



Small Signal Zener Diodes



FEATURES

- Silicon planar Zener diodes
- Standard Zener voltage tolerance is $\pm 5\%$
- High temperature soldering guaranteed: 260 °C/4 x 10 s set terminals
- AEC-Q101 qualified available
- ESD capability according to AEC-Q101: Human body model > 8 kV Machine model > 800 V
- Base P/N-E3 - RoHS-compliant, commercial grade
- Base P/N-HE3 - RoHS-compliant, AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



DESIGN SUPPORT TOOLS

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| PRIMARY CHARACTERISTICS | | |
|------------------------------|---------------------|------|
| PARAMETER | VALUE | UNIT |
| V _Z range nom. | 2.4 to 43 | V |
| Test current I _{ZT} | 0.05 | mA |
| V _Z specification | Thermal equilibrium | |
| Circuit configuration | Single | |

| ORDERING INFORMATION | | | |
|----------------------|------------------------------------|--------------------------------|------------------------|
| DEVICE NAME | ORDERING CODE | TAPED UNITS PER REEL | MINIMUM ORDER QUANTITY |
| MMSZ4681 to MMSZ4717 | MMSZ4681-E3-08 to MMSZ4717-E3-08 | 3000 (8 mm tape on 7" reel) | 15 000/box |
| | MMSZ4681-HE3-08 to MMSZ4717-HE3-08 | | |
| | MMSZ4681-E3-18 to MMSZ4717-E3-18 | 10 000 (8 mm tape on 13" reel) | 10 000/box |
| | MMSZ4681-HE3-18 to MMSZ4717-HE3-18 | | |

| PACKAGE | | | | |
|--------------|---------|--------------------------------------|-----------------------------------|--------------------------|
| PACKAGE NAME | WEIGHT | MOLDING COMPOUND FLAMMABILITY RATING | MOISTURE SENSITIVITY LEVEL | SOLDERING CONDITIONS |
| SOD-123 | 10.3 mg | UL 94 V-0 | MSL level 1 (according J-STD-020) | 260 °C/10 s at terminals |

| ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified) | | | | |
|---|--|-------------------|-------------|------|
| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
| Power dissipation | T _L = 75 °C, on FR - 4 or FR - 5 board with minimum recommended solder pad layout | P _{tot} | 500 | mW |
| Zener current | See table "Electrical Characteristics" | | | |
| Thermal resistance junction to ambient air | On FR - 4 or FR - 5 board with minimum recommended solder pad layout | R _{thJA} | 340 | K/W |
| Junction temperature | | T _j | 150 | °C |
| Storage temperature range | | T _{stg} | -55 to +150 | °C |
| Operating temperature range | | T _{op} | -55 to +150 | °C |



