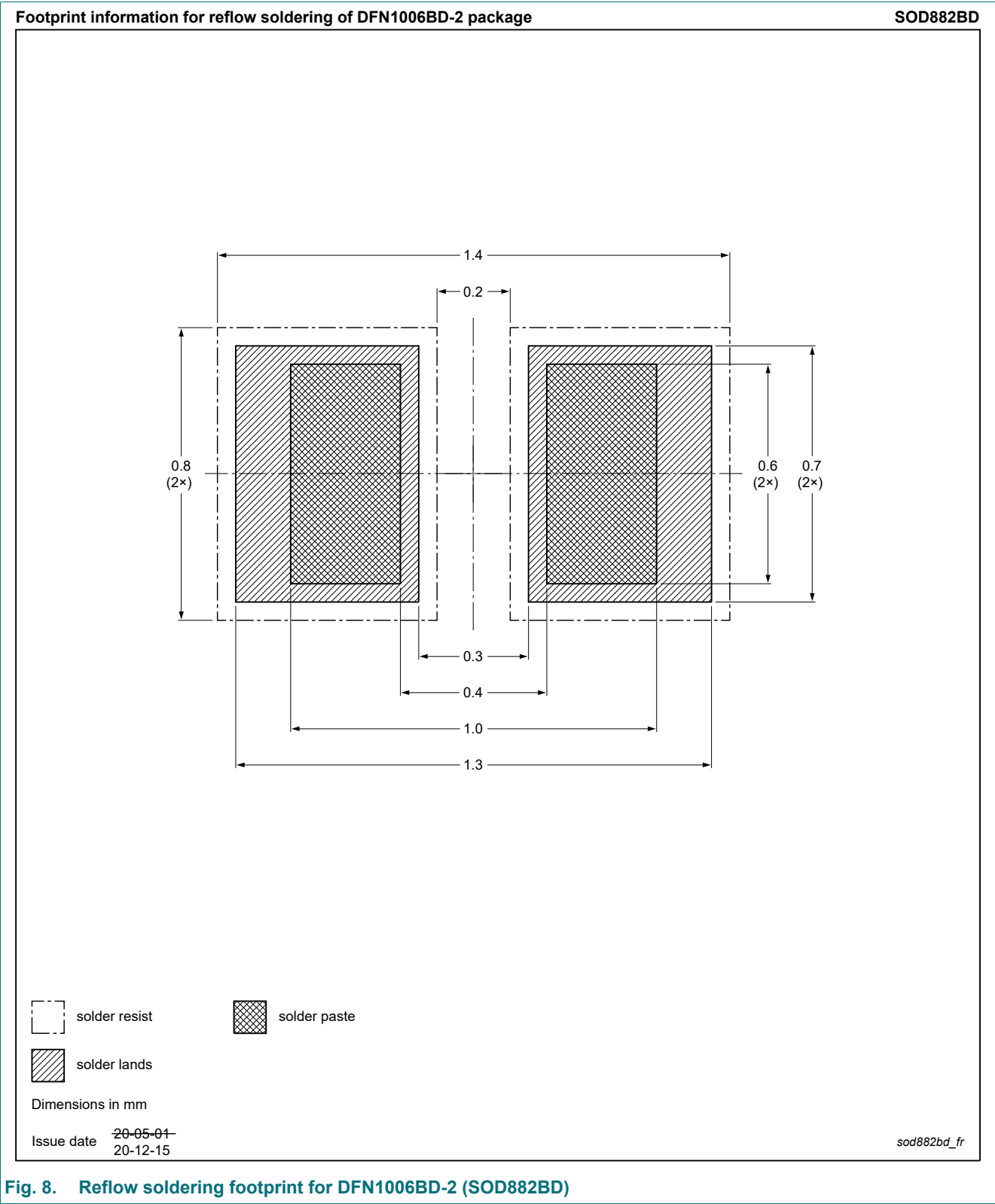


Fig. 8. Reflow soldering footprint for DFN1006BD-2 (SOD882BD)

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.

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