DZ23 series

Common cathode Zener diodes

Rev. 1 — 30 September 2025 Product data sheet

1. General description

Common cathode Zener diodes diodes in a SOT23 small Surface-Mounted Device (SMD) plastic package.

2. Features and benefits

- Non-repetitive peak reverse power dissipation: ≤ 40 W
- Total power dissipation: ≤ 250 mW
- One tolerance series: C = ±5 %
- Wide working voltage range: nominal 2.4 V to 75 V (E24 range)
- Small plastic package suitable for surface-mounted design
- Dual common cathode configuration

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 mA	[1]	-	-	0.9	V
P_{ZSM}	non-repetitive peak reverse power dissipation		[2]	-	-	40	W
P_{tot}	total power dissipation	T_{amb} ≤ 25 °C	[3]	-	-	250	mW

[1] Pulse test: t_p ≤ 300 µs; δ ≤ 0.02.
[2] t_p = 100 µs; square wave; T_j = 25 °C prior to surge.
[3] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint.

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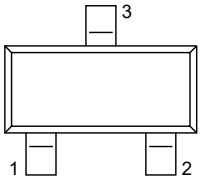
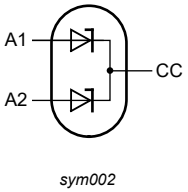
5. Pinning information

Table 2. Pinning

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	A1	anode (diode 1)		
2	A2	anode (diode 2)		
3	CC	common cathode		

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
DZ23-C2V4 to DZ23-C75 [1]	SOT23	plastic, surface-mounted package; 3 terminals; 1.9 mm pitch; 2.9 mm x 1.3 mm x 1 mm body	SOT23

[1] The series consists of 37 types with nominal working voltages from 2.4 V to 75 V.

7. Marking

Table 4. Marking codes

Type number	Marking code [1]	Type number	Marking code [1]
DZ23-C2V4	SY%	DZ23-C15	GZ%
DZ23-C2V7	SZ%	DZ23-C16	SR%
DZ23-C3V0	TM%	DZ23-C18	SS%
DZ23-C3V3	TN%	DZ23-C20	ST%
DZ23-C3V6	TP%	DZ23-C22	SU%
DZ23-C3V9	TQ%	DZ23-C24	SV%
DZ23-C4V3	TT%	DZ23-C27	SX%
DZ23-C4V7	TU%	DZ23-C30	TH%
DZ23-C5V1	X5%	DZ23-C33	TJ%
DZ23-C5V6	X6%	DZ23-C36	TK%
DZ23-C6V2	X9%	DZ23-C39	TL%
DZ23-C6V8	YD%	DZ23-C43	TR%
DZ23-C7V5	YF%	DZ23-C47	TS%
DZ23-C8V2	YG%	DZ23-C51	UY%
DZ23-C9V1	YH%	DZ23-C56	X4%
DZ23-C10	GA%	DZ23-C62	X7%
DZ23-C11	GB%	DZ23-C68	X8%
DZ23-C12	GF%	DZ23-C75	YE%
DZ23-C13	GT%	-	-

[1] % = placeholder for manufacturing site code

8. Limiting values

Table 5. Limiting values

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

Symbol	Parameter	Conditions	Min	Max	Unit
Per diode					
I_F	forward current		-	200	mA
I_{ZSM}	non-repetitive peak reverse current	[1]	-	see tables 8 and 9	
P_{ZSM}	non-repetitive peak reverse power dissipation	[1]	-	40	W
Per device					
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C [2]	-	250	mW
T_j	junction temperature		-	150	°C
T_{amb}	ambient temperature		-55	+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 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
Per device; single diode loaded						
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air [1]	-	-	500	K/W
$R_{th(j-sp)}$	thermal resistance from junction to solder point	[2]	-	-	100	K/W

[1] Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.
[2] Soldering point at pins 1 and 2.

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; DZ23-C2V4 to DZ23-C24

T_j = 25 °C unless otherwise specified.

