



BZX585-Q series

Voltage regulator diodes

Rev. 2 — 6 August 2026

Product data sheet

1. General description

General-purpose Zener diodes in a SOD523 (SC-79) ultra small and flat lead Surface-Mounted Device (SMD) plastic package.

2. Features and benefits

- Non-repetitive peak reverse power dissipation: ≤ 40 W
- Total power dissipation: ≤ 300 mW
- Wide working voltage range: nominal 2.4 V to 75 V (E24 range)
- Two tolerance series: $\pm 2\%$ and $\pm 5\%$
- Low differential resistance
- 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	$I_F = 100$ mA [1]	-	-	1.1	V
P_{ZSM}	non-repetitive peak reverse power dissipation	[2]	-	-	40	W

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

[2] $t_p = 100$ μ s; square wave; $T_J = 25$ °C before surge

5. Pinning information

Table 2. Pinning

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	cathode[1]		
2	A	anode		

[1] The marking bar indicates the cathode.

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
BZX585-B2V4-Q to BZX585-C75-Q[1]	SC-79	plastic surface-mounted package; 2 leads	SOD523

[1] The series consists of 74 types with nominal working voltages from 2.4 V to 75 V.

7. Marking

Table 4. Marking Codes

Type number	Marking Code	Type number	Marking Code	Type number	Marking Code	Type number	Marking Code
BZX585-B2V4-Q	C1	BZX585-B15-Q	E0	BZX585-C2V4-Q	F1	BZX585-C15-Q	H0
BZX585-B2V7-Q	C2	BZX585-B16-Q	EA	BZX585-C2V7-Q	F2	BZX585-C16-Q	HA
BZX585-B3V0-Q	C3	BZX585-B18-Q	EB	BZX585-C3V0-Q	F3	BZX585-C18-Q	HB
BZX585-B3V3-Q	C4	BZX585-B20-Q	EC	BZX585-C3V3-Q	F4	BZX585-C20-Q	HC
BZX585-B3V6-Q	C5	BZX585-B22-Q	ED	BZX585-C3V6-Q	F5	BZX585-C22-Q	HD
BZX585-B3V9-Q	C6	BZX585-B24-Q	EE	BZX585-C3V9-Q	F6	BZX585-C24-Q	HE
BZX585-B4V3-Q	C7	BZX585-B27-Q	EF	BZX585-C4V3-Q	F7	BZX585-C27-Q	HF
BZX585-B4V7-Q	C8	BZX585-B30-Q	EG	BZX585-C4V7-Q	F8	BZX585-C30-Q	HG
BZX585-B5V1-Q	C9	BZX585-B33-Q	EH	BZX585-C5V1-Q	F9	BZX585-C33-Q	HH
BZX585-B5V6-Q	C0	BZX585-B36-Q	EK	BZX585-C5V6-Q	F0	BZX585-C36-Q	HK
BZX585-B6V2-Q	E1	BZX585-B39-Q	EL	BZX585-C6V2-Q	H1	BZX585-C39-Q	HL
BZX585-B6V8-Q	E2	BZX585-B43-Q	EM	BZX585-C6V8-Q	H2	BZX585-C43-Q	HM
BZX585-B7V5-Q	E3	BZX585-B47-Q	EN	BZX585-C7V5-Q	H3	BZX585-C47-Q	HN
BZX585-B8V2-Q	E4	BZX585-B51-Q	EP	BZX585-C8V2-Q	H4	BZX585-C51-Q	HP
BZX585-B9V1-Q	E5	BZX585-B56-Q	ER	BZX585-C9V1-Q	H5	BZX585-C56-Q	HR
BZX585-B10-Q	E6	BZX585-B62-Q	ES	BZX585-C10-Q	H6	BZX585-C62-Q	HS
BZX585-B11-Q	E7	BZX585-B68-Q	ET	BZX585-C11-Q	H7	BZX585-C68-Q	HT
BZX585-B12-Q	E8	BZX585-B75-Q	EU	BZX585-C12-Q	H8	BZX585-C75-Q	HU
BZX585-B13-Q	E9	-	-	BZX585-C13-Q	H9	-	-

