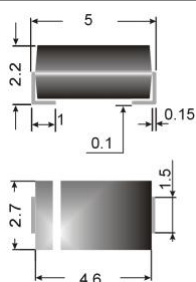


# Z1 SMA 1 ... Z1 SMA 100 (1W)



Surface mount diode

## Zener silicon diodes

### Z1 SMA 1 ... Z1 SMA 100 (1W)

**Maximum Power Dissipation: 1 W**

**Nominal Z-voltage: 1 to 100 V**

### Features

- Max. solder temperature: 260°C
- Plastic material has UL classification 94V-0
- Standard Zener voltage tolerance is graded to the international E 24 (5%) standard. Other voltage tolerances and higher Zener voltages on request.

### Mechanical Data

- Plastic case: SMA / DO-214AC
- Weight approx.: 0,07 g
- Terminals: plated terminals solderable per MIL-STD-750
- Mounting position: any
- Standard packaging: 7500 pieces per reel

<sup>1)</sup> Mounted on P.C. board with 25 mm<sup>2</sup> copper pads at each terminal. Tested with pulses. The Z1SMA1 is a diode operated in forward. Hence, the index of all parameters should be "F" instead of "Z". The cathode, indicated by a white ring is to be connected to the negative pole.

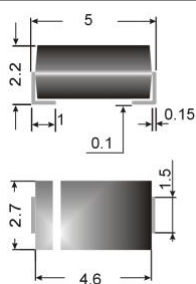
| Absolute Maximum Ratings |                                                           | T <sub>s</sub> = 25 °C, unless otherwise specified |       |
|--------------------------|-----------------------------------------------------------|----------------------------------------------------|-------|
| Symbol                   | Conditions                                                | Values                                             | Units |
| P <sub>tot</sub>         | Power dissipation, T <sub>A</sub> = 50 °C <sup>1)</sup>   | 1                                                  | W     |
| P <sub>ZSM</sub>         | Non repetitive peak power dissipation, t < 10 ms          |                                                    | V     |
| R <sub>thA</sub>         | Max. thermal resistance junction to ambient <sup>1)</sup> | 70                                                 | K/W   |
| R <sub>thT</sub>         | Max. thermal resistance junction to case                  | 30                                                 | K/W   |
| T <sub>j</sub>           | Operating junction temperature                            | - 50 ... + 150                                     | °C    |
| T <sub>s</sub>           | Storage temperature                                       | - 50 ... + 150                                     | °C    |

