



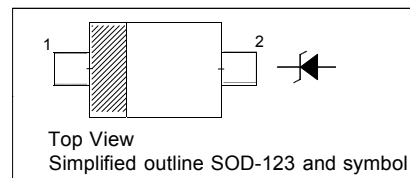
## Silicon Planar Zener Diodes

## Features

- Total power dissipation: max. 500 mW
- Small plastic package suitable for surface mounted design
- Tolerance approximately  $\pm 5\%$

## PINNING

| PIN | DESCRIPTION |
|-----|-------------|
| 1   | Cathode     |
| 2   | Anode       |

Absolute Maximum Ratings ( $T_a = 25\text{ }^{\circ}\text{C}$ )

| Parameter                 | Symbol           | Value         | Unit               |
|---------------------------|------------------|---------------|--------------------|
| Power Dissipation         | $P_{\text{tot}}$ | 500           | mW                 |
| Junction Temperature      | $T_J$            | 150           | $^{\circ}\text{C}$ |
| Storage Temperature Range | $T_{\text{Stg}}$ | - 55 to + 150 | $^{\circ}\text{C}$ |

Characteristics at  $T_a = 25\text{ }^{\circ}\text{C}$ 

| Parameter                                  | Symbol           | Max. | Unit                 |
|--------------------------------------------|------------------|------|----------------------|
| Thermal Resistance Junction to Ambient Air | $R_{\text{thA}}$ | 340  | $^{\circ}\text{C/W}$ |
| Forward Voltage<br>at $I_F = 10\text{ mA}$ | $V_F$            | 0.9  | V                    |



## Silicon Planar Zener Diodes

Characteristics at  $T_a = 25\text{ }^{\circ}\text{C}$ 

| Type    | Marking Code | Zener Voltage Range <sup>1)</sup> |                |                   | Dynamic Impedance <sup>2)</sup> |                | Reverse Leakage Current       |               |
|---------|--------------|-----------------------------------|----------------|-------------------|---------------------------------|----------------|-------------------------------|---------------|
|         |              | $V_{znom}$<br>V                   | $I_{ZT}$<br>mA | for $V_{ZT}$<br>V | $Z_{ZT}$ (Max.)<br>$\Omega$     | at $I_Z$<br>mA | $I_R$ (Max.)<br>$\mu\text{A}$ | at $V_R$<br>V |
| MM1Z2V0 | 4A           | 2.0                               | 5              | 1.8...2.15        | 100                             | 5              | 120                           | 0.5           |
| MM1Z2V2 | 4B           | 2.2                               | 5              | 2.08...2.33       | 100                             | 5              | 120                           | 0.7           |
| MM1Z2V4 | 4C           | 2.4                               | 5              | 2.28...2.56       | 100                             | 5              | 120                           | 1             |
| MM1Z2V7 | 4D           | 2.7                               | 5              | 2.5...2.9         | 110                             | 5              | 120                           | 1             |
| MM1Z3V0 | 4E           | 3.0                               | 5              | 2.8...3.2         | 120                             | 5              | 50                            | 1             |
| MM1Z3V3 | 4F           | 3.3                               | 5              | 3.1...3.5         | 130                             | 5              | 20                            | 1             |
| MM1Z3V6 | 4H           | 3.6                               | 5              | 3.4...3.8         | 130                             | 5              | 10                            | 1             |
| MM1Z3V9 | 4J           | 3.9                               | 5              | 3.7...4.1         | 130                             | 5              | 5                             | 1             |
| MM1Z4V3 | 4K           | 4.3                               | 5              | 4...4.6           | 130                             | 5              | 5                             | 1             |
| MM1Z4V7 | 4M           | 4.7                               | 5              | 4.4...5           | 130                             | 5              | 2                             | 1             |
| MM1Z5V1 | 4N           | 5.1                               | 5              | 4.8...5.4         | 130                             | 5              | 2                             | 1.5           |
| MM1Z5V6 | 4P           | 5.6                               | 5              | 5.2...6           | 80                              | 5              | 1                             | 2.5           |
| MM1Z6V2 | 4R           | 6.2                               | 5              | 5.8...6.6         | 50                              | 5              | 1                             | 3             |
| MM1Z6V8 | 4X           | 6.8                               | 5              | 6.4...7.2         | 30                              | 5              | 0.5                           | 3.5           |
| MM1Z7V5 | 4Y           | 7.5                               | 5              | 7...7.9           | 30                              | 5              | 0.5                           | 4             |
| MM1Z8V2 | 4Z           | 8.2                               | 5              | 7.7...8.7         | 30                              | 5              | 0.5                           | 5             |
| MM1Z9V1 | 5A           | 9.1                               | 5              | 8.5...9.6         | 30                              | 5              | 0.5                           | 6             |
| MM1Z10  | 5B           | 10                                | 5              | 9.4...10.6        | 30                              | 5              | 0.1                           | 7             |
| MM1Z11  | 5C           | 11                                | 5              | 10.4...11.6       | 30                              | 5              | 0.1                           | 8             |
| MM1Z12  | 5D           | 12                                | 5              | 11.4...12.7       | 35                              | 5              | 0.1                           | 9             |
| MM1Z13  | 5E           | 13                                | 5              | 12.4...14.1       | 35                              | 5              | 0.1                           | 10            |
| MM1Z15  | 5F           | 15                                | 5              | 13.8...15.6       | 40                              | 5              | 0.1                           | 11            |
| MM1Z16  | 5H           | 16                                | 5              | 15.3...17.1       | 40                              | 5              | 0.1                           | 12            |
| MM1Z18  | 5J           | 18                                | 5              | 16.8...19.1       | 45                              | 5              | 0.1                           | 13            |
| MM1Z20  | 5K           | 20                                | 5              | 18.8...21.2       | 50                              | 5              | 0.1                           | 15            |
| MM1Z22  | 5M           | 22                                | 5              | 20.8...23.3       | 55                              | 5              | 0.1                           | 17            |
| MM1Z24  | 5N           | 24                                | 5              | 22.8...25.6       | 60                              | 5              | 0.1                           | 19            |
| MM1Z27  | 5P           | 27                                | 5              | 25.1...28.9       | 70                              | 2              | 0.1                           | 21            |
| MM1Z30  | 5R           | 30                                | 5              | 28...32           | 80                              | 2              | 0.1                           | 23            |
| MM1Z33  | 5X           | 33                                | 5              | 31...35           | 80                              | 2              | 0.1                           | 25            |
| MM1Z36  | 5Y           | 36                                | 5              | 34...38           | 90                              | 2              | 0.1                           | 27            |
| MM1Z39  | 5Z           | 39                                | 2.5            | 37...41           | 100                             | 2              | 2                             | 30            |
| MM1Z43  | 6A           | 43                                | 2.5            | 40...46           | 130                             | 2              | 2                             | 33            |
| MM1Z47  | 6B           | 47                                | 2.5            | 44...50           | 150                             | 2              | 2                             | 36            |
| MM1Z51  | 6C           | 51                                | 2.5            | 48...54           | 180                             | 2              | 1                             | 39            |
| MM1Z56  | 6D           | 56                                | 2.5            | 52...60           | 180                             | 2              | 1                             | 43            |
| MM1Z62  | 6E           | 62                                | 2.5            | 58...66           | 200                             | 2              | 0.2                           | 47            |
| MM1Z68  | 6F           | 68                                | 2.5            | 64...72           | 250                             | 2              | 0.2                           | 52            |
| MM1Z75  | 6H           | 75                                | 2.5            | 70...79           | 300                             | 2              | 0.2                           | 57            |

