



# MM1W3V3 THRU MM1W91

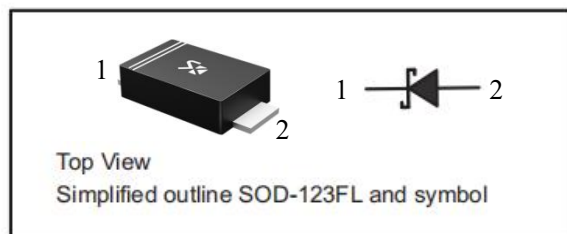
## Silicon Planar Zener Diodes

### Features

- Total power dissipation: Max. 1W
- Wide zener reverse voltage range 3.3V to 91V
- Small plastic package suitable for surface mounted design

### PINNING

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



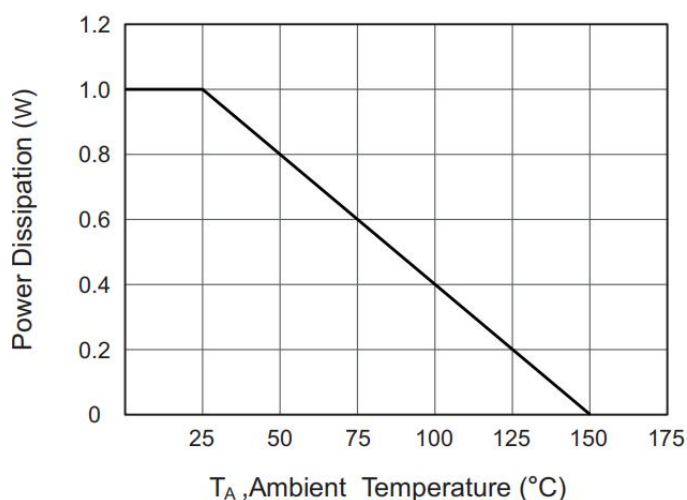
### Absolute Maximum Ratings and Characteristics ( $T_A=25^{\circ}\text{C}$ unless otherwise noted)

| Parameter                                 | Symbol          | Value         | Unit                 |
|-------------------------------------------|-----------------|---------------|----------------------|
| Power Dissipation                         | $P_D$           | 1             | W                    |
| Forward Voltage at $I_F=200\text{mA}$     | $V_F$           | 1.2           | V                    |
| Junction Temperature Range                | $T_J$           | $-55\sim+150$ | $^{\circ}\text{C}$   |
| Storage Temperature Range                 | $T_{STG}$       | $-55\sim+150$ | $^{\circ}\text{C}$   |
| Typical Thermal Resistance <sup>(1)</sup> | $R_{\theta JA}$ | 105           | $^{\circ}\text{C/W}$ |
|                                           | $R_{\theta JC}$ | 25            | $^{\circ}\text{C/W}$ |
|                                           | $R_{\theta JL}$ | 32            | $^{\circ}\text{C/W}$ |

Note:(1) P.C.B. mounted with 0.2" x 0.2" (5 x 5mm) copper pad areas

### Typical Characteristics

Fig.1 Maximum Continuous Power Derating





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**Electrical Characteristics** ( $T_A=25^{\circ}\text{C}$  unless otherwise noted,  $V_F<0.9\text{V}@ I_F=10\text{mA}$ )

