

# MM3Z Series-CH

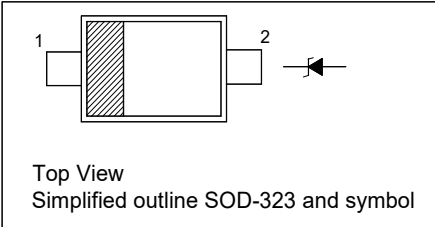
## Silicon Planar Zener Diodes

### Features

- AEC-Q101 Qualified
- Power dissipation : max. 300 mW
- Small plastic package suitable for surface mounted design
- Halogen and Antimony Free(HAF), RoHS compliant

### PINNING

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



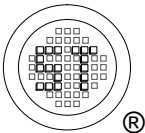
### Absolute Maximum Ratings ( $T_a = 25^{\circ}\text{C}$ )

| Parameter                            | Symbol    | Value         | Unit               |
|--------------------------------------|-----------|---------------|--------------------|
| Power Dissipation                    | $P_D$     | 300           | mW                 |
| Operating Junction Temperature Range | $T_j$     | - 40 to + 150 | $^{\circ}\text{C}$ |
| Storage Temperature Range            | $T_{stg}$ | - 55 to + 150 | $^{\circ}\text{C}$ |

### Thermal Characteristics

| Parameter                                            | Symbol          | Max. | Unit                 |
|------------------------------------------------------|-----------------|------|----------------------|
| Thermal Resistance Junction to Ambient <sup>1)</sup> | $R_{\theta JA}$ | 417  | $^{\circ}\text{C/W}$ |

<sup>1)</sup> Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.



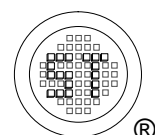
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Characteristics at  $T_a = 25^\circ\text{C}$  ( $V_F = 0.9\text{ V Max. at } I_F = 10\text{ mA}$ )

Table 1

| Type    | Marking Code | Zener Voltage Range <sup>1)</sup> |              |             | Dynamic Impedance      |             | Reverse Leakage Current |          |
|---------|--------------|-----------------------------------|--------------|-------------|------------------------|-------------|-------------------------|----------|
|         |              | $V_{Znom}$                        | $I_{ZT}$ for | $V_{ZT}$    | $Z_{ZT} (\text{Max.})$ | at $I_{ZT}$ | $I_R (\text{Max.})$     | at $V_R$ |
|         |              | V                                 | mA           | V           | $\Omega$               | mA          | $\mu\text{A}$           | V        |
| MM3Z2V0 | B0           | 2.0                               | 5            | 1.8...2.15  | 100                    | 5           | 120                     | 0.5      |
| MM3Z2V2 | C0           | 2.2                               | 5            | 2.08...2.33 | 100                    | 5           | 120                     | 0.7      |
| MM3Z2V4 | 1C           | 2.4                               | 5            | 2.28...2.56 | 100                    | 5           | 120                     | 1        |
| MM3Z2V7 | 1D           | 2.7                               | 5            | 2.5...2.9   | 110                    | 5           | 120                     | 1        |
| MM3Z3V0 | 1E           | 3.0                               | 5            | 2.8...3.2   | 120                    | 5           | 50                      | 1        |
| MM3Z3V3 | 1F           | 3.3                               | 5            | 3.1...3.5   | 130                    | 5           | 20                      | 1        |
| MM3Z3V6 | 1H           | 3.6                               | 5            | 3.4...3.8   | 130                    | 5           | 10                      | 1        |
| MM3Z3V9 | 1J           | 3.9                               | 5            | 3.7...4.1   | 130                    | 5           | 5                       | 1        |
| MM3Z4V3 | 1K           | 4.3                               | 5            | 4...4.6     | 130                    | 5           | 5                       | 1        |
| MM3Z4V7 | 1M           | 4.7                               | 5            | 4.4...5     | 130                    | 5           | 2                       | 1        |
| MM3Z5V1 | 1N           | 5.1                               | 5            | 4.8...5.4   | 130                    | 5           | 2                       | 1.5      |
| MM3Z5V6 | 1P           | 5.6                               | 5            | 5.2...6     | 80                     | 5           | 1                       | 2.5      |
| MM3Z6V2 | 1R           | 6.2                               | 5            | 5.8...6.6   | 50                     | 5           | 1                       | 3        |
