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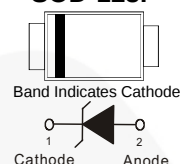
August 2016

# MMSZ5V6CF / MMSZ18VCF / MMSZ20VCF / MMSZ28VCF / MMSZ36VCF 1 W Zeners

## Features

- Zener Diode with 5% Tolerance
- Ultra Thin Profile - Maximum Height of 1.08 mm
- UL Flammability 94V-0 Classification
- MSL 1
- RoHS Compliant / Green Mold Compound
- Industrial Device Qualified per AEC-Q101 Standards

\* See authorized use policy

**SOD-123F**

## Ordering Information

| Part Number | Top Mark | Package  | Packing Method |
|-------------|----------|----------|----------------|
| MMSZ5V6CF   | 5G       | SOD-123F | Tape and Reel  |
| MMSZ18VCF   | 18       | SOD-123F | Tape and Reel  |
| MMSZ20VCF   | 20       | SOD-123F | Tape and Reel  |
| MMSZ28VCF   | 28       | SOD-123F | Tape and Reel  |
| MMSZ36VCF   | 36       | SOD-123F | Tape and Reel  |

## 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                    | Units            |
|-----------|------------------------------|--------------------------|------------------|
| $P_D$     | Power Dissipation            | $T_L = 80^\circ\text{C}$ | W                |
|           |                              | $T_A = 25^\circ\text{C}$ |                  |
| $T_J$     | Maximum Junction Temperature | +150                     | $^\circ\text{C}$ |
| $T_{STG}$ | Storage Temperature Range    | -55 to +150              | $^\circ\text{C}$ |

### Note:

1.  $T_J = 25^\circ\text{C}$  prior to surge

MMSZ5V6CF / MMSZ18VCF / MMSZ20VCF / MMSZ28VCF / MMSZ36VCF — 1 W Zeners

## Thermal Characteristic

| Symbol          | Parameter                                                            | Value | Units |
|-----------------|----------------------------------------------------------------------|-------|-------|
| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient <sup>(2)</sup>               | 125   | °C/W  |
| $\Psi_{JL}$     | Thermal Characteristic Parameter, Junction-to-Lead <sup>(2)(3)</sup> | 26    | °C/W  |

### Note:

- Per JESD51-3 recommended thermal test board. Device mounted on FR-4 PCB, board size = 76.2 mm x 114.3 mm.
- Thermocouple soldered at cathode lead.

## Electrical Characteristics

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

| Device    | $V_Z$ (V) @ $I_{ZT}$ (mA) |       |       |               | $Z_{ZT}(\Omega)$ @ $I_{ZT}$ (mA) |               | $Z_{ZK}(\Omega)$ @ $I_{ZK}$ (mA) |               | $I_R(\mu\text{A})$ @ $V_R$ (V) |           | Average $V_Z$ Temp. Coefficient (mV/°C) |
|-----------|---------------------------|-------|-------|---------------|----------------------------------|---------------|----------------------------------|---------------|--------------------------------|-----------|-----------------------------------------|
|           | Typ.                      | Min.  | Max.  | $I_{ZT}$ (mA) | Max.                             | $I_{ZT}$ (mA) | Max.                             | $I_{ZK}$ (mA) | Max.                           | $V_R$ (V) |                                         |
| MMSZ5V6CF | 5.6                       | 5.32  | 5.88  | 100           | 4                                | 100           | 600                              | 1             | 10                             | 2         | 1.52                                    |
| MMSZ18VCF | 18                        | 17.10 | 18.90 | 25            | 15                               | 25            | 750                              | 0.25          | 1                              | 13        | 14.59                                   |
| MMSZ20VCF | 20                        | 19.00 | 21.0  | 25            | 15                               | 25            | 750                              | 0.25          | 1                              | 15        | 15.79                                   |
| MMSZ28VCF | 28                        | 26.60 | 29.40 | 25            | 15                               | 25            | 1000                             | 0.25          | 1                              | 21        | 25.07                                   |
| MMSZ36VCF | 36                        | 34.20 | 37.80 | 10            | 40                               | 10            | 1000                             | 0.25          | 1                              | 27        | 32.35                                   |

| Symbol | Parameter       | Conditions           | Min. | Typ. | Max. | Unit |
|--------|-----------------|----------------------|------|------|------|------|
| $V_F$  | Forward Voltage | $I_F = 0.2\text{ A}$ |      |      | 1.2  | V    |

