

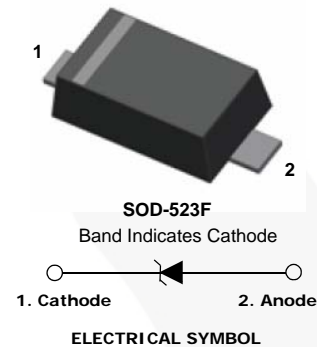


June 2015

# MM5Z2V4 - MM5Z75V Zener Diodes

## Features

- Wide Zener Voltage Range Selection, 2.4 V to 75 V
- Flat Lead, Surface Mount Device Under 0.70 mm Height
- Extremely Small Outline Plastic Package SOD523F
- Moisture Sensitivity Level 1
- Pb Free Version and RoHS Compliant
- Matte Tin(Sn) Lead Finish
- Band Indicates Cathode
- Green Mold Compound



## Ordering Information

| Part Number                 | Device Marking              | Package     | Packing Method | Reel Size | Tape Width | Quantity |
|-----------------------------|-----------------------------|-------------|----------------|-----------|------------|----------|
| Refer to product table list | Refer to product table list | SOD-523F 2L | Tape and Reel  | 7 inch    | 12 mm      | 8,000    |

## Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

| Symbol    | Parameter                   | Value       | Unit             |
|-----------|-----------------------------|-------------|------------------|
| $P_D$     | Power Dissipation           | 200         | mW               |
| $T_{STG}$ | Storage Temperature Range   | -55 to +150 | $^\circ\text{C}$ |
| $T_{OPR}$ | Operating Temperature Range | -55 to +150 | $^\circ\text{C}$ |

## Thermal Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

| Symbol          | Parameter  | Value | Unit               |
|-----------------|--|-------|--------------------|
| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient <sup>(1)</sup> | 500   | $^\circ\text{C/W}$ |

### Note:

1. Device mounted on FR-4 PCB minimum land pad.

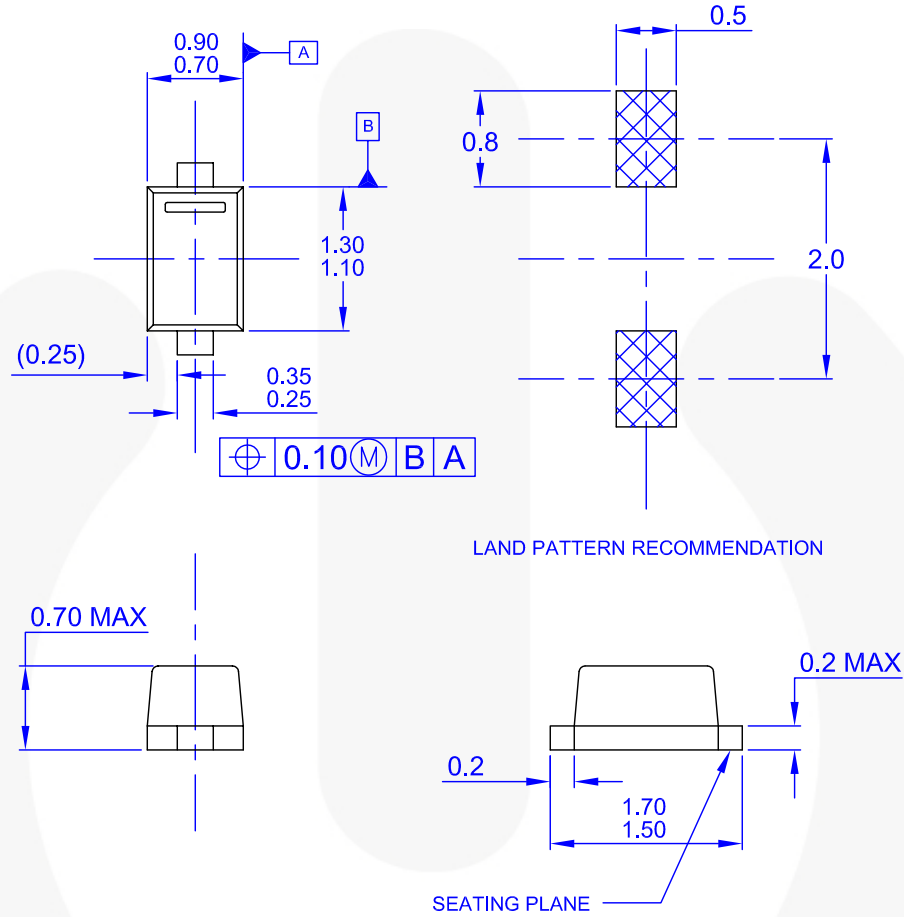
**Electrical Characteristics**<sup>(2), (3)</sup>Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

