



BZX8850S series

Low-current voltage regulator diodes

Rev. 1 — 25 August 2021

Product data sheet

1. General description

Low-current voltage regulator diodes in an ultra small SOD882BD (DFN1006BD-2) leadless Surface-Mounted Device (SMD) plastic package with side-wettable flanks.

2. Features and benefits

- Total power dissipation: ≤ 365 mW
- Tolerance series: approximately $\pm 5\%$
- Working voltage range: nominal 1.8 V to 75 V
- Specified at a low test current (50 μ A), ideal for low bias and portable battery-powered applications

3. Applications

- Low-current general regulation functions

4. Quick reference data

Table 1. Quick reference data

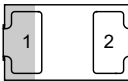
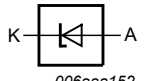
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_F	forward voltage	$I_F = 10$ mA [1]	-	-	0.9	V
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C [2]	-	-	365	mW

[1] Pulse test: $t_p \leq 300$ μ s; $\delta \leq 0.02$

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

5. Pinning information

Table 2. Pinning

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	cathode [1]	 Transparent top view	 006aaa152
2	A	anode		

[1] The marking bar indicates the cathode.

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
BZX8850S series	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	Type number	Marking Code	Type number	Marking Code	Type number	Marking Code
BZX8850S-C1V8	5N	BZX8850S-C4V7	5Y	BZX8850S-C12	7J	BZX8850S-C33	7V
BZX8850S-C2V0	5P	BZX8850S-C5V1	5Z	BZX8850S-C13	7K	BZX8850S-C36	7W
BZX8850S-C2V2	5Q	BZX8850S-C5V6	7A	BZX8850S-C15	7M	BZX8850S-C39	7X
BZX8850S-C2V4	5R	BZX8850S-C6V2	7B	BZX8850S-C16	7N	BZX8850S-C43	7Y
BZX8850S-C2V7	5S	BZX8850S-C6V8	7C	BZX8850S-C18	7P	BZX8850S-C47	7Z
BZX8850S-C3V0	5T	BZX8850S-C7V5	7D	BZX8850S-C20	7Q	BZX8850S-C51	8A
BZX8850S-C3V3	5U	BZX8850S-C8V2	7E	BZX8850S-C22	7R	BZX8850S-C56	8B
BZX8850S-C3V6	5V	BZX8850S-C9V1	7F	BZX8850S-C24	7S	BZX8850S-C62	8C
BZX8850S-C3V9	5W	BZX8850S-C10	7G	BZX8850S-C27	7T	BZX8850S-C68	8D
BZX8850S-C4V3	5X	BZX8850S-C11	7H	BZX8850S-C30	7U	BZX8850S-C75	8E

8. Limiting values

Table 5. Limiting values

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

Symbol	Parameter	Conditions		Min	Max	Unit
I_F	forward current			-	200	mA
P_{ZSM}	non-repetitive peak reverse power dissipation	$t_p = 100 \mu s$; square wave; $T_j = 25^\circ C$; prior to surge		-	40	W
P_{tot}	total power dissipation	$T_{amb} \leq 25^\circ C$	[1]	-	365	mW
T_j	junction temperature			-	150	$^\circ C$
T_{amb}	ambient temperature			-55	+150	$^\circ C$
T_{stg}	storage temperature			-65	+150	$^\circ C$

[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	in free air [1]	-	-	340	K/W

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

10. Characteristics

Table 7. Electrical characteristics

$T_j = 25\text{ }^{\circ}\text{C}$ unless otherwise specified.

Symbol	Parameter	Conditions		Max	Unit
V_F	forward voltage	$I_F = 10\text{ mA}$	[1]	0.9	V

[1] Pulse test: $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$

Table 8. Electrical characteristics per type: BZX8850S-C1V8 to BZX8850S-C24

$T_j = 25\text{ }^{\circ}\text{C}$ unless otherwise specified.

