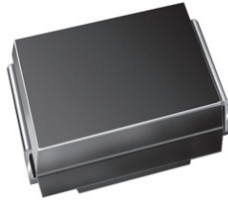


## Surface Mount Power Voltage-Regulating Diodes



SMB (DO-214AA)

### 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 available
  - Automotive ordering code: base P/NHE3 or P/NHM3
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**  
Available

| PRIMARY CHARACTERISTICS       |                   |
|-------------------------------|-------------------|
| $V_Z$                         | 9.1 V to 68 V     |
| $P_{tot}$                     | 1500 mW           |
| $I_R (V_Z \geq 12 \text{ V})$ | 5.0 $\mu\text{A}$ |
| $T_J \text{ max.}$            | 150 °C            |
| $V_Z$ specification           | Pulse current     |
| Circuit configuration         | Single            |

### MECHANICAL DATA

**Case:** SMB (DO-214AA)

Molding compound meets UL 94 V-0 flammability rating  
 Base P/N-E3 - RoHS-compliant, commercial grade  
 Base P/N-M3 - halogen-free, RoHS-compliant, commercial grade

Base P/NHE3\_X - RoHS-compliant and AEC-Q101 qualified  
 Base P/NHM3\_X - halogen-free, RoHS-compliant, and AEC-Q101 qualified

("\_X" denotes revision code e.g. A, B, ...)

**Terminals:** matte tin plated leads, solderable per J-STD-002 and JESD 22-B102  
 E3, M3, HE3, and HM3 suffix meets JESD 201 class 2 whisker test

**Polarity:** Color band denotes cathode end

### TYPICAL APPLICATIONS

For general purpose regulation, industrial, and protection applications.

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



| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                     |                                   |      |      |                 |                 |                                    |                                    |                                  |      |                                      |
|--|---------------------|-----------------------------------|------|------|-----------------|-----------------|------------------------------------|------------------------------------|----------------------------------|------|--------------------------------------|
| PART NUMBER <sup>(1)</sup>   | DEVICE MARKING CODE | ZENER VOLTAGE RANGE               |      |      | TEST CURRENT    |                 | MAXIMUM ZENER IMPEDANCE            |                                    | MAXIMUM REVERSE CURRENT          |      | MAXIMUM ZENER CURRENT <sup>(1)</sup> |
|  |                     | V <sub>Z</sub> AT I <sub>ZT</sub> |      |      | I <sub>ZT</sub> | I <sub>ZK</sub> | Z <sub>ZT</sub> AT I <sub>ZT</sub> | Z <sub>ZK</sub> AT I <sub>ZK</sub> | I <sub>R</sub> AT V <sub>R</sub> |      | I <sub>ZM</sub>                      |
|  |                     | V                                 |      |      | mA              |                 | Ω                                  |                                    | μA                               | V    | mA                                   |
|  |                     | MIN.                              | NOM. | MAX. |                 |                 | MAX.                               | MAX.                               | MAX.                             |      | MAX.                                 |
| SMZJ3788B  | VL                  | 8.65                              | 9.1  | 9.56 | 41.2            | 0.50            | 4.0                                | 1000                               | 50                               | 7.0  | 140                                  |
| SMZJ3789B  | WB                  | 9.50                              | 10   | 10.5 | 37.5            | 0.25            | 5.0                                | 1000                               | 50                               | 7.6  | 125                                  |
| SMZJ3790B  | WD                  | 10.5                              | 11   | 11.6 | 34.1            | 0.25            | 6.0                                | 650                                | 10                               | 8.4  | 115                                  |
| SMZJ3791B  | WF                  | 11.4                              | 12   | 12.6 | 31.2            | 0.25            | 7.0                                | 550                                | 5.0                              | 9.1  | 105                                  |
| SMZJ3792B  | WH                  | 12.4                              | 13   | 13.7 | 28.8            | 0.25            | 7.5                                | 550                                | 5.0                              | 9.9  | 98                                   |