DZ23 -xxx	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]	Non-repetitive 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	Max	Max	Max	V_R (V)	Min	Max	Max	Max
2V4	C	2.20	2.60	600	100	50	1	-3.5	0.0	450	6.0
2V7	C	2.50	2.90	600	100	20	1	-3.5	0.0	450	6.0
3V0	C	2.80	3.20	600	95	10	1	-3.5	0.0	450	6.0
3V3	C	3.10	3.50	600	95	5	1	-3.5	0.0	450	6.0
3V6	C	3.40	3.80	600	90	5	1	-3.5	0.0	450	6.0
3V9	C	3.70	4.10	600	90	3	1	-3.5	0.0	450	6.0
4V3	C	4.00	4.60	600	90	3	1	-3.5	0.0	450	6.0
4V7	C	4.40	5.00	500	80	3	2	-3.5	0.2	300	6.0
5V1	C	4.80	5.40	480	60	2	2	-2.7	1.2	300	6.0
5V6	C	5.20	6.00	400	40	1	2	-2.0	2.5	300	6.0
6V2	C	5.80	6.60	150	10	3	4	0.4	3.7	200	6.0
6V8	C	6.40	7.20	80	15	2	4	1.2	4.5	200	6.0
7V5	C	7.00	7.90	80	15	1	5	2.5	5.3	150	4.0
8V2	C	7.70	8.70	80	15	0.7	5	3.2	6.2	150	4.0
9V1	C	8.50	9.60	100	15	0.5	6	3.8	7.0	150	3.0
10	C	9.40	10.60	150	20	0.2	7	4.5	8.0	90	3.0
11	C	10.40	11.60	150	20	0.1	8	5.4	9.0	85	2.5
12	C	11.40	12.70	150	25	0.1	8	6.0	10.0	85	2.5
13	C	12.40	14.10	170	30	0.1	8	7.0	11.0	80	2.5
15	C	13.80	15.60	200	30	0.05	10.5	9.2	13.0	75	2.0
16	C	15.30	17.10	200	40	0.05	11.2	10.4	14.0	75	1.5
18	C	16.80	19.10	225	45	0.05	12.6	12.4	16.0	70	1.5
20	C	18.80	21.20	225	55	0.05	14	14.4	18.0	60	1.5
22	C	20.80	23.30	250	55	0.05	15.4	16.4	20.0	60	1.25
24	C	22.80	25.60	250	70	0.05	16.8	18.4	22.0	55	1.25

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

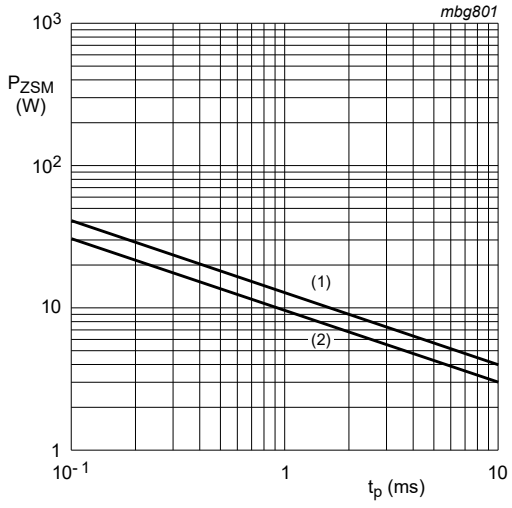
[2] t_p = 100 µs; square wave; T_j = 25 °C prior to surge

Table 9. Characteristics per type; DZ23-C27 to DZ23-C75

T_j = 25 °C unless otherwise specified.

