



Surface-Mount Power Voltage-Regulating Diodes



SMBG (DO-215AA)

ADDITIONAL RESOURCES



3D Models

| PRIMARY CHARACTERISTICS | |
|-------------------------|-----------------|
| V_Z | 9.1 V to 68 V |
| P_{tot} | 1500 mW |
| $I_R (V_Z > 12 V)$ | 5.0 μA |
| T_J max. | 150 °C |
| V_Z specification | Pulse current |
| Package | SMBG (DO-215AA) |
| Circuit configuration | Single |

FEATURES

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- Low Zener impedance
- Low regulation factor
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS COMPLIANT

TYPICAL APPLICATIONS

For general purpose regulation, industrial, and protection applications.

MECHANICAL DATA

Case: SMBG (DO-215AA)

Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS compliant, industrial grade
Base P/NHE3 - RoHS compliant, AEC-Q101 qualified

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
E3, HE3 suffix meet JESD 201 class 2 whisker test

Polarity: color band denotes cathode end

| MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted) | | | |
|--|----------------|-------------|------|
| PARAMETER | SYMBOL | VALUE | UNIT |
| Operating junction and storage temperature range | T_J, T_{STG} | -55 to +150 | °C |

**ELECTRICAL CHARACTERISTICS** ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

| PART NUMBER | DEVICE MARKING CODE | ZENER VOLTAGE RANGE | | | TEST CURRENT | | MAXIMUM ZENER IMPEDANCE | | MAXIMUM REVERSE CURRENT | | MAXIMUM ZENER CURRENT ⁽¹⁾ |
|-------------|---------------------|---------------------|------|------|--------------|----------|-------------------------|----------------------|-------------------------|------|--------------------------------------|
| | | V_Z AT I_{ZT} | | | I_{ZT} | I_{ZK} | Z_{ZT} AT I_{ZT} | Z_{ZK} AT I_{ZK} | I_R AT V_R | | I_{ZM} |
| | | V | | | mA | | Ω | | μA | V | mA |
| | | MIN. | NOM. | MAX. | | | MAX. | MAX. | MAX. | | MAX. |
| SMZG3788B | VL | 8.65 | 9.1 | 9.56 | 41.2 | 0.50 | 4.0 | 1000 | 50 | 7.0 | 140 |
| SMZG3789B | WB | 9.50 | 10 | 10.5 | 37.5 | 0.25 | 5.0 | 1000 | 50 | 7.6 | 125 |
| SMZG3790B | WD | 10.5 | 11 | 11.6 | 34.1 | 0.25 | 6.0 | 650 | 10 | 8.4 | 115 |
| SMZG3791B | WF | 11.4 | 12 | 12.6 | 31.2 | 0.25 | 7.0 | 550 | 5.0 | 9.1 | 105 |
| SMZG3792B | WH | 12.4 | 13 | 13.7 | 28.8 | 0.25 | 7.5 | 550 | 5.0 | 9.9 | 98 |
| SMZG3793B | WJ | 14.3 | 15 | 15.8 | 25.0 | 0.25 | 9.0 | 600 | 5.0 | 11.4 | 85 |
| SMZG3794B | WL | 15.2 | 16 | 16.8 | 23.4 | 0.25 | 10.0 | 600 | 5.0 | 12.2 | 80 |
| SMZG3795B | XB | 17.1 | 18 | 18.9 | 20.8 | 0.25 | 12.0 | 650 | 5.0 | 13.7 | 70 |
| SMZG3796B | XD | 19.0 | 20 | 21.0 | 18.7 | 0.25 | 14.0 | 650 | 5.0 | 15.2 | 62 |
| SMZG3797B | XF | 20.9 | 22 | 23.1 | 17.0 | 0.25 | 17.5 | 650 | 5.0 | 16.7 | 56 |
| SMZG3798B | XH | 22.8 | 24 | 25.2 | 15.6 | 0.25 | 19.0 | 700 | 5.0 | 18.2 | 51 |
| SMZG3799B | XJ | 25.7 | 27 | 28.4 | 13.9 | 0.25 | 23.0 | 700 | 5.0 | 20.6 | 46 |
| SMZG3800B | XL | 28.5 | 30 | 31.5 | 12.5 | 0.25 | 26.0 | 750 | 5.0 | 22.8 | 41 |
| SMZG3801B | YB | 31.4 | 33 | 34.7 | 11.4 | 0.25 | 33.0 | 800 | 5.0 | 25.1 | 38 |
| SMZG3802B | YD | 34.2 | 36 | 37.8 | 10.4 | 0.25 | 38.0 | 850 | 5.0 | 27.4 | 35 |
| SMZG3803B | YF | 37.1 | 39 | 41.0 | 9.6 | 0.25 | 45.0 | 900 | 5.0 | 29.7 | 31 |
| SMZG3804B | YH | 40.9 | 43 | 45.2 | 8.7 | 0.25 | 53.0 | 950 | 5.0 | 32.7 | 28 |
| SMZG3805B | YJ | 44.7 | 47 | 49.4 | 8.0 | 0.25 | 67.0 | 1000 | 5.0 | 35.8 | 26 |
| SMZG3806B | YL | 48.5 | 51 | 53.6 | 7.3 | 0.25 | 70.0 | 1100 | 5.0 | 38.8 | 24 |
| SMZG3807B | ZB | 53.2 | 56 | 58.8 | 6.7 | 0.25 | 86.0 | 1300 | 5.0 | 42.6 | 22 |
| SMZG3808B | ZD | 58.9 | 62 | 65.1 | 6.0 | 0.25 | 100.0 | 1500 | 5.0 | 47.1 | 20 |
| SMZG3809B | ZF | 64.6 | 68 | 71.4 | 5.5 | 0.25 | 120.0 | 1700 | 5.0 | 51.7 | 18 |

