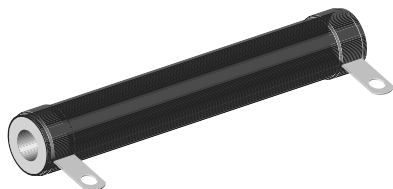


Wirewound Resistor, Industrial Power, Vitreous Coated, Fixed Tubular



FEATURES

- High temperature vitreous coating
- Complete welded construction
- Available in non-inductive style (special "NI") with Ayrton-Perry winding
- Tight tolerance of 5 % for values above 1 Ω
- Excellent stability in operation (< 3 % change resistance)
- Material categorization:
for definitions of compliance please see www.vishay.com/doc?99912



STANDARD ELECTRICAL SPECIFICATIONS

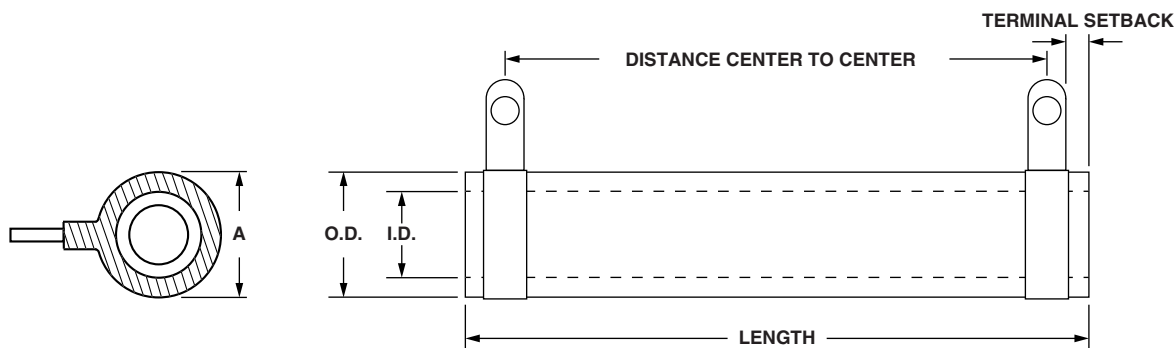
| GLOBAL MODEL | HISTORICAL MODEL | POWER RATING $P_{25^{\circ}\text{C}}$ W | RESISTANCE RANGE Ω $\pm 5 \%$ | RESISTANCE RANGE Ω $\pm 10 \%$ | WEIGHT (typical) g |
|--------------|------------------|---|--|---|-----------------------|
| FVT005 | FVT-5 | 5 | 1.0 to 20.5K | 0.1 to 20.5K | 4.60 |
| FVT005...NI | FVT-5-...-NI | 5 | 1.0 to 750 | 1.0 to 750 | 4.60 |
| FVT010 | FVT-10 | 12 | 1.0 to 58K | 0.1 to 58K | 6.7 |
| FVT010...NI | FVT-10-...-NI | 12 | 1.0 to 3.9K | 1.0 to 3.9K | 6.7 |
| FVT020 | FVT-20 | 20 | 1.0 to 95K | 0.1 to 95K | 12.57 |
| FVT020...NI | FVT-20-...-NI | 20 | 1.0 to 6.8K | 1.0 to 6.8K | 12.57 |
| FVT20A | - | 15 | 1.0 to 60K | 0.10 to 60K | 8.64 |
| FVT025 | FVT-25 | 25 | 1.0 to 115K | 0.1 to 115K | 20.7 |
| FVT025...NI | FVT-25-...-NI | 25 | 1.0 to 8.8K | 1.0 to 8.8K | 20.7 |
| FVT25A | FVT-25A | 30 | 1.0 to 56K | 0.1 to 56K | 20.7 |
| FVT25A...NI | FVT-25A-...-NI | 30 | 1.0 to 7.25K | 1.0 to 7.25K | 20.7 |
| FVT25B | FVT-25B | 30 | 1.0 to 49K | 0.1 to 49K | 14.5 |
| FVT25B...NI | FVT-25B-...-NI | 30 | 1.0 to 6.8K | 1.0 to 6.8K | 14.5 |
| FVT050 | FVT-50 | 50 | 1.0 to 112K | 0.1 to 112K | 42.1 |
| FVT050...NI | FVT-50-...-NI | 50 | 1.0 to 21.5K | 1.0 to 21.5K | 42.1 |
| FVT50A | FVT-50A | 60 | 1.0 to 145K | 0.1 to 145K | 65.6 |
| FVT50A...NI | FVT-50A-...-NI | 60 | 1.0 to 27.2K | 1.0 to 27.2K | 65.6 |
| FVT50B | FVT-50B | 70 | 1.0 to 170K | 0.1 to 170K | 60.0 |
| FVT50B...NI | FVT-50B-...-NI | 70 | 1.0 to 31.4K | 1.0 to 31.4K | 60.0 |
| FVT075 | FVT-75 | 75 | 1.0 to 276K | 0.1 to 276K | 98.5 |
| FVT075...NI | FVT-75-...-NI | 75 | 1.0 to 35K | 1.0 to 35K | 98.5 |
| FVT75A | FVT-75A | 90 | 1.0 to 238K | 0.1 to 238K | 64.8 |
| FVT75A...NI | FVT-75A-...-NI | 90 | 1.0 to 31K | 1.0 to 31K | 64.8 |
| FVT080 | - | 80 | 1.0 to 190K | 0.10 to 190K | 121.58 |
| FVT100 | FVT-100 | 100 | 1.0 to 260K | 0.1 to 260K | 91.4 |
| FVT100...NI | FVT-100-...-NI | 100 | 1.0 to 48.5K | 1.0 to 48.5K | 91.4 |
| FVT130 | FVT-130 | 130 | 1.0 to 380K | 0.1 to 380K | 192.4 |
| FVT130...NI | FVT-130-...-NI | 130 | 1.0 to 70.2K | 1.0 to 70.2K | 192.4 |
| FVT160 | FVT-160 | 175 | 1.0 to 470K | 0.1 to 470K | 250.8 |
| FVT160...NI | FVT-160-...-NI | 175 | 1.0 to 105K | 1.0 to 105K | 250.8 |
| FVT175 | - | 175 | 1.0 to 500K | 0.10 to 500K | 250.8 |
| FVT200 | FVT-200 | 225 | 1.0 to 645K | 0.1 to 645K | 310.0 |
| FVT200...NI | FVT-200-...-NI | 225 | 1.0 to 121K | 1.0 to 121K | 310.0 |
| FVT225 | FVT-225 | 225 | 1.0 to 645K | 0.1 to 645K | 310.0 |
| FVT225...NI | FVT-225-...-NI | 225 | 1.0 to 121K | 1.0 to 121K | 310.0 |

