BZX884S series

Voltage regulator diodes

Rev. 2 — 15 December 2020 **Product data sheet**

1. General description

General-purpose Zener diodes in an ultra small SOD882BD (DFN1006BD-2) leadless Surface Mounted Device (SMD) plastic package with side-wettable flanks.

2. Features and benefits

- Leadless ultra small plastic package with side-wettable flanks suitable for surface-mounted design
- Two tolerance series: ± 2 % and approximately ± 5 %
- Wide working voltage range: nominal 2.4 V to 75 V (E24 range)
- AEC-Q101 qualified

3. Applications

- General regulation functions

4. Quick reference data

Table 1. Quick reference data

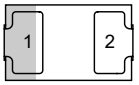
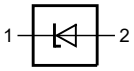
T_{amb} = 25 °C unless otherwise specified.

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
V_F	forward voltage	I_F = 10 mA	[1]	-	-	0.9	V
P_{tot}	total power dissipation		[2]	-	-	365	mW

[1] Pulse test: tp ≤ 100 µs; δ ≤ 0.02
[2] Device mounted on a FR4 PCB, single-sided 70 µm 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.

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6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
BZX884S series [1]	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

[1] The series includes 37 breakdown voltages with nominal working voltages from 2.4 V to 75 V and ±2 % and approximately ±5% tolerances.

7. Marking

Table 4. Marking Codes

Type number	Mark. Code	Type number	Mark. Code	Type number	Mark. Code	Type number	Mark. Code
BZX884S-B2V4	2A	BZX884S-B15	2U	BZX884S-C2V4	4K	BZX884S-C15	4C
BZX884S-B2V7	2B	BZX884S-B16	2V	BZX884S-C2V7	4L	BZX884S-C16	4D
BZX884S-B3V0	2C	BZX884S-B18	2W	BZX884S-C3V0	4R	BZX884S-C18	4E
BZX884S-B3V3	2D	BZX884S-B20	2X	BZX884S-C3V3	4S	BZX884S-C20	4F
BZX884S-B3V6	2E	BZX884S-B22	2Y	BZX884S-C3V6	4T	BZX884S-C22	4G
BZX884S-B3V9	2F	BZX884S-B24	2Z	BZX884S-C3V9	4U	BZX884S-C24	4H
BZX884S-B4V3	2G	BZX884S-B27	3A	BZX884S-C4V3	4U	BZX884S-C27	4J
BZX884S-B4V7	2H	BZX884S-B30	3B	BZX884S-C4V7	4Y	BZX884S-C30	4M
BZX884S-B5V1	2J	BZX884S-B33	3C	BZX884S-C5V1	5B	BZX884S-C33	4N
BZX884S-B5V6	2K	BZX884S-B36	3D	BZX884S-C5V6	5C	BZX884S-C36	4P
BZX884S-B6V2	2L	BZX884S-B39	3E	BZX884S-C6V2	5F	BZX884S-C39	4Q
BZX884S-B6V8	N3	BZX884S-B43	3F	BZX884S-C6V8	5G	BZX884S-C43	4V
BZX884S-B7V5	2M	BZX884S-B47	3G	BZX884S-C7V5	5J	BZX884S-C47	4W
BZX884S-B8V2	2N	BZX884S-B51	3H	BZX884S-C8V2	5K	BZX884S-C51	4Z
BZX884S-B9V1	2P	BZX884S-B56	3J	BZX884S-C9V1	5L	BZX884S-C56	5A
BZX884S-B10	2Q	BZX884S-B62	3K	BZX884S-C10	3Y	BZX884S-C62	5D
BZX884S-B11	2R	BZX884S-B68	3L	BZX884S-C11	3Z	BZX884S-C68	5E
BZX884S-B12	2S	BZX884S-B75	3M	BZX884S-C12	4A	BZX884S-C75	5H
BZX884S-B13	2T	-	-	BZX884S-C13	4B	-	-

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_{tot}	total power dissipation	T_{amb} = 25 °C	[1]	-	365	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 a FR4 PCB, single-sided 70 µm 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 a FR4 PCB, single-sided 70 µm copper, tin-plated and standard footprint.