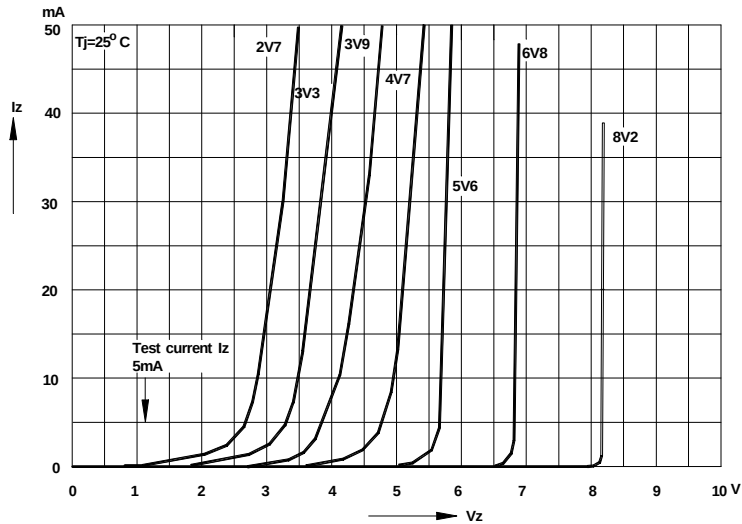
<sup>1)</sup>  $V_Z$  is tested with pulses (20 ms).<sup>2)</sup>  $Z_{ZT}$  is measured at  $I_Z$  by given a very small A.C. current signal.



