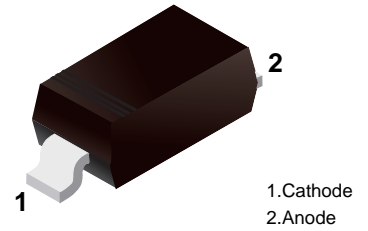


## Silicon Planar Zener Diodes

### ■ Features

- Total power dissipation: Max. 500mW.
- Wide zener reverse voltage range 2.4V to 39V.
- Small plastic package suitable for surface mounted design.
- Tolerance approximately  $\pm 5\%$



Simplified outline(SOD-123)

### ■ Absolute Maximum Ratings And Characteristics Ta = 25°C

| Parameter   | Symbol          | Value      | Unit |
|---|-----------------|------------|------|
| Power Dissipation   | $P_{tot}$       | 500        | mW   |
| Typical thermal resistance junction to ambient <sup>(1)</sup> | $R_{\theta JA}$ | 340        | °C/W |
| Operating and Storage Temperature Range                       | $T_j, T_{stg}$  | -55 ~ +150 | °C   |

(1) Thermal resistance from junction to ambient at P.C.B. mounted with 2.0" X 2.0" (5 X 5 cm) copper areas pads.

Fig.1 Maximum Continuous Power Derating

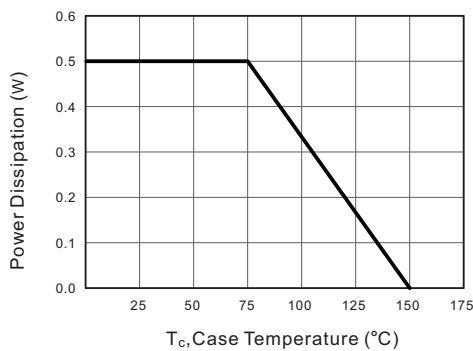
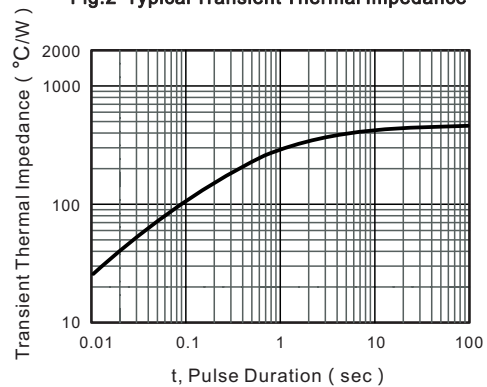


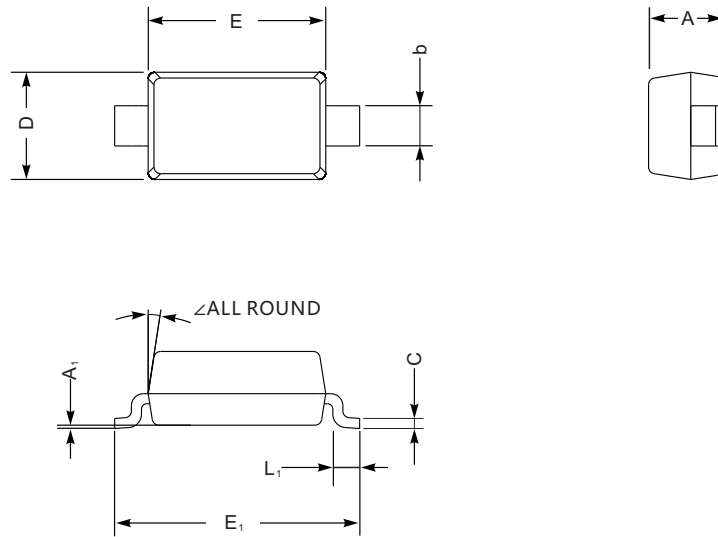
Fig.2 Typical Transient Thermal Impedance