| Type    | Marking | Zener Voltage Range <sup>(1)</sup>    |        |        |                 | Dynamic Impedance                     | Reverse Current |                   | Admissible Zener Current |
|---------|---------|---------------------------------------|--------|--------|-----------------|---------------------------------------|-----------------|-------------------|--------------------------|
|         |         | V <sub>ZT</sub> (at I <sub>ZT</sub> ) |        |        | I <sub>ZT</sub> | Z <sub>ZT</sub> (at I <sub>ZT</sub> ) | I <sub>R</sub>  | at V <sub>R</sub> |                          |
|         |         | Min(V)                                | Nom(V) | Max(V) | (mA)            | Max(Ω)                                | Max(μA)         | (V)               | I <sub>ZM</sub> (mA)     |
| MM1W3V3 | FHD     | 3.14                                  | 3.3    | 3.47   | 75              | 10                                    | 100             | 1                 | 285                      |
| MM1W3V6 | FHE     | 3.42                                  | 3.6    | 3.78   | 69              | 10                                    | 100             | 1                 | 263                      |
| MM1W3V9 | FHF     | 3.71                                  | 3.9    | 4.1    | 64              | 9.0                                   | 50              | 1                 | 243                      |
| MM1W4V3 | FHG     | 4.09                                  | 4.3    | 4.52   | 58              | 9.0                                   | 25              | 1                 | 219                      |
| MM1W4V7 | FHJ     | 4.47                                  | 4.7    | 4.94   | 53              | 8.0                                   | 10              | 1                 | 203                      |
| MM1W5V1 | FHK     | 4.85                                  | 5.1    | 5.36   | 49              | 7.0                                   | 10              | 1                 | 186                      |
| MM1W5V6 | FHL     | 5.32                                  | 5.6    | 5.88   | 45              | 5.0                                   | 10              | 2                 | 170                      |
| MM1W6V2 | FHN     | 5.89                                  | 6.2    | 6.51   | 41              | 2.0                                   | 10              | 3                 | 154                      |
| MM1W6V8 | FHO     | 6.46                                  | 6.8    | 7.14   | 37              | 3.5                                   | 10              | 4                 | 140                      |
| MM1W7V5 | FHQ     | 7.13                                  | 7.5    | 7.88   | 34              | 4.0                                   | 10              | 5                 | 127                      |
| MM1W8V2 | FHR     | 7.79                                  | 8.2    | 8.61   | 31              | 4.5                                   | 10              | 6                 | 116                      |
| MM1W9V1 | FHT     | 8.65                                  | 9.1    | 9.56   | 28              | 5.0                                   | 10              | 7                 | 104                      |
| MM1W10  | FHU     | 9.5                                   | 10     | 10.5   | 25              | 7.0                                   | 10              | 7                 | 95                       |
| MM1W11  | FHV     | 10.45                                 | 11     | 11.55  | 23              | 8.0                                   | 5               | 8                 | 86                       |
| MM1W12  | FHW     | 11.4                                  | 12     | 12.6   | 21              | 9.0                                   | 5               | 9                 | 79                       |
| MM1W13  | FHX     | 12.35                                 | 13     | 13.65  | 19              | 10                                    | 5               | 10                | 71                       |
| MM1W15  | FHZ     | 14.25                                 | 15     | 15.75  | 17              | 14                                    | 5               | 11                | 63                       |
| MM1W16  | FJA     | 15.2                                  | 16     | 16.8   | 16              | 16                                    | 5               | 12                | 58                       |
| MM1W18  | FJF     | 17.1                                  | 18     | 18.9   | 14              | 20                                    | 5               | 13                | 52                       |
| MM1W19  | FJD     | 18.05                                 | 19     | 19.95  | 13.5            | 21                                    | 5               | 14                | 48                       |
| MM1W20  | FJG     | 19                                    | 20     | 21     | 13              | 22                                    | 5               | 15                | 47                       |



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|        |     |       |    |       |     |     |   |    |    |
|--------|-----|-------|----|-------|-----|-----|---|----|----|
| MM1W22 | FJK | 20.9  | 22 | 23.1  | 12  | 23  | 5 | 17 | 43 |
| MM1W24 | FJL | 22.8  | 24 | 25.2  | 11  | 25  | 5 | 18 | 38 |
| MM1W27 | FJN | 25.65 | 27 | 28.35 | 9.5 | 35  | 5 | 21 | 35 |
| MM1W30 | FJQ | 28.5  | 30 | 31.5  | 8.5 | 40  | 5 | 23 | 31 |
| MM1W33 | FJR | 31.35 | 33 | 34.65 | 7.5 | 45  | 5 | 25 | 28 |
| MM1W36 | FJS | 34.2  | 36 | 37.8  | 7.0 | 50  | 5 | 27 | 26 |
| MM1W39 | FJT | 37.05 | 39 | 40.95 | 6.5 | 60  | 5 | 30 | 24 |
| MM1W43 | FLG | 40.85 | 43 | 45.15 | 6.0 | 70  | 1 | 32 | 22 |
| MM1W47 | FLJ | 44.65 | 47 | 49.35 | 5.5 | 80  | 1 | 35 | 20 |
| MM1W51 | FLK | 48.45 | 51 | 53.55 | 5.0 | 95  | 1 | 38 | 18 |
| MM1W56 | FLL | 53.2  | 56 | 58.8  | 4.5 | 110 | 1 | 42 | 17 |
| MM1W62 | FLN | 58.9  | 62 | 65.1  | 4.0 | 125 | 1 | 47 | 15 |
| MM1W68 | FLO | 64.6  | 68 | 71.4  | 3.7 | 150 | 1 | 52 | 14 |
| MM1W75 | FLQ | 71.25 | 75 | 78.75 | 3.3 | 175 | 1 | 56 | 12 |
| MM1W82 | FLR | 77.9  | 82 | 86.1  | 3.0 | 200 | 1 | 62 | 11 |
| MM1W91 | FLT | 86.45 | 91 | 95.55 | 2.8 | 250 | 1 | 69 | 10 |