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	t _p = 100 μs; square wave; T _{amb} = 25 °C; prior to surge	-	see Tables 8 and 9		
P _{ZSM}	non-repetitive peak reverse power dissipation	t _p = 100 μs; square wave; T _{amb} = 25 °C; prior to surge	-	-	40	W
P _{tot}	total power dissipation	T _{amb} = 25 °C	[1]	-	300	mW
T _j	junction temperature			-65	150	°C
T _{amb}	ambient temperature			-65	+150	°C
T _{stg}	storage temperature			-65	+150	°C

[1] Device mounted on an FR4 Printed-Circuit Board (PCB) with approximately 35 mm² Cu area at cathode tab

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]	-	-	350	K/W
R _{th(j-sp)}	thermal resistance from junction to solder point	[2]	-	-	65	K/W

[1] Device mounted on an FR4 Printed-Circuit Board (PCB) with approximately 35 mm² Cu area at cathode tab

[2] Soldering point of cathode tab

10. Characteristics

Table 7. Electrical characteristics

T_j = 25 °C unless otherwise specified.

Symbol	Parameter	Conditions		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. Electrical characteristics per type: BZX585-B2V4-Q to BZX585-C24-Q

T_j = 25 °C unless otherwise specified.

BZX585-	Sel	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]	Non-repeti. peak reverse current I _{ZSM} (A) [2]
		I _Z = 5 mA		I _Z = 1 mA		I _Z = 5 mA				I _Z = 5 mA			Max	Max
		Min	Max	Typ	Max	Typ	Max	Max	V _R (V)	Min	Typ	Max		
2V4-Q	B	2.35	2.45	275	400	70	100	50.0	1.0	-3.5	-1.3	0	450	6.0
	C	2.28	2.52											
2V7-Q	B	2.65	2.75	300	450	75	100	20.0	1.0	-3.5	-1.4	0	440	6.0
	C	2.57	2.84											
3V0-Q	B	2.94	3.06	325	500	80	95	10.0	1.0	-3.5	-1.6	0	425	6.0
	C	2.85	3.15											
3V3-Q	B	3.23	3.37	350	500	85	95	5.0	1.0	-3.5	-1.8	0	410	6.0
	C	3.14	3.47											
3V6-Q	B	3.53	3.67	375	500	85	90	5.0	1.0	-3.5	-1.9	0	390	6.0
	C	3.42	3.78											
3V9-Q	B	3.82	3.98	400	500	85	90	3.0	1.0	-3.5	-1.9	0	370	6.0
	C	3.71	4.10											
4V3-Q	B	4.21	4.39	410	600	80	90	3.0	1.0	-3.5	-1.7	0	350	6.0
	C	4.09	4.52											
4V7-Q	B	4.61	4.79	425	500	50	80	3.0	2.0	-3.5	-1.2	0.2	325	6.0
	C	4.47	4.94											
5V1-Q	B	5.00	5.20	400	480	40	60	2.0	2.0	-2.7	-0.5	1.2	300	6.0
	C	4.85	5.36											
5V6-Q	B	5.49	5.71	80	400	15	40	1.0	2.0	-2.0	1.0	2.5	275	6.0
	C	5.32	5.88											
6V2-Q	B	6.08	6.32	40	150	6	10	3.0	4.0	0.4	2.2	3.7	250	6.0
	C	5.89	6.51											
6V8-Q	B	6.66	6.94	30	80	6	15	2.0	4.0	1.2	3.0	4.5	215	6.0
	C	6.46	7.14											
7V5-Q	B	7.35	7.65	15	80	2	10	1.0	5.0	2.5	3.6	5.3	170	4.0
	C	7.13	7.88											
8V2-Q	B	8.04	8.36	20	80	2	10	0.7	5.0	3.2	4.3	6.2	150	4.0
	C	7.79	8.61											