| Type      | Mark | Zener Voltage Range <sup>(1)</sup>     |           |           | Dynamic Impedance |  |                 |  | Reverse 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>ZK</sub> | Z <sub>ZK</sub> ( at I <sub>ZK</sub> ) | I <sub>R</sub>  | at V <sub>R</sub> |
|           |      | Min ( V )                              | Nom ( V ) | Max ( V ) | ( mA )            | Max ( Ω )                              | ( mA )          | Max ( Ω )                              | Max ( nA )      | ( V )             |
| MMSZ5221B | C1   | 2.28                                   | 2.4       | 2.52      | 20                | 30                                     | 0.25            | 1200                                   | 100             | 1                 |
| MMSZ5222B | C2   | 2.38                                   | 2.5       | 2.63      | 20                | 30                                     | 0.25            | 1250                                   | 100             | 1                 |
| MMSZ5223B | C3   | 2.57                                   | 2.7       | 2.84      | 20                | 30                                     | 0.25            | 1300                                   | 75              | 1                 |
| MMSZ5225B | C5   | 2.85                                   | 3         | 3.15      | 20                | 30                                     | 0.25            | 1600                                   | 50              | 1                 |
| MMSZ5226B | D1   | 3.14                                   | 3.3       | 3.47      | 20                | 28                                     | 0.25            | 1600                                   | 25              | 1                 |
| MMSZ5227B | D2   | 3.42                                   | 3.6       | 3.78      | 20                | 24                                     | 0.25            | 1700                                   | 15              | 1                 |
| MMSZ5228B | D3   | 3.71                                   | 3.9       | 4.1       | 20                | 23                                     | 0.25            | 1900                                   | 10              | 1                 |
| MMSZ5229B | D4   | 4.09                                   | 4.3       | 4.52      | 20                | 22                                     | 0.25            | 2000                                   | 5               | 1                 |
| MMSZ5230B | D5   | 4.47                                   | 4.7       | 4.94      | 20                | 19                                     | 0.25            | 1900                                   | 5               | 2                 |
| MMSZ5231B | E1   | 4.85                                   | 5.1       | 5.36      | 20                | 17                                     | 0.25            | 1600                                   | 5               | 2                 |
| MMSZ5232B | E2   | 5.32                                   | 5.6       | 5.88      | 20                | 11                                     | 0.25            | 1600                                   | 5               | 3                 |
| MMSZ5234B | E4   | 5.89                                   | 6.2       | 6.51      | 20                | 7                                      | 0.25            | 1000                                   | 5               | 4                 |
| MMSZ5235B | E5   | 6.46                                   | 6.8       | 7.14      | 20                | 5                                      | 0.25            | 750                                    | 3               | 5                 |
| MMSZ5236B | F1   | 7.13                                   | 7.5       | 7.88      | 20                | 6                                      | 0.25            | 500                                    | 3               | 6                 |
| MMSZ5237B | F2   | 7.79                                   | 8.2       | 8.61      | 20                | 8                                      | 0.25            | 500                                    | 3               | 6                 |
| MMSZ5239B | F4   | 8.65                                   | 9.1       | 9.56      | 20                | 10                                     | 0.25            | 600                                    | 3               | 6.5               |
| MMSZ5240B | F5   | 9.5                                    | 10        | 10.5      | 20                | 17                                     | 0.25            | 600                                    | 3               | 8                 |
| MMSZ5241B | H1   | 10.45                                  | 11        | 11.55     | 20                | 22                                     | 0.25            | 600                                    | 3               | 8.4               |
| MMSZ5242B | H2   | 11.4                                   | 12        | 12.6      | 20                | 30                                     | 0.25            | 600                                    | 2               | 9.1               |
| MMSZ5243B | H3   | 12.35                                  | 13        | 13.65     | 9.5               | 13                                     | 0.25            | 600                                    | 1               | 9.9               |
| MMSZ5245B | H5   | 14.25                                  | 15        | 15.75     | 8.5               | 16                                     | 0.25            | 600                                    | 0.5             | 11                |
| MMSZ5246B | J1   | 15.2                                   | 16        | 16.8      | 7.8               | 17                                     | 0.25            | 600                                    | 0.1             | 12                |
| MMSZ5248B | J3   | 17.1                                   | 18        | 18.9      | 7                 | 21                                     | 0.25            | 600                                    | 0.1             | 14                |
| MMSZ5250B | J5   | 19                                     | 20        | 21        | 6.2               | 25                                     | 0.25            | 600                                    | 0.1             | 15                |
| MMSZ5251B | K1   | 20.9                                   | 22        | 23.1      | 5.6               | 29                                     | 0.25            | 600                                    | 0.1             | 17                |
| MMSZ5252B | K2   | 22.8                                   | 24        | 25.2      | 5.2               | 33                                     | 0.25            | 600                                    | 0.1             | 18                |
| MMSZ5254B | K4   | 25.65                                  | 27        | 28.35     | 5                 | 41                                     | 0.25            | 600                                    | 0.1             | 21                |
| MMSZ5255B | K5   | 26.6                                   | 28        | 29.4      | 4.5               | 44                                     | 0.25            | 600                                    | 0.1             | 21                |
| MMSZ5256B | M1   | 28.5                                   | 30        | 31.5      | 4.2               | 49                                     | 0.25            | 600                                    | 0.1             | 23                |
| MMSZ5257B | M2   | 31.35                                  | 33        | 34.65     | 3.8               | 58                                     | 0.25            | 700                                    | 0.1             | 25                |
| MMSZ5258B | M3   | 34.2                                   | 36        | 37.8      | 3.4               | 70                                     | 0.25            | 700                                    | 0.1             | 27                |
| MMSZ5259B | M4   | 37.05                                  | 39        | 40.95     | 3.2               | 80                                     | 0.25            | 800                                    | 0.1             | 30                |

( 1 ) V<sub>ZT</sub> is tested with pulses (20 ms)

■ SOD-123



SOD-123 mechanical data

| UNIT |     | A   | C    | D   | E   | E <sub>1</sub> | L <sub>1</sub> | b   | A <sub>1</sub> | ∠  |
|------|-----|-----|------|-----|-----|----------------|----------------|-----|----------------|----|
| mm   | max | 1.3 | 0.22 | 1.8 | 2.8 | 3.9            | 0.45           | 0.7 | 0.2            | 9° |
|      | min | 0.9 | 0.09 | 1.5 | 2.5 | 3.6            | 0.25           | 0.5 | —              |    |
| mil  | max | 51  | 8.7  | 71  | 110 | 154            | 18             | 28  | 8              |    |
|      | min | 35  | 3.5  | 59  | 98  | 142            | 10             | 20  | —              |    |