



PZUxB_B2-Q series

Zener voltage regulator diodes in a SOD323F package

Rev. 1 — 8 July 2025

Product data sheet

1. General description

General-purpose Zener diodes in a SOD323F (SC-90) very small and flat lead Surface Mounted Device (SMD) plastic package.

2. Features and benefits

- Total power dissipation: 550 mW
- Tolerance series: B: approximately 5 %; B2: approximately 2 %
- Small plastic package suitable for surface mounted design
- Wide working voltage range: nominal 2.4 V to 51 V
- Very low leakage current for a given reverse voltage for types PZU5.1B-Q - PZU10B-Q
- PZU5.1B2-Q - 10B-Q: Very low dynamic impedances at low currents, very low leakage current, hard breakdown knee
- PZU11B2-Q - 51B-Q: Intentional minor rise of leakage current for optimized fast switching and noise reduction [Ref. [AN90031](#)]
- Qualified according to AEC-Q101 and recommended for use in automotive applications

3. Applications

- General regulation functions

4. Quick reference data

Table 1. Quick reference data

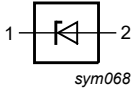
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_F	forward voltage	$I_F = 10 \text{ mA}$ [1]	-	-	0.9	V
P_{tot}	total power dissipation	$T_{amb} \leq 25 \text{ °C}$ [2]	-	-	550	mW

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

[2] Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for cathode 1 cm^2 .

5. Pinning information

Table 2. Pinning

Pin	Description		Simplified outline	Symbol
1	cathode	[1]		
2	anode			

[1] The marking bar indicates the cathode

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
PZU2.4B-Q to PZU51B-Q [1]	SC-90	plastic surface mounted package; 2 leads	SOD323F

[1] The series consists of 62 types with nominal working voltages from 2.4 V to 51 V.

7. Marking

Table 4. Marking codes

Type number PZUxxx-Q	Marking code		Type number PZUxxx-Q	Marking code	
	B	B2		B	B2
PZU2.4	G3	-	PZU12	GL	HH
PZU2.7	G4	H1	PZU13	GM	HJ
PZU3.0	G5	H2	PZU14	-	HK
PZU3.3	G6	H3	PZU15	GN	HL
PZU3.6	G7	H4	PZU16	GP	HM
PZU3.9	G8	H5	PZU18	GQ	HN
PZU4.3	G9	H6	PZU20	GR	HP
PZU4.7	GA	H7	PZU22	GS	HQ
PZU5.1	GB	H8	PZU24	GT	HR
PZU5.6	GC	H9	PZU27	GU	-
PZU6.2	GD	HA	PZU30	GV	-
PZU6.8	GE	HB	PZU33	GW	-
PZU7.5	GF	HC	PZU36	GX	-
PZU8.2	GG	HD	PZU39	FY	J2
PZU9.1	GH	HE	PZU43	FZ	J3
PZU10	GJ	HF	PZU47	GY	J4
PZU11	GK	HG	PZU51	GZ	J5

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
I _{ZSM}	non-repetitive peak reverse current		-	see: Table 8	
P _{ZSM}	non-repetitive peak reverse power dissipation		[1] -	40	W
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C	[2] -	310	mW
			[3] -	550	mW
T _j	junction temperature		-	150	°C
T _{amb}	ambient temperature		-65	+150	°C
T _{stg}	storage temperature		-65	+150	°C

[1] t_p = 100 μs; square wave; T_j = 25 °C prior to surge
[2] Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.
[3] Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for cathode 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] -	-	400	K/W
			[2] -	-	230	K/W
R _{th(j-sp)}	thermal resistance from junction to solder point		[3] -	-	55	K/W

[1] Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.
[2] Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for cathode 1cm².
[3] Soldering point of cathode tab

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
		I _F = 100 mA	[1] -	-	1.1	V