Silicon Planar Zener Diodes

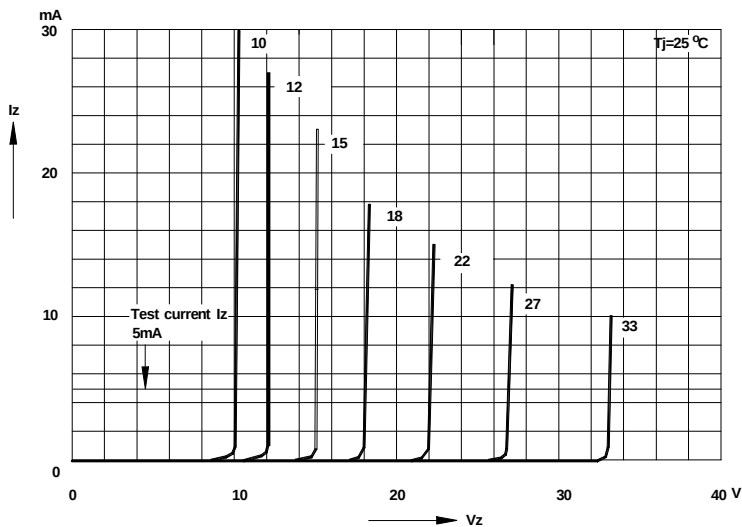
Breakdown characteristics

$T_J = \text{constant (pulsed)}$



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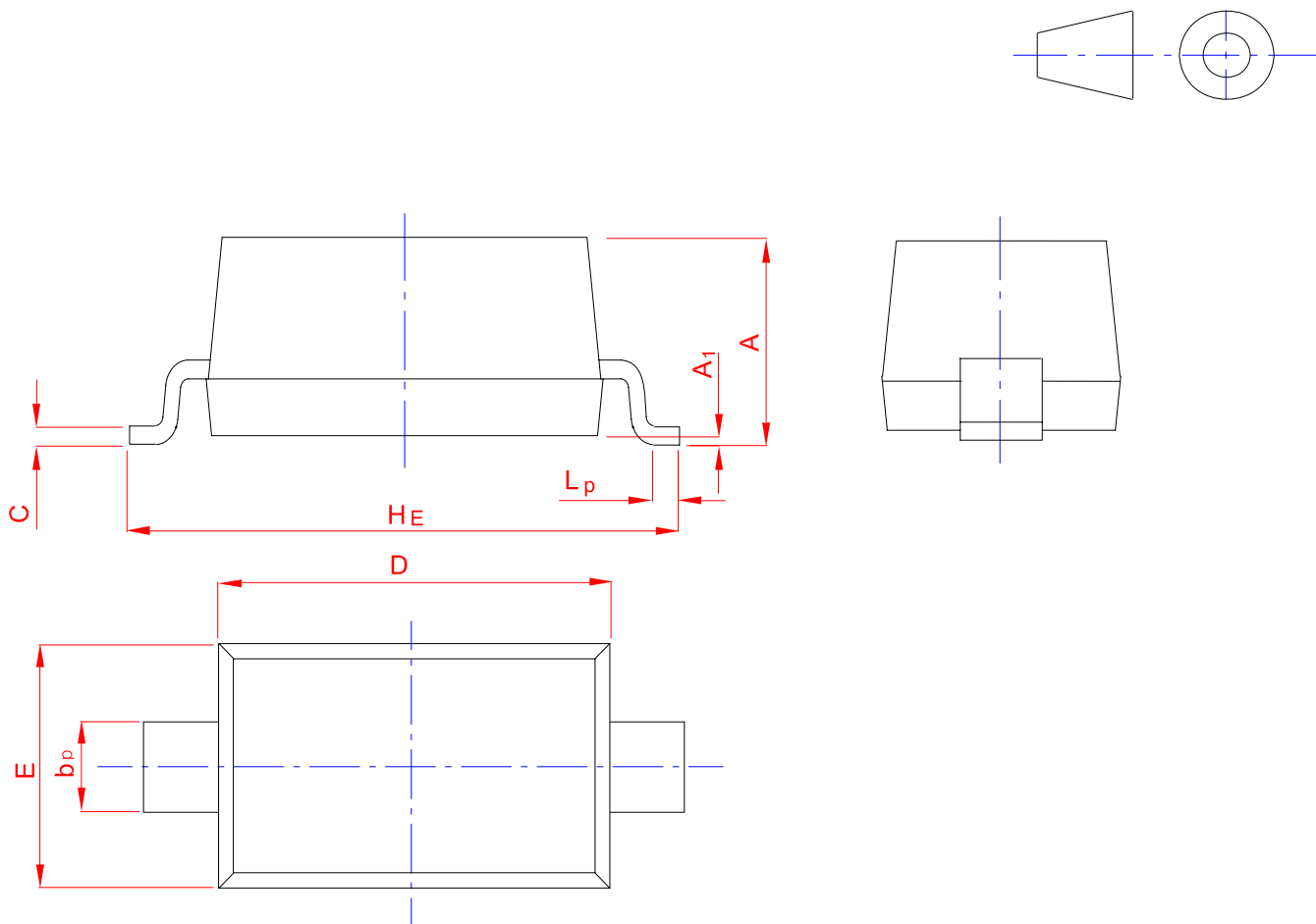




## PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SOD-123



| UNIT | A            | b <sub>p</sub> | C              | D            | E            | HE           | A <sub>1</sub> | L <sub>p</sub> |
|------|--------------|----------------|----------------|--------------|--------------|--------------|----------------|----------------|
| mm   | 1.20<br>0.90 | 0.60<br>0.50   | 0.135<br>0.100 | 2.75<br>2.55 | 1.65<br>1.55 | 3.85<br>3.55 | 0.10<br>0.01   | 0.50<br>0.20   |

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