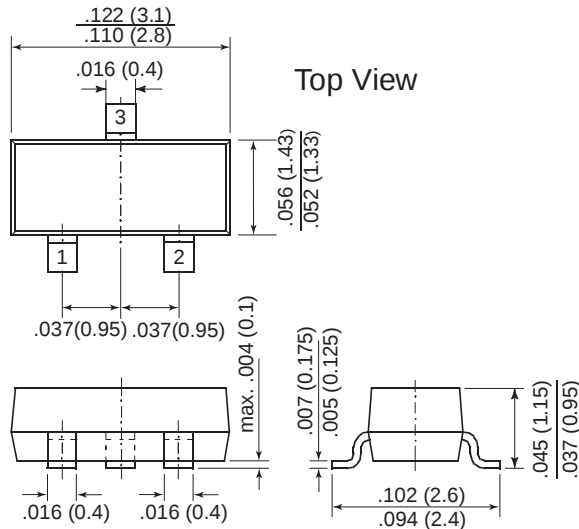




## Zener Diodes

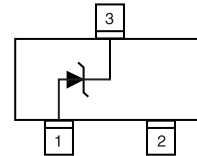
V<sub>Z</sub> Range 2.4 to 43V  
Power Dissipation 350mW

SOT-23

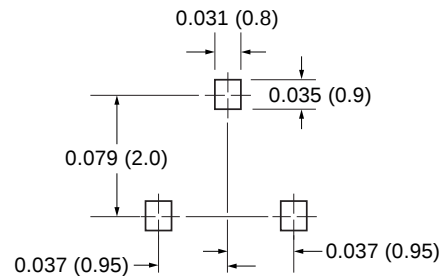


Dimensions in inches and (millimeters)

Top View



Mounting Pad Layout



## Mechanical Data

**Case:** SOT-23 Plastic Package**Weight:** approx. 0.008 grams**Terminals:** Solderable per MIL-STD-750, method 2026**Packaging codes/options:**

E8/10K per 13" reel (8mm tape), 30K/box

E9/3K per 7" reel (8mm tape), 30K/box

## Features

- Silicon Planar Zener Diodes.
- Standard Zener voltage tolerance is  $\pm 5\%$ . Other tolerances are available upon request.
- High temperature soldering guaranteed: 250°C/10 seconds at terminals.
- These diodes are also available in DO-35 case with the type designation 1N4681...1N4717 and SOD-123 case with the type designation MMSZ4681...MMSZ4717.

Maximum Ratings and Thermal Characteristics (T<sub>A</sub> = 25°C unless otherwise noted)

| Parameter                                   | Symbol           | Value              | Unit |
|---------------------------------------------|------------------|--------------------|------|
| Zener Current (see Table "Characteristics") |                  |                    |      |
| Power Dissipation at T <sub>A</sub> = 25°C  | P <sub>tot</sub> | 350 <sup>(1)</sup> | mW   |
| Thermal Resistance Junction to Ambient Air  | R <sub>θJA</sub> | 420 <sup>(1)</sup> | °C/W |
| Maximum Junction Temperature                | T <sub>j</sub>   | 150                | °C   |
| Storage Temperature Range                   | T <sub>s</sub>   | -55 to +150        | °C   |

**Notes:**

(1) On FR-5 board using recommended solder pad layout.

# MMBZ4681 thru MMBZ4717

Vishay Semiconductors  
formerly General Semiconductor



## Electrical Characteristics (T<sub>J</sub> = 25°C unless otherwise noted) Maximum V<sub>F</sub> = 0.9 V at I<sub>F</sub> = 10 mA

