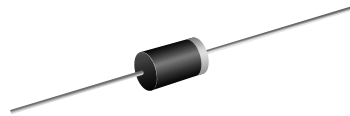


Glass Passivated Power Voltage-Regulating Diodes



DO-204AL (DO-41)

FEATURES

- Plastic MELF package
- Ideal for automated placement
- Glass passivated chip junction
- Low Zener impedance
- Low regulation factor
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



RoHS
COMPLIANT

TYPICAL APPLICATIONS

For general purpose regulation and protection applications.

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, high reliability/automotive grade (AEC Q101 qualified)

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-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 | 100 V to 200 V |
| P_D | 1.5 W |
| I_R | 0.5 μ A |
| T_J max. | 150 °C |

| 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 ($T_A = 25$ °C unless otherwise noted) | | | | | | | | | | | |
|--|-------------------------|------|---------------------------------|--------------|----------|--------------|---|----------------|-----------------|---|--|
| TYPE | ZENER VOLTAGE AT 5.0 mA | | MAXIMUM ZENER DYNAMIC IMPEDANCE | | | | MAXIMUM DC REVERSE LEAKAGE CURRENT AT V_R | | | MAXIMUM INSTANTANEOUS FORWARD VOLTAGE AT 0.50 A | MAXIMUM CONTINUOUS REGULATOR CURRENT (2) |
| | V_Z (V) | | I_{ZT} | Z_{ZT} | I_{ZK} | Z_{ZK} | V_R | I_R AT 25 °C | I_R AT 100 °C | V_{FM} | I_{ZM} |
| | MIN. | MAX. | (mA) | (Ω) | (mA) | (Ω) | (V) | (μ A) | (μ A) | | |
| Z4KE100 | 90 | 110 | 5.0 | 500 | 0.25 | 5000 | 72.0 | 0.5 | 100 | 1.0 | 15.0 |
| Z4KE100A | 95 | 105 | 5.0 | 500 | 0.25 | 5000 | 76.0 | 0.5 | 100 | 1.0 | 15.0 |
| Z4KE110 | 99 | 121 | 5.0 | 600 | 0.25 | 5000 | 79.2 | 0.5 | 100 | 1.0 | 13.0 |
| Z4KE110A | 104 | 116 | 5.0 | 600 | 0.25 | 5000 | 83.2 | 0.5 | 100 | 1.0 | 13.0 |
| Z4KE120 | 108 | 132 | 5.0 | 700 | 0.25 | 5000 | 86.4 | 0.5 | 100 | 1.0 | 12.0 |
| Z4KE120A | 114 | 126 | 5.0 | 700 | 0.25 | 5000 | 91.2 | 0.5 | 100 | 1.0 | 12.0 |
| Z4KE130 | 117 | 143 | 5.0 | 800 | 0.25 | 5000 | 93.6 | 0.5 | 100 | 1.0 | 11.0 |
| Z4KE130A | 124 | 137 | 5.0 | 800 | 0.25 | 5000 | 99.2 | 0.5 | 100 | 1.0 | 11.0 |