BZX8850S-C	Working voltage V _Z (V)		Differential resistance r _{diff} (Ω)		Reverse current I _R (μA)		Temperature coefficient S _Z (mV/K)		Diode capacit. C _d (pF)[1]
	I _Z = 50 μA		I _Z = 1 mA	I _Z = 5 mA			I _Z = 5 mA		
	Min	Max	Max	Max	Max	V _R (V)	Min	Max	Max
1V8	1.71	1.89	600	100	7.5	1.0	-3.5	0	220
2V0	1.88	2.12	600	100	7	1.0	-3.5	0	220
2V2	2.09	2.31	600	100	4	1.0	-3.5	0	210
2V4	2.28	2.52	600	100	2	1.0	-3.5	0	200
2V7	2.565	2.835	600	100	1	1.0	-3.5	0	190
3V0	2.85	3.15	600	100	0.8	1.0	-3.5	0.2	170
3V3	3.13	3.47	600	100	7.5	1.5	-3.5	1.2	160
3V6	3.42	3.78	600	95	7.5	2.0	-3.5	1.2	160
3V9	3.70	4.10	600	95	5.0	2.0	-2.7	2.5	150
4V3	4.09	4.52	600	95	4.0	2.0	-2.7	2.5	150
4V7	4.47	4.94	600	80	5.0	3.0	-2.7	2.5	140
5V1	4.85	5.36	500	60	5.0	3.0	-2.0	3.7	130
5V6	5.32	5.88	400	40	2.0	4.0	-2.0	3.7	120
6V2	5.89	6.51	160	10	1.0	5.0	0.4	4.5	110
6V8	6.46	7.14	80	15	0.1	5.1	1.2	4.5	100
7V5	7.13	7.88	80	15	0.1	5.7	2.5	5.3	150
8V2	7.79	8.61	80	15	0.1	6.2	3.2	6.2	150
9V1	8.65	9.56	100	15	0.1	6.9	3.8	7.0	150
10	9.50	10.50	150	20	0.1	7.6	4.5	8.0	90
11	10.45	11.55	150	20	0.05	8.4	5.4	9.0	85
12	11.40	12.60	150	25	0.05	9.1	6.0	10.0	85
13	12.35	13.65	170	30	0.05	9.8	7.0	11.0	80
15	14.25	15.75	200	30	0.05	11.4	9.2	13.0	75
16	15.20	16.80	200	40	0.05	12.1	10.4	14.0	75
18	17.10	18.90	225	45	0.05	13.6	12.4	16.0	70
20	19.00	21.00	225	55	0.05	15.2	14.4	18.0	60
22	20.90	23.10	250	55	0.05	16.7	16.4	20.0	60
24	22.80	25.20	250	70	0.05	18.2	18.4	22.0	55

[1] $f = 1\text{ MHz}$; $V_R = 0\text{ V}$

Table 9. Electrical characteristics per type: BZX8850S-C27 to BZX8850S-C75

BZX8850S-C	Working voltage V _Z (V)		Differential resistance r _{diff} (Ω)		Reverse current I _R (μA)		Temperature coefficient S _Z (mV/K)		Diode capacit. C _d (pF) [1]
	I _Z = 50 μA		I _Z = 0.5 mA	I _Z = 2 mA			I _Z = 2 mA		
	Min	Max	Max	Max	Max	V _R (V)	Min	Max	
27	25.65	28.35	300	80	0.05	20.4	21.4	25.3	50
30	28.50	31.50	300	80	0.05	22.8	24.4	29.4	50
33	31.35	34.65	325	80	0.05	25.0	27.4	33.4	45
36	34.20	37.80	350	90	0.05	27.3	30.4	37.4	45
39	37.05	40.95	350	130	0.05	29.6	33.4	41.2	45
43	40.85	45.15	375	150	0.05	32.6	37.6	46.6	40
47	44.00	50.00	375	170	0.05	32.9	42.0	51.8	40
51	48.00	54.00	400	180	0.05	35.7	46.6	57.2	40
56	52.00	60.00	425	200	0.05	39.2	52.2	63.8	40
62	58.00	66.00	450	215	0.05	43.4	58.8	71.6	35
68	64.00	72.00	475	240	0.05	47.6	65.6	79.8	35
75	70.00	79.00	500	255	0.05	52.5	73.4	88.6	35

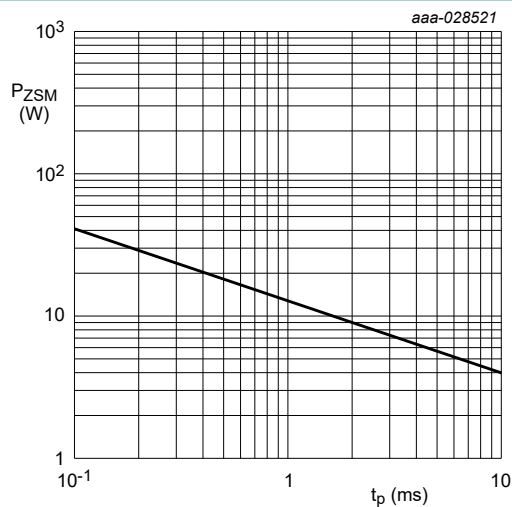
[1] $f = 1 MHz$; $V_R = 0 V$ (1) $T_j = 25^\circ C$ (before surge)