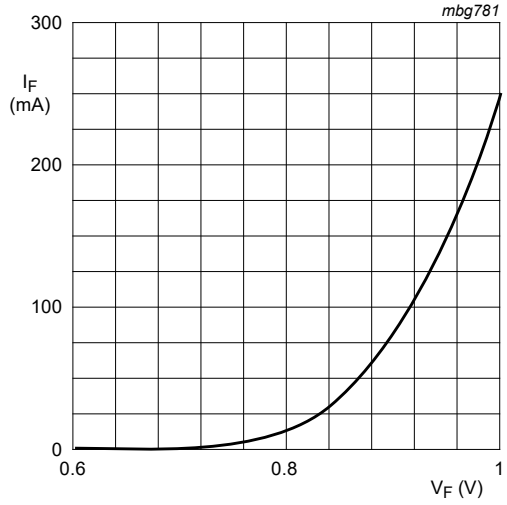
DZ23 -xxx	Sel	Working voltage V_Z (V)		Differential resistance r_{dif} (Ω)		Reverse current I_R (µA)		Temperature coefficient S_Z (mV/K)		Diode capacitance C_d (pF) [1]	Non-repetitive peak reverse current I_{ZSM} (A) [2]
		I_Z = 2 mA		I_Z = 0.5 mA	I_Z = 2 mA			I_Z = 2 mA			
		Min	Max	Max	Max	Max	V_R (V)	Min	Max	Max	Max
27	C	25.10	28.90	300	80	0.05	18.9	21.4	25.3	50	1.0
30	C	28.00	32.00	300	80	0.05	21.0	24.4	29.4	50	1.0
33	C	31.00	35.00	325	80	0.05	23.1	27.4	33.4	45	0.9
36	C	34.00	38.00	350	90	0.05	25.2	30.4	37.4	45	0.8
39	C	37.00	41.00	350	130	0.05	27.3	33.4	41.2	45	0.7
43	C	40.00	46.00	375	150	0.05	30.1	37.6	46.6	40	0.6
47	C	44.00	50.00	375	170	0.05	32.9	42.0	51.8	40	0.5
51	C	48.00	54.00	400	180	0.05	35.7	46.6	57.2	40	0.4
56	C	52.00	60.00	425	200	0.05	39.2	52.2	63.8	40	0.3
62	C	58.00	66.00	450	215	0.05	43.4	58.8	71.6	35	0.3
68	C	64.00	72.00	475	240	0.05	47.6	65.6	79.8	35	0.25
75	C	70.00	79.00	500	255	0.05	52.5	73.4	88.6	35	0.20

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



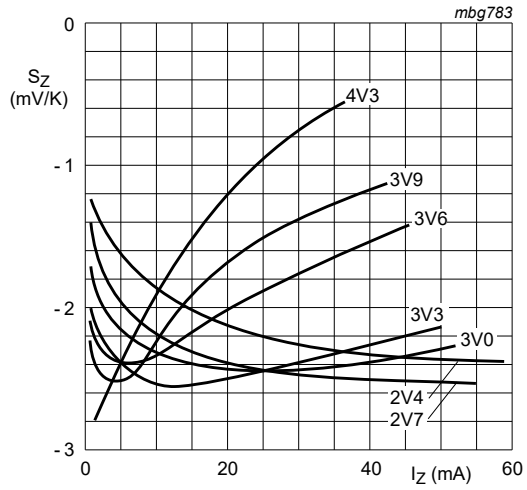
(1) T_j = 25 °C (before surge)
(2) T_j = 150 °C (before surge)

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



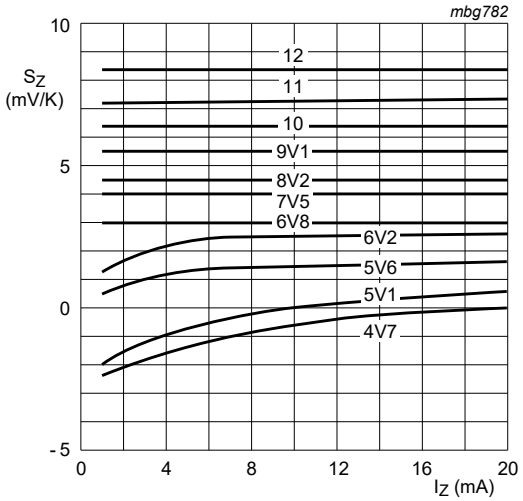
T_j = 25 °C

Fig. 2. Per diode: Forward current as a function of forward voltage; typical values



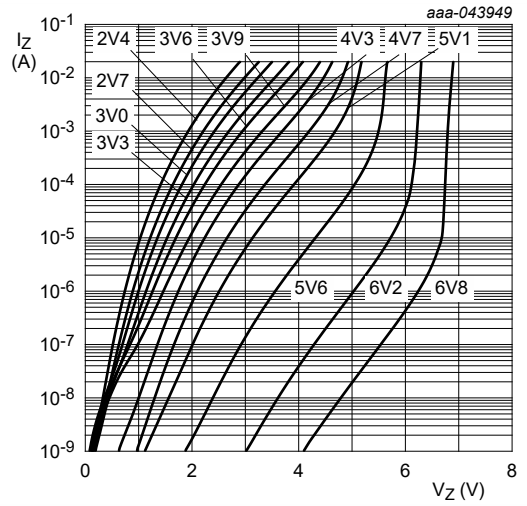
T_j = 25 °C to 150 °C

Fig. 3. Per diode: Temperature coefficient as a function of working current; typical values (DZ23-C2V4 to DZ23-C4V3)



