

## Wirewound Resistors, Industrial Power, Vitreous Coated, Adjustable Tubular



### FEATURES

- High temperature vitreous coating
- Complete welded construction
- Tight tolerance of 5 % for values above 1  $\Omega$
- 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**  
COMPLIANT  
HALOGEN  
**FREE**  
**GREEN**  
(5-2008)

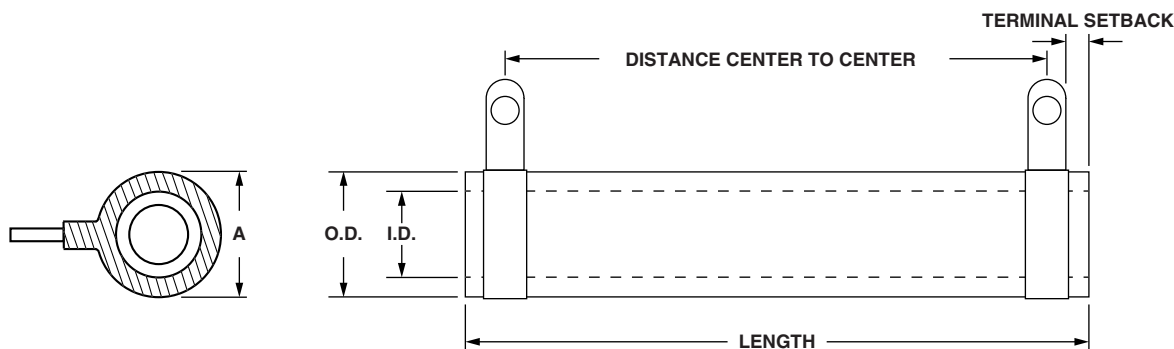
### LINKS TO ADDITIONAL RESOURCES



| STANDARD ELECTRICAL SPECIFICATIONS |                  |                                               |                                            |                                             |                       |
|------------------------------------|------------------|-----------------------------------------------|--------------------------------------------|---------------------------------------------|-----------------------|
| GLOBAL MODEL                       | HISTORICAL MODEL | POWER RATING<br>$P_{25^{\circ}\text{C}}$<br>W | RESISTANCE RANGE<br>$\Omega$<br>$\pm 5 \%$ | RESISTANCE RANGE<br>$\Omega$<br>$\pm 10 \%$ | WEIGHT (typical)<br>g |
| AVT010                             | AVT-10           | 12                                            | 0.1 to 10.6K                               | 0.1 to 10.6K                                | 6.69                  |
| AVT012                             | AVT-12           | 12                                            | 0.1 to 10.6K                               | 0.1 to 10.6K                                | 6.69                  |
| AVT020                             | AVT-20           | 20                                            | 1.0 to 18K                                 | 1.0 to 18K                                  | 12.57                 |
| AVT20A                             | -                | 15                                            | 1.0 to 60K                                 | 0.10 to 60K                                 | 8.64                  |
| AVT025                             | AVT-25           | 25                                            | 0.1 to 26K                                 | 0.1 to 26K                                  | 20.72                 |
| AVT25A                             | AVT-25A          | 30                                            | 0.1 to 30K                                 | 0.1 to 30K                                  | 20.72                 |
| AVT25B                             | AVT-25B          | 30                                            | 0.1 to 24K                                 | 0.1 to 24K                                  | 14.25                 |
| AVT050                             | AVT-50           | 50                                            | 0.1 to 54K                                 | 0.1 to 54K                                  | 42.08                 |
| AVT50A                             | AVT-50A          | 60                                            | 0.1 to 75K                                 | 0.1 to 75K                                  | 65.64                 |
| AVT50B                             | AVT-50B          | 70                                            | 0.1 to 84.3K                               | 0.1 to 84.3K                                | 64.82                 |
| AVT075                             | AVT-75           | 75                                            | 0.1 to 85.5K                               | 0.1 to 85.5K                                | 106.37                |
| AVT75A                             | AVT-75A          | 90                                            | 0.1 to 114K                                | 0.1 to 114K                                 | 183.82                |
| AVT080                             | -                | 90                                            | 1.0 to 190K                                | 0.10 to 190K                                | 121.58                |
| AVT100                             | AVT-100          | 100                                           | 0.1 to 131K                                | 0.1 to 131K                                 | 91.37                 |
| AVT130                             | AVT-130          | 130                                           | 0.1 to 192K                                | 0.1 to 192K                                 | 192.36                |
| AVT160                             | AVT-160          | 175                                           | 0.1 to 398K                                | 0.1 to 398K                                 | 250.8                 |
| AVT175                             | -                | 175                                           | 1.0 to 398K                                | 0.10 to 398K                                | 250.8                 |
| AVT200                             | AVT-200          | 225                                           | 0.1 to 337K                                | 0.1 to 337K                                 | 309.97                |
| AVT225                             | AVT-225          | 225                                           | 0.1 to 337K                                | 0.1 to 337K                                 | 309.97                |