Fig. 1. Non-repetitive peak reverse power dissipation as a function of pulse duration; maximum values

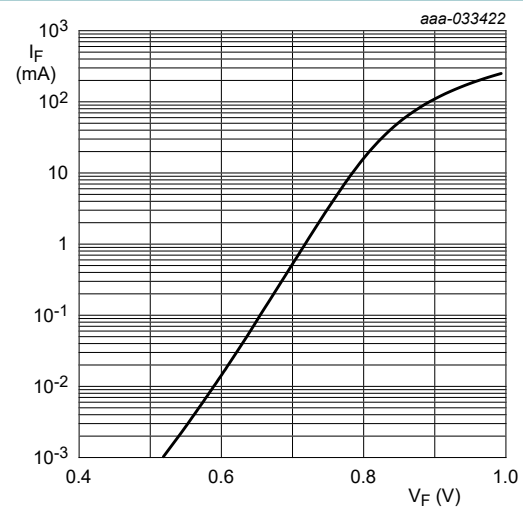
 $T_j = 25^\circ C$

Fig. 2. Forward current as a function of forward voltage; typical values (BZX8850S-C1V8)

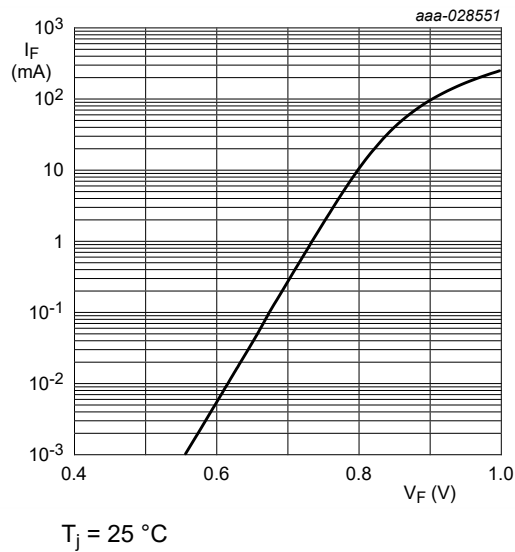


Fig. 3. Forward current as a function of forward voltage; typical values (BZX8850S-C6V8)

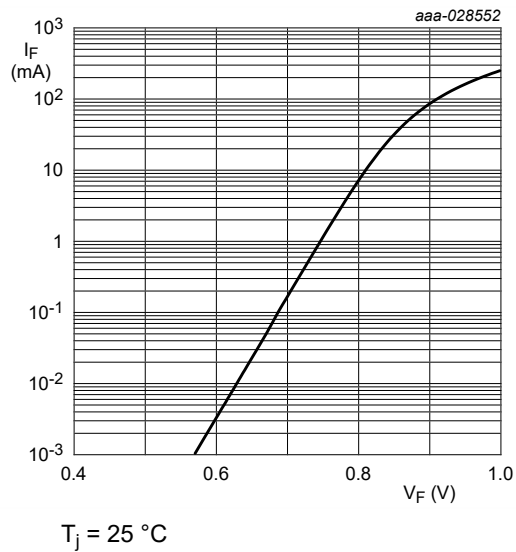


Fig. 4. Forward current as a function of forward voltage; typical values (BZX8850S-C7V5)

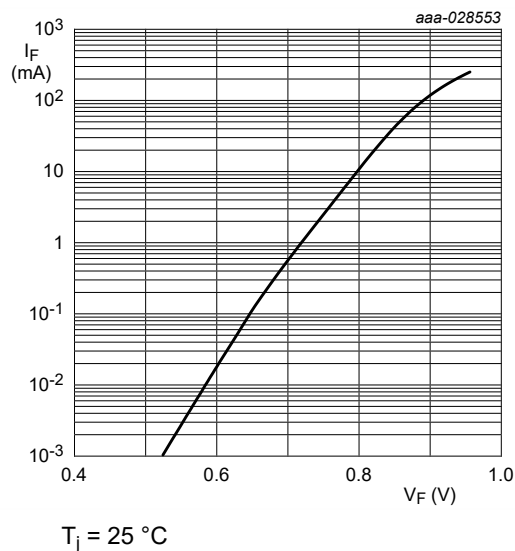


Fig. 5. Forward current as a function of forward voltage; typical values (BZX8850S-C75)