BZX585-	Sel	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]	Non-repeti. peak reverse current I _{ZSM} (A) ^[2]
		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	Typ	Max	Max	Max
9V1-Q	B	8.92	9.28	20	100	2	10	0.5	6.0	3.8	5.2	7.0	120	3.0
	C	8.65	9.56											
10-Q	B	9.80	10.20	20	150	2	10	0.2	7.0	4.5	6.0	8.0	110	3.0
	C	9.50	10.50											
11-Q	B	10.78	11.22	25	150	2	10	0.1	8.0	5.4	6.9	9.0	110	2.5
	C	10.45	11.55											
12-Q	B	11.76	12.24	25	150	2	10	0.1	8.0	6.0	7.9	10.0	105	2.5
	C	11.40	12.60											
13-Q	B	12.74	13.26	25	170	2	10	0.1	8.0	7.0	8.8	11.0	105	2.5
	C	12.35	13.65											
15-Q	B	14.70	15.30	25	200	3	15	0.05	10.5	9.2	10.7	13.0	100	2.0
	C	14.25	15.75											
16-Q	B	15.68	16.32	50	200	10	40	0.05	11.2	10.4	12.4	14.0	90	1.5
	C	15.20	16.80											
18-Q	B	17.64	18.36	50	225	10	45	0.05	12.6	12.4	14.4	16.0	80	1.5
	C	17.10	18.90											
20-Q	B	19.60	20.40	60	225	15	55	0.05	14.0	14.4	16.4	18.0	70	1.5
	C	19.00	21.00											
22-Q	B	21.56	22.44	60	250	20	55	0.05	15.4	16.4	18.4	20.0	60	1.25
	C	20.90	23.10											
24-Q	B	23.52	24.48	60	250	25	70	0.05	16.8	18.4	20.4	22.0	55	1.25
	C	22.80	25.20											

[1] f = 1 MHz; V_R = 0 V
[2] t_p = 100 μs; square wave; t_j = 25 °C before surge

Table 9. Electrical characteristics per type: BZX585-B27-Q to BZX585-C75-Q

BZX585-	Sel	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]	Non-repeti. peak reverse current I _{ZSM} (A) ^[2]
		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	Typ	Max	Max	Max
27-Q	B	26.46	27.54	65	300	25	80	0.05	18.9	21.4	23.4	25.3	50	1.0
	C	25.65	28.35											
30-Q	B	29.40	30.60	70	300	30	80	0.05	21.0	24.4	26.6	29.4	50	1.0
	C	28.50	31.50											
33-Q	B	32.34	33.66	75	325	35	80	0.05	23.1	27.4	29.7	33.4	45	0.9
	C	31.35	34.65											
36-Q	B	35.28	36.72	80	350	35	90	0.05	25.2	30.4	33.0	37.4	45	0.8
	C	34.20	37.80											
39-Q	B	38.22	39.78	80	350	40	130	0.05	27.3	33.4	36.4	41.2	45	0.7
	C	37.05	40.95											
43-Q	B	42.14	43.86	85	375	45	150	0.05	30.1	37.6	41.2	46.6	40	0.6
	C	40.85	45.15											
47-Q	B	46.06	47.94	85	375	50	170	0.05	32.9	42.0	46.1	51.8	40	0.5
	C	44.65	49.35											
51-Q	B	49.98	52.02	90	400	60	180	0.05	35.7	46.6	51.0	57.2	40	0.4
	C	48.45	53.55											
56-Q	B	54.88	57.12	100	425	70	200	0.05	39.2	52.2	57.0	63.8	40	0.3
	C	53.20	58.80											
62-Q	B	60.76	63.24	120	450	80	215	0.05	43.4	58.8	64.4	71.6	35	0.3
	C	58.90	65.10											
68-Q	B	66.64	69.36	150	475	90	240	0.05	47.6	65.6	71.7	79.8	35	0.25
	C	64.60	71.40											
75-Q	B	73.50	76.50	170	500	95	255	0.05	52.5	73.4	80.2	88.6	35	0.2
	C	71.25	78.75											

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

[2] t_p = 100 μs; square wave; t_j = 25 °C before surge

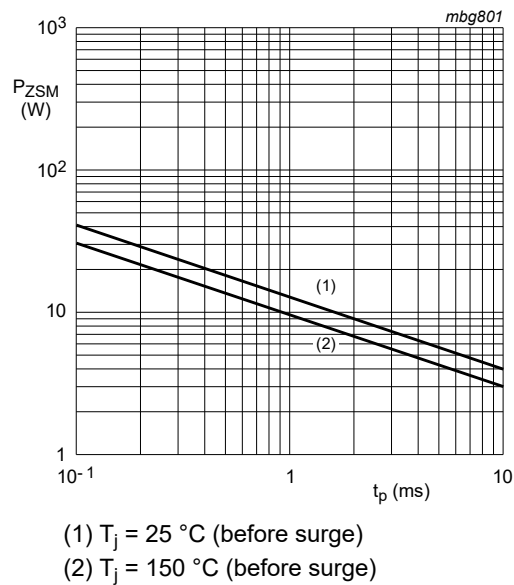


Fig. 1. Non-repetitive peak reverse power dissipation as a function of pulse duration; maximum values