**GLOBAL PART NUMBER INFORMATION**Global Part Numbering Example: AVT02506E25R00JE (visit [www.vishay.net](http://www.vishay.net) SAP parts manual for all options)

|                                                                          |   |   |                                                |   |                              |                                                                |           |                         |   |                                       |   |                                                                                                                                                                                                                                                                                                                                    |   |   |   |  |  |
|--------------------------------------------------------------------------|---|---|------------------------------------------------|---|------------------------------|----------------------------------------------------------------|-----------|-------------------------|---|---------------------------------------|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|--|--|
| A                                                                        | V | T | 0                                              | 2 | 5                            | 0                                                              | 6         | E                       | 2 | 5                                     | R | 0                                                                                                                                                                                                                                                                                                                                  | 0 | J | E |  |  |
| GLOBAL MODEL<br>(6 digits)                                               |   |   | TERMINAL DESIGNATION<br>(2 digits)             |   | TERMINAL FINISH<br>(1 digit) | VALUE<br>(5 digits)                                            |           | TOLERANCE<br>(1 digit)  |   | PACKAGING CODE<br>(1 digit)           |   | SPECIAL<br>(up to 2 digits)                                                                                                                                                                                                                                                                                                        |   |   |   |  |  |
| (see Standard Electrical Specifications Global Model column for options) |   |   | 05<br>06<br>14<br>15<br>20<br>FC = ferrule cap |   | E = lead (Pb)-free           | R = decimal<br>K = thousand<br>1R500 = 1.5 Ω<br>1K500 = 1.5 kΩ |           | J = ± 5 %<br>K = ± 10 % |   | E = lead (Pb)-free cell and bulk pack |   | (dash number) from 1 to 99 as applicable<br>91 = 100 style horizontal high bracket<br>92 = 200 style push-in bracket<br>93 = 300 style thru-bolt bracket<br>NI = non-inductive<br>NP = non-inductive + 92 style push-in bracket<br>NH = non-inductive + 91 style horizontal bracket<br>NV = non-inductive + style vertical bracket |   |   |   |  |  |
| Historical Part Number Example: AVT-25-25-5 %                            |   |   |                                                |   |                              |                                                                |           |                         |   |                                       |   |                                                                                                                                                                                                                                                                                                                                    |   |   |   |  |  |
| AVT-25                                                                   |   |   | 25 Ω                                           |   |                              |                                                                | 5 %       |                         |   |                                       |   |                                                                                                                                                                                                                                                                                                                                    |   |   |   |  |  |
| HISTORICAL MODEL                                                         |   |   | RESISTANCE VALUE                               |   |                              |                                                                | TOLERANCE |                         |   | SPECIAL                               |   |                                                                                                                                                                                                                                                                                                                                    |   |   |   |  |  |

