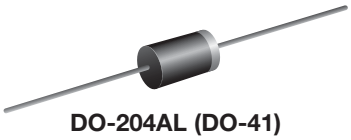
# Glass Passivated Power Voltage-Regulating Diodes



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

RoHS COMPLIANT

| PRIMARY CHARACTERISTICS | |
|---|---|
| $V_Z$ | 100 V to 200 V |
| $P_{tot}$ | 1500 mW |
| $I_R$ ($V_Z \geq 12$ V) | 5.0 µA |
| $T_J$ 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 °C unless otherwise noted)

| PARAMETER | SYMBOL | VALUE | UNIT |
|---|---|---|---|
| Operating junction and storage temperature range | $T_J$, $T_{STG}$ | - 55 to + 150 | °C |



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**ELECTRICAL CHARACTERISTICS** ($T_A$ = 25 °C unless otherwise noted)

| PART NUMBER [1] | 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 | | Ω | | µA | | V | V | mA |
| | MIN. | NOM. | MAX. | | | MAX. | MAX. | 25 °C | 100 °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 | 10.25 | 000 | 6000 | 0.5 | 100 | 113.6 | 1.0 | 10.0 |
| Z4KE160A | 152 | 160 | 168 | 5.0 | 10.25 | 100 | 6500 | 0.5 | 100 | 121.6 | 1.0 | 9.0 |
| Z4KE170A | 162 | 170 | 179 | 5.0 | 10.25 | 200 | 7000 | 0.5 | 100 | 129.6 | 1.0 | 8.0 |
| Z4KE180A | 171 | 180 | 189 | 5.0 | 10.25 | 300 | 7000 | 0.5 | 100 | 136.8 | 1.0 | 8.0 |
| Z4KE190A | 180 | 190 | 200 | 5.0 | 10.25 | 400 | 7500 | 0.5 | 100 | 144.0 | 1.0 | 7.9 |
| Z4KE200A | 190 | 200 | 210 | 5.0 | 10.25 | 500 | 8000 | 0.5 | 100 | 152.0 | 1.0 | 7.0 |

**Note**

[1] Maximum power dissipation is 1500 mW at $T_L$ = 75 °C with lead length 0.375" (9.5 mm)

**ORDERING INFORMATION** (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 [1] | 0.350 | 54 | 5500 | 13" diameter plastic tape and reel |

**Note**

[1] AEC-Q101 qualified


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## RATINGS AND CHARACTERISTICS CURVES

($T_A$ = 25 °C unless otherwise noted)