10. Characteristics

Table 7. Characteristics

T_j = 25 °C unless otherwise specified.

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
V_F	forward voltage	I_F = 10 mA	[1]	-	-	0.9	V

[1] Pulse test: $t_p \leq 300$ µs; $\delta \leq 0.02$.

Table 8. Characteristics per type; BZX884S-B2V4 to BZX884S-C24

T_j = 25 °C unless otherwise specified.

BZX884S	Sel	Working voltage V_Z (V)		Differential resistance r_{dif} (Ω)				Reverse current I_R (µA)		Temperature coefficient S_Z (mV/K)		Diode capacitance C_d (pF) [1]
		I_Z = 5 mA		I_Z = 1 mA		I_Z = 5 mA				I_Z = 5 mA		
		Min	Max	Typ	Max	Typ	Max	Max	V_R (V)	Min	Max	Max
2V4	B	2.35	2.45	275	600	70	100	50	1.0	-3.5	0.0	450
	C	2.20	2.60									
2V7	B	2.65	2.75	300	600	75	100	20	1.0	-3.5	0.0	450
	C	2.50	2.90									
3V0	B	2.94	3.06	325	600	80	95	10	1.0	-3.5	0.0	450
	C	2.80	3.20									
3V3	B	3.23	3.37	350	600	85	95	5	1.0	-3.5	0.0	450
	C	3.10	3.50									
3V6	B	3.53	3.67	375	600	85	90	5	1.0	-3.5	0.0	450
	C	3.40	3.80									
3V9	B	3.82	3.98	400	600	85	90	3	1.0	-3.5	0.0	450
	C	3.70	4.10									
4V3	B	4.21	4.39	410	600	80	90	3	1.0	-3.5	0.0	450
	C	4.00	4.60									
4V7	B	4.61	4.79	425	500	50	80	3	2.0	-3.5	0.2	300
	C	4.40	5.00									
5V1	B	5.00	5.20	400	480	40	60	2	2.0	-2.7	1.2	300
	C	4.80	5.40									
5V6	B	5.49	5.71	80	400	15	40	1	2.0	-2.0	2.5	300
	C	5.20	6.00									
6V2	B	6.08	6.32	40	150	6	10	3	4.0	0.4	3.7	200
	C	5.80	6.60									
6V8	B	6.66	6.94	30	80	6	15	2	4.0	1.2	4.5	200
	C	6.40	7.20									
7V5	B	7.35	7.65	30	80	6	15	1	5.0	2.5	5.3	150
	C	7.00	7.90									
8V2	B	8.04	8.36	40	80	6	15	0.7	5.0	3.2	6.2	150
	C	7.70	8.70									
9V1	B	8.92	9.28	40	100	6	15	0.5	6.0	3.8	7.0	150
	C	8.50	9.60									
10	B	9.80	10.20	50	150	8	20	0.2	7.0	4.5	8.0	90
	C	9.40	10.60									
11	B	10.80	11.20	50	150	10	20	0.1	8.0	5.4	9.0	85
	C	10.40	11.60									
12	B	11.80	12.20	50	150	10	25	0.1	8.0	6.0	10.0	85
	C	11.40	12.70									
13	B	12.70	13.30	50	170	10	30	0.1	8.0	7.0	11.0	80
	C	12.40	14.10									

BZX884S	Sel	Working voltage V_Z (V)		Differential resistance r_{dif} (Ω)				Reverse current I_R (μA)		Temperature coefficient S_Z (mV/K)		Diode capacitance C_d (pF) [1]
		I_Z = 5 mA		I_Z = 1 mA		I_Z = 5 mA				I_Z = 5 mA		
		Min	Max	Typ	Max	Typ	Max	Max	V_R (V)	Min	Max	Max
15	B	14.70	15.30	50	200	10	30	0.05	10.5	9.2	13.0	75
	C	13.80	15.60									
16	B	15.70	16.30	50	200	10	40	0.05	11.2	10.4	14.0	75
	C	15.30	17.10									
18	B	17.60	18.40	50	225	10	45	0.05	12.6	12.4	16.0	70
	C	16.80	19.10									
20	B	19.60	20.40	60	225	15	55	0.05	14.0	14.4	18.0	60
	C	18.80	21.20									
22	B	21.60	22.40	60	250	20	55	0.05	15.4	16.4	20.0	60
	C	20.80	23.30									
24	B	23.50	24.50	60	250	25	70	0.05	16.8	18.4	22.0	55
	C	22.80	25.60									