| SMZJ3793B  | WJ                  | 14.3                              | 15   | 15.8 | 25.0            | 0.25            | 9.0                                | 600                                | 5.0                              | 11.4 | 85                                   |
| SMZJ3794B  | WL                  | 15.2                              | 16   | 16.8 | 23.4            | 0.25            | 10.0                               | 600                                | 5.0                              | 12.2 | 80                                   |
| SMZJ3795B  | XB                  | 17.1                              | 18   | 18.9 | 20.8            | 0.25            | 12.0                               | 650                                | 5.0                              | 13.7 | 70                                   |
| SMZJ3796B  | XD                  | 19.0                              | 20   | 21.0 | 18.7            | 0.25            | 14.0                               | 650                                | 5.0                              | 15.2 | 62                                   |
| SMZJ3797B  | XF                  | 20.9                              | 22   | 23.1 | 17.0            | 0.25            | 17.5                               | 650                                | 5.0                              | 16.7 | 56                                   |
| SMZJ3798B  | XH                  | 22.8                              | 24   | 25.2 | 15.6            | 0.25            | 19.0                               | 700                                | 5.0                              | 18.2 | 51                                   |
| SMZJ3799B  | XJ                  | 25.7                              | 27   | 28.4 | 13.9            | 0.25            | 23.0                               | 700                                | 5.0                              | 20.6 | 46                                   |
| SMZJ3800B  | XL                  | 28.5                              | 30   | 31.5 | 12.5            | 0.25            | 26.0                               | 750                                | 5.0                              | 22.8 | 41                                   |
| SMZJ3801B  | YB                  | 31.4                              | 33   | 34.7 | 11.4            | 0.25            | 33.0                               | 800                                | 5.0                              | 25.1 | 38                                   |
| SMZJ3802B  | YD                  | 34.2                              | 36   | 37.8 | 10.4            | 0.25            | 38.0                               | 850                                | 5.0                              | 27.4 | 35                                   |
| SMZJ3803B  | YF                  | 37.1                              | 39   | 41.0 | 9.6             | 0.25            | 45.0                               | 900                                | 5.0                              | 29.7 | 31                                   |
| SMZJ3804B  | YH                  | 40.9                              | 43   | 45.2 | 8.7             | 0.25            | 53.0                               | 950                                | 5.0                              | 32.7 | 28                                   |
| SMZJ3805B  | YJ                  | 44.7                              | 47   | 49.4 | 8.0             | 0.25            | 67.0                               | 1000                               | 5.0                              | 35.8 | 26                                   |
| SMZJ3806B  | YL                  | 48.5                              | 51   | 53.6 | 7.3             | 0.25            | 70.0                               | 1100                               | 5.0                              | 38.8 | 24                                   |
| SMZJ3807B  | ZB                  | 53.2                              | 56   | 58.8 | 6.7             | 0.25            | 86.0                               | 1300                               | 5.0                              | 42.6 | 22                                   |
| SMZJ3808B  | ZD                  | 58.9                              | 62   | 65.1 | 6.0             | 0.25            | 100.0                              | 1500                               | 5.0                              | 47.1 | 20                                   |
| SMZJ3809B  | 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<sub>L</sub> = 75 °C (fig. 1)

