SZMM3Z18VT1G

Voltage regulator diodes

Rev. 4 — 9 October 2024 Product data sheet

1. General description

General-purpose Zener diode in a very small SOD323 (SC-76) Surface-Mounted Device (SMD) plastic package.

2. Features and benefits

- Non-repetitive peak reverse power disspation: ≤ 40 W
- Total power dissipation: ≤ 300 mW
- Low differential resistance

3. Applications

- General regulation functions

4. Quick reference data

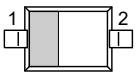
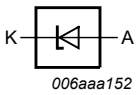
Table 1. Quick reference data

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: $t_p \leq 300$ µs; $\delta \leq 0.02$
[2] t_p = 100 µs; 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
SZMM3Z18VT1G	SOD323	plastic, surface-mounted package; 2 leads; 1.3 mm pitch; 1.7 mm x 1.25 mm x 0.95 mm body	SOD323

7. Marking

Table 4. Marking Codes

Type number	Marking Code
SZMM3Z18VT1G	X4

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 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			-	150	°C
T_{amb}	ambient temperature			−55	+150	°C
T_{stg}	storage temperature			−65	+150	°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]	-	-	415	K/W
$R_{th(j-sp)}$	thermal resistance from junction to solder point		[2]	-	-	110	K/W

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

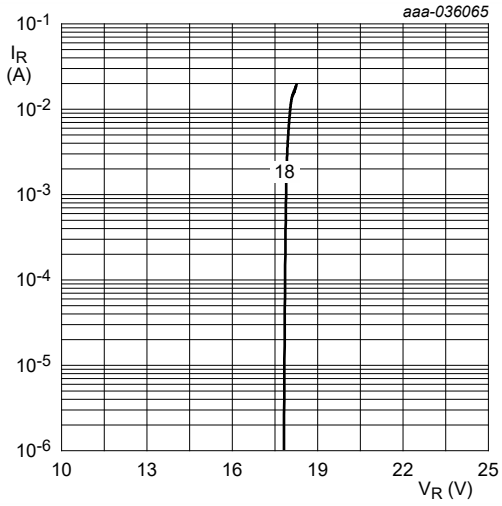
[1] Pulse test: $t_p \leq 300$ µs; $\delta \leq 0.02$

Table 8. Electrical characteristics

T_j = 25 °C unless otherwise specified.

SZMM3ZxxxT1G	Working voltage V_Z (V)		Reverse current I_R (µA)		Differential resistance r_{diff} (Ω)		Temperature coefficient S_Z (mV/K)		Diode capacitance C_d (pF)[1]
	I_Z = 5 mA				I_Z = 0.5 mA	I_Z = 5 mA	I_Z = 5 mA		
	Min	Max	Max	V_R (V)	Max	Max	Min	Max	Max
18V	16.94	19.03	0.05	13.0	80	20	12.4	16.0	93

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



T_j = 25 °C

Fig. 1. Reverse current as a function of reverse voltage; typical values

11. Package outline

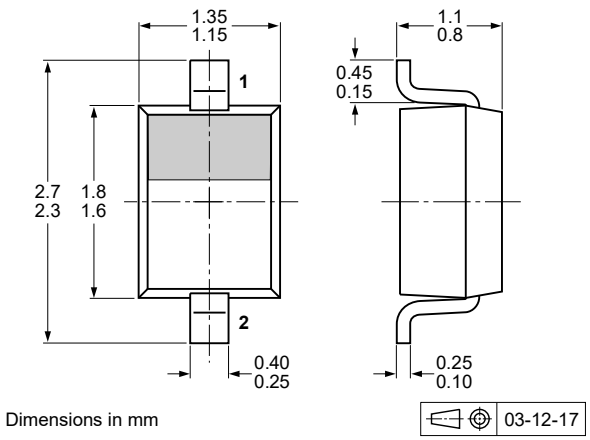


Fig. 2. Package outline SOD323

12. Soldering

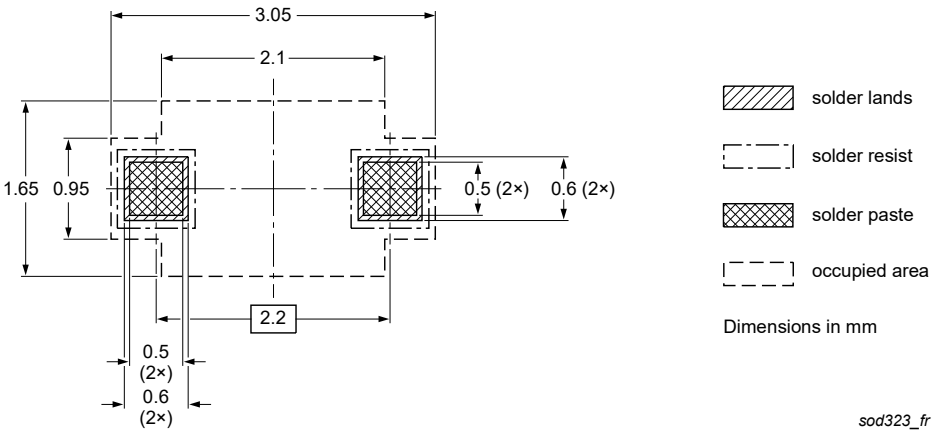


Fig. 3. Reflow soldering footprint for SOD323

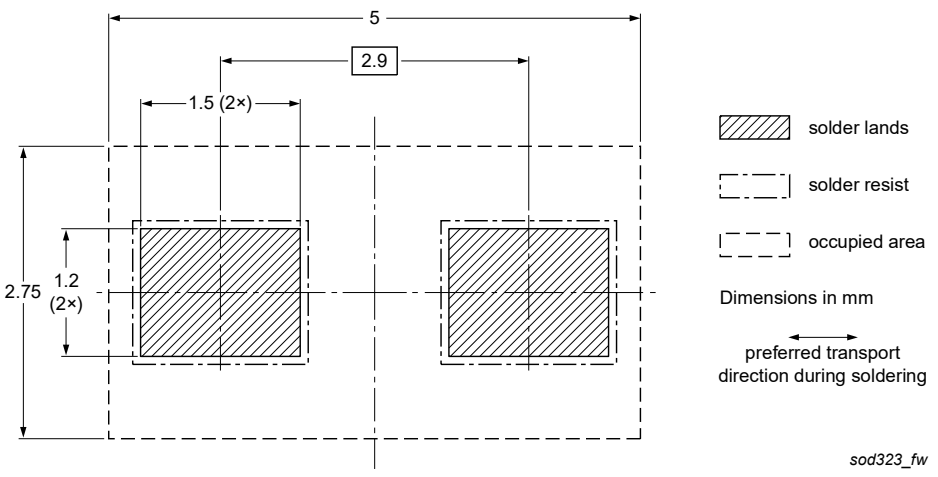


Fig. 4. Wave soldering footprint for SOD323

13. Revision history

Table 9. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
SZMM3Z18VT1G v.4	20241009	Product data sheet	-	SZMM3Z_SER v.3
Modifications:	• Family data sheet splitted to this single type data sheet. • Product(s) changed to non-automotive qualification. Please refer to nexperia.com for automotive (-Q) product alternative(s).			
SZMM3Z_SER v.3	20230220	Product data sheet	-	SZMM3Z_SER v.2
SZMM3Z_SER v.2	20210330	Product data sheet	-	SZMM3Z_SER v.1
SZMM3Z_SER v.1	20201210	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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