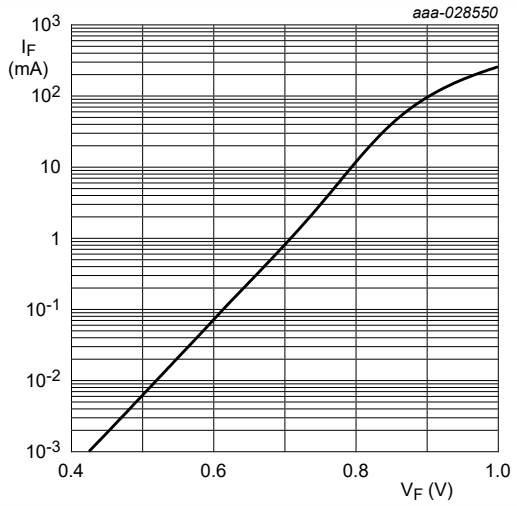
[1] f = 1 MHz; V_R = 0 V

Table 9. Characteristics per type; BZX884S-B27 to BZX884S-C75

T_j = 25 °C unless otherwise specified.

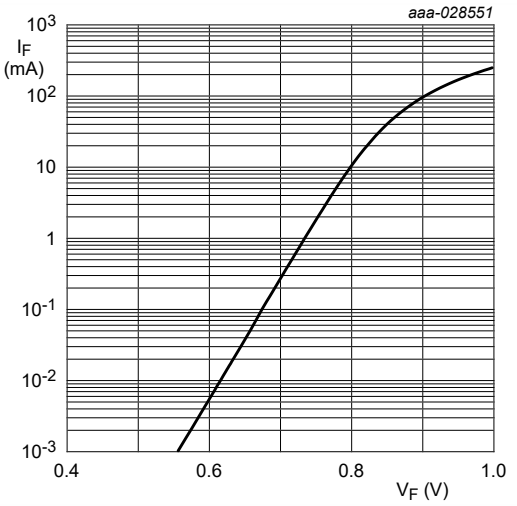
BZX884S	Sel	Working voltage V_Z (V)		Differential resistance r_{dif} (Ω)				Reverse current I_R (μA)		Temperature coefficient S_Z (mV/K)		Diode capacitance C_d (pF) [1]
		I_Z = 2 mA		I_Z = 0.5 mA		I_Z = 2 mA				I_Z = 2 mA		
		Min	Max	Typ	Max	Typ	Max	Max	V_R (V)	Min	Max	Max
27	B	26.50	27.50	65	300	25	80	0.05	18.9	21.4	25.3	50
	C	25.10	28.90									
30	B	29.40	30.60	70	300	30	80	0.05	21.0	24.4	29.4	50
	C	28.00	32.00									
33	B	32.30	33.70	75	325	35	80	0.05	23.1	27.4	33.4	45
	C	31.00	35.00									
36	B	35.30	36.70	80	350	35	90	0.05	25.2	30.4	37.4	45
	C	34.00	38.00									
39	B	38.20	39.80	80	350	40	130	0.05	27.3	33.4	41.2	45
	C	37.00	41.00									
43	B	42.10	43.90	85	375	45	150	0.05	30.1	37.6	46.6	40
	C	40.00	46.00									
47	B	46.10	47.90	85	375	50	170	0.05	32.9	42	51.8	40
	C	44.00	50.00									
51	B	50.00	52.00	90	400	60	180	0.05	35.7	46.6	57.2	40
	C	48.00	54.00									
56	B	54.90	57.10	100	425	70	200	0.05	39.2	52.2	63.8	40
	C	52.00	60.00									
62	B	60.80	63.20	120	450	80	215	0.05	43.4	58.8	71.6	35
	C	58.00	66.00									
68	B	66.60	69.40	150	475	90	240	0.05	47.6	65.6	79.8	35
	C	64.00	72.00									
75	B	73.50	76.50	170	500	95	255	0.05	52.5	73.4	88.6	35
	C	70.00	79.00									