| MM3Z6V8 | 1X           | 6.8                               | 5            | 6.4...7.2   | 30                     | 5           | 0.5                     | 3.5      |
| MM3Z7V5 | 1Y           | 7.5                               | 5            | 7...7.9     | 30                     | 5           | 0.5                     | 4        |
| MM3Z8V2 | 1Z           | 8.2                               | 5            | 7.7...8.7   | 30                     | 5           | 0.5                     | 5        |
| MM3Z9V1 | 2A           | 9.1                               | 5            | 8.5...9.6   | 30                     | 5           | 0.5                     | 6        |
| MM3Z10  | 2B           | 10                                | 5            | 9.4...10.6  | 30                     | 5           | 0.1                     | 7        |
| MM3Z11  | 2C           | 11                                | 5            | 10.4...11.6 | 30                     | 5           | 0.1                     | 8        |
| MM3Z12  | 2D           | 12                                | 5            | 11.4...12.7 | 35                     | 5           | 0.1                     | 9        |
| MM3Z13  | 2E           | 13                                | 5            | 12.4...14.1 | 35                     | 5           | 0.1                     | 10       |
| MM3Z15  | 2F           | 15                                | 5            | 13.8...15.6 | 40                     | 5           | 0.1                     | 11       |
| MM3Z16  | 2H           | 16                                | 5            | 15.3...17.1 | 40                     | 5           | 0.1                     | 12       |
| MM3Z18  | 2J           | 18                                | 5            | 16.8...19.1 | 45                     | 5           | 0.1                     | 13       |
| MM3Z20  | 2K           | 20                                | 5            | 18.8...21.2 | 50                     | 5           | 0.1                     | 15       |
| MM3Z22  | 2M           | 22                                | 5            | 20.8...23.3 | 55                     | 5           | 0.1                     | 17       |
| MM3Z24  | 2N           | 24                                | 5            | 22.8...25.6 | 60                     | 5           | 0.1                     | 19       |
| MM3Z27  | 2P           | 27                                | 2            | 25.1...28.9 | 70                     | 2           | 0.1                     | 21       |
| MM3Z30  | 2R           | 30                                | 2            | 28...32     | 80                     | 2           | 0.1                     | 23       |
| MM3Z33  | 2X           | 33                                | 2            | 31...35     | 80                     | 2           | 0.1                     | 25       |
| MM3Z36  | 2Y           | 36                                | 2            | 34...38     | 90                     | 2           | 0.1                     | 27       |
| MM3Z39  | 2Z           | 39                                | 2            | 37...41     | 100                    | 2           | 0.1                     | 30       |
| MM3Z43  | 3A           | 43                                | 2            | 40...46     | 130                    | 2           | 0.1                     | 33       |
| MM3Z47  | 3B           | 47                                | 2            | 44...50     | 150                    | 2           | 0.1                     | 36       |
| MM3Z51  | 3C           | 51                                | 2            | 48...54     | 180                    | 2           | 0.1                     | 39       |
| MM3Z56  | 3D           | 56                                | 2            | 52...60     | 200                    | 2           | 0.1                     | 43       |
| MM3Z62  | 3E           | 62                                | 2            | 58...66     | 215                    | 2           | 0.1                     | 47       |
| MM3Z68  | 3F           | 68                                | 2            | 64...72     | 240                    | 2           | 0.1                     | 52       |
| MM3Z75  | 3H           | 75                                | 2            | 70...79     | 265                    | 2           | 0.1                     | 56       |