## Typical Performance Characteristics

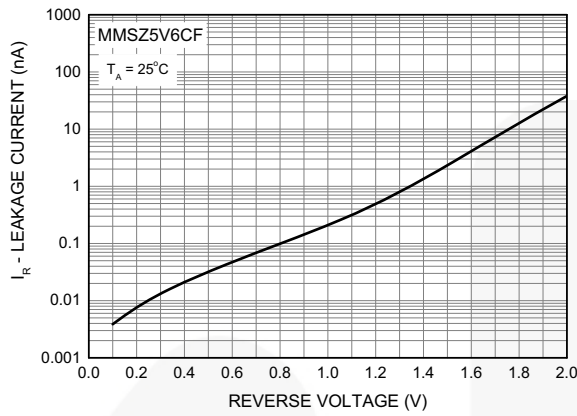


Figure 1. Leakage Current vs. Reverse Voltage for MMSZ5V6CF

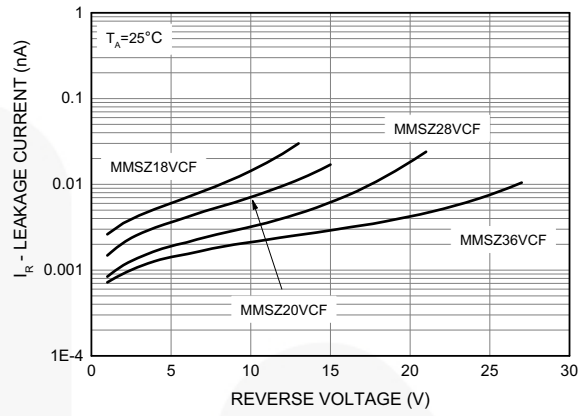


Figure 2. Leakage Current vs. Reverse Voltage for MMSZ18VCF, MMSZ20VCF, MMSZ28VCF and MMSZ36VCF