[1] f = 1 MHz; V_R = 0 V



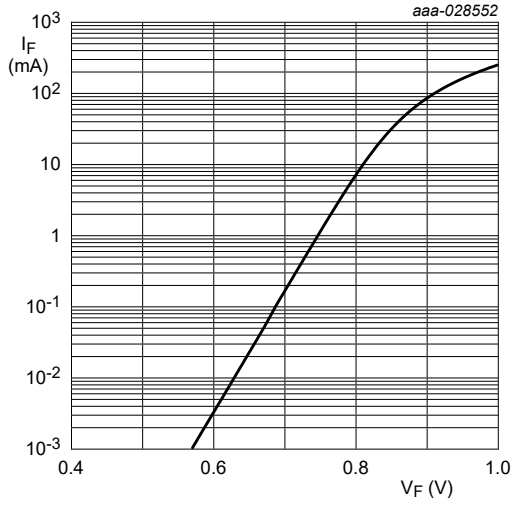
T_j = 25 °C

Fig. 1. Forward current as a function of forward voltage; typical values (BZX884S-B/C2V4)



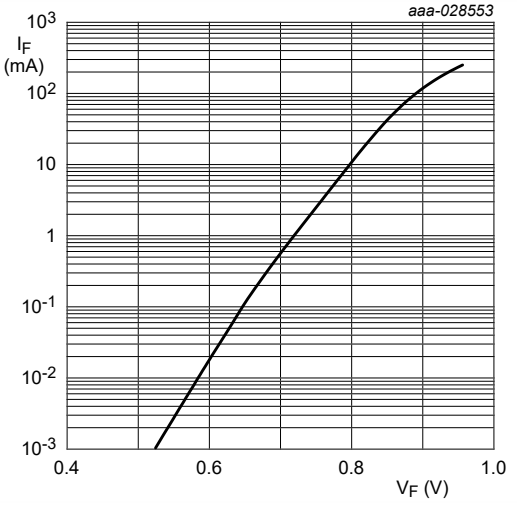
T_j = 25 °C

Fig. 2. Forward current as a function of forward voltage; typical values (BZX884S-B/C6V8)



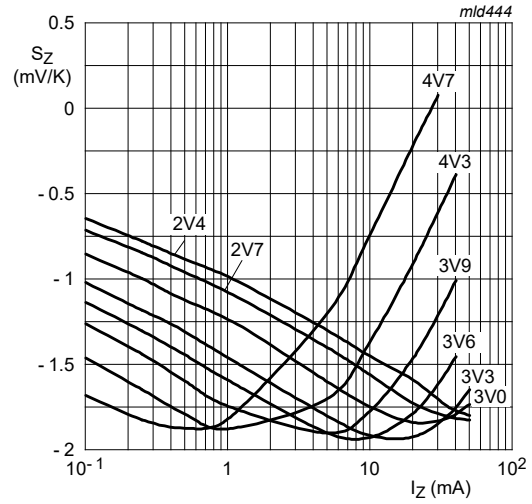
T_j = 25 °C

Fig. 3. Forward current as a function of forward voltage; typical values (BZX884S-B/C7V5)



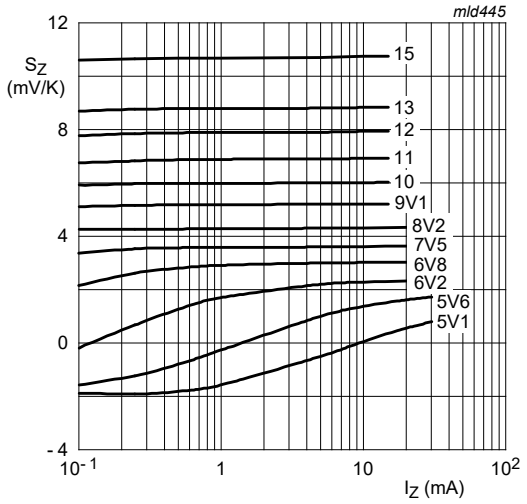
T_j = 25 °C

Fig. 4. Forward current as a function of forward voltage; typical values (BZX884S-B/C75)