**DIMENSIONS** in inches (millimeters)


| MODEL            | A<br>(MAX.)      | CORE DIMENSIONS   |                               |                               | TERMINAL<br>SETBACK<br>$\pm 0.031$<br>(0.79) | DISTANCE<br>CENTER TO<br>CENTER<br>(REF.) | DISTANCE<br>CENTER TO<br>CENTER<br>QUICK<br>CONNECT<br>(REF.) | TERMINAL DESIGNATION |                             | SLIDER<br>MODEL<br>NUMBER |
|------------------|------------------|-------------------|-------------------------------|-------------------------------|----------------------------------------------|-------------------------------------------|---------------------------------------------------------------|----------------------|-----------------------------|---------------------------|
|                  |                  | LENGTH            | O.D.<br>$\pm 0.031$<br>(0.79) | I.D.<br>$\pm 0.031$<br>(0.79) |                                              |                                           |                                                               | STANDARD             | OPTIONAL<br>(QUICK CONNECT) |                           |
| AVT010<br>AVT012 | 0.406<br>(10.31) | 1.750<br>(44.45)  | 0.313<br>(7.95)               | 0.188<br>(4.78)               | 0.094<br>(2.39)                              | 1.375<br>(34.93)                          | 1.312<br>(33.32)                                              | 05                   | 14                          | 70                        |
| AVT020           | 0.563<br>(14.30) | 2.000<br>(50.8)   | 0.438<br>(11.13)              | 0.260<br>(6.60)               | 0.094<br>(2.39)                              | 1.625<br>(41.28)                          | 1.562<br>(39.67)                                              | 02                   | 14                          | 70                        |
| AVT20A           | 0.563<br>(14.30) | 2.000<br>(50.8)   | 0.438<br>(11.11)              | 0.313<br>(7.94)               | 0.094<br>(2.38)                              | 1.625<br>(41.28)                          | 1.625<br>(41.28)                                              | 02                   | 14                          | 70                        |
| AVT025           | 0.668<br>(17.48) | 2.000<br>(50.8)   | 0.563<br>(14.30)              | 0.313<br>(7.95)               | 0.094<br>(2.39)                              | 1.562<br>(39.67)                          | 1.50<br>(38.10)                                               | 06                   | 15                          | 71                        |
| AVT25A           | 0.906<br>(23.01) | 2.000<br>(50.8)   | 0.750<br>(19.05)              | 0.500<br>(12.7)               | 0.094<br>(2.39)                              | 1.562<br>(39.67)                          | 1.50<br>(38.10)                                               | 06                   | 15                          | 72                        |
| AVT25B           | 0.770<br>(19.56) | 2.000<br>(50.8)   | 0.625<br>(15.88)              | 0.453<br>(11.51)              | 0.094<br>(2.39)                              | 1.562<br>(39.67)                          | -                                                             | 06                   | -                           | 71                        |
| AVT050           | 0.688<br>(17.48) | 4.000<br>(101.6)  | 0.563<br>(14.30)              | 0.313<br>(7.95)               | 0.094<br>(2.39)                              | 3.562<br>(90.47)                          | 3.50<br>(88.90)                                               | 06                   | 15                          | 71                        |
| AVT50A           | 0.906<br>(23.01) | 4.000<br>(101.6)  | 0.750<br>(19.05)              | 0.500<br>(12.70)              | 0.062<br>(1.57)                              | 3.626<br>(92.10)                          | 3.563<br>(90.51)                                              | 06                   | 15                          | 71                        |
| AVT50B           | 0.906<br>(23.01) | 4.500<br>(114.3)  | 0.750<br>(19.05)              | 0.547<br>(13.89)              | 0.125<br>(3.18)                              | 4.000<br>(101.60)                         | 3.938<br>(100.01)                                             | 06                   | 15                          | 72                        |
| AVT075           | 0.688<br>(17.48) | 6.000<br>(152.4)  | 0.563<br>(14.30)              | 0.313<br>(7.95)               | 0.094<br>(2.39)                              | 5.562<br>(141.27)                         | 4.500<br>(114.29)                                             | 06                   | 15                          | 71                        |
| AVT75A           | 0.906<br>(23.01) | 6.000<br>(152.4)  | 0.750<br>(19.05)              | 0.500<br>(12.70)              | 0.094<br>(2.39)                              | 5.562<br>(141.27)                         | 5.500<br>(139.70)                                             | 06                   | 15                          | 72                        |
| AVT080           | 1.313<br>(33.34) | 4.000<br>(101.6)  | 1.125<br>(28.58)              | 0.750<br>(19.05)              | 0.219<br>(5.56)                              | 3.187<br>(80.95)                          | 3.250<br>(82.45)                                              | 20                   | 15                          | 73                        |
| AVT100           | 0.906<br>(23.01) | 6.500<br>(165.1)  | 0.750<br>(19.05)              | 0.500<br>(12.70)              | 0.125<br>(3.18)                              | 6.000<br>(152.40)                         | 5.938<br>(150.81)                                             | 06                   | 15                          | 72                        |
| AVT130           | 1.313<br>(33.35) | 6.500<br>(165.1)  | 1.125<br>(28.58)              | 0.750<br>(19.05)              | 0.282<br>(7.16)                              | 5.561<br>(141.25)                         | 5.624<br>(142.84)                                             | 20                   | 15                          | 73                        |
| AVT160           | 1.313<br>(33.35) | 8.500<br>(215.9)  | 1.125<br>(28.58)              | 0.750<br>(19.05)              | 0.267<br>(6.78)                              | 7.593<br>(192.86)                         | 4.656<br>(118.25)                                             | 20                   | 15                          | 73                        |
| AVT175           | 1.313<br>(33.34) | 8.500<br>(215.9)  | 1.125<br>(28.58)              | 0.750<br>(19.05)              | 0.219<br>(5.56)                              | 7.687<br>(195.25)                         | 7.750<br>(196.58)                                             | 20                   | 15                          | 73                        |
| AVT200<br>AVT225 | 1.313<br>(33.35) | 10.500<br>(266.7) | 1.125<br>(28.58)              | 0.750<br>(19.05)              | 0.266<br>(6.76)                              | 9.593<br>(243.66)                         | 9.656<br>(245.26)                                             | 20                   | 15                          | 73                        |