Z4KE100 thru Z4KE200A

Vishay General Semiconductor



| ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | | | | | | |
|--|-------------------------|------|---------------------------------|-----------------|-----------------|-----------------|--|-------------------------|--------------------------|---|--|
| TYPE | ZENER VOLTAGE AT 5.0 mA | | MAXIMUM ZENER DYNAMIC IMPEDANCE | | | | MAXIMUM DC REVERSE LEAKAGE CURRENT AT V _R | | | MAXIMUM INSTANTANEOUS FORWARD VOLTAGE AT 0.50 A | MAXIMUM CONTINUOUS REGULATOR CURRENT (2) |
| | V _Z (V) | | I _{ZT} | Z _{ZT} | I _{ZK} | Z _{ZK} | V _R | I _R AT 25 °C | I _R AT 100 °C | V _{FM} | I _{ZM} |
| | MIN. | MAX. | (mA) | (Ω) | (mA) | (Ω) | (V) | (μA) | (μA) | (V) | (mA) |
| Z4KE140 | 126 | 154 | 5.0 | 900 | 0.25 | 5000 | 100 | 0.5 | 100 | 1.0 | 10.7 |
| Z4KE140A | 133 | 147 | 5.0 | 900 | 0.25 | 5500 | 106.4 | 0.5 | 100 | 1.0 | 10.7 |
| Z4KE150 | 135 | 165 | 5.0 | 1000 | 0.25 | 6000 | 108.0 | 0.5 | 100 | 1.0 | 10.0 |
| Z4KE150A | 142 | 158 | 5.0 | 1000 | 0.25 | 6000 | 113.6 | 0.5 | 100 | 1.0 | 10.0 |
| Z4KE160 | 144 | 176 | 5.0 | 1100 | 0.25 | 6500 | 115.2 | 0.5 | 100 | 1.0 | 9.0 |
| Z4KE160A | 152 | 168 | 5.0 | 1100 | 0.25 | 6500 | 121.6 | 0.5 | 100 | 1.0 | 9.0 |
| Z4KE170 | 153 | 187 | 5.0 | 1200 | 0.25 | 7000 | 122.4 | 0.5 | 100 | 1.0 | 8.8 |
| Z4KE170A | 162 | 179 | 5.0 | 1200 | 0.25 | 7000 | 129.6 | 0.5 | 100 | 1.0 | 8.0 |
| Z4KE180 | 162 | 198 | 5.0 | 1300 | 0.25 | 7000 | 129.6 | 0.5 | 100 | 1.0 | 8.0 |
| Z4KE180A | 171 | 189 | 5.0 | 1300 | 0.25 | 7000 | 136.8 | 0.5 | 100 | 1.0 | 8.0 |
| Z4KE190 | 171 | 209 | 5.0 | 1400 | 0.25 | 7500 | 136.8 | 0.5 | 100 | 1.0 | 7.9 |
| Z4KE190A | 180 | 200 | 5.0 | 1400 | 0.25 | 7500 | 144.0 | 0.5 | 100 | 1.0 | 7.9 |
| Z4KE200 | 180 | 220 | 5.0 | 1500 | 0.25 | 8000 | 144.0 | 0.5 | 100 | 1.0 | 7.0 |
| Z4KE200A | 190 | 210 | 5.0 | 1500 | 0.25 | 8000 | 152.0 | 0.5 | 100 | 1.0 | 7.0 |

Notes:

- (1) Standard voltage tolerance is ± 10 %, suffix "A" is ± 5 %
- (2) Maximum power dissipation is 1.5 W 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 |
| Z4KE100-E3/54 | 0.350 | 54 | 5500 | 13" diameter paper tape and reel |
| Z4KE100HE3/54 (1) | 0.350 | 54 | 5500 | 13" diameter paper tape and reel |

Note:

- (1) Automotive grade AEC Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

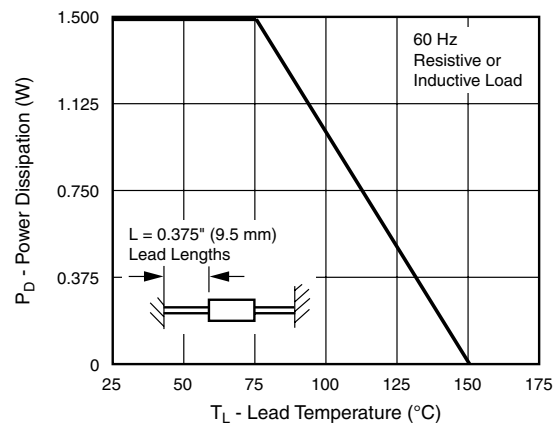


Figure 1. Power Derating Curve

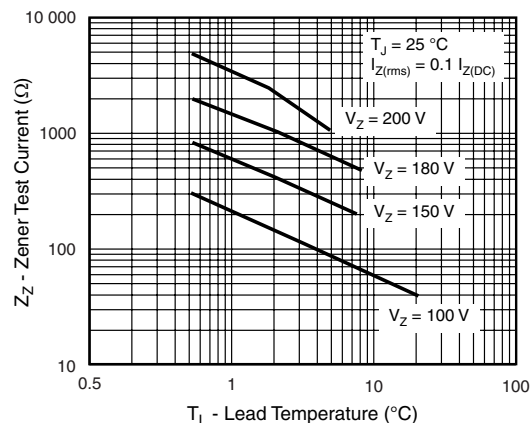


Figure 2. Typical Zener Impedance

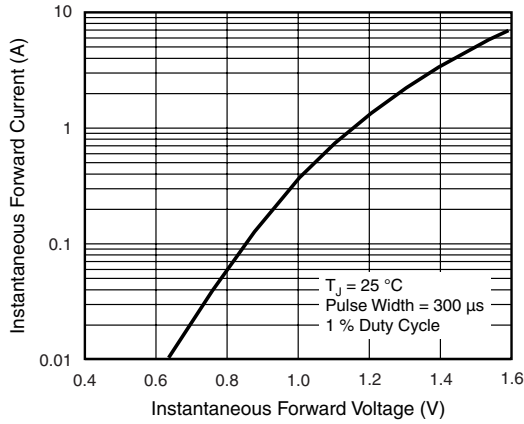


Figure 3. Typical Instantaneous Forward Characteristics

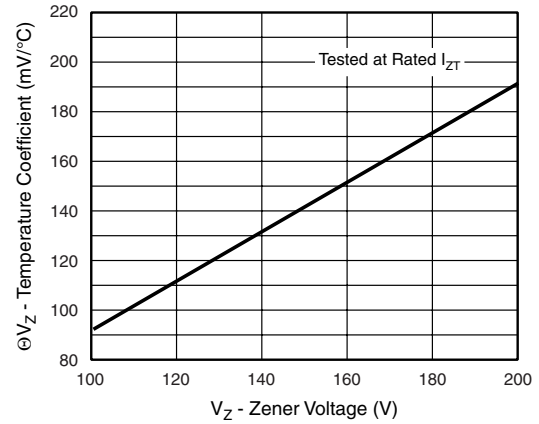


Figure 5. Typical Temperature Coefficients

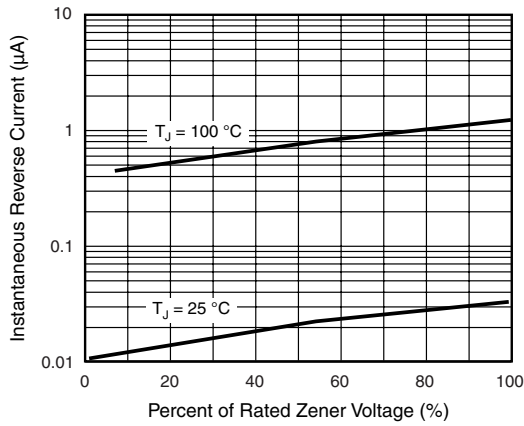


Figure 4. Typical Reverse Characteristics

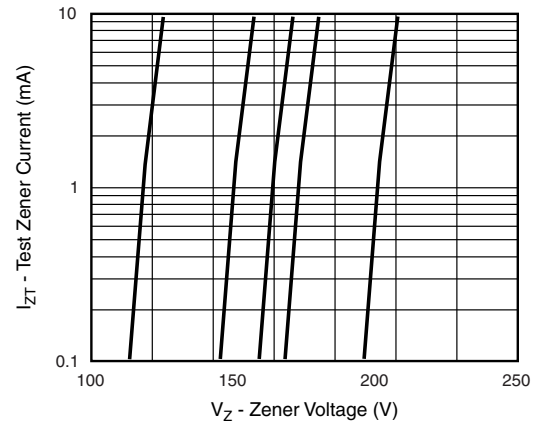
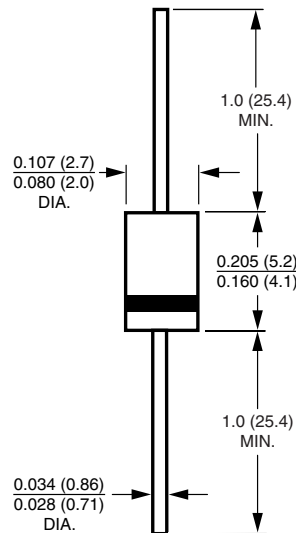


Figure 6. Typical Zener Voltage

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AL (DO-41)





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