[1] Pulse test: t_p ≤ 300 μs; δ ≤ 0.02

Table 8. Characteristics per type; PZU2.4B-Q to PZU9.1B-Q

T_j = 25 °C unless otherwise specified

PZU xxx -Q	Sel	Working voltage V _Z (V); I _Z = 5 mA		Maximum differential resistance r _{dif} (Ω)		Reverse current I _R (μA)		Temperature coefficient S _Z (mV/K); I _Z = 5 mA	Diode capacitance C _d (pF) ; f = 1 MHz; V _R = 0 V	Non-repetitive peak reverse current I _{ZSM} (A) t _p = 100 μs; square wave; T _j = 25 °C ; prior to surge
		Min	Max	I _Z = 0.5 mA	I _Z = 5 mA	Max	V _R (V)	Typ	Max	Max
2.4	B	2.3	2.6	1000	100	50	1	-1.6	450	8
2.7	B	2.5	2.9	1000	100	20	1	-2.0	440	8
	B2	2.65	2.9							
3.0	B	2.80	3.20	1000	95	10	1	-2.1	425	8
	B2	2.95	3.20							
3.3	B	3.10	3.50	1000	95	5	1	-2.4	410	8
	B2	3.25	3.50							
3.6	B	3.40	3.80	1000	90	5	1	-2.4	390	8
	B2	3.55	3.80							
3.9	B	3.70	4.10	1000	90	3	1	-2.5	370	8
	B2	3.87	4.10							
4.3	B	4.01	4.48	1000	90	3	1	-2.5	350	8
	B2	4.15	4.34							
4.7	B	4.42	4.90	800	80	2	1	-1.4	325	8
	B2	4.55	4.75							
5.1	B	4.84	5.37	250	60	2	1.5	0.3	300	5.5
	B2	4.98	5.20							
5.6	B	5.31	5.92	100	40	1	2.5	1.9	275	5.5
	B2	5.49	5.73							
6.2	B	5.86	6.53	80	30	0.5	3	2.7	250	5.5
	B2	6.06	6.33							
6.8	B	6.47	7.14	60	20	0.5	3.5	3.4	215	5.5
	B2	6.65	6.93							
7.5	B	7.06	7.84	60	10	0.5	4	4.0	170	3.5
	B2	7.28	7.60							
8.2	B	7.76	8.64	60	10	0.5	5	4.6	150	3.5
	B2	8.02	8.36							
9.1	B	8.56	9.55	60	10	0.5	6	5.5	120	3.5
	B2	8.85	9.23							

Table 9. Characteristics per type; PZU10B-Q to PZU36B-Q

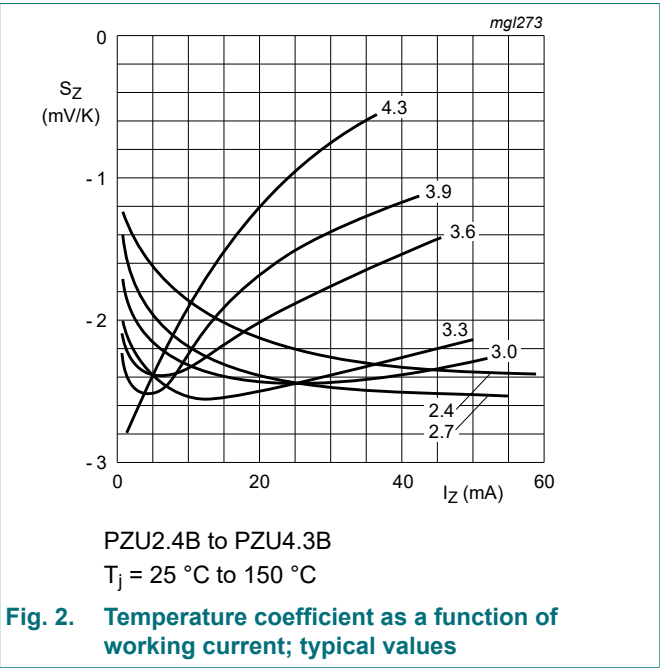
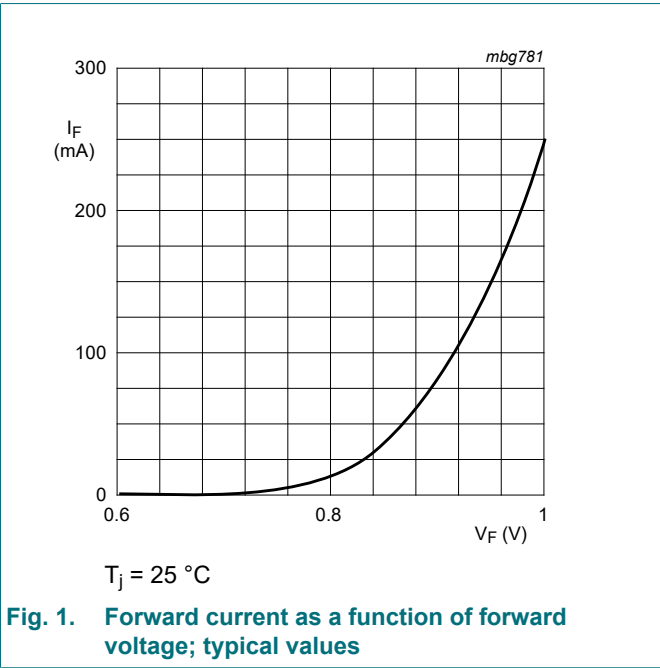
T_j = 25 °C unless otherwise specified