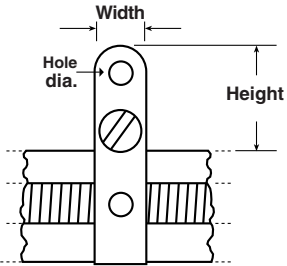
**TERMINAL DIMENSIONS** in inches (millimeters)

|  | DIMENSIONS  | TERMINAL STYLE   |                  |                  |                  |                  |                  |
|--|-------------|------------------|------------------|------------------|------------------|------------------|------------------|
|  |             | 20               | 02               | 05               | 06               | 14               | 15               |
|  | WIDTH A     | 0.375<br>(9.53)  | 0.188<br>(4.76)  | 0.188<br>(4.76)  | 0.250<br>(6.35)  | 0.188<br>(4.76)  | 0.250<br>(6.35)  |
|  | HEIGHT B    | 0.594<br>(15.09) | 0.413<br>(10.49) | 0.413<br>(10.49) | 0.520<br>(13.21) | 0.583<br>(14.81) | 0.657<br>(16.69) |
|  | DIAMETER C  | 0.204<br>(5.18)  | 0.133<br>(3.38)  | 0.133<br>(3.38)  | 0.172<br>(4.36)  | 0.050<br>(1.27)  | 0.065<br>(1.65)  |
|  | THICKNESS D | 0.032<br>(0.81)  | 0.020<br>(0.51)  | 0.020<br>(0.51)  | 0.020<br>(0.51)  | 0.020<br>(0.51)  | 0.032<br>(0.81)  |

**Note**

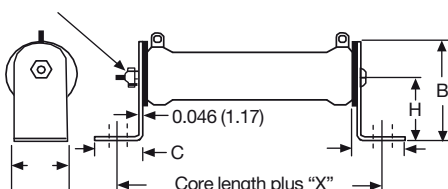
- Dimensions are for reference only. Dimensions indicated are without coating

**AVT SLIDERS-DIMENSIONS** in inches (millimeters)

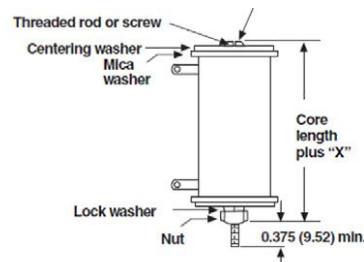
|  | GLOBAL PART NUMBER <sup>(1)</sup><br>(RoHS-COMPLIANT) | GLOBAL PART NUMBER<br>FOR EXTRA<br>SLIDERS   | SLIDER<br>MODEL<br>TYPE | DIMENSIONS   |               |                  |
|-----------------------------------------------------------------------------------|-------------------------------------------------------|----------------------------------------------|-------------------------|--------------|---------------|------------------|
|                                                                                   |                                                       |                                              |                         | WIDTH        | HEIGHT        | HOLE<br>DIAMETER |
|                                                                                   | 75008602E29                                           | AVT010, AVT020                               | 70                      | 0.187 (4.75) | 0.516 (13.11) | 0.125 (3.18)     |
|                                                                                   | 75008603E29                                           | AVT025, AVT25B,<br>AVT050, AVT50A,<br>AVT075 | 71                      | 0.250 (6.35) | 0.719 (18.26) | 0.141 (3.58)     |
|                                                                                   | 75008604E29                                           | AVT25A, AVT50B,<br>AVT75A, AVT100            | 72                      | 0.250 (6.35) | 0.844 (21.44) | 0.141 (3.58)     |
|                                                                                   | 75008605E29                                           | AVT130, AVT160,<br>AVT200, AVT225            | 73                      | 0.312 (7.92) | 0.797 (20.24) | 0.170 (4.32)     |