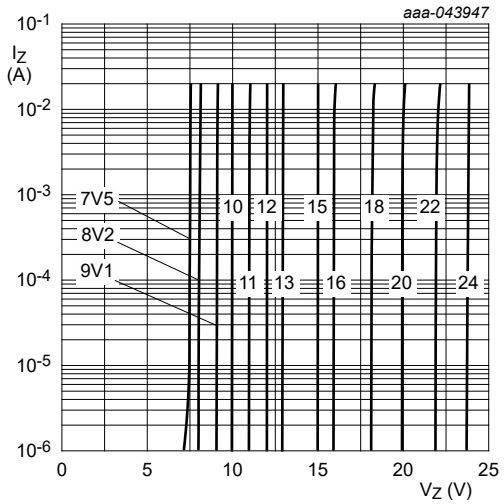
T_j = 25 °C to 150 °C

Fig. 4. Per diode: Temperature coefficient as a function of working current; typical values (DZ23-C4V7 to DZ23-C12)



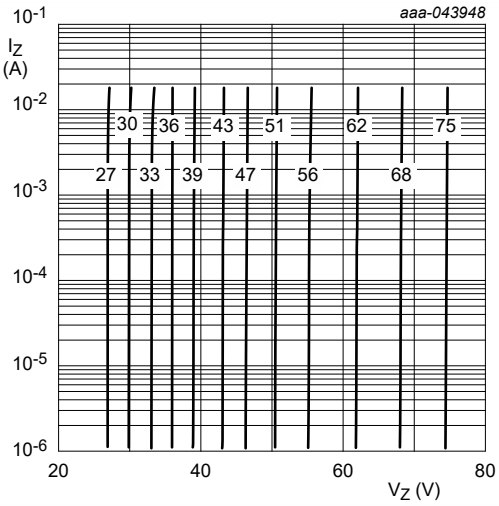
T_j = 25 °C

Fig. 5. Reverse current as a function of reverse voltage; typical values (DZ23-C2V4 to C6V8)



T_j = 25 °C

Fig. 6. Reverse current as a function of reverse voltage; typical values (DZ23-C7V5 to DZ23-C24)



T_j = 25 °C

Fig. 7. Reverse current as a function of reverse voltage; typical values (DZ23-C27 to DZ23-C75)