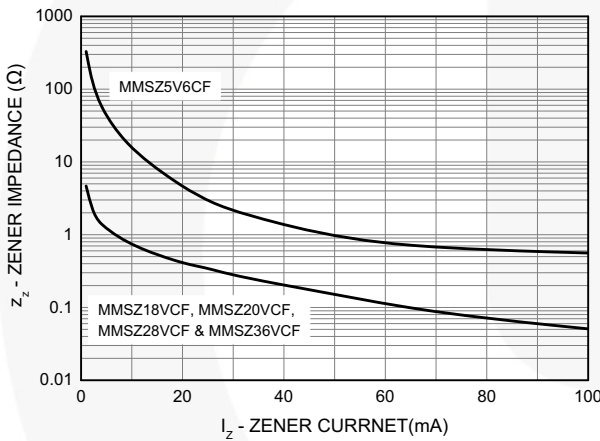


Figure 3. Zener Impedance vs. Zener Current

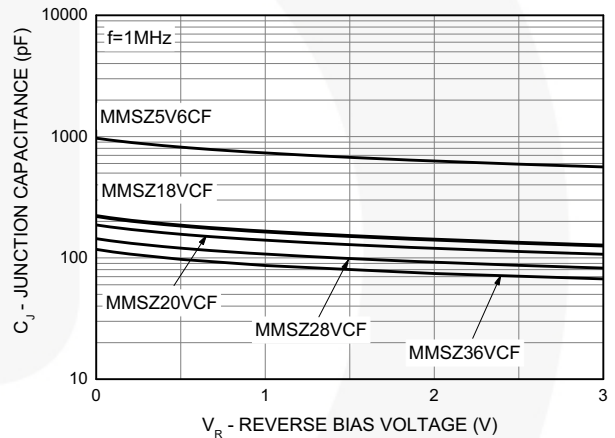


Figure 4. Junction Capacitance vs. Reverse Bias Voltage

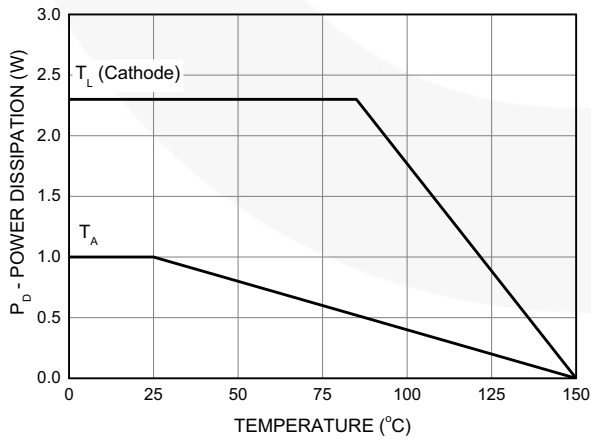


Figure 5. Power Derating Curve

# PACKAGE OUTLINE DRAWING

98A SUPPORTING DOCUMENTATION

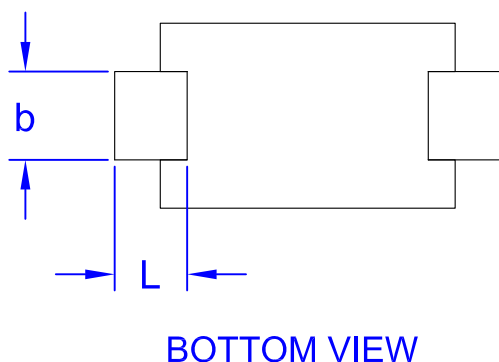
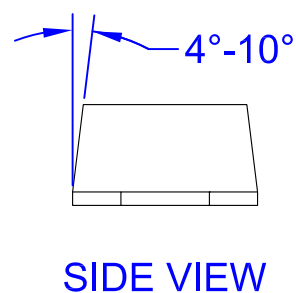
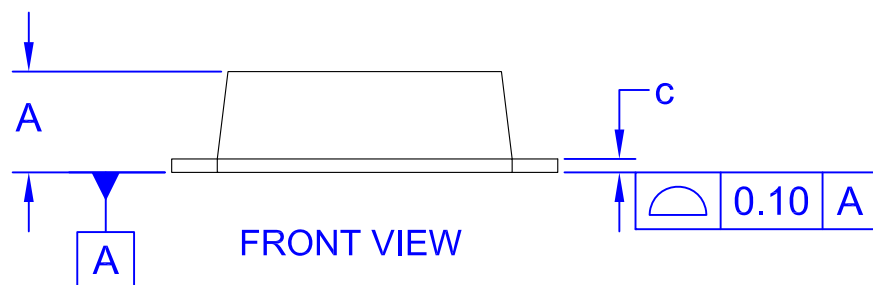
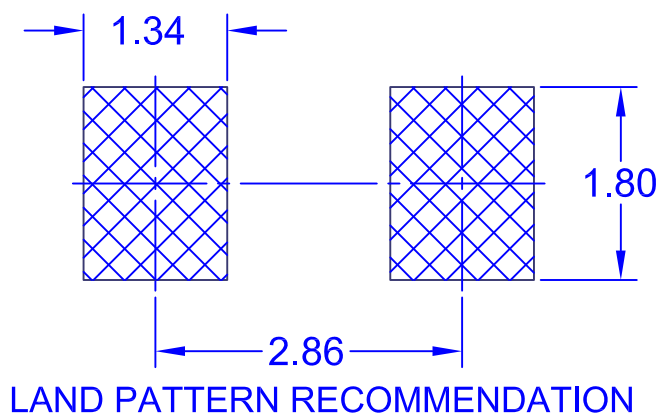
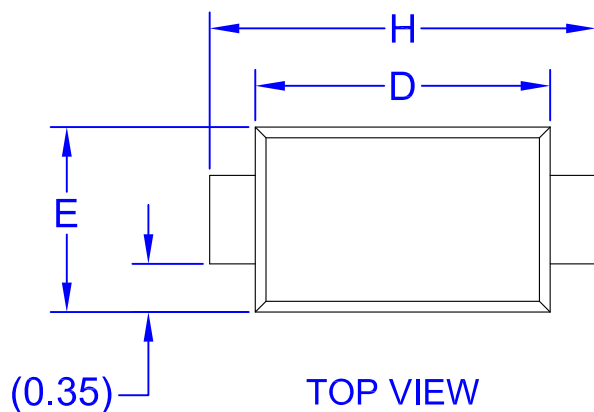
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SOD-123FL  
CASE 425AD  
ISSUE A

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| DIM | INCHES |       | MILLIMETERS |      |
|-----|--------|-------|-------------|------|
|     | MIN    | MAX   | MIN         | MAX  |
| A   | 0.031  | 0.043 | 0.80        | 1.08 |
| b   | 0.020  | 0.045 | 0.50        | 1.15 |
| c   | 0.002  | 0.008 | 0.05        | 0.20 |
| D   | 0.098  | 0.118 | 2.50        | 3.00 |
| E   | 0.059  | 0.077 | 1.50        | 1.95 |
| H   | 0.130  | 0.154 | 3.30        | 3.90 |
| L   | 0.018  | 0.035 | 0.45        | 0.90 |

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