**Note**
<sup>(1)</sup> Order HEI slider with global part number

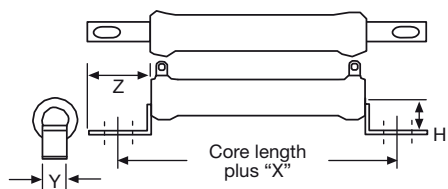
**MOUNTING HARDWARE FOR AVT PRODUCTS** - Dimensions in inches (millimeters)

**91 = 100 Style Horizontal 1 High Bracket**


| BRACKET<br>TYPE | X                | Y                | Z                | H                | MOUNTING<br>SLOT                | C                | B                |
|-----------------|------------------|------------------|------------------|------------------|---------------------------------|------------------|------------------|
| 101             | 1.063<br>(26.99) | 0.500<br>(12.70) | 0.950<br>(24.13) | 1.000<br>(25.40) | 0.219 x 0.438<br>(5.56 x 11.11) | 0.750<br>(19.05) | 1.375<br>(34.93) |
| 102             | 1.063<br>(26.99) | 0.750<br>(19.05) | 0.859<br>(21.83) | 1.250<br>(31.75) | 0.219 x 0.438<br>(5.56 x 11.11) | 0.750<br>(19.05) | 1.750<br>(44.75) |
| 103             | 1.063<br>(26.99) | 1.250<br>(31.75) | 1.000<br>(25.40) | 1.500<br>(38.10) | 0.281 x 0.563<br>(7.14 x 14.29) | 0.927<br>(23.55) | 2.125<br>(53.98) |

**93 = 300 Style Thru-Bolt Bracket**


| BRACKET<br>TYPE | X<br>(APPROXIMATE) | THREAD    |
|-----------------|--------------------|-----------|
| 301             | 0.373 (9.47)       | 8 to 32   |
| 302             | 0.271 (6.88)       | 8 to 32   |
| 303             | 0.463 (11.76)      | 1/4 to 20 |

**92 = 200 Style Push-In Bracket**


| BRACKET<br>TYPE | X                | H                | Y                | Z                | HOLE<br>(DIA.)                 |
|-----------------|------------------|------------------|------------------|------------------|--------------------------------|
| 202             | 0.478<br>(12.14) | 0.250<br>(6.35)  | 0.125<br>(3.175) | 0.375<br>(9.53)  | 0.170<br>(4.32)                |
| 203             | 0.583<br>(14.80) | 0.580<br>(14.73) | 0.188<br>(4.78)  | 0.460<br>(11.68) | 0.115<br>(2.92)                |
| 204             | 0.700<br>(17.78) | 0.578<br>(14.68) | 0.250<br>(6.35)  | 0.500<br>(12.70) | 0.156<br>(3.96)                |
| 205             | 0.846<br>(21.49) | 0.800<br>(20.32) | 0.375<br>(9.53)  | 0.600<br>(15.24) | 0.343 x 0.213<br>(8.71 x 5.46) |
| 206             | 0.846<br>(21.49) | 0.800<br>(20.62) | 0.375<br>(9.53)  | 0.600<br>(15.24) | 0.343 x 0.213<br>(8.71 x 5.46) |
| 207             | 0.700<br>(17.78) | 1.125<br>(28.58) | 0.500<br>(12.70) | 0.687<br>(17.45) | 0.250 x 0.188<br>(6.35 x 4.78) |