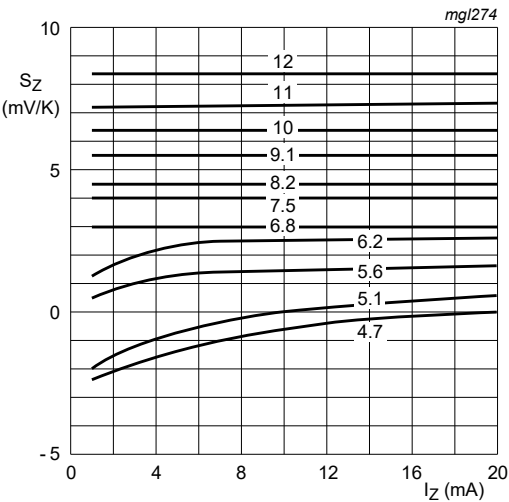
PZU xxx -Q	Sel	Working voltage V _Z (V); I _Z = 5 mA		Maximum differential resistance r _{dif} (Ω)		Reverse current I _R (nA)		Temperature coefficient S _Z (mV/K); I _Z = 5 mA	Diode capacitance C _d (pF) ; f = 1 MHz; V _R = 0 V	Non-repetitive peak reverse current I _{ZSM} (A) t _p = 100 μs; square wave; T _j = 25 °C ; prior to surge
		Min	Max	I _Z = 0.5 mA	I _Z = 5 mA	Max	V _R (V)	Typ	Max	Max
10	B	9.45	10.55	60	10	100	7	6.4	110	3.5
	B2	9.77	10.21							
11	B	10.44	11.56	60	10	100	8	7.4	108	3
	B2	10.76	11.22							
12	B	11.42	12.60	80	10	100	9	8.4	105	3
	B2	11.74	12.24							
13	B	12.47	13.96	80	10	100	10	9.4	103	2.5
	B2	12.91	13.49							
14	B2	13.70	14.30	80	10	100	11	10.4	101	2
15	B	13.84	15.52	80	15	50	11	11.4	99	2
	B2	14.34	14.98							
16	B	15.37	17.09	80	20	50	12	12.4	97	1.5
	B2	15.85	16.51							
18	B	16.94	19.03	80	20	50	13	14.4	93	1.5
	B2	17.56	18.35							
20	B	18.86	21.08	100	20	50	15	16.4	88	1.5
	B2	19.52	20.39							
22	B	20.88	23.17	100	25	50	17	18.4	84	1.3
	B2	21.54	22.47							
24	B	22.93	25.57	120	30	50	19	20.4	80	1.3
	B2	23.72	24.78							
27	B	25.1	28.9	150	40	50	21	23.4	73	1
30	B	28	32	200	40	50	23	26.6	66	1
33	B	31	35	250	40	50	25	29.7	60	0.9
36	B	34	38	300	60	50	27	33.0	59	0.8

