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



## FEATURES

- High temperature vitreous 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

Pb-free
RoHS COMPLIANT
HALOGEN FREE
GREEN (5-2008)

## LINKS TO ADDITIONAL RESOURCES

3D Models

## STANDARD ELECTRICAL SPECIFICATIONS

| GLOBAL MODEL | HISTORICAL MODEL | POWER RATING $P_{25\,°C}$ W | RESISTANCE RANGE Ω ± 5 % | RESISTANCE RANGE Ω ± 10 % | WEIGHT (typical) 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 |



For technical questions, contact: ww2dresistors@vishay.com

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## GLOBAL PART NUMBER INFORMATION

**Global Part Numbering Example: AVT02506E25R00JE** (visit 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 (6 digits) | TERMINAL DESIGNATION (2 digits) | TERMINAL FINISH (1 digit) | VALUE (5 digits) | TOLERANCE (1 digit) | PACKAGING CODE (1 digit) | SPECIAL (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 %**

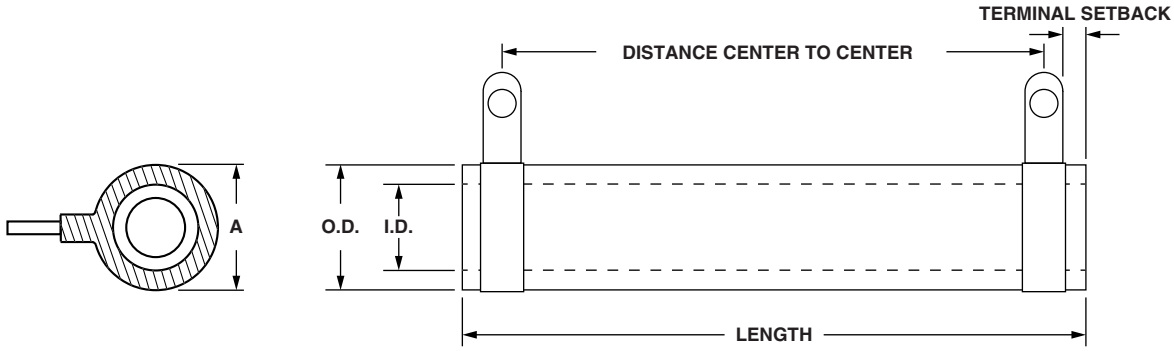
| AVT-25 | 25 Ω | 5 % | |
|---|---|---|---|
| HISTORICAL MODEL | RESISTANCE VALUE | TOLERANCE | SPECIAL |



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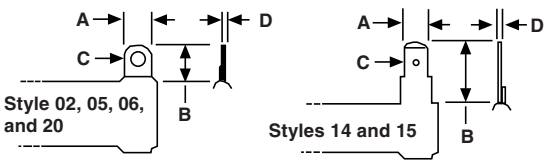
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## DIMENSIONS in inches (millimeters)




| MODEL | A (MAX.) | CORE DIMENSIONS | | | TERMINAL SETBACK ± 0.031 (0.79) | DISTANCE CENTER TO CENTER (REF.) | DISTANCE CENTER TO CENTER QUICK CONNECT (REF.) | TERMINAL DESIGNATION | | SLIDER MODEL NUMBER |
|---|---|---|---|---|---|---|---|---|---|---|
| | | LENGTH | O.D. ± 0.031 (0.79) | I.D. ± 0.031 (0.79) | | | | STANDARD | OPTIONAL (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**

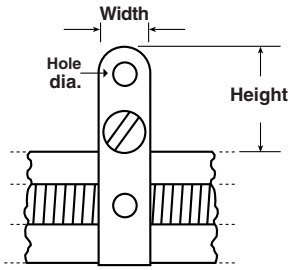
- Dimensions are for reference only. Dimensions indicated are without coating



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## AVT SLIDERS-DIMENSIONS in inches (millimeters)

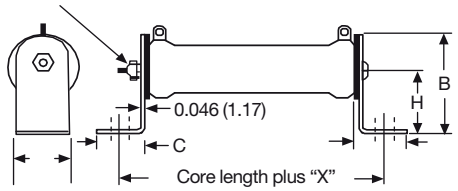



| GLOBAL PART NUMBER (1) (RoHS-COMPLIANT) | GLOBAL PART NUMBER FOR EXTRA SLIDERS | SLIDER MODEL TYPE | DIMENSIONS | | |
|---|---|---|---|---|---|
| | | | WIDTH | HEIGHT | HOLE DIAMETER |
| 75008602E29 | AVT010, AVT020 | 70 | 0.187 (4.75) | 0.516 (13.11) | 0.125 (3.18) |
| 75008603E29 | AVT025, AVT25B,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