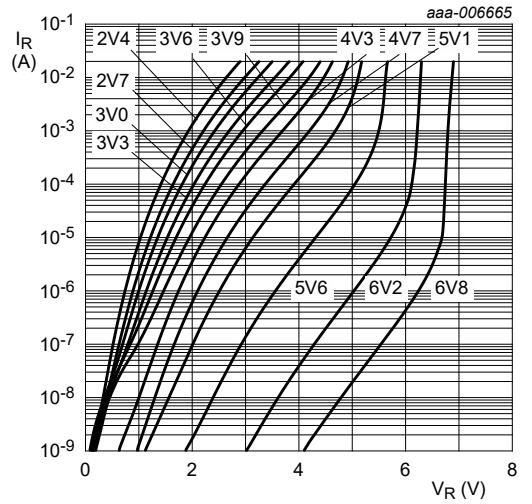
T_j = 25 °C to 150 °C

Fig. 5. Temperature coefficient as a function of working current; typical values (BZX884S-B/C2V4 to B/C4V7)



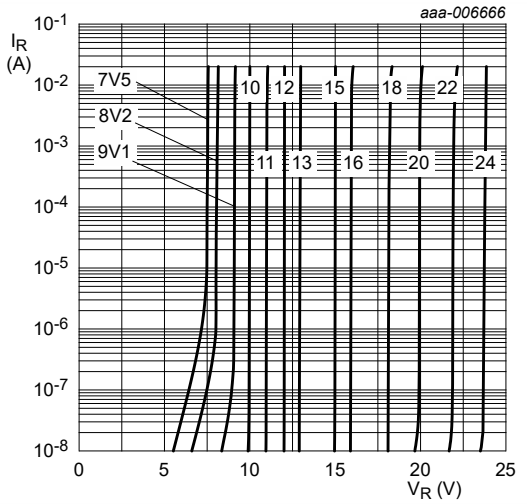
T_j = 25 °C to 150 °C

Fig. 6. Temperature coefficient as a function of working current; typical values (BZX884S-B/C5V1 to B/C15)



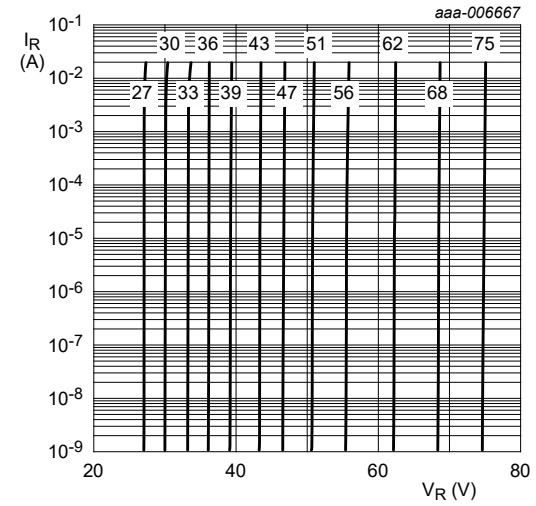
T_j = 25 °C

Fig. 7. Reverse current as a function of reverse voltage; typical values (BZX884S-B/C2V4 to BZX884S-B/C6V8)



T_j = 25 °C

Fig. 8. Reverse current as a function of reverse voltage; typical values (BZX884S-B/C7V5 to BZX884S-B/C24)