Note:(1).V<sub>zT</sub> is tested with pulses(20ms)

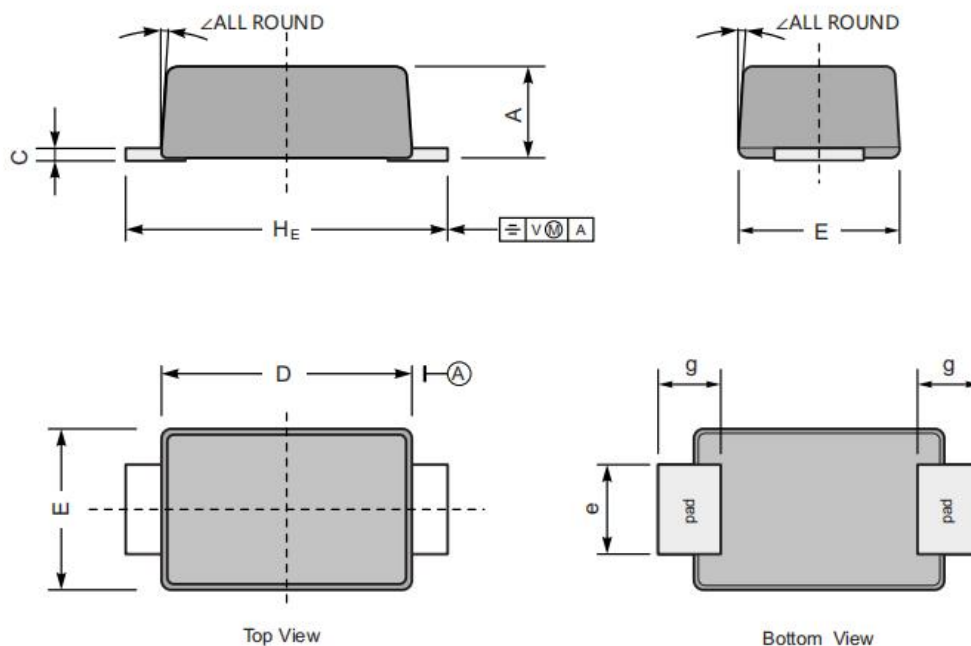


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## Package Information

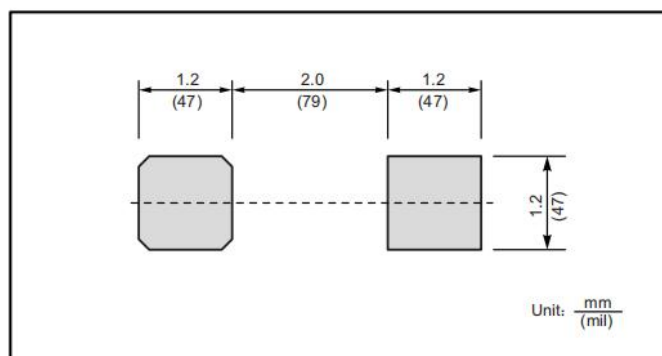
### SOD-123FL

### Dimensions in mm



| UNIT |     | A   | C    | D   | E   | e   | g   | $H_E$ | $\angle$ |
|------|-----|-----|------|-----|-----|-----|-----|-------|----------|
| mm   | max | 1.1 | 0.20 | 2.9 | 1.9 | 1.1 | 0.9 | 3.8   | 7°       |
|      | min | 0.9 | 0.12 | 2.6 | 1.7 | 0.8 | 0.7 | 3.5   |          |
| mil  | max | 43  | 7.9  | 114 | 75  | 43  | 35  | 150   |          |
|      | min | 35  | 4.7  | 102 | 67  | 31  | 28  | 138   |          |

The recommended mounting pad size





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