



# Wirewound Resistors, Industrial Power, Edgewound



## FEATURES

- High temperature silicon coating
- Complete welded construction
- Excellent for intermittent power and pulsing applications
- Designed to meet heavy-duty requirement where space is at a premium
- Excellent stability in operation (< 3 % change in resistance)
- Material categorization:  
for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS\***  
Available

**HALOGEN**  
**FREE**  
Available

**GREEN**  
(5-2008)  
Available

## Note

\* This datasheet provides information about parts that are RoHS-compliant and / or parts that are non-RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details.

## STANDARD ELECTRICAL SPECIFICATIONS

| GLOBAL MODEL | HISTORICAL MODEL | POWER RATING<br>$P_{25^{\circ}\text{C}}$<br>W | RESISTANCE RANGE<br>$\Omega$ | TOLERANCE<br>$\pm \%$ | WEIGHT<br>(typical)<br>g |
|--------------|------------------|-----------------------------------------------|------------------------------|-----------------------|--------------------------|
| HLZ033       | HLZ-33           | 35                                            | 0.05 to 1.9                  | 5, 10                 | 18                       |
| HLZ090       | HLZ-90           | 90                                            | 0.10 to 5.7                  | 5, 10                 | 36                       |
| HLZ099       | HLZ-99           | 100                                           | 0.15 to 6.1                  | 5, 10                 | 41                       |
| HLZ105       | HLZ-105          | 105                                           | 0.20 to 7.4                  | 5, 10                 | 49                       |
| HLZ110       | HLZ-110          | 110                                           | 0.20 to 8.6                  | 5, 10                 | 54                       |
| HLZ140       | HLZ-140          | 140                                           | 0.08 to 9.0                  | 5, 10                 | 109                      |
| HLZ165       | HLZ-165          | 165                                           | 0.35 to 13.0                 | 5, 10                 | 91                       |
| HLZ220       | HLZ-220          | 220                                           | 0.10 to 16.0                 | 5, 10                 | 163                      |
| HLZ240       | HLZ-240          | 240                                           | 0.10 to 18.0                 | 5, 10                 | 186                      |
| HLZ275       | HLZ-275          | 275                                           | 0.15 to 23.0                 | 5, 10                 | 224                      |
| HLZ300       | HLZ-300          | 300                                           | 0.15 to 25.0                 | 5, 10                 | 236                      |
| HLZ375       | HLZ-375          | 375                                           | 0.20 to 32.0                 | 5, 10                 | 286                      |

## TECHNICAL SPECIFICATIONS

| PARAMETER                       | UNIT                    | HLZ RESISTOR CHARACTERISTICS                                                                                             |
|---------------------------------|-------------------------|--------------------------------------------------------------------------------------------------------------------------|
| Temperature Coefficient         | ppm/ $^{\circ}\text{C}$ | $\pm 30$ for 10 $\Omega$ and above; $\pm 50$ for 1 $\Omega$ to 9.9 $\Omega$ ; $\pm 90$ for 0.1 $\Omega$ to 0.99 $\Omega$ |
| Short Time Overload             | -                       | 10 x rated power for 5 s                                                                                                 |
| Terminal Strength               | lb                      | 10 minimum                                                                                                               |
| Dielectric Withstanding Voltage | $V_{AC}$                | 1000, from terminal to mounting hardware                                                                                 |
| Maximum Working Voltage         | V                       | $(P \times R)^{1/2}$                                                                                                     |
| Insulation Resistance           | $\Omega$                | 1000 M $\Omega$ minimum dry, 100 M $\Omega$ minimum after moisture test                                                  |
| Operating Temperature Range     | $^{\circ}\text{C}$      | -55 to +350                                                                                                              |