| Type     | Marking Code | Zener Voltage <sup>(1)</sup><br>V <sub>Z</sub> @ I <sub>ZT</sub> = 50μA (Volts) |       |      | Max Reverse Current I <sub>R</sub><br>(μA) | Test Voltage V <sub>R</sub><br>(Volts) |
|----------|--------------|---------------------------------------------------------------------------------|-------|------|--------------------------------------------|----------------------------------------|
|          |              | Nominal <sup>(1)</sup>                                                          | Min   | Max  |                                            |                                        |
| MMBZ4681 | CF           | 2.4                                                                             | 2.28  | 2.52 | 2.0                                        | 1.0                                    |
| MMBZ4682 | CH           | 2.7                                                                             | 2.57  | 2.84 | 1.0                                        | 1.0                                    |
| MMBZ4683 | CJ           | 3.0                                                                             | 2.85  | 3.15 | 0.8                                        | 1.0                                    |
| MMBZ4684 | CK           | 3.3                                                                             | 3.14  | 3.47 | 7.5                                        | 1.5                                    |
| MMBZ4685 | CM           | 3.6                                                                             | 3.42  | 3.78 | 7.5                                        | 2.0                                    |
| MMBZ4686 | CN           | 3.9                                                                             | 3.71  | 4.10 | 5.0                                        | 2.0                                    |
| MMBZ4687 | CP           | 4.3                                                                             | 4.09  | 4.52 | 4.0                                        | 2.0                                    |
| MMBZ4688 | CT           | 4.7                                                                             | 4.47  | 4.94 | 10.0                                       | 3.0                                    |
| MMBZ4689 | CU           | 5.1                                                                             | 4.85  | 5.36 | 10.0                                       | 3.0                                    |
| MMBZ4690 | CV           | 5.6                                                                             | 5.32  | 5.88 | 10.0                                       | 4.0                                    |
| MMBZ4691 | CA           | 6.2                                                                             | 5.89  | 6.51 | 10.0                                       | 5.0                                    |
| MMBZ4692 | CX           | 6.8                                                                             | 6.46  | 7.14 | 10.0                                       | 5.1                                    |
| MMBZ4693 | CY           | 7.5                                                                             | 7.13  | 7.88 | 10.0                                       | 5.7                                    |
| MMBZ4694 | CZ           | 8.2                                                                             | 7.79  | 8.61 | 1.0                                        | 6.2                                    |
| MMBZ4695 | DC           | 8.7                                                                             | 8.27  | 9.14 | 1.0                                        | 6.6                                    |
| MMBZ4696 | DD           | 9.1                                                                             | 8.65  | 9.56 | 1.0                                        | 6.9                                    |
| MMBZ4697 | DE           | 10.0                                                                            | 9.50  | 10.5 | 1.0                                        | 7.6                                    |
| MMBZ4698 | DF           | 11.0                                                                            | 10.50 | 11.6 | 0.05                                       | 8.4                                    |
| MMBZ4699 | DH           | 12.0                                                                            | 11.40 | 12.6 | 0.05                                       | 9.1                                    |
| MMBZ4700 | DJ           | 13.0                                                                            | 12.40 | 13.7 | 0.05                                       | 9.8                                    |
| MMBZ4701 | DK           | 14.0                                                                            | 13.30 | 14.7 | 0.05                                       | 10.6                                   |
| MMBZ4702 | DM           | 15.0                                                                            | 14.30 | 15.8 | 0.05                                       | 11.4                                   |
| MMBZ4703 | DN           | 16.0                                                                            | 15.20 | 16.8 | 0.05                                       | 12.1                                   |
| MMBZ4704 | DP           | 17.0                                                                            | 16.20 | 17.9 | 0.05                                       | 12.9                                   |
| MMBZ4705 | DT           | 18.0                                                                            | 17.10 | 18.9 | 0.05                                       | 13.6                                   |
| MMBZ4706 | DU           | 19.0                                                                            | 18.10 | 20.0 | 0.05                                       | 14.4                                   |
| MMBZ4707 | DV           | 20.0                                                                            | 19.00 | 21.0 | 0.01                                       | 15.2                                   |
| MMBZ4708 | DA           | 22.0                                                                            | 20.90 | 23.1 | 0.01                                       | 16.7                                   |
| MMBZ4709 | DZ           | 24.0                                                                            | 22.80 | 25.2 | 0.01                                       | 18.2                                   |
| MMBZ4710 | DY           | 25.0                                                                            | 23.80 | 26.3 | 0.01                                       | 19.0                                   |
| MMBZ4711 | EA           | 27.0                                                                            | 25.70 | 28.4 | 0.01                                       | 20.4                                   |
| MMBZ4712 | EC           | 28.0                                                                            | 26.60 | 29.4 | 0.01                                       | 21.2                                   |
| MMBZ4713 | ED           | 30.0                                                                            | 28.50 | 31.5 | 0.01                                       | 22.8                                   |
| MMBZ4714 | EE           | 33.0                                                                            | 31.40 | 34.7 | 0.01                                       | 25.0                                   |
| MMBZ4715 | EF           | 36.0                                                                            | 34.20 | 37.8 | 0.01                                       | 27.3                                   |
| MMBZ4716 | EH           | 39.0                                                                            | 37.10 | 41.0 | 0.01                                       | 29.6                                   |
| MMBZ4717 | EJ           | 43.0                                                                            | 40.90 | 45.2 | 0.01                                       | 32.6                                   |

### Notes:

(1) Tested with pulse test current