| Type     | Zener Voltage<br>V <sub>Z</sub> @I <sub>ZT</sub> |                        | Test<br>curr.<br>I <sub>ZT</sub> | Dyn. Resistance                      |                                      |                       | Temp.<br>Coeffiz. of V <sub>Z</sub><br>10 <sup>-4</sup><br>°C | Reverse curr.        |                     | Z curr.<br>T <sub>A</sub> = 50<br>°C<br>i <sub>Zmax</sub> |
|----------|--------------------------------------------------|------------------------|----------------------------------|--------------------------------------|--------------------------------------|-----------------------|---------------------------------------------------------------|----------------------|---------------------|-----------------------------------------------------------|
|          | V <sub>Zmin</sub><br>V                           | V <sub>Zmax</sub><br>V |                                  | Z <sub>ZT</sub> @<br>I <sub>ZT</sub> | Z <sub>ZK</sub> @<br>I <sub>ZK</sub> | I <sub>ZK</sub><br>mA |                                                               | I <sub>R</sub><br>µA | V <sub>R</sub><br>V |                                                           |
| Z1SMA1   | 0,71                                             | 0,82                   | 5                                | 6,5 (<8)                             |                                      |                       | - 26 ... - 23                                                 |                      | -                   | 500                                                       |
| Z1SMA5,1 | 4,8                                              | 5,4                    | 5                                | 30 (<60)                             |                                      |                       | - 8 ... - 3                                                   | 3                    | > 0,5               | 185                                                       |
| Z1SMA5,6 | 5,2                                              | 6                      | 5                                | 10 (<40)                             |                                      |                       | - 7 ... - 3                                                   | 3                    | >0,5                | 167                                                       |
| Z1SMA6,2 | 5,8                                              | 6,6                    | 5                                | 4,8 (<11)                            |                                      |                       | - 6 ... - 1                                                   | 1                    | >1,5                | 152                                                       |
| Z1SMA6,8 | 6,4                                              | 7,2                    | 5                                | 4,5 (<10)                            |                                      |                       | - 5 ... + 2                                                   | 1                    | > 2                 | 139                                                       |
| Z1SMA7,5 | 7                                                | 7,9                    | 5                                | 4 (<9)                               |                                      |                       | - 3 ... + 4                                                   | 1                    | > 2                 | 127                                                       |
| Z1SMA8,2 | 7,7                                              | 8,7                    | 5                                | 4,5 (<10)                            |                                      |                       | - 2 ... + 6                                                   | 1                    | > 3,5               | 115                                                       |
| Z1SMA9,1 | 8,5                                              | 9,6                    | 5                                | 4,8 (<11)                            |                                      |                       | - 1 ... + 7                                                   | 1                    | >3,5                | 104                                                       |
| Z1SMA10  | 9,4                                              | 10,6                   | 5                                | 5,2 (<15)                            |                                      |                       | + 2 ... + 7                                                   | 1                    | >7,5                | 94                                                        |
| Z1SMA11  | 10,4                                             | 11,6                   | 5                                | 6 (<20)                              |                                      |                       | + 3 ... + 7                                                   | 1                    | >8,5                | 86                                                        |
| Z1SMA12  | 11,4                                             | 12,7                   | 5                                | 7 (<20)                              |                                      |                       | + 4 ... + 7                                                   | 1                    | > 9                 | 79                                                        |
| Z1SMA13  | 12,4                                             | 14,1                   | 5                                | 9 (<25)                              |                                      |                       | + 5 ... + 8                                                   | 1                    | > 10                | 71                                                        |
| Z1SMA15  | 13,8                                             | 15,6                   | 5                                | 11 (<30)                             |                                      |                       | + 5 ... + 8                                                   | 1                    | > 11                | 64                                                        |
| Z1SMA16  | 15,3                                             | 17,1                   | 5                                | 13 (<40)                             |                                      |                       | + 5 ... + 9                                                   | 1                    | > 12                | 58                                                        |
| Z1SMA18  | 16,8                                             | 19,1                   | 5                                | 18 (<50)                             |                                      |                       | + 6 ... + 9                                                   | 1                    | > 14                | 52                                                        |
| Z1SMA20  | 18,8                                             | 21,2                   | 5                                | 20 (<50)                             |                                      |                       | + 7 ... + 9                                                   | 1                    | > 15                | 47                                                        |
| Z1SMA22  | 20,8                                             | 23,3                   | 5                                | 25 (<55)                             |                                      |                       | + 7 ... + 9                                                   | 1                    | > 17                | 43                                                        |
| Z1SMA24  | 22,8                                             | 25,6                   | 5                                | 28 (<80)                             |                                      |                       | + 7 ... + 9,5                                                 | 1                    | > 18                | 39                                                        |
| Z1SMA27  | 25,1                                             | 28,9                   | 5                                | 30 (<80)                             |                                      |                       | + 8 ... + 9,5                                                 | 1                    | > 20                | 35                                                        |
| Z1SMA30  | 28                                               | 32                     | 5                                | 35 (<80)                             |                                      |                       | + 8 ... + 9,5                                                 | 1                    | >22,5               | 31                                                        |
| Z1SMA33  | 31                                               | 35                     | 5                                | 40 (<80)                             |                                      |                       | + 8 ... + 10                                                  | 1                    | > 25                | 29                                                        |
| Z1SMA36  | 34                                               | 38                     | 5                                | 40 (<90)                             |                                      |                       | + 8 ... + 10                                                  | 1                    | > 27                | 26                                                        |
| Z1SMA39  | 37                                               | 41                     | 5                                | 50 (<90)                             |                                      |                       | + 8 ... + 10                                                  | 1                    | > 29                | 24                                                        |
| Z1SMA43  | 40                                               | 46                     | 5                                | 60 (<100)                            |                                      |                       | + 8 ... + 10                                                  | 1                    | > 32                | 22                                                        |
| Z1SMA47  | 44                                               | 50                     | 5                                | 70 (<100)                            |                                      |                       | + 8 ... + 10                                                  | 1                    | > 35                | 20                                                        |
| Z1SMA51  | 48                                               | 54                     | 5                                | 70 (<100)                            |                                      |                       | + 8 ... + 10                                                  | 1                    | > 38                | 19                                                        |
| Z1SMA56  | 52                                               | 60                     | 5                                | 70 (<100)                            |                                      |                       | + 9 ... + 11                                                  | 1                    | > 42                | 17                                                        |
| Z1SMA62  | 58                                               | 66                     | 5                                | 80                                   |                                      |                       | + 9 ... + 11                                                  | 1                    | > 47                | 15                                                        |