Note⁽¹⁾ Maximum steady state power dissipation is 1500 mW at $T_L = 75\text{ }^\circ\text{C}$ (fig. 1)**ORDERING INFORMATION** (Example)

| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
|--------------------------------|-----------------|------------------------|---------------|------------------------------------|
| SMZG3788B-E3/52 | 0.096 | 52 | 750 | 7" diameter plastic tape and reel |
| SMZG3788B-E3/5B | 0.096 | 5B | 3200 | 13" diameter plastic tape and reel |
| SMZG3788BHE3/52 ⁽¹⁾ | 0.096 | 52 | 750 | 7" diameter plastic tape and reel |
| SMZG3788BHE3/5B ⁽¹⁾ | 0.096 | 5B | 3200 | 13" diameter plastic tape and reel |

Note⁽¹⁾ AEC-Q101 qualified



RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

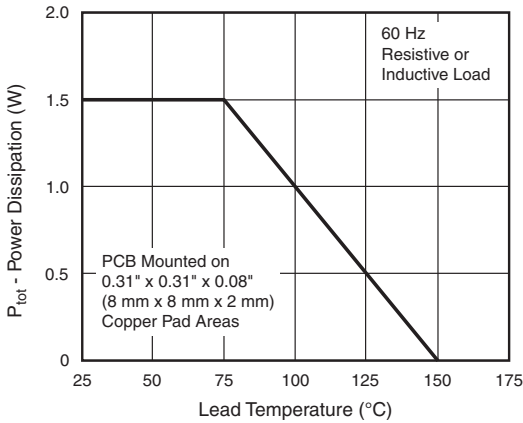


Fig. 1 - Maximum Continuous Power Dissipation

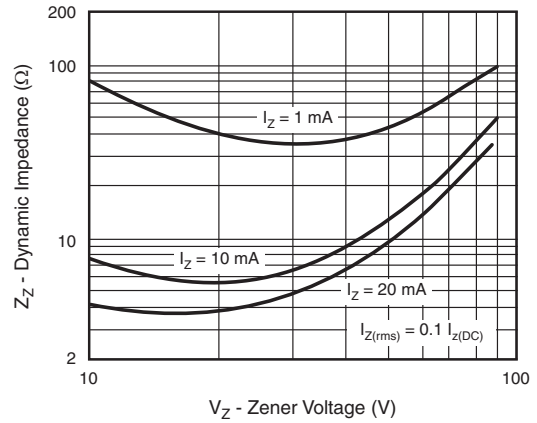


Fig. 3 - Typical Zener Impedance

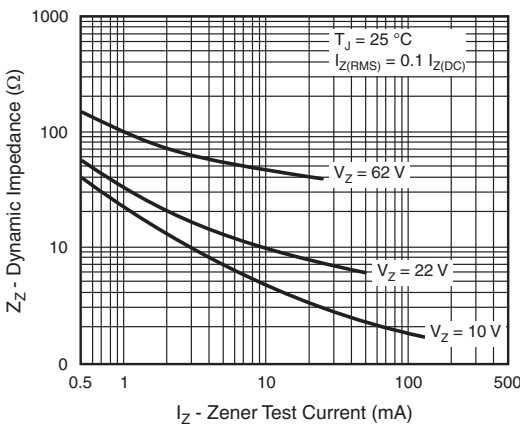


Fig. 2 - Typical Zener Impedance

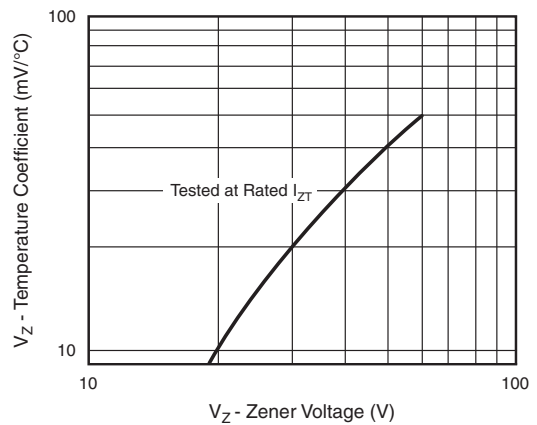
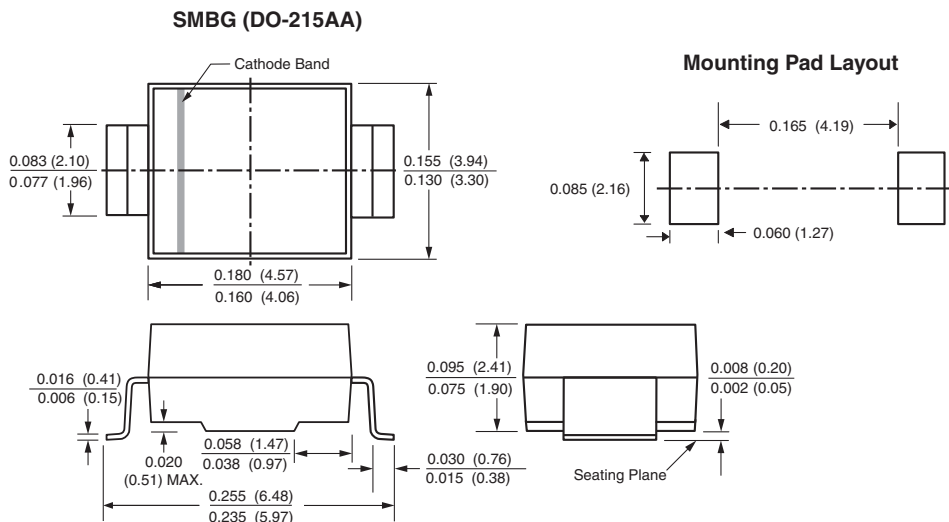


Fig. 4 - Typical Temperature Coefficients

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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