



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 dissipation: ≤ 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


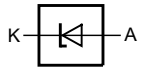
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_F	forward voltage	$I_F = 100$ mA [1]	-	-	1.1	V
P_{ZSM}	non-repetitive peak reverse power dissipation	[2]	-	-	40	W

[1] Pulse test: $t_p \leq 300$ 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]		 006aaa152
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

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	$t_p = 100 \mu\text{s}$; square wave; $T_{amb} = 25 \text{ }^\circ\text{C}$; prior to surge	-	-	40	W
P_{tot}	total power dissipation	$T_{amb} = 25 \text{ }^\circ\text{C}$	[1]	-	300	mW
T_j	junction temperature			-	150	$^\circ\text{C}$
T_{amb}	ambient temperature			-55	+150	$^\circ\text{C}$
T_{stg}	storage temperature			-65	+150	$^\circ\text{C}$

[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

$T_j = 25\text{ °C}$ unless otherwise specified.

Symbol	Parameter	Conditions		Max	Unit
V_F	forward voltage	$I_F = 10\text{ mA}$	[1]	0.9	V
		$I_F = 100\text{ mA}$	[1]	1.1	V

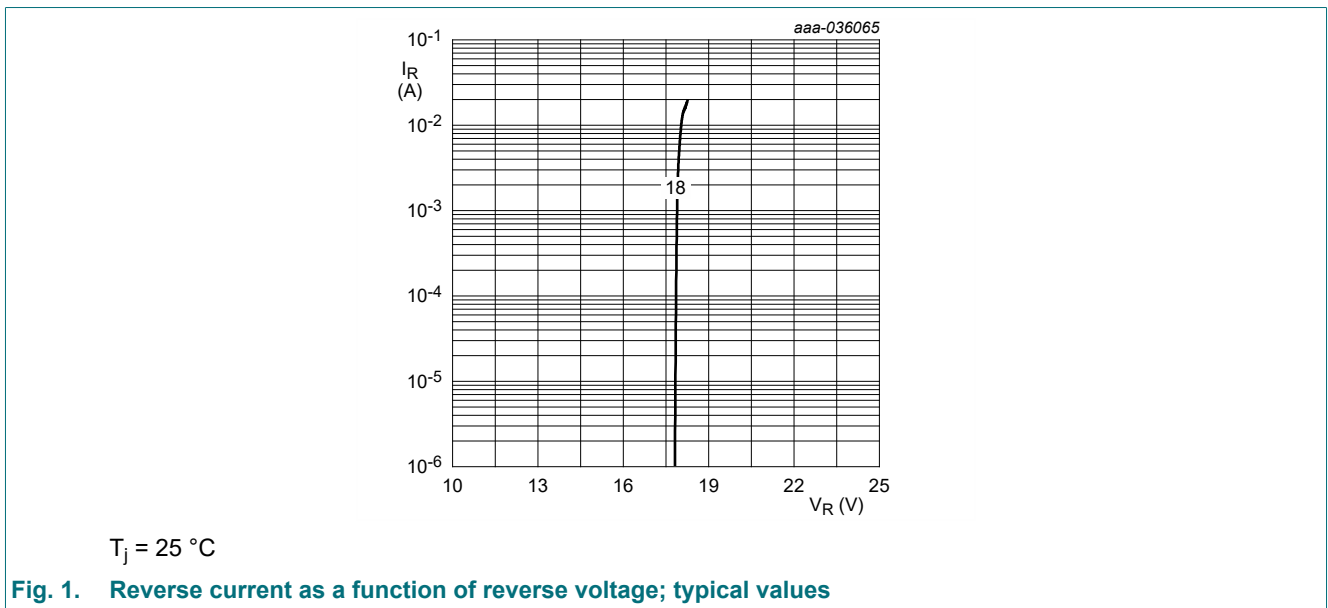
[1] Pulse test: $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$

Table 8. Electrical characteristics

$T_j = 25\text{ °C}$ 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]
	$I_Z = 5\text{ mA}$		Max	V_R (V)	$I_Z = 0.5\text{ mA}$	$I_Z = 5\text{ mA}$	$I_Z = 5\text{ mA}$		
	Min	Max			Max	Max	Min	Max	
18V	16.94	19.03	0.05	13.0	80	20	12.4	16.0	93

[1] $f = 1\text{ MHz}$; $V_R = 0\text{ V}$



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.

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	-	-

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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For sales office addresses, please send an email to: salesaddresses@nexperia.com
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