11. Package outline

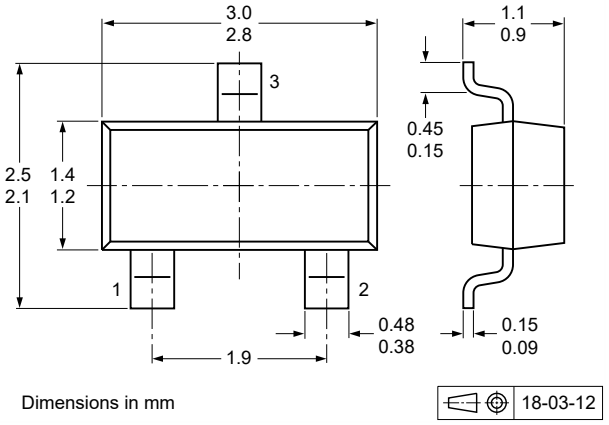


Fig. 8. Package outline SOT23

12. Soldering

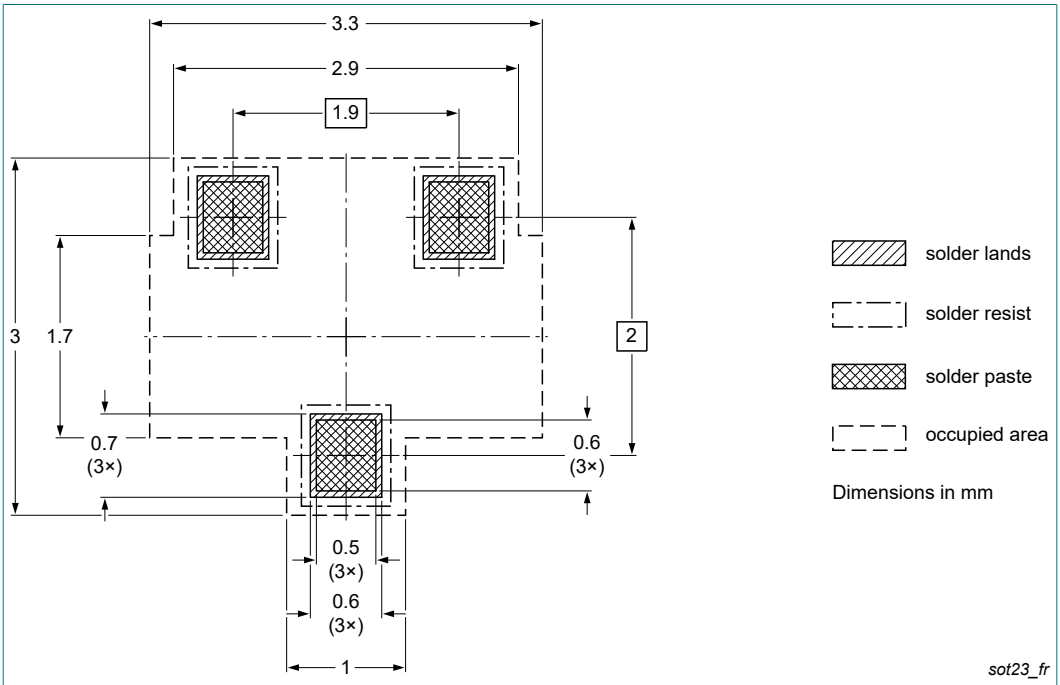


Fig. 9. Reflow soldering footprint for SOT23

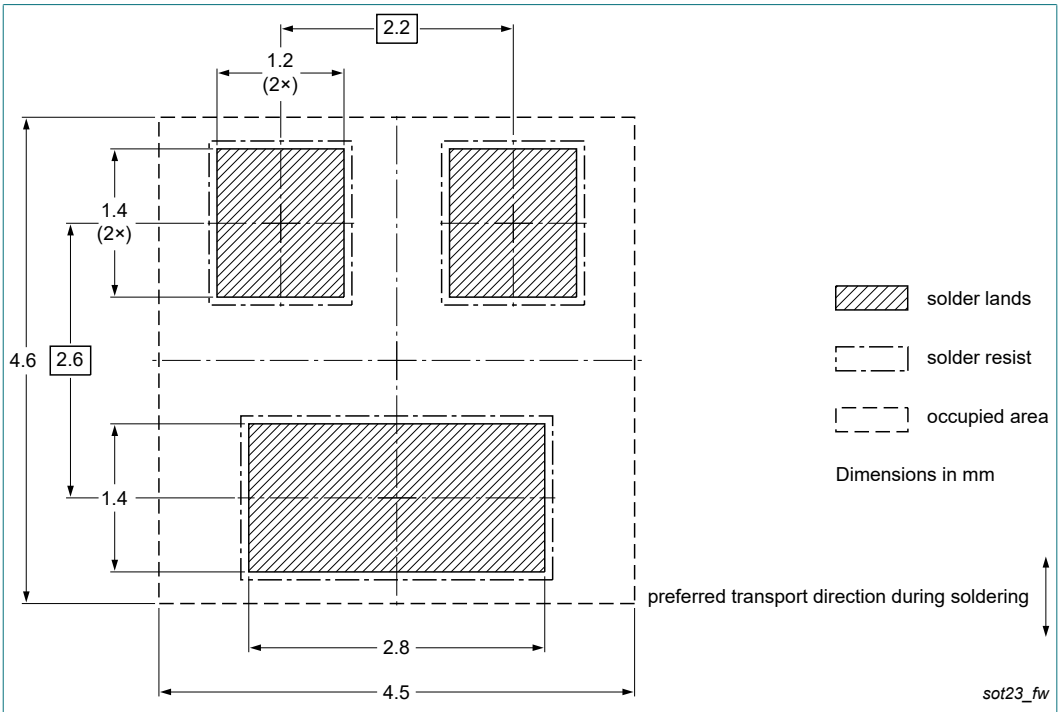


Fig. 10. Wave soldering footprint for SOT23

13. Revision history

Table 10. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
DZ23_SER v.1	20250930	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.
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Date of release: 30 September 2025