



## Glass Passivated Power Voltage-Regulating Diodes



DO-204AL (DO-41)

### FEATURES

- Plastic MELF package
- Ideal for automated placement
- Glass passivated chip junction
- Low Zener impedance
- Low regulation factor
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



RoHS COMPLIANT

| PRIMARY CHARACTERISTICS |                |
|-------------------------|----------------|
| $V_Z$                   | 100 V to 200 V |
| $P_{tot}$               | 1500 mW        |
| $I_R (V_Z \geq 12 V)$   | 5.0 $\mu A$    |
| $T_J$ max.              | 150 °C         |
| $V_Z$ specification     | Pulse current  |
| Int. construction       | Single         |

### MECHANICAL DATA

**Case:** DO-204AL (DO-41)

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

### TYPICAL APPLICATIONS

For general purpose regulation 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   |



| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                     |      |      |              |          |                         |                      |                         |                      |       |                                    |                       |
|--|---------------------|------|------|--------------|----------|-------------------------|----------------------|-------------------------|----------------------|-------|------------------------------------|-----------------------|
| PART NUMBER <sup>(1)</sup>   | ZENER VOLTAGE RANGE |      |      | TEST CURRENT |          | MAXIMUM ZENER IMPEDANCE |                      | MAXIMUM REVERSE CURRENT |                      |       | MAXIMUM CONTINUOUS FORWARD VOLTAGE | MAXIMUM ZENER CURRENT |
|  | $V_Z$ at $I_{ZT}$   |      |      | $I_{ZT}$     | $I_{ZK}$ | $Z_{ZT}$ at $I_{ZT}$    | $Z_{ZK}$ at $I_{ZK}$ | $I_R$ at $V_R$          |                      |       | $V_{FM}$ at 0.5 A                  | $I_{ZM}$              |
|  | V                   |      |      | mA           |          | $\Omega$                |                      | $\mu\text{A}$           |                      | V     | V                                  | mA                    |
|  | MIN.                | NOM. | MAX. |              |          | MAX.                    | MAX.                 | 25 $^\circ\text{C}$     | 100 $^\circ\text{C}$ |       | MAX.                               | MAX.                  |
| Z4KE100A   | 95                  | 100  | 105  | 5.0          | 0.25     | 500                     | 5000                 | 0.5                     | 100                  | 76.0  | 1.0                                | 15.0                  |
| Z4KE110A   | 104                 | 110  | 116  | 5.0          | 0.25     | 600                     | 5000                 | 0.5                     | 100                  | 83.2  | 1.0                                | 13.0                  |
| Z4KE120A   | 114                 | 120  | 126  | 5.0          | 0.25     | 700                     | 5000                 | 0.5                     | 100                  | 91.2  | 1.0                                | 12.0                  |
| Z4KE130A   | 124                 | 130  | 137  | 5.0          | 0.25     | 800                     | 5000                 | 0.5                     | 100                  | 99.2  | 1.0                                | 11.0                  |
| Z4KE140A   | 133                 | 140  | 147  | 5.0          | 0.25     | 900                     | 5500                 | 0.5                     | 100                  | 106.4 | 1.0                                | 10.7                  |
| Z4KE150A   | 142                 | 150  | 158  | 5.0          | 0.25     | 1000                    | 6000                 | 0.5                     | 100                  | 113.6 | 1.0                                | 10.0                  |
| Z4KE160A   | 152                 | 160  | 168  | 5.0          | 0.25     | 1100                    | 6500                 | 0.5                     | 100                  | 121.6 | 1.0                                | 9.0                   |
| Z4KE170A   | 162                 | 170  | 179  | 5.0          | 0.25     | 1200                    | 7000                 | 0.5                     | 100                  | 129.6 | 1.0                                | 8.0                   |
| Z4KE180A   | 171                 | 180  | 189  | 5.0          | 0.25     | 1300                    | 7000                 | 0.5                     | 100                  | 136.8 | 1.0                                | 8.0                   |
| Z4KE190A   | 180                 | 190  | 200  | 5.0          | 0.25     | 1400                    | 7500                 | 0.5                     | 100                  | 144.0 | 1.0                                | 7.9                   |
| Z4KE200A   | 190                 | 200  | 210  | 5.0          | 0.25     | 1500                    | 8000                 | 0.5                     | 100                  | 152.0 | 1.0                                | 7.0                   |

**Note**

<sup>(1)</sup> Maximum power dissipation is 1500 mW at  $T_L = 75\text{ }^\circ\text{C}$  with lead length 0.375" (9.5 mm)

| <b>ORDERING INFORMATION</b> (Example) |                 |                        |               |                                    |
|---------------------------------------|-----------------|------------------------|---------------|------------------------------------|
| PREFERRED P/N                         | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                      |
| Z4KE100A-E3/54                        | 0.350           | 54                     | 5500          | 13" diameter plastic tape and reel |
| Z4KE100AHE3/54 <sup>(1)</sup>         | 0.350           | 54                     | 5500          | 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)