## GLOBAL PART NUMBER INFORMATION

Global Part Numbering example: HLZ16506Z10R00KJ

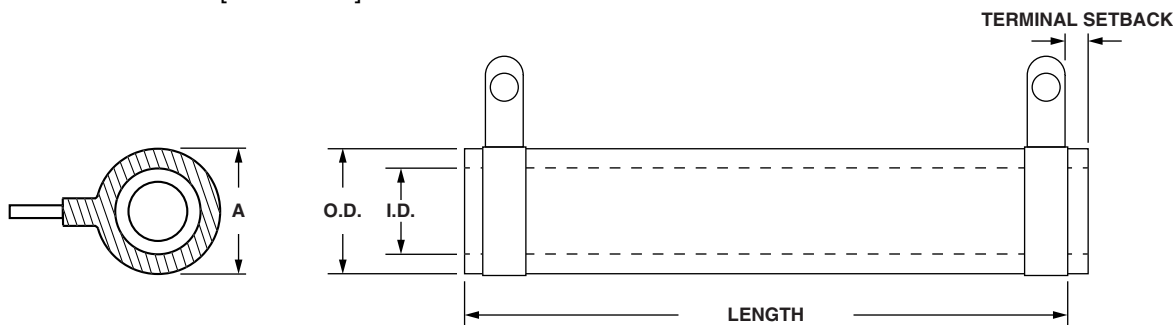
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| GLOBAL MODEL                                                                                 | TERMINAL DESIGNATION                | TERMINAL FINISH                                                         | RESISTANCE VALUE                                                                                         | TOLERANCE                                           | PACKAGING CODE                                                                   | SPECIAL                                                                 |
|----------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| <b>HLZ165</b><br>(see "Standard Electrical Specifications" table above for additional P/N's) | <b>06</b><br><b>07</b><br><b>15</b> | <b>E</b> = lead (Pb)-free<br><b>Z</b> = tin / lead<br><b>N</b> = nickel | <b>R</b> = decimal<br><b>K</b> = thousand<br><b>10R00</b> = 10.0 $\Omega$<br><b>1K000</b> = 1 k $\Omega$ | <b>J</b> = $\pm 5.0 \%$<br><b>K</b> = $\pm 10.0 \%$ | <b>E</b> = lead (Pb)-free skin pack<br><b>J</b> <sup>(1)</sup> = skin pack (J01) | (dash number) (up to 2 digits) from <b>1</b> to <b>99</b> as applicable |

**Note**  
(<sup>1</sup>) Tin / lead for type "Z", lead (Pb)-free for type "N"

Historical Part Numbering example: HLZ-165-06Z 10  $\Omega$  10 % J01

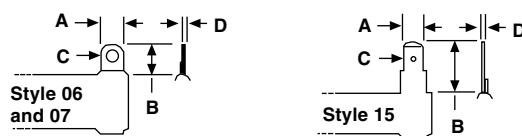
|                  |                 |                               |             |            |
|------------------|-----------------|-------------------------------|-------------|------------|
| <b>HLZ-165</b>   | <b>06Z</b>      | <b>10 <math>\Omega</math></b> | <b>10 %</b> | <b>J01</b> |
| HISTORICAL MODEL | TERMINAL/FINISH | RESISTANCE VALUE              | TOLERANCE   | PACKAGING  |

