

SZMM3Z18VT1G-Q

Voltage regulator diodes

Rev. 1 — 17 January 2023 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
- Qualified according to AEC-Q101 and recommended for use in automotive applications

3. Applications

- General regulation functions

4. Quick reference data

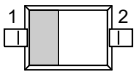
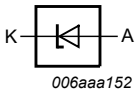
Table 1. Quick reference data

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: $t_p \leq 300$ 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-Q	SC-76	plastic surface-mounted package; 2 leads	SOD323

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7. Marking

Table 4. Marking Codes

Type number	Marking Code
SZMM3Z18VT1G-Q	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

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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

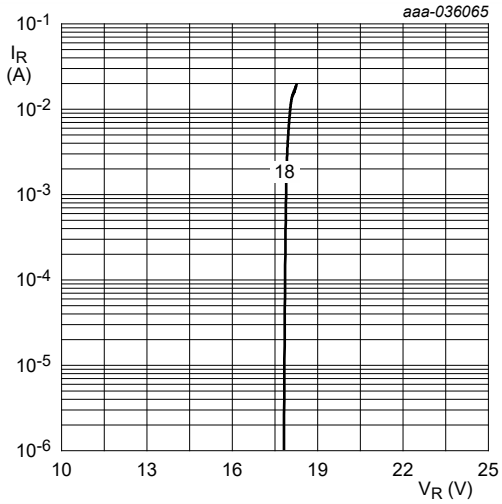
[1] Pulse test: $t_p \leq 300$ µs; $\delta \leq 0.02$

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. 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.

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12. Package outline

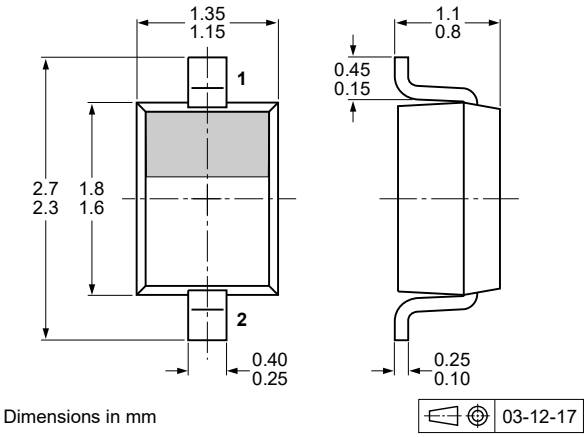


Fig. 2. Package outline SOD323 (SC-76)

13. Soldering

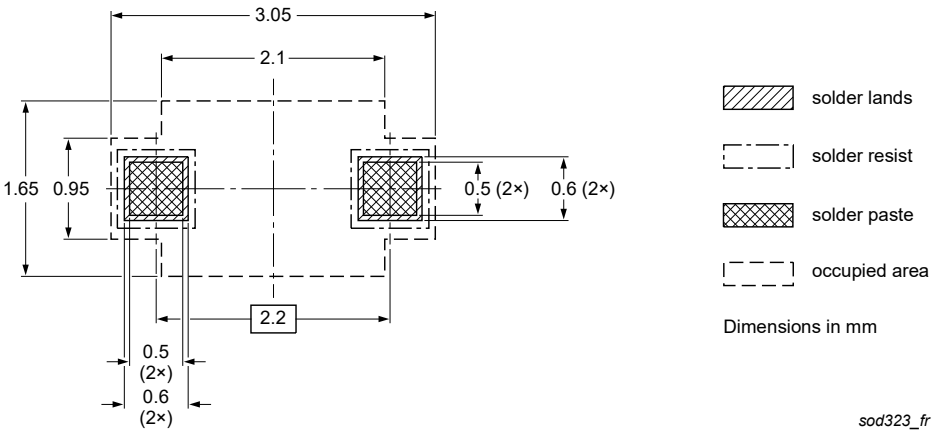


Fig. 3. Reflow soldering footprint SOD323 (SC-76)

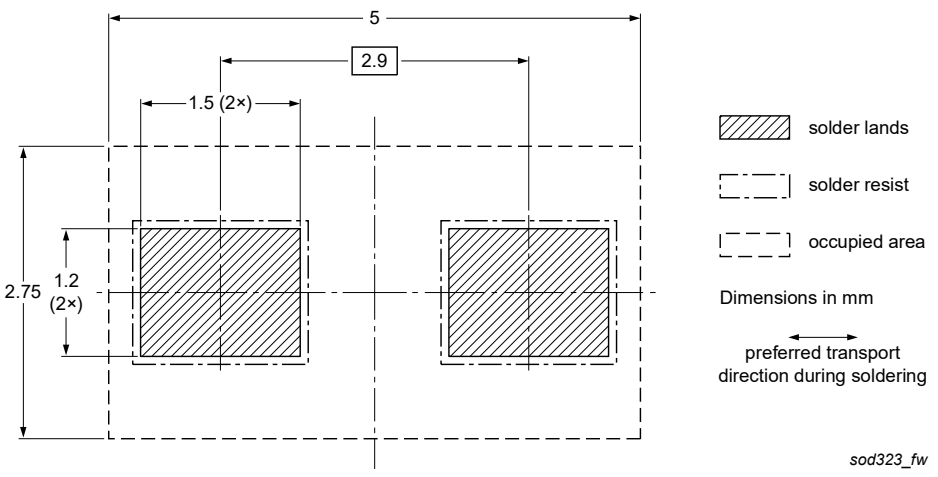


Fig. 4. Wave soldering footprint SOD323 (SC-76)

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14. Revision history

Table 9. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
SZMM3Z18VT1G-Q v.1	20230117	Product data sheet	-	-

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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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