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



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## Electrical Characteristics Curves

Fig 1. Power Derating Curve

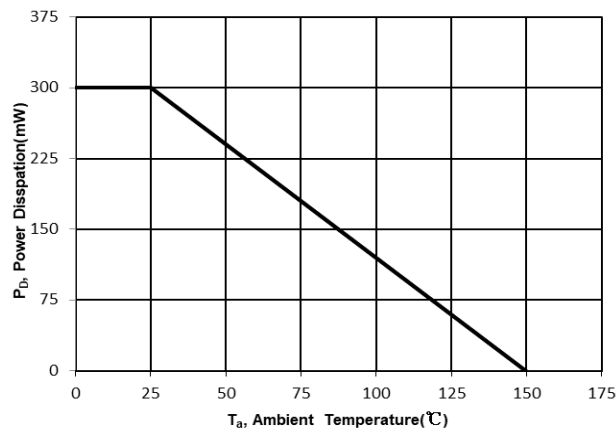


Fig 2. Forward Characteristics Curve

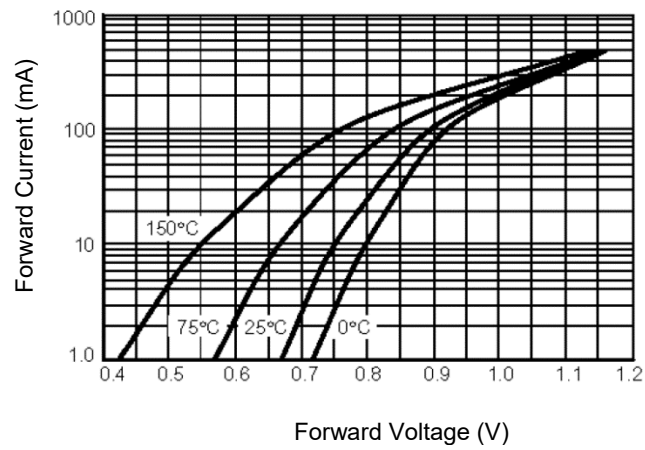


Fig 3. Zener Characteristics Curve

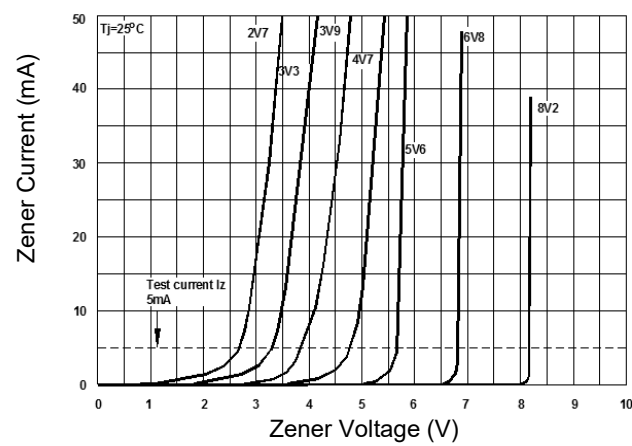
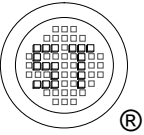
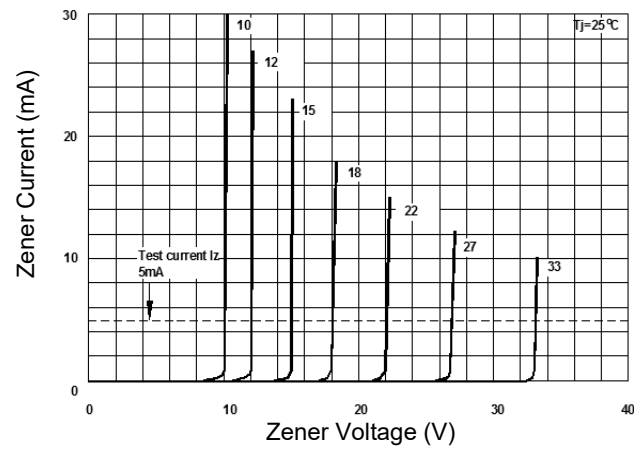


Fig 4. Zener Characteristics Curve

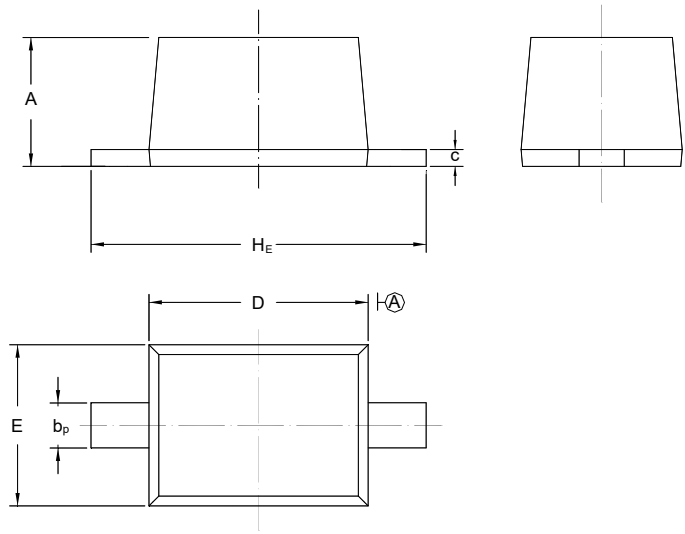


# MM3Z Series-CH

## PACKAGE OUTLINE

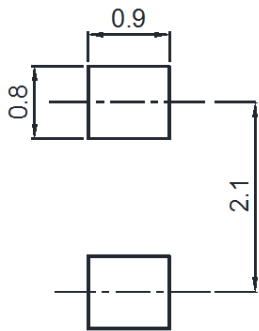
Plastic surface mounted package; 2 leads

SOD-323



| UNIT | A            | b <sub>p</sub> | C            | D            | E            | H <sub>E</sub> |
|------|--------------|----------------|--------------|--------------|--------------|----------------|
| mm   | 1.10<br>0.80 | 0.40<br>0.25   | 0.15<br>0.10 | 1.80<br>1.60 | 1.35<br>1.15 | 2.80<br>2.30   |

## Recommended Soldering Footprint



## Packing information

| Package | Tape Width (mm) | Pitch   |               | Reel Size |      | Per Reel Packing Quantity |
|---------|-----------------|---------|---------------|-----------|------|---------------------------|
|         |                 | mm      | inch          | mm        | inch |                           |
| SOD-323 | 8               | 4 ± 0.1 | 0.157 ± 0.004 | 178       | 7    | 3,000                     |

## Marking information

" \*\* " = Part No. (See table 1 of Marking Code)

" • " = HAF (Halogen and Antimony Free)

" III " = Cathode line

Font type: Arial



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