Table 10. Characteristics per type; PZU39B-Q to PZU51B-Q

T_j = 25 °C unless otherwise specified

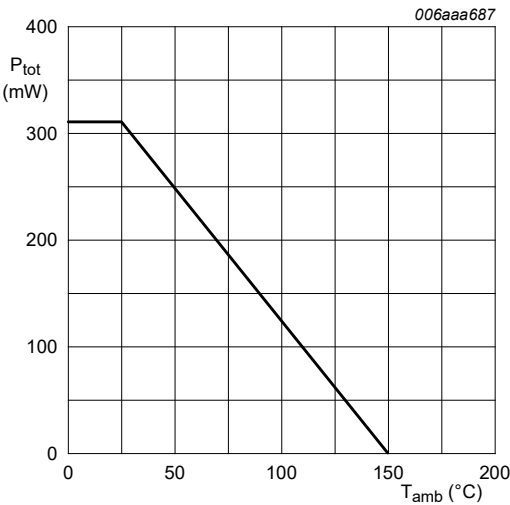
PZU xxx -Q	Sel	Working voltage V _Z (V)		Maximum differential resistance r _{dif} (Ω)			Reverse current I _R (μA)		Temperature coefficient S _Z (mV/K)	Diode capacitance C _d (pF)	Non-repetitive peak reverse current I _{ZSM} (A)
		I _Z = 2 mA		I _Z = 0.5 mA	I _Z = 2 mA				I _Z = 2 mA	f = 1 MHz; V _R = 0 V	t _p = 100 μs; square wave; T _j = 25 °C ; prior to surge
		Min	Max	Max	Max	Max	V _R (V)	Typ	Max	Max	Max
39	B2	38.20	39.80	350	130	50	27.3	36.4	45		0.7
	B	37.00	41.00								
43	B2	42.10	43.90	375	150	50	30.1	41.2	40		0.6
	B	40.00	46.00								
47	B2	46.10	47.90	375	170	50	32.9	46.1	40		0.5
	B	44.00	50.00								
51	B2	50.00	52.00	400	180	50	35.7	51.0	40		0.4
	B	48.00	54.00								





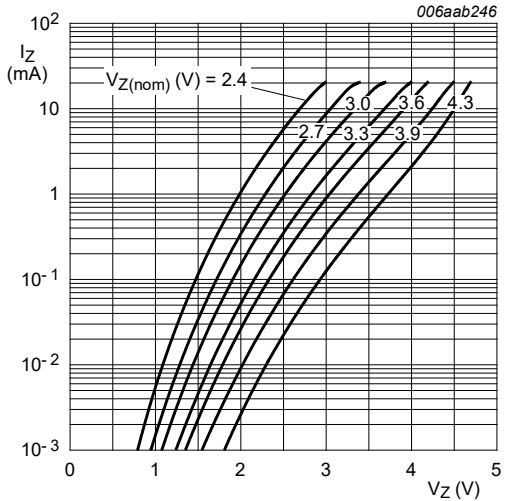
PZU4.7B to PZU12B
 $T_j = 25\text{ }^{\circ}\text{C}$ to $150\text{ }^{\circ}\text{C}$