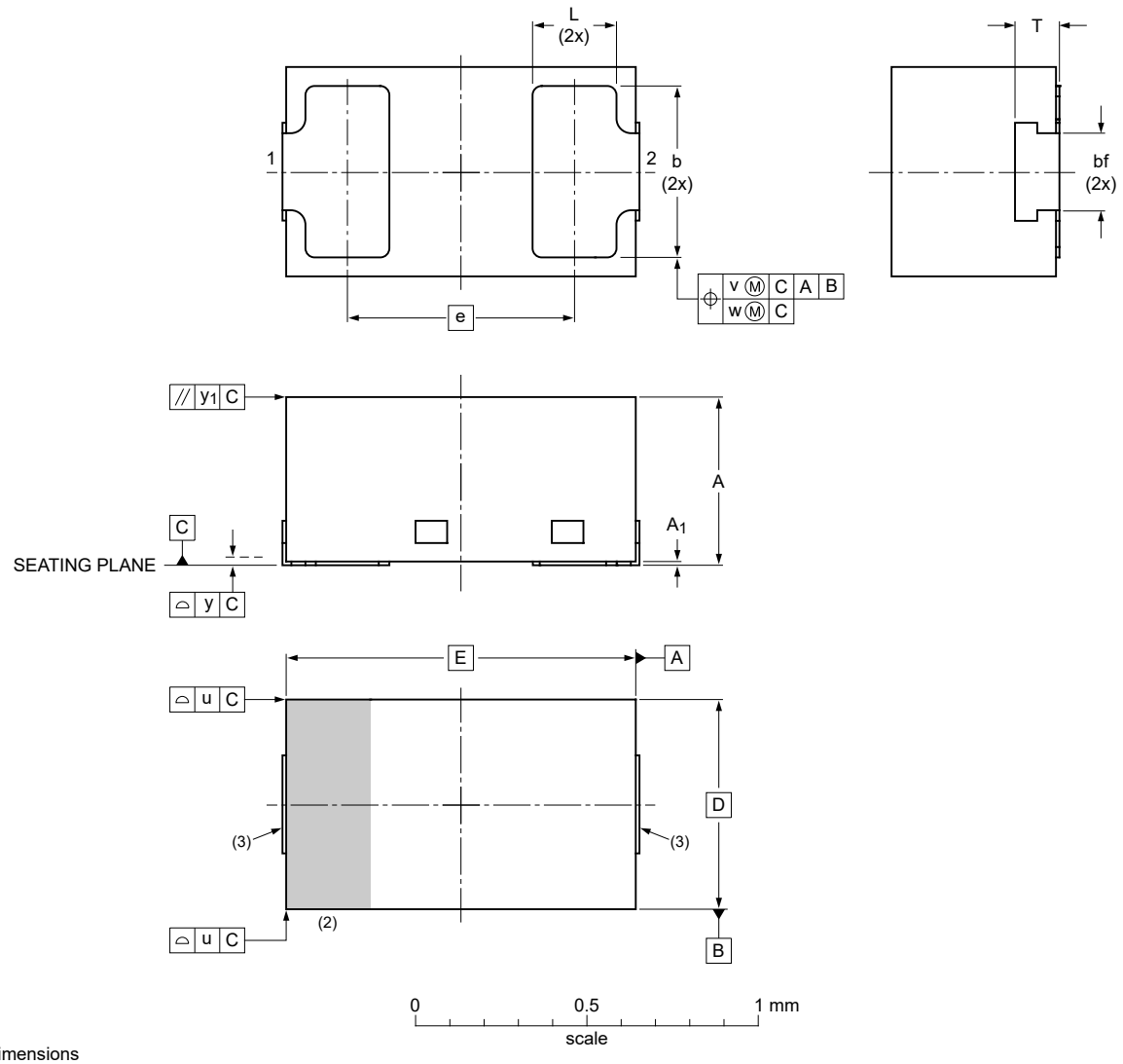


T_j = 25 °C

Fig. 9. Reverse current as a function of reverse voltage; typical values (BZX884S-B/C27 to BZX884S-B/C75)

11. 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		$A^{(1)}$	A_1	$bf^{(1)}$	b	D	E	e	L	$T^{(1)}$	u	v	w	y	y_1
	max	0.50	0.04		0.55				0.30	0.22					
mm	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.