**Note**
(1) Order HEI slider with global part number

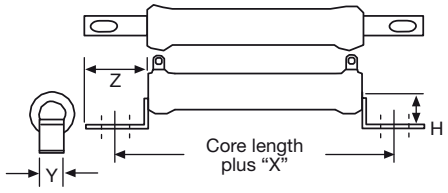
## MOUNTING HARDWARE FOR AVT PRODUCTS - Dimensions in inches (millimeters)

### 91 = 100 Style Horizontal 1 High Bracket



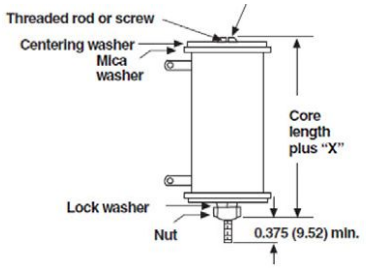

| BRACKET TYPE | X | Y | Z | H | MOUNTING SLOT | C | B |
|---|---|---|---|---|---|---|---|
| 101 | 1.063 (26.99) | 0.500 (12.70) | 0.950 (24.13) | 1.000 (25.40) | 0.219 x 0.438 (5.56 x 11.11) | 0.750 (19.05) | 1.375 (34.93) |
| 102 | 1.063 (26.99) | 0.750 (19.05) | 0.859 (21.83) | 1.250 (31.75) | 0.219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

### 92 = 200 Style Push-In Bracket




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

### 93 = 300 Style Thru-Bolt Bracket




| BRACKET TYPE | X (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 |

### MOUNTING HARDWARE

| GLOBAL MODEL | AVAILABLE BRACKET TYPES BY MODEL | | |
|---|---|---|---|
| | 91 = 100 STYLE HORIZONTAL 1 HIGH BRACKET | 92 = 200 STYLE PUSH-IN BRACKET | 93 = 300 STYLE THRU-BOLT 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 |


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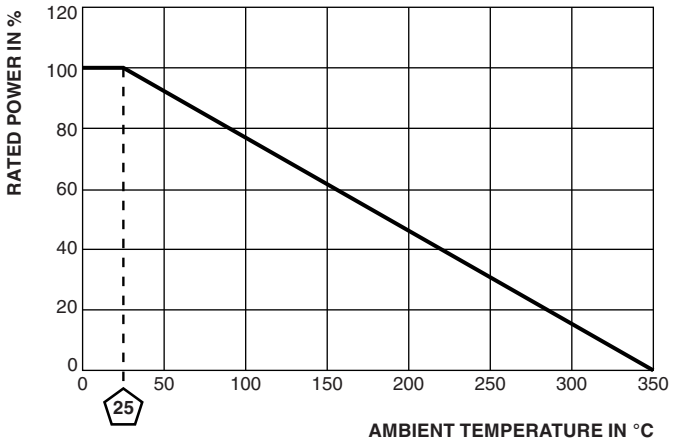
## TECHNICAL SPECIFICATIONS

| PARAMETER | UNIT | RESISTOR CHARACTERISTICS |
|---|---|---|
| Power Rating | W | 12 to 225 |
| Resistance Range | Ω | 1 to 398K |
| Resistance Tolerance | % | 5, 10 |
| Temperature Coefficient | ppm/°C | ± 260 for 20 Ω and above, ± 400 for 1 Ω to 19.99 Ω |
| 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 | - | $(P \times R)^{0.5}$ |
| Insultation Resistance | Ω | 1M |
| Dielectric Voltage | $V_{RMS}$ | 1000 $V_{AC}$ from terminal to mounting hardware |
| Creepage | | Varies by wattage, see “Terminal Setback” in Dimensions table |
| Terminal Sleeves | | n/a |
| Inductance | µH | Varies by wattage and resistance |
| Non-Inductive Winding | | Available |
| Terminal Strength | lb | 10 lbs |
| Electrical or Mechanical Customization | | Contact factory: ww2dresistors@vishay.com |

## 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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