

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



### FEATURES

- High temperature silicone coating
- Complete welded construction
- Tight tolerance of 5 % for values above 1 Ω
- 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)

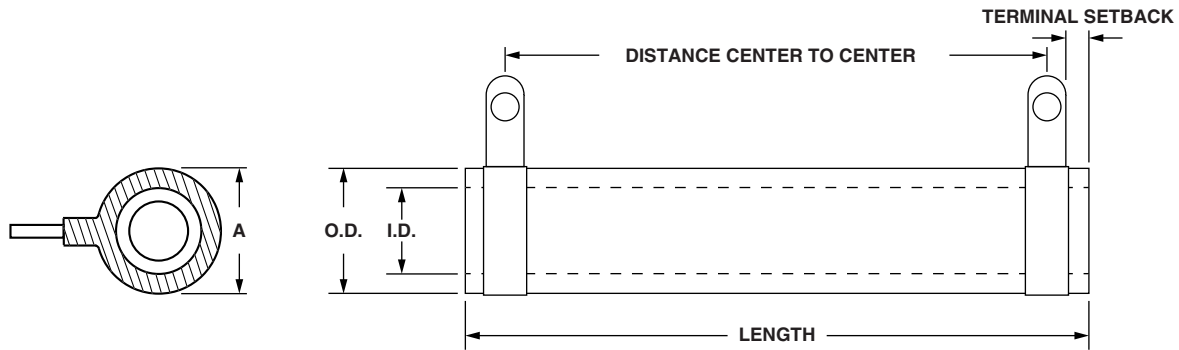


**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**  
**GREEN**  
(5-2008)

| STANDARD ELECTRICAL SPECIFICATIONS |                  |   |                                |                                 |                       |
|------------------------------------|------------------|---|--------------------------------|---------------------------------|-----------------------|
| GLOBAL MODEL                       | HISTORICAL MODEL | POWER RATING<br>$P_{25\text{ }^{\circ}\text{C}}$<br>W | RESISTANCE RANGE<br>Ω<br>± 5 % | RESISTANCE RANGE<br>Ω<br>± 10 % | WEIGHT (typical)<br>g |
| AST010                             | AST-10           | 12  | 1.0 to 10.6K                   | 1.0 to 10.6K                    | 6.69                  |
| AST012                             | AST-12           | 12  | 1.0 to 10.6K                   | 1.0 to 10.6K                    | 6.69                  |
| AST020                             | AST-20           | 20  | 1.0 to 18K                     | 1.0 to 18K                      | 12.57                 |
| AST20A                             | HLA-15           | 15  | 1.0 to 60K                     | 0.10 to 60K                     | 8.64                  |
| AST025                             | AST-25           | 25  | 1.0 to 26K                     | 1.0 to 26K                      | 20.72                 |
| AST25A                             | AST-25A          | 30  | 1.0 to 30K                     | 1.0 to 30K                      | 20.72                 |
| AST25B                             | AST-25B          | 30  | 1.0 to 24K                     | 1.0 to 24K                      | 14.25                 |
| AST050                             | AST-50           | 50  | 1.0 to 54K                     | 1.0 to 54K                      | 42.08                 |
| AST50A                             | AST-50A          | 60  | 1.0 to 75K                     | 1.0 to 75K                      | 65.64                 |
| AST50B                             | AST-50B          | 70  | 1.0 to 84.3K                   | 1.0 to 84.3K                    | 64.82                 |
| AST075                             | AST-75           | 75  | 1.0 to 85.5K                   | 1.0 to 85.5K                    | 106.37                |
| AST75A                             | AST-75A          | 90  | 1.0 to 114K                    | 1.0 to 114K                     | 183.82                |
| AST080                             | HLA-80           | 80  | 1.0 to 111K                    | -                               | 121.58                |
| AST100                             | AST-100          | 100   | 1.0 to 131K                    | 1.0 to 131K                     | 91.37                 |
| AST130                             | AST-130          | 130   | 1.0 to 192K                    | 1.0 to 192K                     | 192.36                |
| AST160                             | AST-160          | 175   | 1.0 to 398K                    | 1.0 to 398K                     | 250.8                 |
| AST175                             | HLA-175          | 175   | 1.0 to 398K                    | 1.0 to 398K                     | 250.8                 |
| AST200                             | AST-200          | 225   | 1.0 to 337K                    | 1.0 to 337K                     | 309.97                |
| AST225                             | AST-225          | 225   | 1.0 to 337K                    | 1.0 to 337K                     | 309.97                |