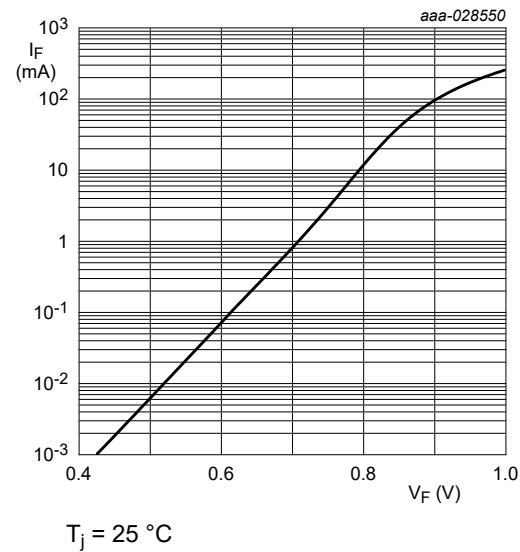


Fig. 2. Forward current as a function of forward voltage; typical values (BZX585-B/C2V4-Q)

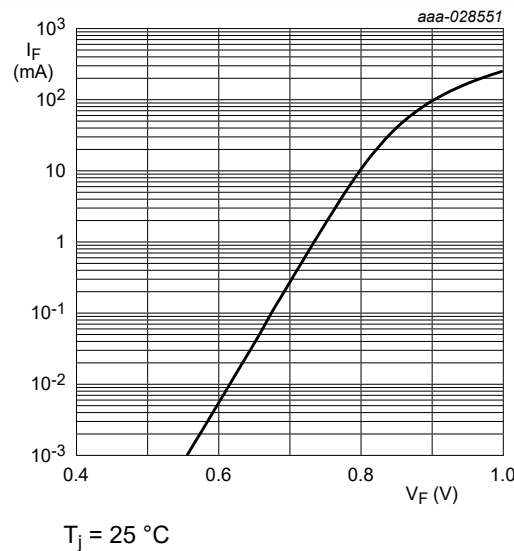


Fig. 3. Forward current as a function of forward voltage; typical values (BZX585-B/C6V8-Q)

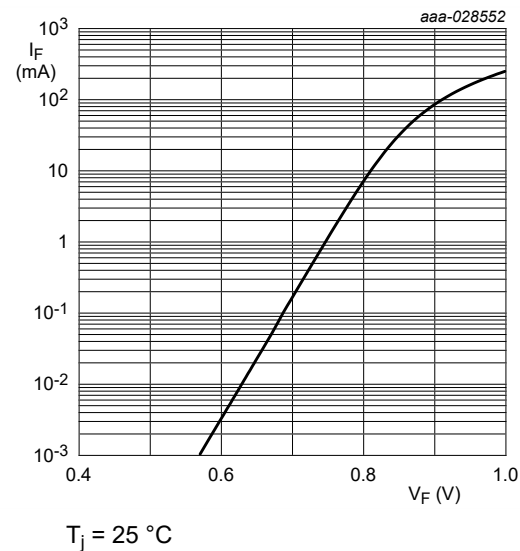


Fig. 4. Forward current as a function of forward voltage; typical values (BZX585-B/C7V5-Q)

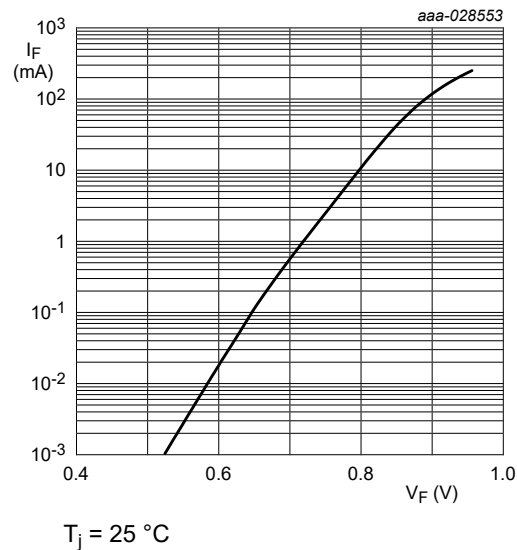


Fig. 5. Forward current as a function of forward voltage; typical values (BZX585-B/C75-Q)