| Device Type | Device Marking | $V_Z$ (V) @ $I_{ZT}$ |      |      | $Z_{ZT}$ ( $\Omega$ ) @ $I_{ZT}$ | $I_{ZT}$ (mA) | $Z_{ZK}$ ( $\Omega$ ) @ $I_{ZK}$ | $I_{ZK}$ (mA) | $I_R$ ( $\mu\text{A}$ ) @ $V_R$ | $V_R$ (V) |
|-------------|----------------|----------------------|------|------|----------------------------------|---------------|----------------------------------|---------------|---------------------------------|-----------|
|             |                | Min.                 | Typ. | Max. | Max.                             | -             | Max.                             | -             | Max.                            | -         |
| MM5Z2V4     | 50             | 2.2                  | 2.4  | 2.6  | 100                              | 5             | 1000                             | 1             | 50                              | 1         |
| MM5Z2V7     | 51             | 2.5                  | 2.7  | 2.9  | 100                              | 5             | 1000                             | 1             | 20                              | 1         |
| MM5Z3V0     | 52             | 2.8                  | 3.0  | 3.2  | 100                              | 5             | 1000                             | 1             | 10                              | 1         |
| MM5Z3V3     | 53             | 3.1                  | 3.3  | 3.5  | 95                               | 5             | 1000                             | 1             | 5                               | 1         |
| MM5Z3V6     | 54             | 3.4                  | 3.6  | 3.8  | 90                               | 5             | 1000                             | 1             | 5                               | 1         |
| MM5Z3V9     | 55             | 3.7                  | 3.9  | 4.1  | 90                               | 5             | 1000                             | 1             | 3                               | 1         |
| MM5Z4V3     | 56             | 4.0                  | 4.3  | 4.6  | 90                               | 5             | 1000                             | 1             | 3                               | 1         |
| MM5Z4V7     | 57             | 4.4                  | 4.7  | 5.0  | 80                               | 5             | 800                              | 1             | 3                               | 2         |
| MM5Z5V1     | 58             | 4.8                  | 5.1  | 5.4  | 60                               | 5             | 500                              | 1             | 2                               | 2         |
| MM5Z5V6     | 59             | 5.2                  | 5.6  | 6.0  | 40                               | 5             | 200                              | 1             | 1                               | 2         |
| MM5Z6V2     | 5A             | 5.8                  | 6.2  | 6.6  | 10                               | 5             | 100                              | 1             | 3                               | 4         |
| MM5Z6V8     | 5B             | 6.4                  | 6.8  | 7.2  | 15                               | 5             | 160                              | 1             | 2                               | 4         |
| MM5Z7V5     | 5C             | 7.0                  | 7.5  | 7.9  | 15                               | 5             | 160                              | 1             | 1                               | 5         |
| MM5Z8V2     | 5D             | 7.7                  | 8.2  | 8.7  | 15                               | 5             | 160                              | 1             | 0.7                             | 5         |
| MM5Z9V1     | 5E             | 8.5                  | 9.1  | 9.6  | 15                               | 5             | 160                              | 1             | 0.2                             | 7         |
| MM5Z10V     | 5F             | 9.4                  | 10   | 10.6 | 20                               | 5             | 160                              | 1             | 0.1                             | 8         |
| MM5Z11V     | 5G             | 10.4                 | 11   | 11.6 | 20                               | 5             | 160                              | 1             | 0.1                             | 8         |
| MM5Z12V     | 5H             | 11.4                 | 12   | 12.7 | 25                               | 5             | 80                               | 1             | 0.1                             | 8         |
| MM5Z13V     | 5J             | 12.4                 | 13   | 14.1 | 30                               | 5             | 80                               | 1             | 0.1                             | 8         |