| GLOBAL PART NUMBER INFORMATION  |  |                  |                                     |  |          |                                       |  |          |   |          |          |          |          |          |          |  |  |
|---|--|------------------|-------------------------------------|--|----------|---------------------------------------|--|----------|---|----------|----------|----------|----------|----------|----------|--|--|
| Global Part Numbering Example: <b>AST0250625R00JE</b> (visit <a href="http://www.vishay.net">www.vishay.net</a> SAP parts manual for all options) |  |                  |                                     |  |          |                                       |  |          |   |          |          |          |          |          |          |  |  |
| <b>A</b>  | <b>S</b>   | <b>T</b>         | <b>0</b>                            | <b>2</b>   | <b>5</b> | <b>0</b>                              | <b>6</b>                                     | <b>E</b> | <b>2</b>  | <b>5</b> | <b>R</b> | <b>0</b> | <b>0</b> | <b>J</b> | <b>E</b> |  |  |
| <b>GLOBAL MODEL</b><br>(6 digits)   | <b>TERMINAL DESIGNATION</b><br>(2 digits)  |                  | <b>TERMINAL FINISH</b><br>(1 digit) | <b>VALUE</b><br>(5 digits)   |          | <b>TOLERANCE</b><br>(1 digit)         | <b>PACKAGING CODE</b><br>(1 digit)           |          | <b>SPECIAL</b><br>(up to 2 digits)  |          |          |          |          |          |          |  |  |
| (see Standard Electrical Specifications Global Model column for options)  | <b>05</b><br><b>06</b><br><b>14</b><br><b>15</b><br><b>20</b><br><b>FC</b> = ferrule cap |                  | <b>E</b> = lead (Pb)-free           | <b>R</b> = decimal<br><b>K</b> = thousand<br><b>1R500</b> = 1.5 Ω<br><b>1K500</b> = 1.5 kΩ |          | <b>J</b> = ± 5 %<br><b>K</b> = ± 10 % | <b>E</b> = lead (Pb)-free cell and bulk pack |          | (dash number) from <b>1</b> to <b>99</b> as applicable<br><b>91</b> = 100 style horizontal high bracket<br><b>92</b> = 200 style push-in bracket<br><b>93</b> = 300 style thru-bolt bracket<br><b>CT</b> = center tap<br><b>NI</b> = non-inductive<br><b>NP</b> = non-inductive + 92 style push-in bracket<br><b>NH</b> = non-inductive + 91 style horizontal bracket<br><b>NV</b> = non-inductive + style vertical bracket |          |          |          |          |          |          |  |  |
| <b>Historical Part Number Example: AST-25-25-5 %</b>  |  |                  |                                     |  |          |                                       |  |          |   |          |          |          |          |          |          |  |  |
| AST-25  |  | 25 Ω             |                                     | 5 %  |          |                                       |  |          |   |          |          |          |          |          |          |  |  |
| HISTORICAL MODEL  |  | RESISTANCE VALUE |                                     | TOLERANCE  |          | SPECIAL                               |  |          |   |          |          |          |          |          |          |  |  |