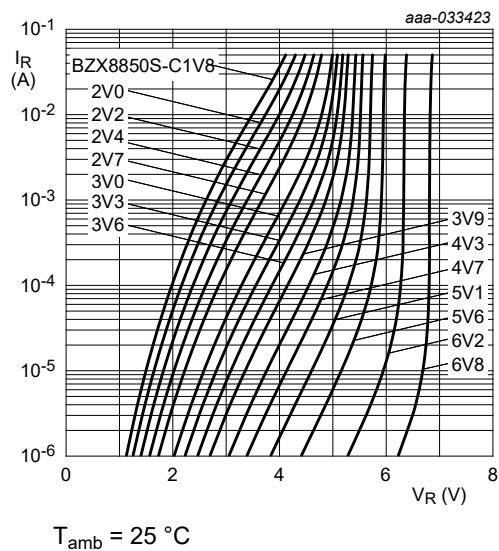


Fig. 6. Reverse current as a function of reverse voltage; typical values (BZX8850S-C1V8 to BZX8850S-C6V8)

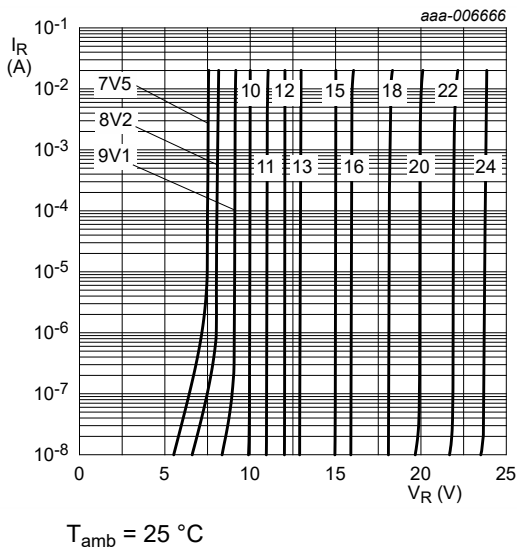


Fig. 7. Reverse current as a function of reverse voltage; typical values (BZX8850S-C7V5 to BZX8850S-C24)

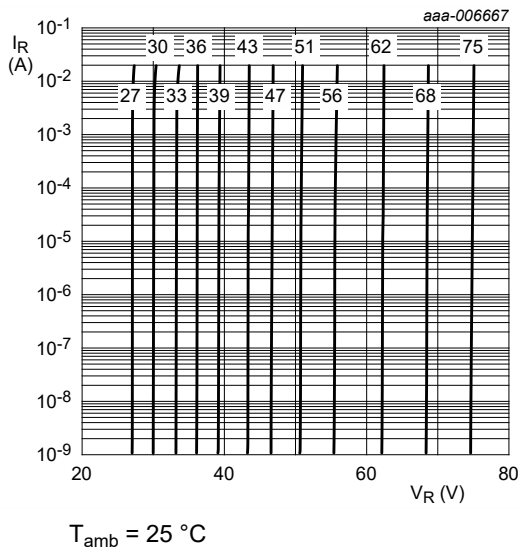


Fig. 8. Reverse current as a function of reverse voltage; typical values (BZX8850S-C27 to BZX8850S-C75)

11. Package outline

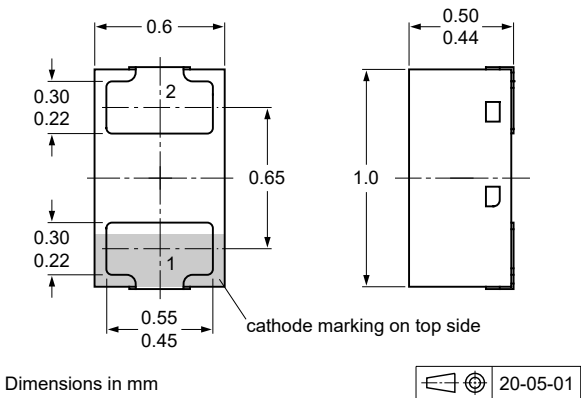


Fig. 9. Package outline DFN1006BD-2 (SOD882BD)

