

## Surface Mount Power Voltage-Regulating Diodes



DO-215AA (SMBG)

### 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](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For general purpose regulation and protection applications.

### MECHANICAL DATA

**Case:** DO-215AA (SMBG)

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

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

**Polarity:** Color band denotes cathode end

### PRIMARY CHARACTERISTICS

|                       |               |
|-----------------------|---------------|
| $V_Z$                 | 9.1 V to 68 V |
| $P_{tot}$             | 1500 mW       |
| $I_R$ ( $V_Z > 12$ V) | 5.0 $\mu$ A   |
| $T_J$ max.            | 150 °C        |
| $V_Z$ specification   | Pulse current |
| Int. construction     | Single        |

### MAXIMUM RATINGS ( $T_A = 25$ °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 <sup>(1)</sup> |
|-------------|---------------------|---------------------|------|------|--------------|----------|-------------------------|----------------------|-------------------------|------|--------------------------------------|
|             |                     | $V_Z$ 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           |          | $\Omega$                |                      | $\mu\text{A}$           | 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**

<sup>(1)</sup> 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 <sup>(1)</sup> | 0.096           | 52                     | 750           | 7" diameter plastic tape and reel  |
| SMZG3788BHE3/5B <sup>(1)</sup> | 0.096           | 5B                     | 3200          | 13" diameter plastic tape and reel |

**Note**

<sup>(1)</sup> AEC-Q101 qualified

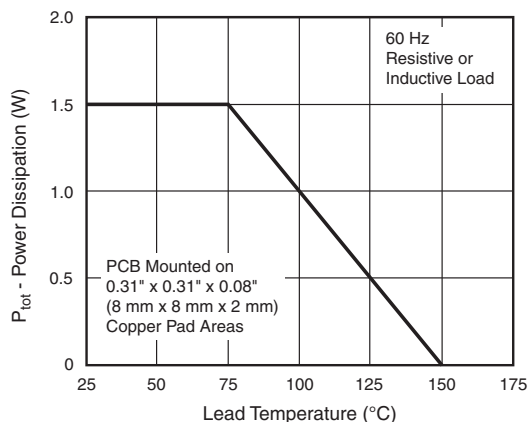
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)


Fig. 1 - Maximum Continuous Power Dissipation

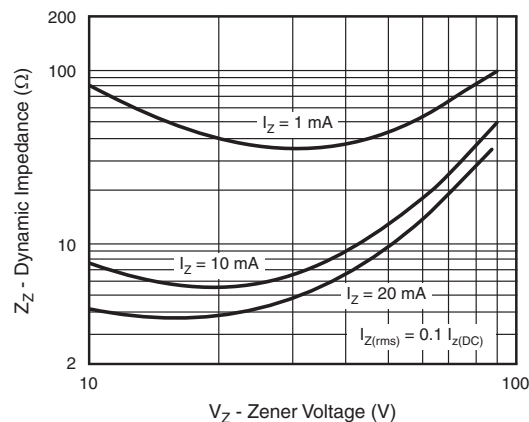


Fig. 3 - Typical Zener Impedance

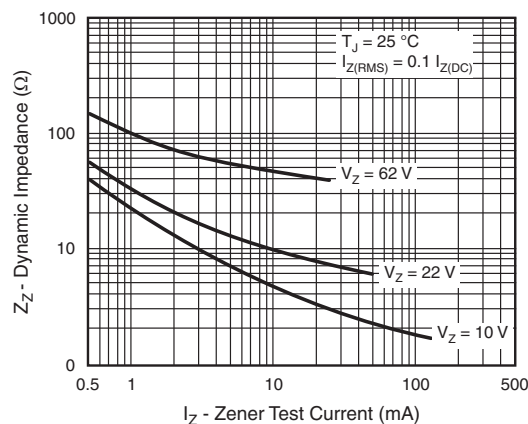


Fig. 2 - Typical Zener Impedance

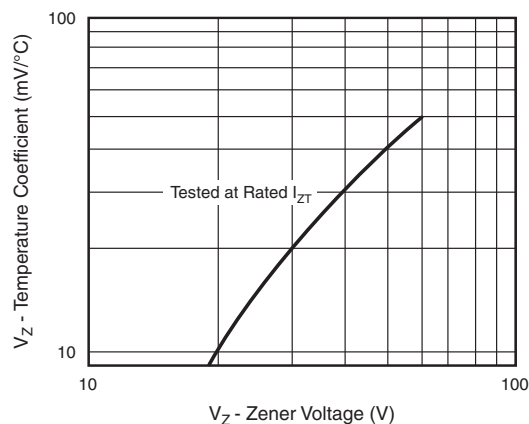
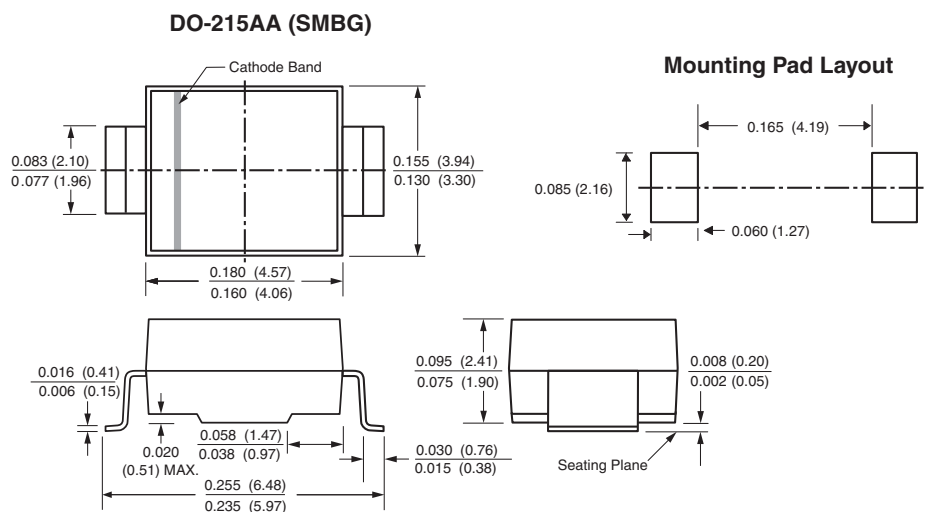


Fig. 4 - Typical Temperature Coefficients

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)




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