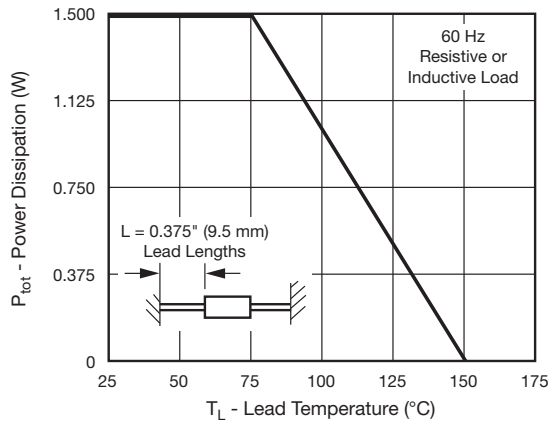


Fig. 1 - Power Derating Curve

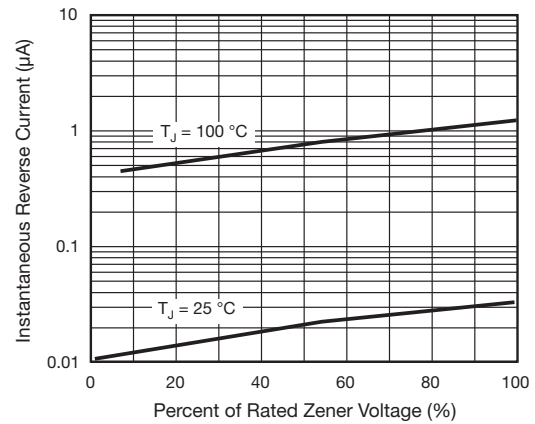


Fig. 4 - Typical Reverse Characteristics

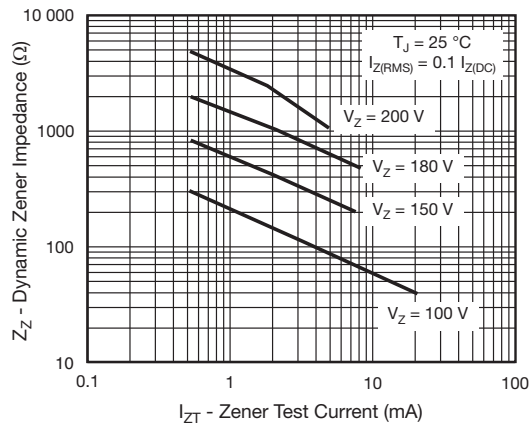


Fig. 2 - Typical Zener Impedance

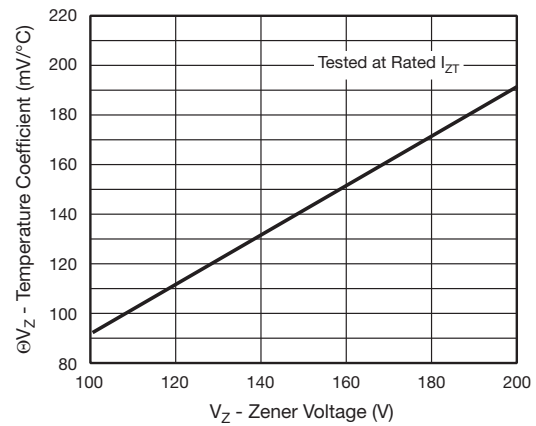


Fig. 5 - Typical Temperature Coefficients

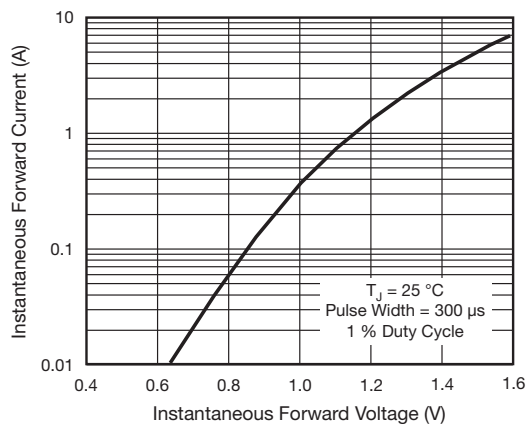


Fig. 3 - Typical Instantaneous Forward Characteristics

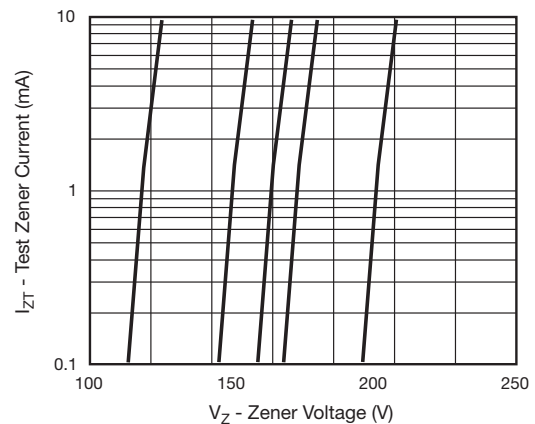
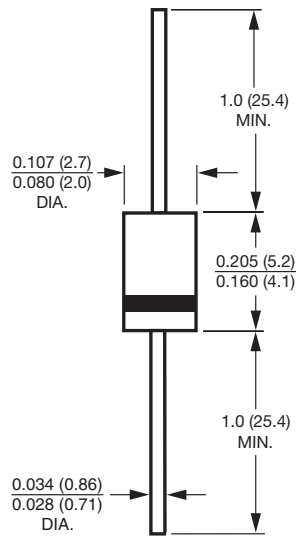


Fig. 6 - Typical Zener Voltage



## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### DO-204AL (DO-41)





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