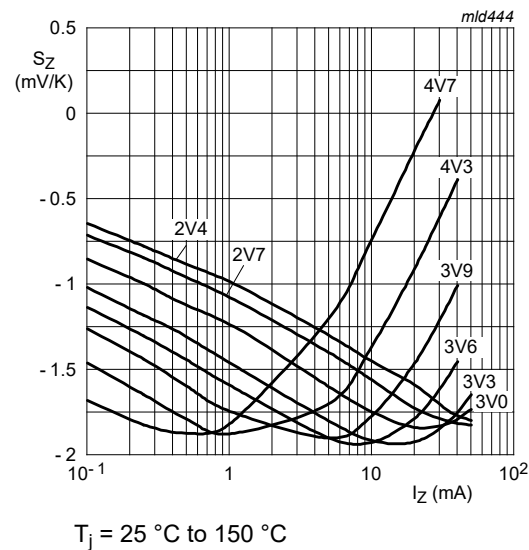


Fig. 6. Temperature coefficient as a function of working current; typical values (BZX585-B/C2V4-Q to B/C4V7-Q)

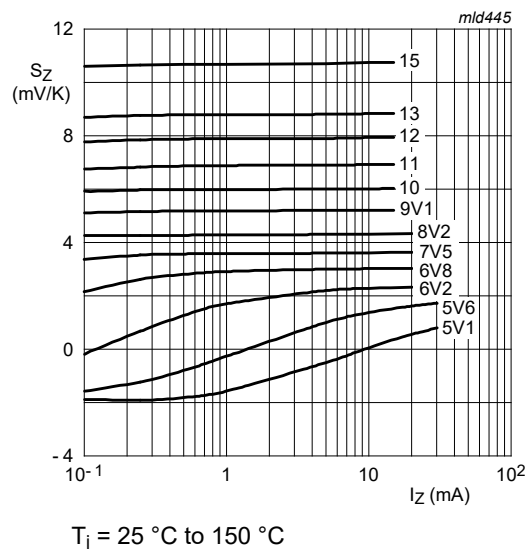


Fig. 7. Temperature coefficient as a function of working current; typical values (BZX585-B/C5V1-Q to B/C15-Q)

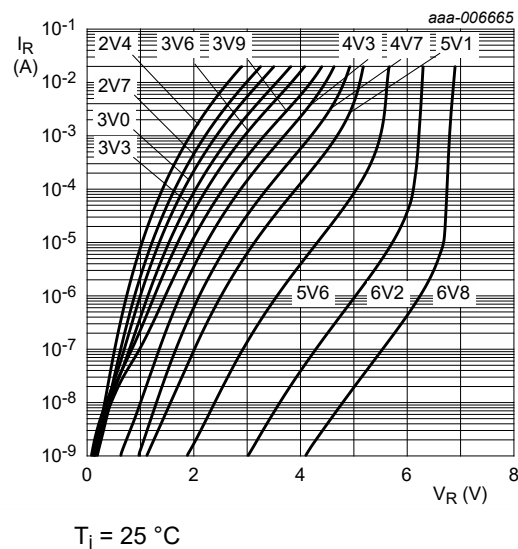


Fig. 8. Reverse current as a function of reverse voltage; typical values (BZX585-B/C2V4-Q to BZX585-B/C6V8-Q)