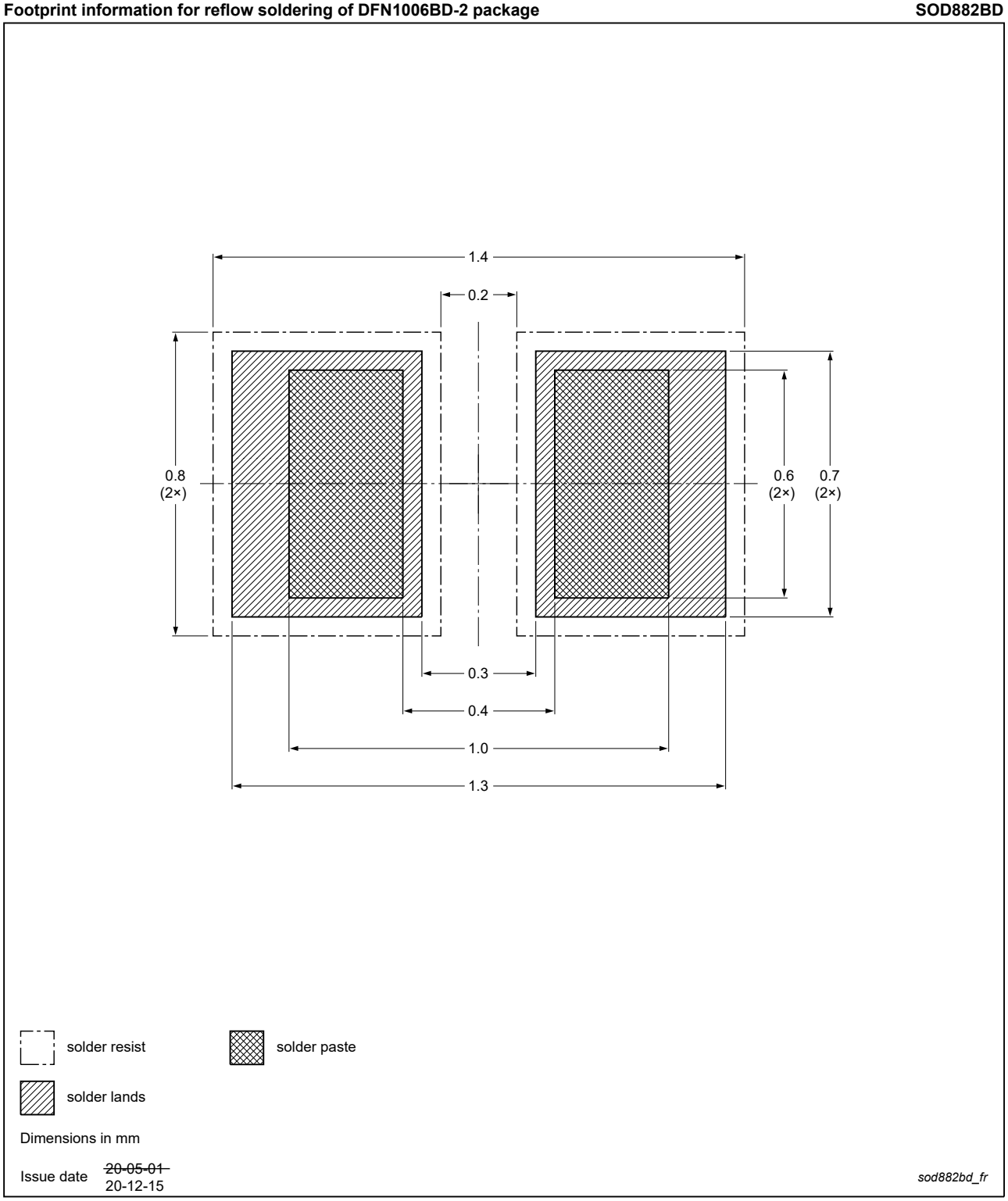
sod882bd_po

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

Fig. 10. Package outline SOD882BD

12. Soldering

Footprint information for reflow soldering of DFN1006BD-2 package **SOD882BD**



Reflow soldering is the only recommended soldering method.
Dimensions in mm.

Fig. 11. Reflow soldering footprint SOD882BD

13. Revision history

Table 10. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BZX884S_SER v.2	20201215	Product data sheet	-	BZX884S_SER v.1
Modifications:	• Products BZX884S-B7V5 to BZX884S-C75 added			
BZX884S_SER v.1	20200713	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.

[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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