**DIMENSIONS** in inches (millimeters)


| MODEL            | A<br>(MAX.)      | CORE DIMENSIONS   |                           |                           |  | TERMINAL DESIGNATION                       |   |          | SLIDER<br>MODEL<br>NUMBER |                             |
|------------------|------------------|-------------------|---------------------------|---------------------------|--|--|---|----------|---------------------------|-----------------------------|
|                  |                  | LENGTH            | O.D.<br>± 0.031<br>(0.79) | I.D.<br>± 0.031<br>(0.79) | TERMINAL<br>SETBACK<br>± 0.031<br>(0.79) | DISTANCE<br>BETWEEN<br>TERMINALS<br>(REF.) | DISTANCE<br>CENTER TO<br>CENTER<br>QUICK<br>CONNECT<br>(REF.) | STANDARD |                           | OPTIONAL<br>(QUICK CONNECT) |
| AST010<br>AST012 | 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                          |
| AST020           | 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                          |
| AST20A           | 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                          |
| AST025           | 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)                           | 1.500<br>(38.10)  | 06       | 15                        | 71                          |
| AST25A           | 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)                           | 1.500<br>(38.10)  | 06       | 15                        | 72                          |
| AST25B           | 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       | 15                        | 71                          |
| AST050           | 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)                           | 3.500<br>(88.90)  | 06       | 15                        | 71                          |
| AST50A           | 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                          |
| AST50B           | 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                          |
| AST075           | 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                          |
| AST75A           | 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                          |
| AST080           | 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>(82.54)  | 20       | 15                        | 73                          |
| AST100           | 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                          |
| AST130           | 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                          |
| AST160           | 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                          |
| AST175           | 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>(196.85)   | 20       | 15                        | 73                          |
| AST200<br>AST225 | 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) | 0.583<br>(14.81) | 0.500<br>(12.70) | 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)  |

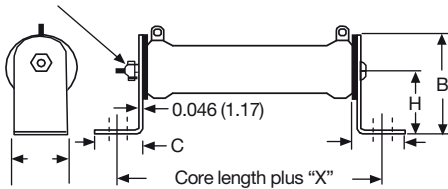
**Note**

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

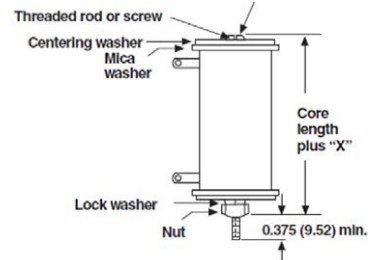
| AVT SLIDERS-DIMENSIONS in inches (millimeters) |   |  |                         |              |               |                  |
|--|---|--|-------------------------|--------------|---------------|------------------|
|  | GLOBAL PART NUMBER <sup>(1)</sup><br>(RoHS-COMPLIANT) | GLOBAL PART NUMBER<br>FOR EXTRA<br>SLIDERS   | SLIDER<br>MODEL<br>TYPE | DIMENSIONS   |               |                  |
|  |   |  |                         | WIDTH        | HEIGHT        | HOLE<br>DIAMETER |
|  | 75008602E29   | AST010, AST020                               | 70                      | 0.187 (4.75) | 0.516 (13.11) | 0.125 (3.18)     |
|  | 75008603E29   | AST025, AST25B,<br>AST050, AST50A,<br>AST075 | 71                      | 0.250 (6.35) | 0.719 (18.26) | 0.141 (3.58)     |
|  | 75008604E29   | AST25A, AST50B,<br>AST75A, AST100            | 72                      | 0.250 (6.35) | 0.844 (21.44) | 0.141 (3.58)     |
|  | 75008605E29   | AST130, AST160,<br>AST200, AST225            | 73                      | 0.312 (7.92) | 0.797 (20.24) | 0.170 (4.32)     |

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

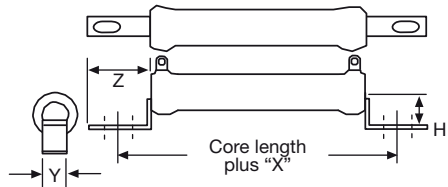
**MOUNTING HARDWARE FOR AVT PRODUCTS** - Dimensions in inches (millimeters)

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


| BRACKET TYPE | X                | Y                | Z                | H                | MOUNTING 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>(44.45) |
| 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 TYPE | X<br>(APPROXIMATE) | THREAD    |
|--------------|--------------------|-----------|
| 301          | 0.373 (9.47)       | 8 to 32   |
| 302          | 0.271 (6.88)       | 10 to 32  |
| 303          | 0.463 (11.76)      | 1/4 to 20 |

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


| BRACKET TYPE | X                | H                | Y                | Z                | HOLE (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) |
| 208          | 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) |