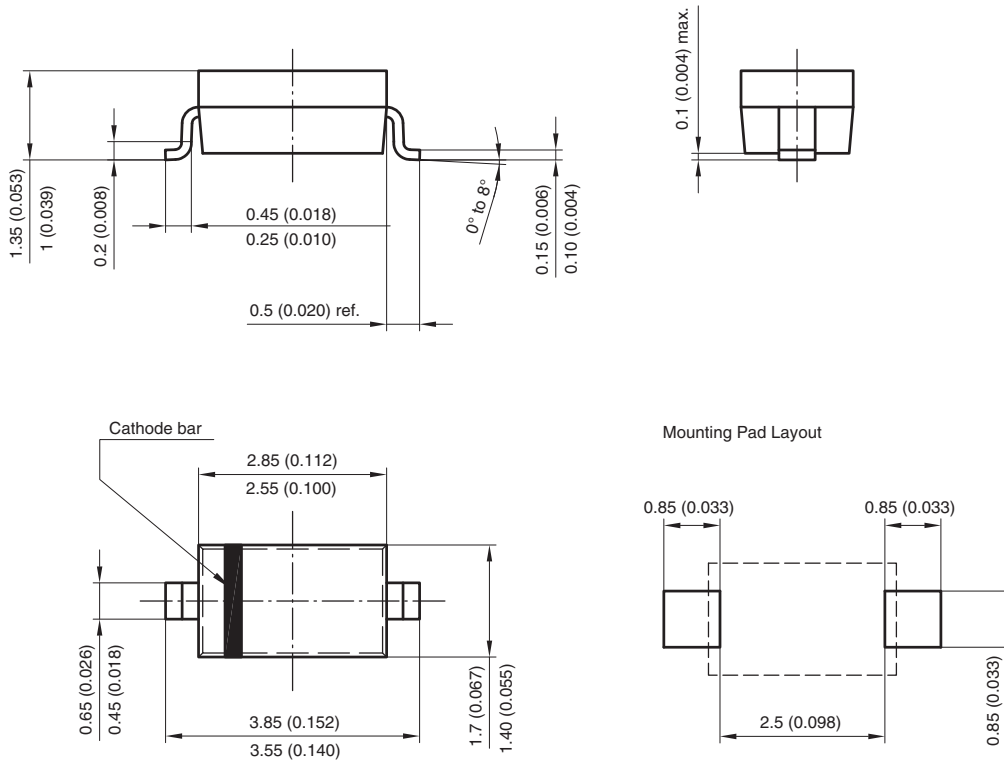
| ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified) | | | | | | | |
|---|--------------|------------------------------------|------|------|--------------|-----------------|------|
| PART NUMBER | MARKING CODE | ZENER VOLTAGE RANGE ⁽¹⁾ | | | TEST CURRENT | REVERSE CURRENT | |
| | | V_Z at I_{ZT1} | | | I_{ZT1} | I_R at V_R | |
| | | V | | | mA | μA | V |
| | | MIN. | NOM. | MAX. | | MAX. | |
| MMSZ4681 | CF | 2.28 | 2.4 | 2.52 | 0.05 | 2 | 1 |
| MMSZ4682 | CH | 2.57 | 2.7 | 2.84 | 0.05 | 1 | 1 |
| MMSZ4683 | CJ | 2.85 | 3 | 3.15 | 0.05 | 0.8 | 1 |
| MMSZ4684 | CK | 3.14 | 3.3 | 3.47 | 0.05 | 7.5 | 1.5 |
| MMSZ4685 | CM | 3.42 | 3.6 | 3.78 | 0.05 | 7.5 | 2 |
| MMSZ4686 | CN | 3.71 | 3.9 | 4.1 | 0.05 | 5 | 2 |
| MMSZ4687 | CP | 4.09 | 4.3 | 4.52 | 0.05 | 4 | 2 |
| MMSZ4688 | CT | 4.47 | 4.7 | 4.94 | 0.05 | 10 | 3 |
| MMSZ4689 | CU | 4.85 | 5.1 | 5.36 | 0.05 | 10 | 3 |
| MMSZ4690 | CV | 5.32 | 5.6 | 5.88 | 0.05 | 10 | 4 |
| MMSZ4691 | CA | 5.89 | 6.2 | 6.51 | 0.05 | 10 | 5 |
| MMSZ4692 | CX | 6.46 | 6.8 | 7.14 | 0.05 | 10 | 5.1 |
| MMSZ4693 | CY | 7.13 | 7.5 | 7.88 | 0.05 | 10 | 5.7 |
| MMSZ4694 | CZ | 7.79 | 8.2 | 8.61 | 0.05 | 1 | 6.2 |
| MMSZ4695 | DC | 8.27 | 8.7 | 9.14 | 0.05 | 1 | 6.6 |
| MMSZ4696 | DD | 8.65 | 9.1 | 9.56 | 0.05 | 1 | 6.9 |
| MMSZ4697 | DE | 9.5 | 10 | 10.5 | 0.05 | 1 | 7.6 |
| MMSZ4698 | DF | 10.5 | 11 | 11.6 | 0.05 | 0.05 | 8.4 |
| MMSZ4699 | DH | 11.4 | 12 | 12.6 | 0.05 | 0.05 | 9.1 |
| MMSZ4700 | DJ | 12.4 | 13 | 13.7 | 0.05 | 0.05 | 9.8 |
| MMSZ4701 | DK | 13.3 | 14 | 14.7 | 0.05 | 0.05 | 10.6 |
| MMSZ4702 | DM | 14.3 | 15 | 15.8 | 0.05 | 0.05 | 11.4 |
| MMSZ4703 | DN | 15.2 | 16 | 16.8 | 0.05 | 0.05 | 12.1 |
| MMSZ4704 | DP | 16.2 | 17 | 17.9 | 0.05 | 0.05 | 12.9 |
| MMSZ4705 | DT | 17.1 | 18 | 18.9 | 0.05 | 0.05 | 13.6 |
| MMSZ4706 | DU | 18.1 | 19 | 20 | 0.05 | 0.05 | 14.4 |
| MMSZ4707 | DV | 19 | 20 | 21 | 0.05 | 0.01 | 15.2 |
| MMSZ4708 | DA | 20.9 | 22 | 23.1 | 0.05 | 0.01 | 16.7 |
| MMSZ4709 | DZ | 22.8 | 24 | 25.2 | 0.05 | 0.01 | 18.2 |
| MMSZ4710 | DY | 23.8 | 25 | 26.3 | 0.05 | 0.01 | 19 |
| MMSZ4711 | EA | 25.7 | 27 | 28.4 | 0.05 | 0.01 | 20.4 |
| MMSZ4712 | EC | 26.6 | 28 | 29.4 | 0.05 | 0.01 | 21.2 |
| MMSZ4713 | ED | 28.5 | 30 | 31.5 | 0.05 | 0.01 | 22.8 |
| MMSZ4714 | EE | 31.4 | 33 | 34.7 | 0.05 | 0.01 | 25 |
| MMSZ4715 | EF | 34.2 | 36 | 37.8 | 0.05 | 0.01 | 27.3 |
| MMSZ4716 | EH | 37.1 | 39 | 41 | 0.05 | 0.01 | 29.6 |
| MMSZ4717 | EJ | 40.9 | 43 | 45.2 | 0.05 | 0.01 | 32.6 |

Notes

- Maximum $V_F = 0.9\text{ V}$ at $I_F = 10\text{ mA}$
- (1) Measured with device junction in thermal equilibrium



PACKAGE DIMENSIONS in millimeters (inches): SOD-123



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