| MM5Z15V     | 5K             | 14.3                 | 15   | 15.8 | 30                               | 5             | 80                               | 1             | 0.05                            | 10.5      |
| MM5Z16V     | 5L             | 15.3                 | 16   | 17.1 | 40                               | 5             | 80                               | 1             | 0.05                            | 11.2      |
| MM5Z18V     | 5M             | 16.8                 | 18   | 19.1 | 45                               | 5             | 80                               | 1             | 0.05                            | 12.6      |
| MM5Z20V     | 5N             | 18.8                 | 20   | 21.2 | 55                               | 5             | 100                              | 1             | 0.05                            | 14.0      |
| MM5Z22V     | 5P             | 20.8                 | 22   | 23.3 | 55                               | 5             | 100                              | 1             | 0.05                            | 15.4      |
| MM5Z24V     | 5R             | 22.8                 | 24   | 25.6 | 70                               | 5             | 120                              | 1             | 0.05                            | 16.8      |
| MM5Z27V     | 5S             | 25.1                 | 27   | 28.9 | 80                               | 2             | 300                              | 0.5           | 0.05                            | 18.9      |
| MM5Z30V     | 5T             | 28                   | 30   | 32   | 80                               | 2             | 300                              | 0.5           | 0.05                            | 21.0      |
| MM5Z33V     | 5U             | 31                   | 33   | 35   | 80                               | 2             | 300                              | 0.5           | 0.05                            | 23.2      |
| MM5Z36V     | 5V             | 34                   | 36   | 38   | 90                               | 2             | 500                              | 0.5           | 0.05                            | 25.2      |
| MM5Z39V     | 5X             | 37                   | 39   | 41   | 130                              | 2             | 500                              | 0.5           | 0.05                            | 27.3      |
| MM5Z43V     | 5Y             | 40                   | 43   | 46   | 150                              | 2             | 500                              | 0.5           | 0.05                            | 30.1      |
| MM5Z47V     | 5Z             | 44                   | 47   | 50   | 170                              | 2             | 500                              | 0.5           | 0.05                            | 32.9      |
| MM5Z51V     | 5-             | 48                   | 51   | 54   | 180                              | 2             | 500                              | 0.5           | 0.05                            | 35.7      |
| MM5Z56V     | 5=             | 52                   | 56   | 60   | 200                              | 2             | 500                              | 0.5           | 0.05                            | 39.2      |
| MM5Z62V     | 5≡             | 58                   | 62   | 66   | 215                              | 2             | 500                              | 0.5           | 0.05                            | 43.4      |
| MM5Z68V     | 5>             | 64                   | 68   | 72   | 240                              | 2             | 500                              | 0.5           | 0.05                            | 47.6      |
| MM5Z75V     | 5<             | 70                   | 75   | 79   | 255                              | 2             | 500                              | 0.5           | 0.05                            | 52.5      |

**Notes:**

- The zener voltage ( $V_Z$ ) is tested under pulse condition of 10 mS.
- The zener impedance is derived from the 60-cycle AC voltage, which results when an AC current having an RMS value equal to 10% of the DC zener current ( $I_{ZT}$  or  $I_{ZK}$ ) is superimposed to  $I_{ZT}$  or  $I_{ZK}$ .

Physical Dimensions








- NOTES: UNLESS OTHERWISE SPECIFIED
- A) PACKAGE REFERENCE: THIS PACKAGE OUTLINE CONFORMS TO JEITA SC-79.
  - B) ALL DIMENSIONS ARE IN MILLIMETERS.
  - C) DRAWING CONFORMS TO ASME Y14.5M - 1994
  - D) DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH, AND TIE BAR EXTRUSIONS.
  - E) LANDPATTERN RECOMMENDATION IS BASED ON IPC7351A STANDARD SOD1609X65M.
  - F) DRAWING NUMBER AND REVISION: MKT-SOD523F1rev1

Figure 1. 2-LEAD, SOD523F, JEITA SC79, 0.7 MM TALL



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