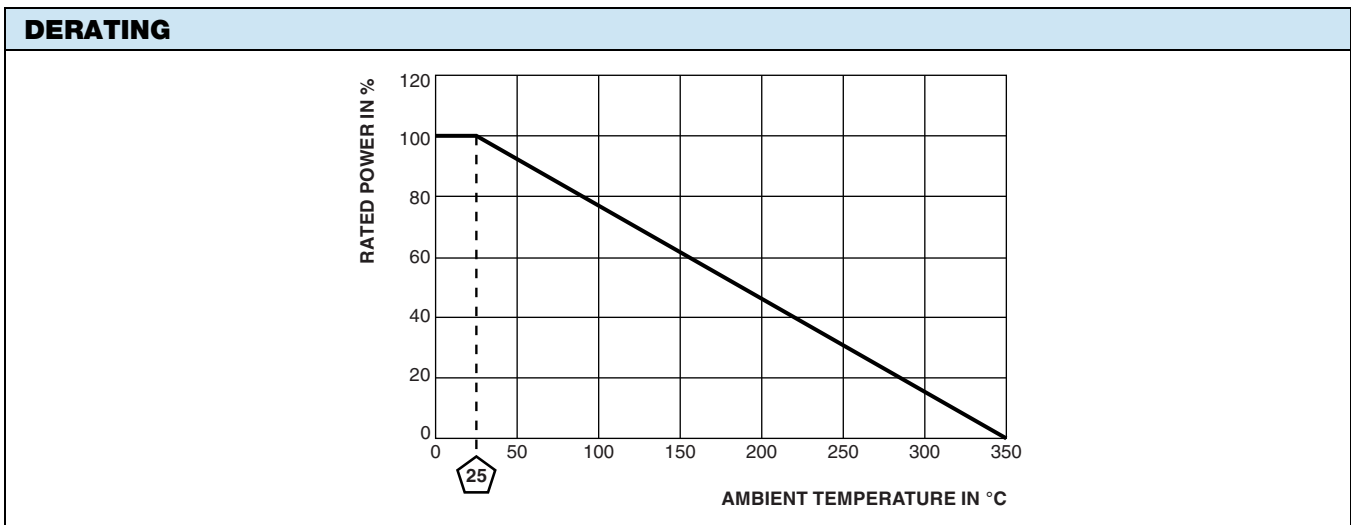
**MOUNTING HARDWARE**

| GLOBAL 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 |
| AST010       | 101  | 202                                     | 301                                       |
| AST012       | 101  | 202                                     | 301                                       |
| AST020       | 101  | N/A                                     | 301                                       |
| AST20A       | 101  | 203                                     | 301                                       |
| AST025       | 102  | 204                                     | 301                                       |
| AST25A       | 102  | 206                                     | 302                                       |
| AST25B       | 102  | 205                                     | 301                                       |
| AST050       | 102  | 204                                     | 302                                       |
| AST50A       | 102  | 206                                     | 302                                       |
| AST50B       | 102  | 208                                     | 302                                       |
| AST075       | 102  | 204                                     | 301                                       |
| AST75A       | 102  | 206                                     | 302                                       |
| AST080       | 103  | 207                                     | 303                                       |
| AST100       | 102  | 206                                     | 302                                       |
| AST130       | 103  | 207                                     | 302                                       |
| AST160       | 103  | 207                                     | 303                                       |
| AST175       | 103  | 207                                     | 303                                       |
| AST200       | 103  | 207                                     | 303                                       |
| AST225       | 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/ $^{\circ}$ C | $\pm 260$ for 20 $\Omega$ and above, $\pm 400$ for 1 $\Omega$ to 19.99 $\Omega$         |
| Operating Temperature                  | $^{\circ}$ C      | -55 $^{\circ}$ C to 350 $^{\circ}$ C  |
| Temperature Rise                       | $^{\circ}$ C      | 325 $^{\circ}$ C above an ambient of 25 $^{\circ}$ 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 silicone   |
| Standard Terminals      | Tinned alloy 42   |
| Optional Terminals      | Alloy 42  |
| Terminal Bands          | Alloy 42  |
| Part Marking            | HEI, model, wattage, value, tolerance, date code                          |





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