Fig. 3. Temperature coefficient as a function of working current; typical values



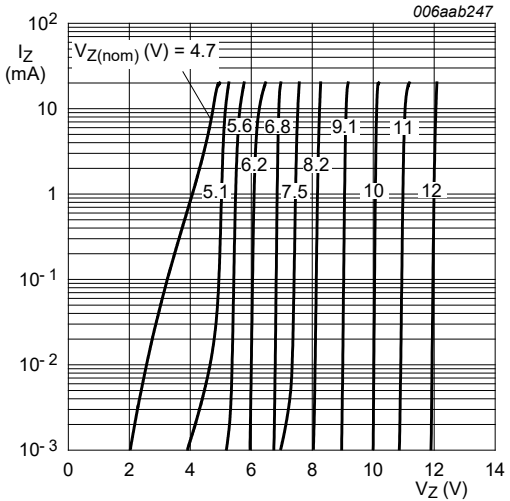
FR4 PCB, standard footprint

Fig. 4. Power derating curve



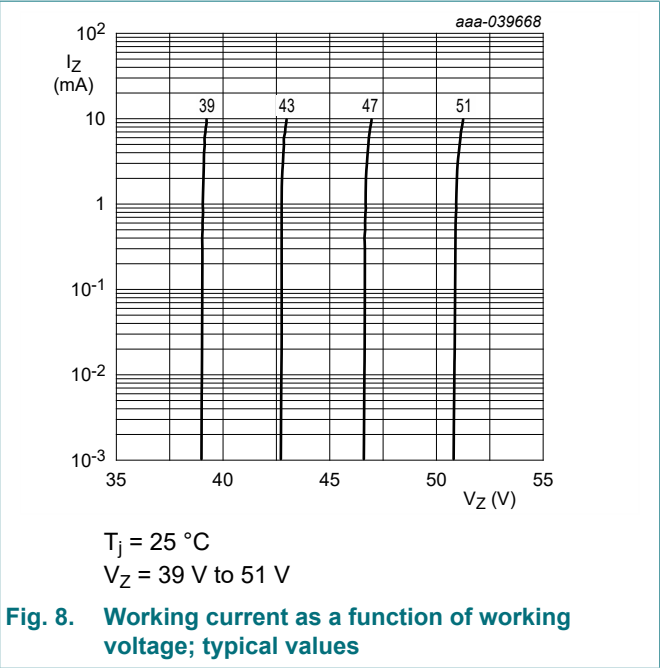
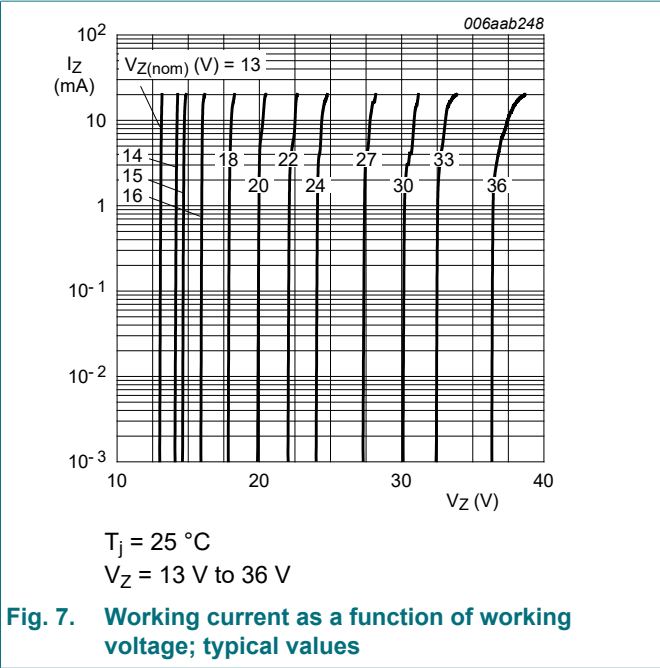
$T_j = 25\text{ }^{\circ}\text{C}$
 $V_Z = 2.4\text{ V}$ to 4.3 V