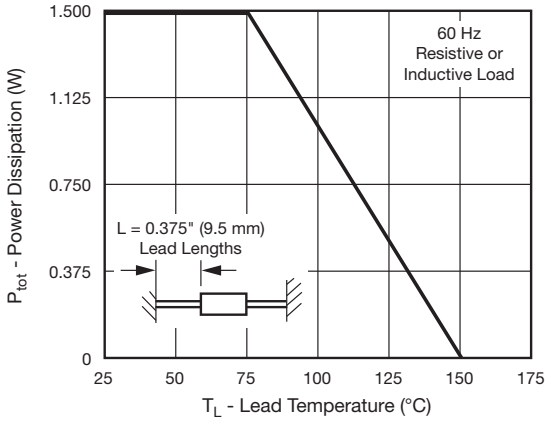


Fig. 1 - Power Derating Curve

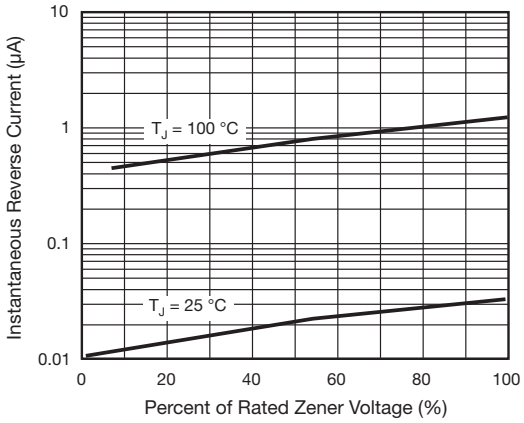


Fig. 4 - Typical Reverse Characteristics

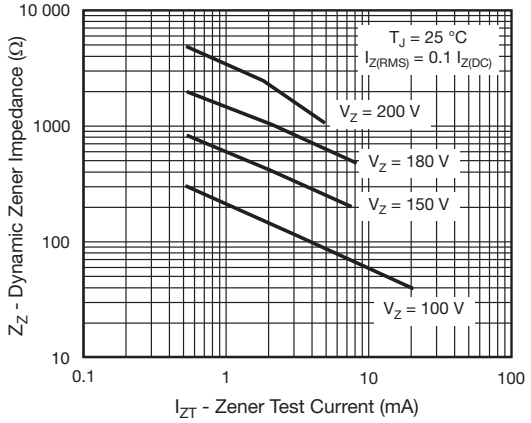


Fig. 2 - Typical Zener Impedance

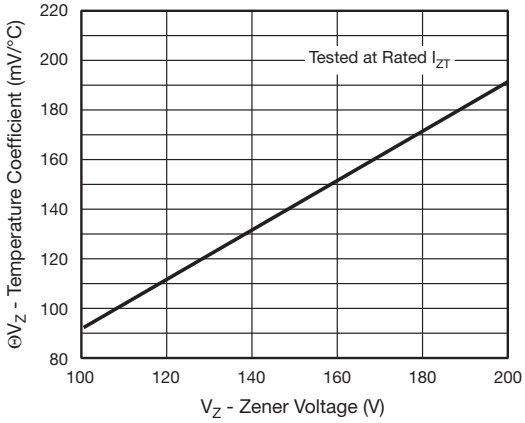


Fig. 5 - Typical Temperature Coefficients

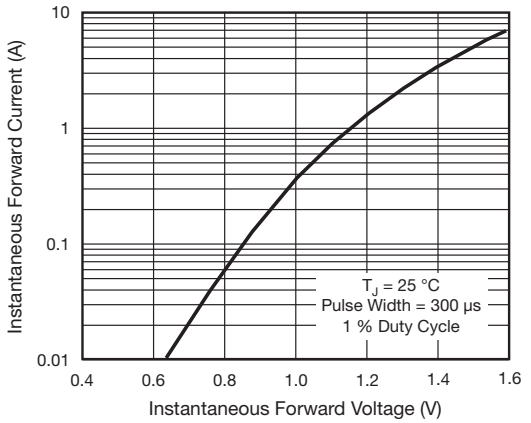


Fig. 3 - Typical Instantaneous Forward Characteristics

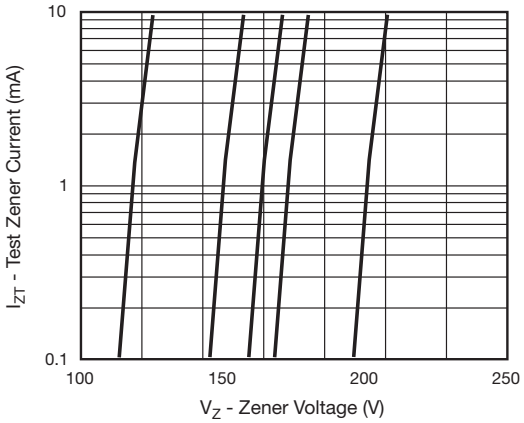


Fig. 6 - Typical Zener Voltage


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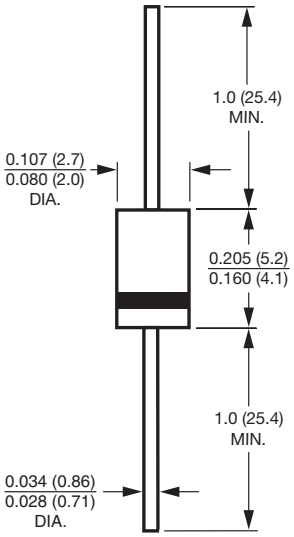
**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

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





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ООО «НИОКР СИТЕМС»
Москва, 125362, Россия, ул. Вишневая, д. 9, к. 1, Блок 104 а и 104 в

Телефон: 8 (495) 268-14-82
Email: n@nsistems.ru

ИНН: 7735154786
ОГРН: 1167746717709