12. Soldering

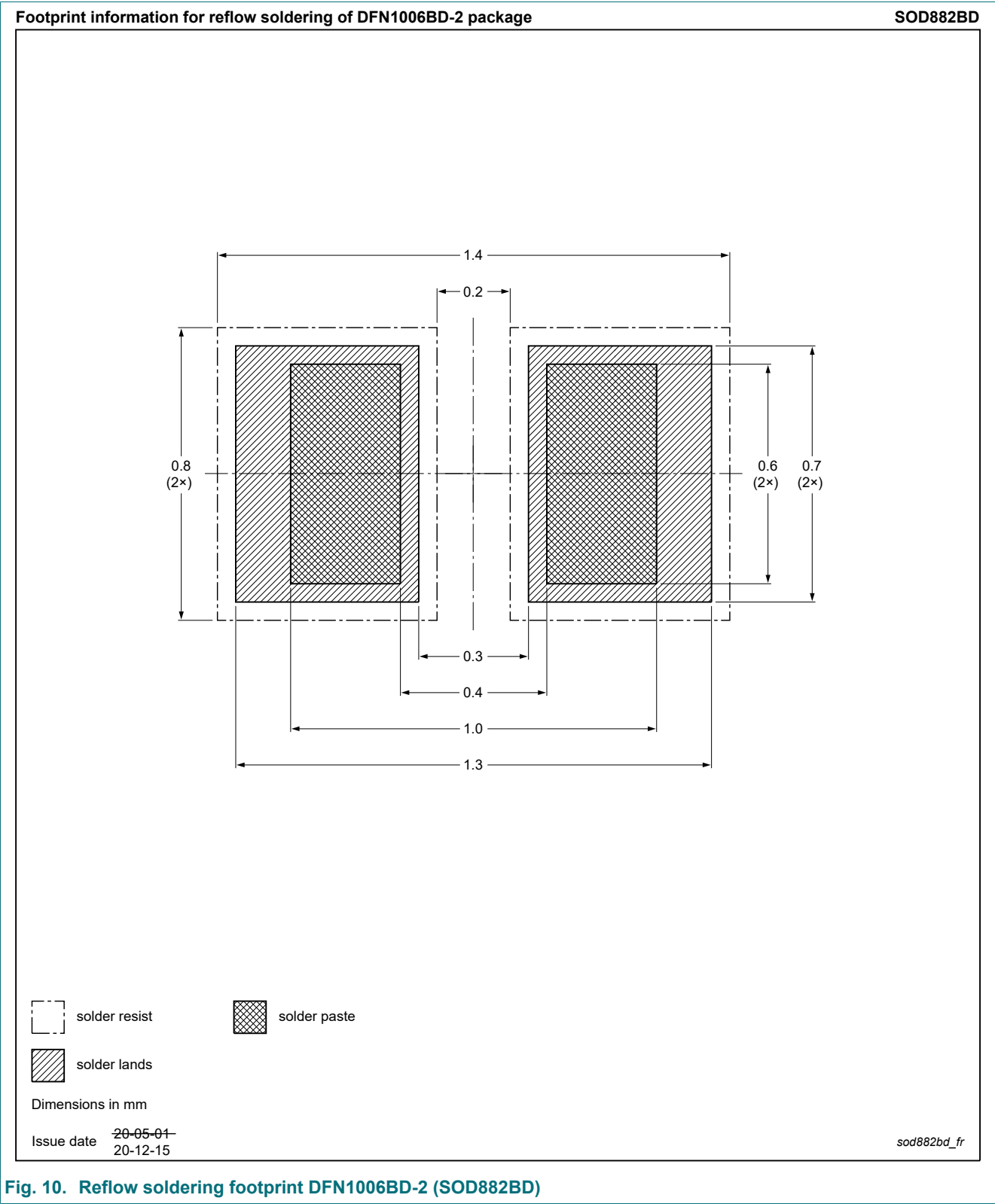


Fig. 10. Reflow soldering footprint DFN1006BD-2 (SOD882BD)

13. Revision history

Table 10. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BZX8850S_SER v.1	20210825	Product data sheet	-	-

14. 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: 25 August 2021