

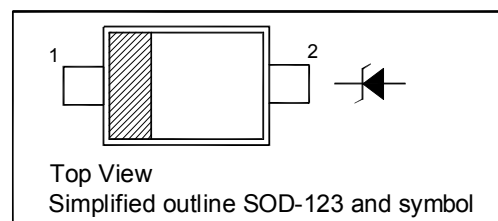
## SURFACE MOUNT SILICON ZENER DIODES

### Features

- Total power dissipation: max. 500 mW
- Small plastic package suitable for
- surface mounted design
- Tolerance approximately  $\pm 5\%$
- AEC-Q101 qualified (Automotive grade with suffix "Q".)
- Exsemi technology
- Expsemi electronics

### 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                    |

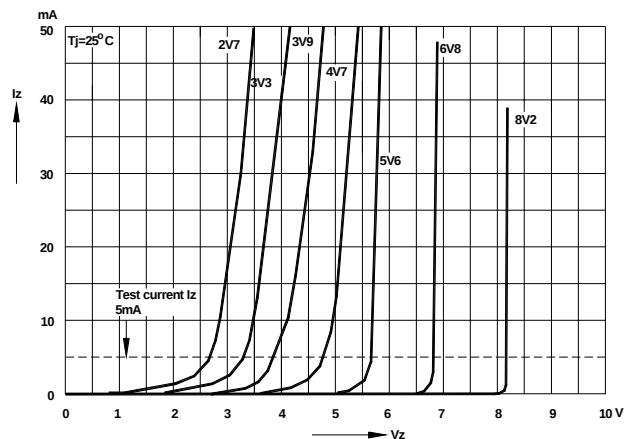
**Characteristics at  $T_a = 25\text{ }^{\circ}\text{C}$** 

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

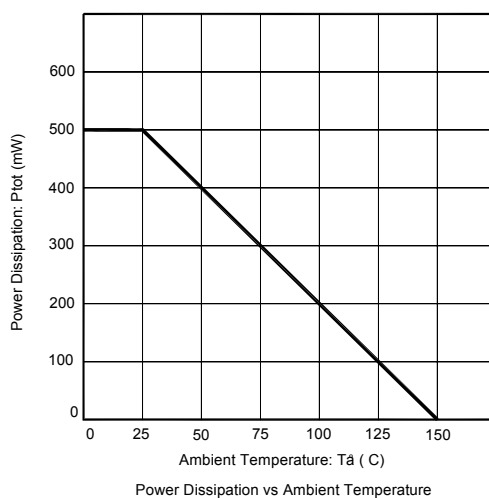
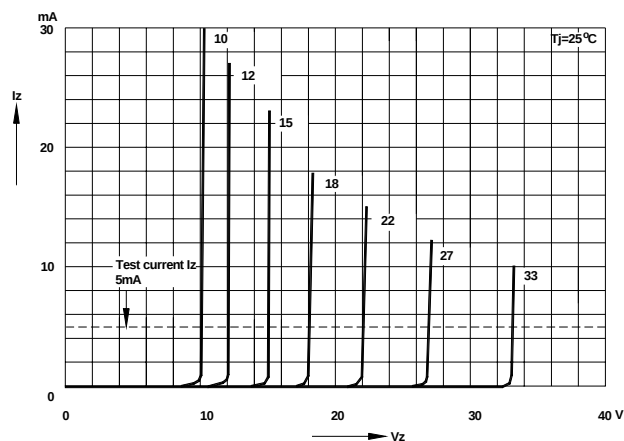
<sup>1)</sup>  $V_Z$  is tested with pulses (20 ms).

<sup>2)</sup>  $Z_{ZT}$  is measured at  $I_Z$  by given a very small A.C. current signal.

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



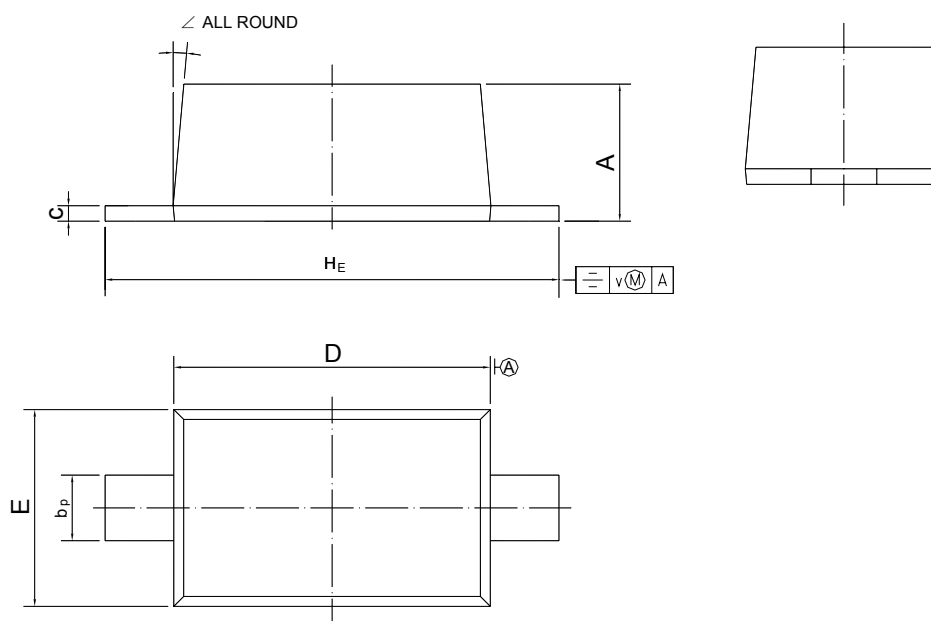
Breakdown characteristics  
 $T_J = \text{constant (pulsed)}$



## PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SOD-123



| UNIT | A            | b <sub>p</sub> | C              | D          | E            | H <sub>E</sub> | v   | ∠  |
|------|--------------|----------------|----------------|------------|--------------|----------------|-----|----|
| mm   | 1.15<br>1.05 | 0.6<br>0.5     | 0.135<br>0.100 | 2.7<br>2.6 | 1.65<br>1.55 | 3.85<br>3.55   | 0.2 | 5° |