Fig. 5. Working current as a function of working voltage; typical values



$T_j = 25\text{ }^{\circ}\text{C}$
 $V_Z = 4.7\text{ V}$ to 12 V

Fig. 6. Working current as a function of working voltage; typical values

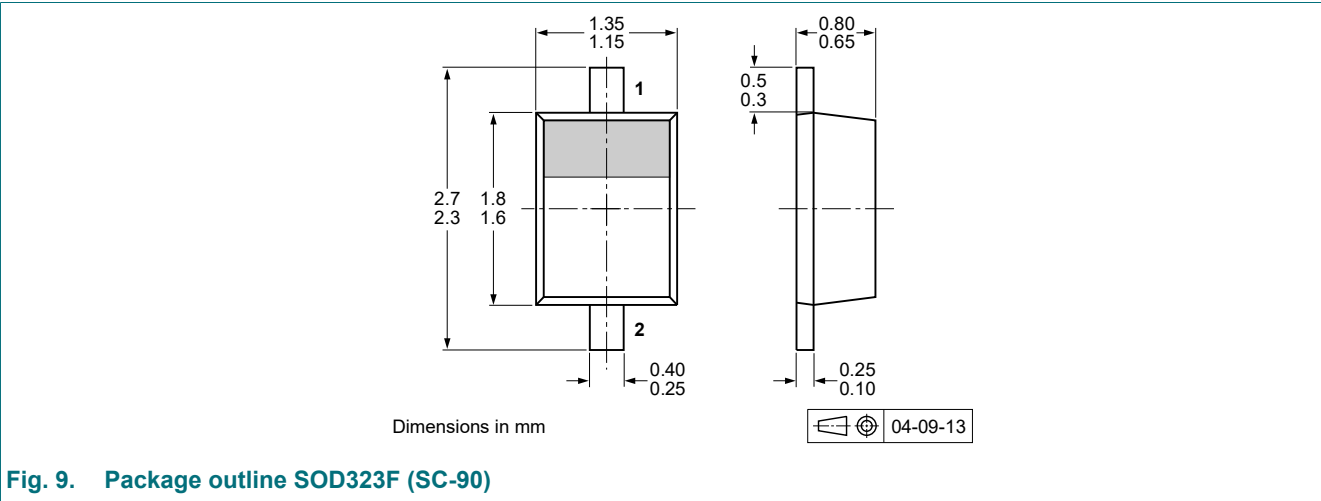


11. Test information

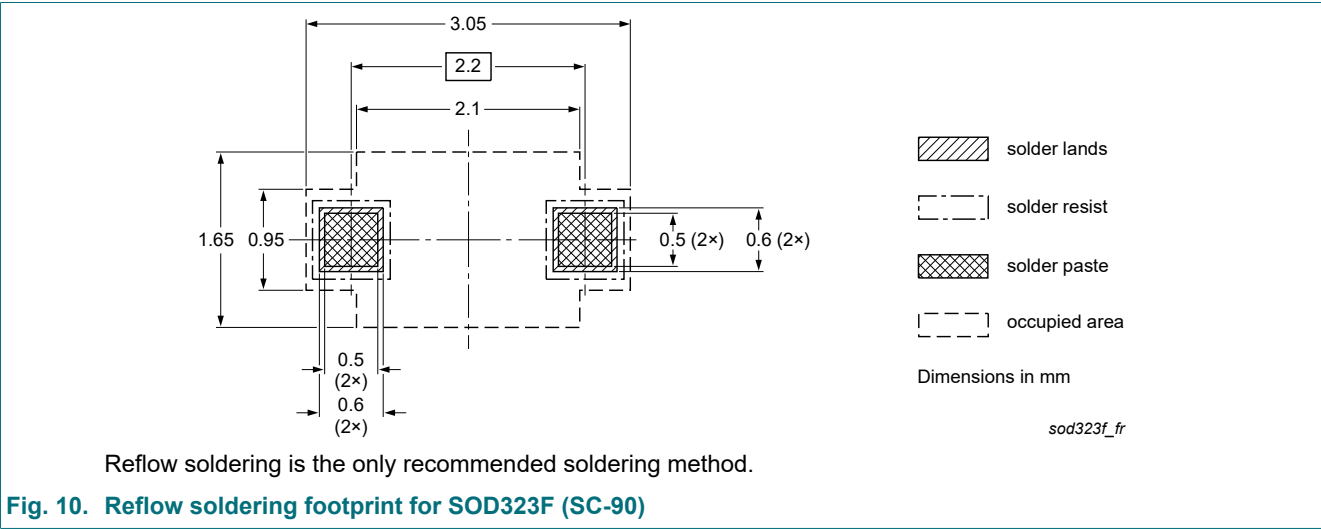
Quality information

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



13. Soldering



14. Revision history

Table 11. Revision history

Document ID	Release date	Data sheet status	Supersedes
PZUXB_B2-Q_SER v. 1	20250708	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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- [2] The term 'short data sheet' is explained in section "Definitions".
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