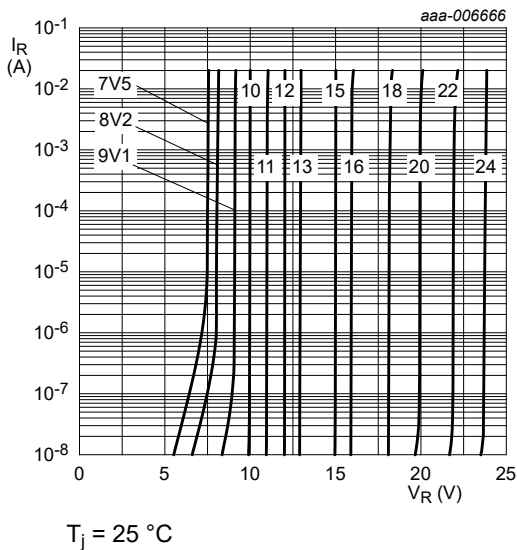


Fig. 9. Reverse current as a function of reverse voltage; typical values (BZX585-B/C7V5-Q to BZX585-B/C24-Q)

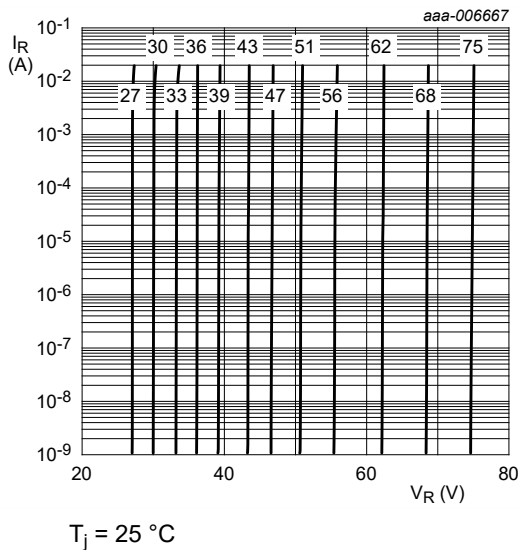


Fig. 10. Reverse current as a function of reverse voltage; typical values (BZX585-B/C27-Q to BZX585-B/C75-Q)