**DIMENSIONS** in inches [millimeters]

| MODEL  | CORE DIMENSIONS                         |               |                                       | TERMINAL<br>SETBACK<br>$\pm 0.031$<br>[ $\pm 0.79$ ] | DISTANCE<br>BETWEEN<br>TERMINALS<br>(REF.) | TERMINAL DESIGNATION |          | BRACKET<br>TYPE <sup>(1)</sup> |
|--------|-----------------------------------------|---------------|---------------------------------------|------------------------------------------------------|--------------------------------------------|----------------------|----------|--------------------------------|
|        | LENGTH<br>$\pm 0.062$<br>[ $\pm 1.59$ ] | O.D.          | I.D.<br>$\pm 0.031$<br>[ $\pm 0.79$ ] |                                                      |                                            | STANDARD             | OPTIONAL |                                |
| HLZ033 | 2.000 [50.8]                            | 0.563 [14.29] | 0.313 [7.94]                          | 0.094 [2.38]                                         | 1.437                                      | 06Z                  | 15N      | 101, 203, 301                  |
| HLZ090 | 4.000 [101.6]                           | 0.563 [14.29] | 0.313 [7.94]                          | 0.094 [2.38]                                         | 3.312                                      | 06Z                  | 15N      | 101, 203, 301                  |
| HLZ099 | 3.500 [88.9]                            | 0.750 [19.05] | 0.500 [12.70]                         | 0.125 [3.18]                                         | 2.75                                       | 06Z                  | 15N      | 102, 206, 303                  |
| HLZ105 | 4.000 [101.6]                           | 0.750 [19.05] | 0.500 [12.70]                         | 0.125 [3.18]                                         | 3.25                                       | 06Z                  | 15N      | 102, 206, 303                  |
| HLZ110 | 4.500 [114.3]                           | 0.750 [19.05] | 0.500 [12.70]                         | 0.125 [3.18]                                         | 3.75                                       | 06Z                  | 15N      | 102, 206, 303                  |
| HLZ140 | 4.000 [101.6]                           | 1.125 [28.58] | 0.750 [19.05]                         | 0.219 [5.56]                                         | 2.812                                      | 07Z                  | 15N      | 103, 205, 303                  |
| HLZ165 | 6.500 [165.1]                           | 0.750 [19.05] | 0.750 [19.05]                         | 0.125 [3.18]                                         | 5.75                                       | 06Z                  | 15N      | 102, 206, 303                  |
| HLZ220 | 6.000 [152.4]                           | 1.125 [28.58] | 0.750 [19.05]                         | 0.219 [5.56]                                         | 4.812                                      | 07Z                  | 15N      | 103, 205, 303                  |
| HLZ240 | 6.500 [165.1]                           | 1.125 [28.58] | 0.750 [19.05]                         | 0.219 [5.56]                                         | 5.312                                      | 07Z                  | 15N      | 103, 205, 303                  |
| HLZ275 | 8.000 [203.2]                           | 1.125 [28.58] | 0.750 [19.05]                         | 0.219 [5.56]                                         | 6.812                                      | 07Z                  | 15N      | 103, 205, 303                  |
| HLZ300 | 8.500 [215.9]                           | 1.125 [28.58] | 0.750 [19.05]                         | 0.219 [5.56]                                         | 7.312                                      | 07Z                  | 15N      | 103, 205, 303                  |
| HLZ375 | 10.500 [266.7]                          | 1.125 [28.58] | 0.750 [19.05]                         | 0.219 [5.56]                                         | 9.312                                      | 07Z                  | 15N      | 103, 205, 303                  |

**Note**

<sup>(1)</sup> Brackets are available for mounting HLZ series resistors - see "Mounting Hardware" section.

**TERMINAL DIMENSIONS**

| DIMENSION | TERMINAL STYLE |               |               |
|-----------|----------------|---------------|---------------|
|           | 06             | 07            | 15            |
| A         | 0.250 [6.35]   | 0.375 [9.53]  | 0.250 [6.35]  |
| B         | 0.563 [14.29]  | 0.625 [15.88] | 0.594 [15.08] |
| C         | 0.166 [4.22]   | 0.173 [4.39]  | 0.065 [1.65]  |
| D         | 0.020 [0.51]   | 0.020 [0.51]  | 0.031 [0.79]  |

**TERMINAL FINISH**

"E" finish - 100 % Sn coated steel. "Z" finish - 60/40 Sn/Pb coated steel. "N" finish - nickel coated steel. Finish for terminal style 14 and 15 are limited to nickel plated steel (N).

**MATERIAL SPECIFICATIONS**

**Element:** copper-nickel alloy of nickel-chrome alloy, depending on resistance range

**Core:** ceramic, steatite

**Coating:** special high temperature silicone

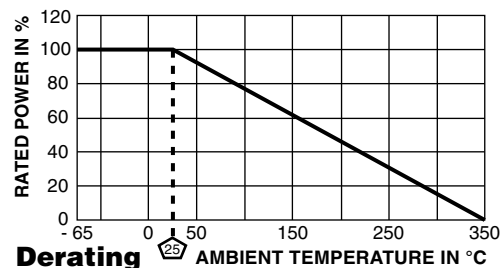
**Standard Terminals:** model "E" terminals are tinned steel

**Terminal Bands:** steel

**Part Marking:** Vishay Dale, model, wattage, value, tolerance, date code

**MOUNTING HARDWARE**

Mounting Hardware is available for HLZ resistors, see HL Brackets and Sliders datasheet for more information:  
[www.vishay.com/doc?30279](http://www.vishay.com/doc?30279)





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