**MOUNTING HARDWARE**

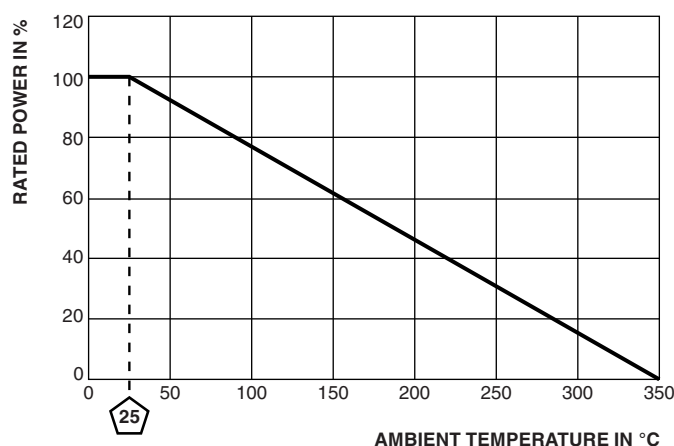
| GLOBAL<br>MODEL | AVAILABLE BRACKET TYPES BY MODEL                     |                                         |                                           |
|-----------------|------------------------------------------------------|-----------------------------------------|-------------------------------------------|
|                 | 91 = 100<br>STYLE<br>HORIZONTAL<br>1 HIGH<br>BRACKET | 92 = 200<br>STYLE<br>PUSH-IN<br>BRACKET | 93 = 300<br>STYLE<br>THRU-BOLT<br>BRACKET |
| AVT010          | 101                                                  | 202                                     | 301                                       |
| AVT012          | 101                                                  | 202                                     | 301                                       |
| AVT020          | 101                                                  | N/A                                     | 301                                       |
| AVT20A          | 101                                                  | 203                                     | 301                                       |
| AVT025          | 102                                                  | 204                                     | 301                                       |
| AVT25A          | 102                                                  | 206                                     | 302                                       |
| AVT25B          | 102                                                  | 205                                     | 301                                       |
| AVT050          | 102                                                  | 204                                     | 302                                       |
| AVT50A          | 102                                                  | 206                                     | 302                                       |
| AVT50B          | 102                                                  | 208                                     | 302                                       |
| AVT075          | 102                                                  | 204                                     | 301                                       |
| AVT75A          | 102                                                  | 206                                     | 302                                       |
| AVT080          | 103                                                  | 207                                     | 303                                       |
| AVT100          | 102                                                  | 206                                     | 302                                       |
| AVT130          | 103                                                  | 207                                     | 302                                       |
| AVT160          | 103                                                  | 207                                     | 303                                       |
| AVT175          | 103                                                  | 207                                     | 303                                       |
| AVT200          | 103                                                  | 207                                     | 303                                       |
| AVT225          | 103                                                  | 207                                     | 303                                       |

**TECHNICAL SPECIFICATIONS**

| PARAMETER                              | UNIT             | RESISTOR CHARACTERISTICS                                                                |
|----------------------------------------|------------------|-----------------------------------------------------------------------------------------|
| Power Rating                           | W                | 12 to 225                                                                               |
| Resistance Range                       | $\Omega$         | 1 to 398K                                                                               |
| Resistance Tolerance                   | %                | 5, 10                                                                                   |
| Temperature Coefficient                | ppm/°C           | $\pm 260$ for 20 $\Omega$ and above, $\pm 400$ for 1 $\Omega$ to 19.99 $\Omega$         |
| Operating Temperature                  | °C               | -55 °C to 350 °C                                                                        |
| Temperature Rise                       | °C               | 325 °C above an ambient of 25 °C                                                        |
| Maximum Altitude                       | f.a.s.l.         | 10 000                                                                                  |
| Short-Term Overload                    | -                | 10x rated power for 5 s                                                                 |
| Surge Windings                         |                  | Available                                                                               |
| Maximum Working Voltage                | -                | $(P \times R)^{0.5}$                                                                    |
| Insulation Resistance                  | $\Omega$         | 1M                                                                                      |
| Dielectric Voltage                     | V <sub>RMS</sub> | 1000 V <sub>AC</sub> from terminal to mounting hardware                                 |
| Creepage                               |                  | Varies by wattage, see "Terminal Setback" in Dimensions table                           |
| Terminal Sleeves                       |                  | n/a                                                                                     |
| Inductance                             | $\mu$ H          | Varies by wattage and resistance                                                        |
| Non-Inductive Winding                  |                  | Available                                                                               |
| Terminal Strength                      | lb               | 10 lbs                                                                                  |
| Electrical or Mechanical Customization |                  | Contact factory: <a href="mailto:ww2dresistors@vishay.com">ww2dresistors@vishay.com</a> |

**MATERIAL SPECIFICATIONS**

|                    |                                                                           |
|--------------------|---------------------------------------------------------------------------|
| Element            | Copper-nickel alloy or nickel-chrome alloy, depending on resistance value |
| Core               | Cordierite, steatite                                                      |
| Coating            | Special high temperature vitreous enamel                                  |
| Standard Terminals | Tinned alloy 42                                                           |
| Optional Terminals | Alloy 42                                                                  |
| Terminal Bands     | Alloy 42                                                                  |
| Part Marking       | HEI, model, wattage, value, tolerance, date code                          |

**DERATING**



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