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

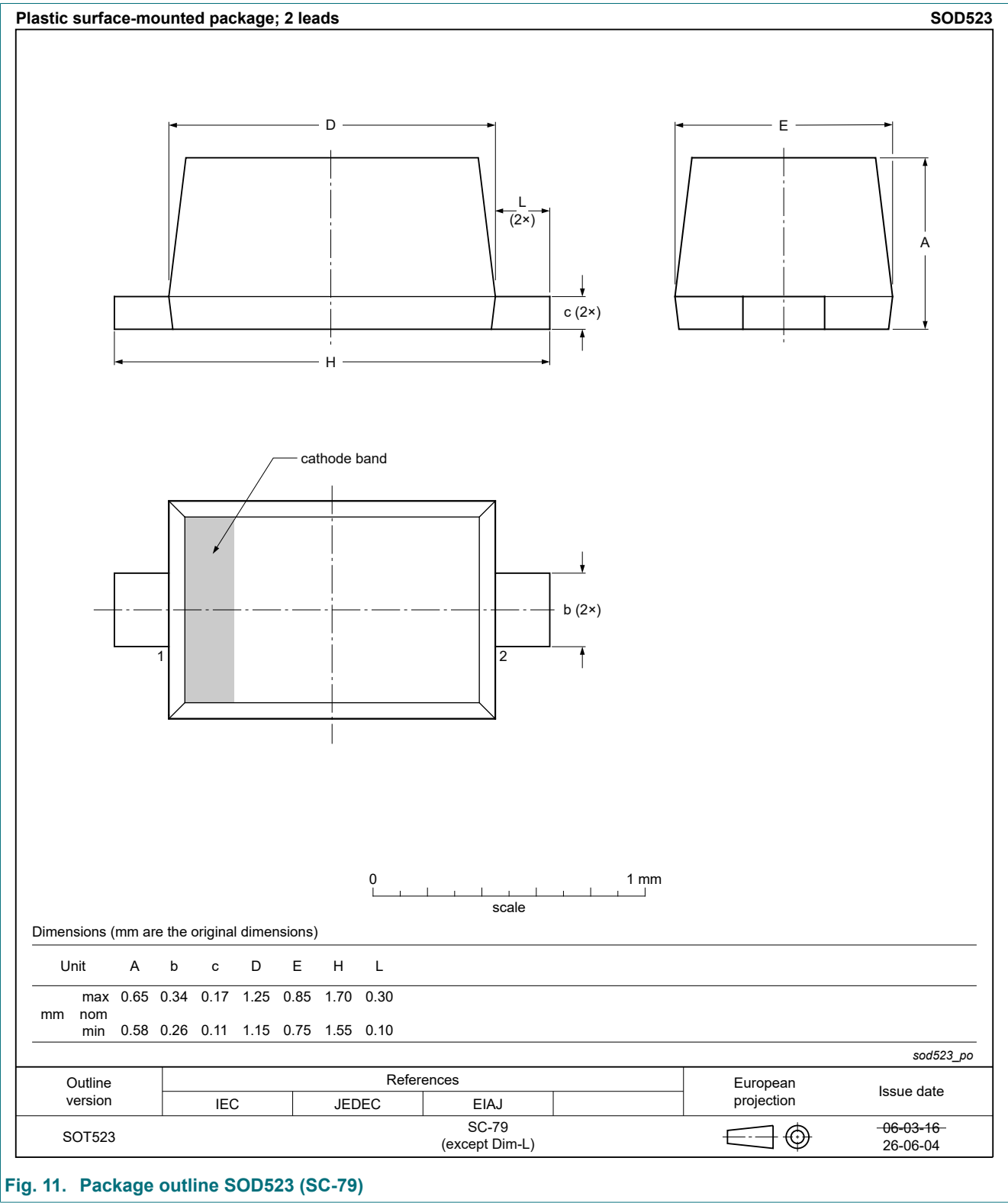


Fig. 11. Package outline SOD523 (SC-79)

13. Soldering

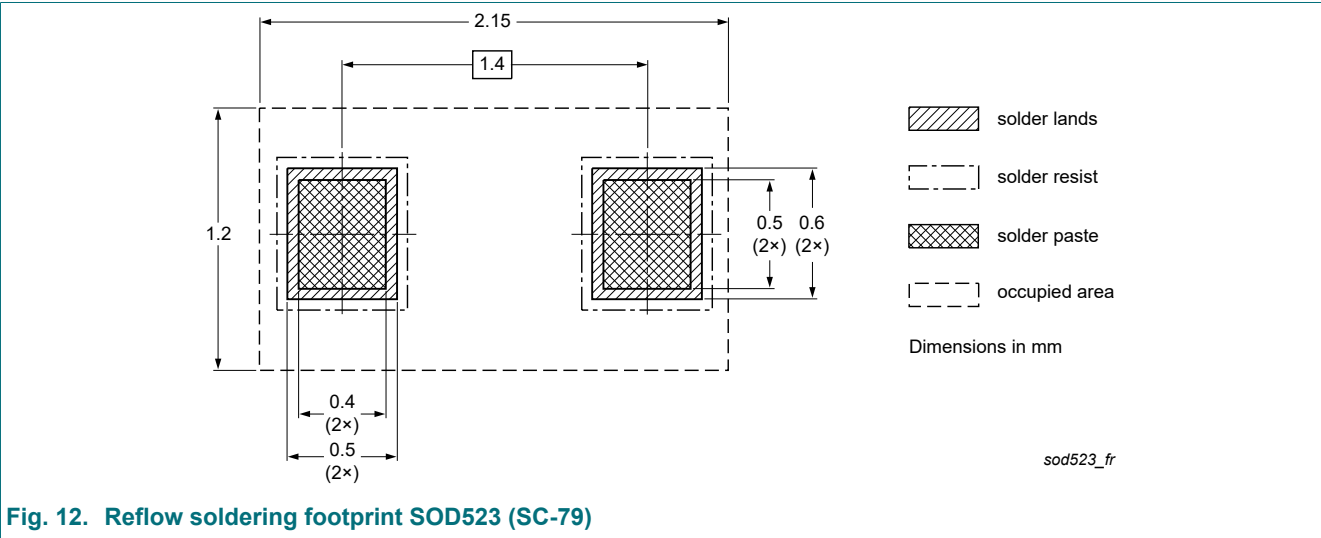


Fig. 12. Reflow soldering footprint SOD523 (SC-79)

14. Revision history

Table 10. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BZX585-Q_SER v.2	20260806	Product data sheet	-	BZX585-Q_SER v.1
Modifications:	Aligned SOD523 package outline drawing			
BZX585-Q_SER v.1	20231011	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".
- [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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