# Z1 SMA 1 ... Z1 SMA 100 (1W)

| Type     | Zener Voltage<br>$V_Z @ I_{ZT}$ |            | Test<br>curr.<br>$I_{ZT}$<br>mA | Dyn. Resistance  |            |          | Temp.<br>Coeffiz. of $V_Z$<br><br>$10^{-4}$<br>°C | Reverse curr. |       | Z curr.<br>$T_A = 50$<br>°C<br>$i_{Zmax}$<br>mA |
|----------|---------------------------------|------------|---------------------------------|------------------|------------|----------|---------------------------------------------------|---------------|-------|-------------------------------------------------|
|          | $V_{Zmin}$                      | $V_{Zmax}$ |                                 | $Z_{ZT} @$       | $Z_{ZK} @$ | $I_{ZK}$ |                                                   | $I_R$         | $V_R$ |                                                 |
|          | V                               | V          |                                 | $I_{ZT}$         | $I_{ZK}$   | mA       |                                                   | µA            | V     |                                                 |
|          |                                 |            |                                 | 110)             |            |          |                                                   |               |       |                                                 |
| Z1SMA68  | 64                              | 72         | 5                               | 90<br>( $<140$ ) |            |          | + 9 ... + 12                                      | 1             | > 51  | 14                                              |
| Z1SMA75  | 70                              | 79         | 5                               | 95<br>( $<150$ ) |            |          | + 9 ... + 12                                      | 1             | > 56  | 13                                              |
| Z1SMA82  | 77                              | 88         | 5                               | 100( $<170$ )    |            |          | + 9 ... + 12                                      | 1             | > 62  | 11                                              |
| Z1SMA91  | 85                              | 96         | 5                               | 130( $<200$ )    |            |          | + 10 ... + 12                                     | 1             | > 68  | 10                                              |
| Z1SMA100 | 94                              | 106        | 5                               | 200( $<300$ )    |            |          | + 10 ... + 12                                     | 1             | > 75  | 9                                               |

# Z1 SMA 1 ... Z1 SMA 100 (1W)



Surface mount diode

## Zener silicon diodes

### Z1 SMA 1 ... Z1 SMA 100 (1W)

**Maximum Power  
Dissipation: 1 W**

**Nominal Z-voltage: 1 to 100 V**

### Features

- Max. solder temperature: 260°C
- Plastic material has UL classification 94V-0
- Standard Zener voltage tolerance is graded to the international E 24 (5%) standard. Other voltage tolerances and higher Zener voltages on request.

### Mechanical Data

- Plastic case: SMA / DO-214AC
- Weight approx.: 0,07 g
- Terminals: plated terminals solderable per MIL-STD-750
- Mounting position: any
- Standard packaging: 7500 pieces per reel

- 1) Mounted on P.C. board with 25 mm<sup>2</sup> copper pads at each terminal  
Tested with pulses  
The Z1SMA1 is a diode operated in forward. Hence, the index of all parameters should be "F" instead of "Z".  
The cathode, indicated by a white ring is to be connected to the negative pole.

| Type | Zener Voltage<br>$V_Z@I_{ZT}$ |            | Test<br>curr.<br>$I_{ZT}$ | Dyn. Resistance |                 |          | Temp.<br>Coeffiz. of $V_Z$<br><br>10 <sup>-4</sup><br>°C | Reverse curr. |       | Z curr.<br>$T_A = 50$<br>°C<br>$i_{Zmax}$ |
|------|-------------------------------|------------|---------------------------|-----------------|-----------------|----------|----------------------------------------------------------|---------------|-------|-------------------------------------------|
|      | $V_{Zmin}$                    | $V_{Zmax}$ |                           | $Z_{ZT}@I_{ZT}$ | $Z_{ZK}@I_{ZK}$ | $I_{ZK}$ |                                                          | $I_R$         | $V_R$ |                                           |
|      | V                             | V          |                           |                 |                 | mA       |                                                          | µA            | V     |                                           |

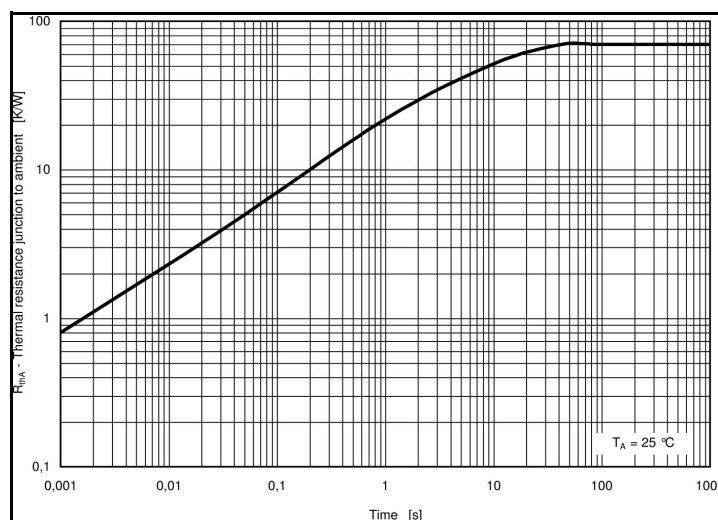


Fig. 1, Typical Transient Thermal Impedance junction to ambient