| ORDERING INFORMATION (Example)  |                 |                        |               |                                    |  |
|---------------------------------|-----------------|------------------------|---------------|------------------------------------|--|
| PREFERRED P/N                   | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                      |  |
| SMZJ3788B-E3/52                 | 0.096           | 52                     | 750           | 7" diameter plastic tape and reel  |  |
| SMZJ3788B-M3/52                 |                 |                        |               |                                    |  |
| SMZJ3788B-E3/5B                 | 0.096           | 5B                     | 3200          | 13" diameter plastic tape and reel |  |
| SMZJ3788B-E3/5B                 |                 |                        |               |                                    |  |
| SMZJ3788BHE3_A/H <sup>(1)</sup> | 0.096           | H                      | 750           | 7" diameter plastic tape and reel  |  |
| SMZJ3788BHM3_A/H <sup>(1)</sup> |                 |                        |               |                                    |  |
| SMZJ3788BHE3_A/I <sup>(1)</sup> | 0.096           | I                      | 3200          | 13" diameter plastic tape and reel |  |
| SMZJ3788BHM3_A/I <sup>(1)</sup> |                 |                        |               |                                    |  |

**Note**

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

## RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise noted)

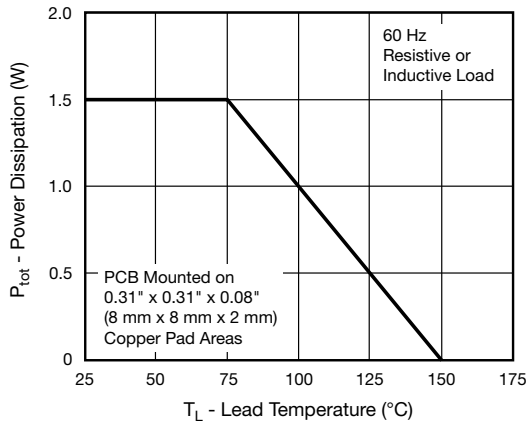


Fig. 1 - Maximum Continuous Power Dissipation

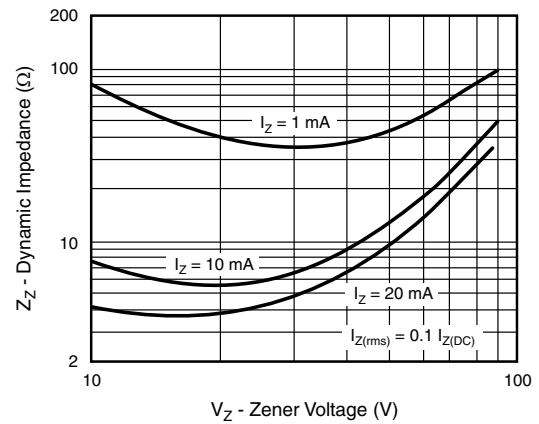


Fig. 3 - Typical Zener Impedance

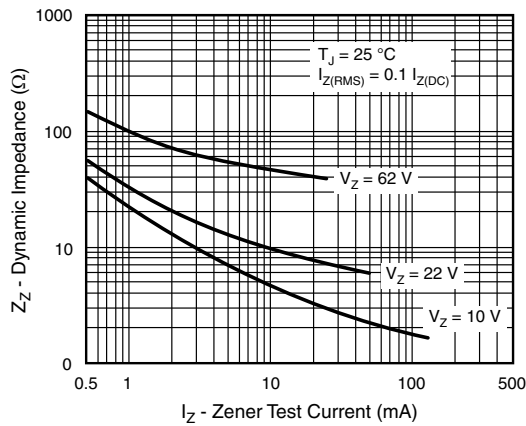


Fig. 2 - Typical Zener Impedance

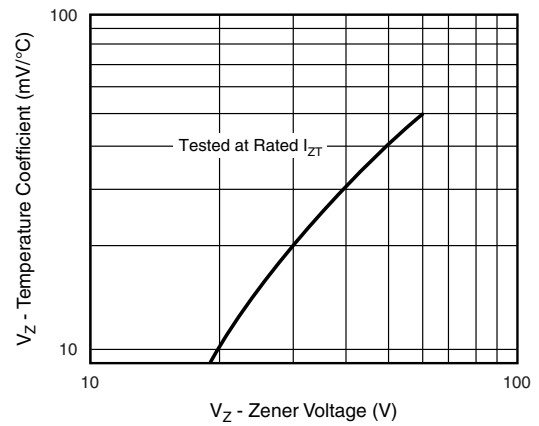
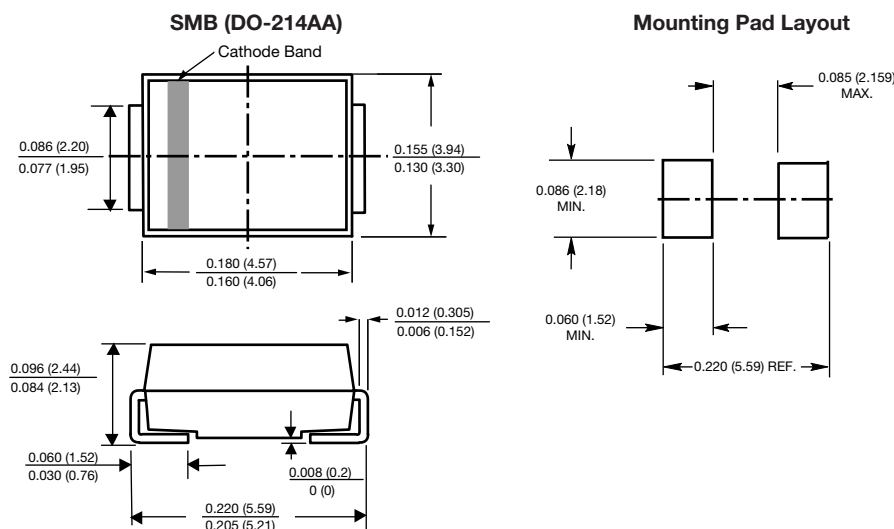


Fig. 4 - Typical Temperature Coefficients

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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