**GLOBAL PART NUMBER INFORMATION**Global Part Numbering Example: **FVT02506E25R00JE** (visit www.vishay.net SAP parts manual for all options)

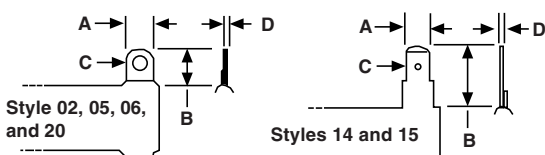
| F | V | T | 0 | 2 | 5 | 0 | 6 | E | 2 | 5 | R | 0 | 0 | J | E | | |
|--|--|----------|------------------------------|---|----------|---|-------------------------------------|----------|--|----------|----------|----------|----------|----------|----------|--|--|
| GLOBAL MODEL (6 digits) | TERMINAL DESIGNATION (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) | 02, 05, 06, 14, 15, 20 FC = ferrule cap | | E = lead (Pb)-free | R = decimal K = thousand 1R500 = 1.5 Ω 1K500 = 1.5 k Ω | | J = $\pm 5\%$ K = $\pm 10\%$ | E = lead (Pb)-free bulk pack | | (dash number) from 1 to 99 as applicable 91 = 100 style horizontal high bracket 92 = 200 style push-in bracket 93 = 300 style thru-bolt bracket NI = non-inductive NP = non-inductive + 92 style push-in bracket NH = non-inductive + 91 style horizontal bracket NV = non-inductive + style vertical bracket | | | | | | | | |

Historical Part Number Example: **FVT-25-25-5 %**

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

DIMENSIONS in inches (millimeters)


| MODEL | A MAX. | CORE DIMENSIONS | | | TERMINAL SETBACK ± 0.031 (0.79) | DISTANCE CENTER TO CENTER (REF.) | TERMINAL DESIGNATION | |
|------------------|------------------|-------------------|-------------------------------|-------------------------------|--|---|----------------------|--------------------------------|
| | | LENGTH | O.D. ± 0.031 (0.79) | I.D. ± 0.031 (0.79) | | | STANDARD | OPTIONAL (QUICK CONNECT) |
| FVT005 | 0.406 (10.31) | 1.000 (25.40) | 0.313 (7.95) | 0.188 (4.78) | 0.094 (2.39) | 0.625 (15.88) | 05 | 14 |
| FVT010 | 0.406 (10.31) | 1.750 (44.45) | 0.313 (7.95) | 0.188 (4.78) | 0.094 (2.39) | 1.375 (34.93) | 05 | 14 |
| FVT020 | 0.563 (14.30) | 2.000 (50.8) | 0.438 (11.13) | 0.260 (6.60) | 0.094 (2.39) | 1.625 (41.28) | 02 | 14 |
| FVT20A | 0.563 (14.30) | 2.000 (50.8) | 0.438 (11.11) | 0.313 (7.94) | 0.094 (2.38) | 1.625 (41.28) | 02 | 14 |
| FVT025 | 0.688 (17.48) | 2.000 (50.8) | 0.563 (14.30) | 0.313 (7.95) | 0.094 (2.39) | 1.562 (39.67) | 06 | 15 |
| FVT25A | 0.906 (23.01) | 2.000 (50.8) | 0.750 (19.05) | 0.500 (12.70) | 0.094 (2.39) | 1.562 (39.67) | 06 | 15 |
| FVT25B | 0.770 (19.56) | 2.000 (50.8) | 0.625 (15.88) | 0.453 (11.51) | 0.094 (2.39) | 1.562 (39.67) | 06 | 15 |
| FVT050 | 0.688 (17.48) | 4.000 (101.6) | 0.563 (14.30) | 0.313 (7.95) | 0.094 (2.39) | 3.562 (90.47) | 06 | 15 |
| FVT50A | 0.906 (23.01) | 4.000 (101.6) | 0.750 (19.05) | 0.500 (12.70) | 0.062 (1.57) | 3.626 (92.10) | 06 | 15 |
| FVT50B | 0.906 (23.01) | 4.500 (114.3) | 0.750 (19.05) | 0.547 (13.89) | 0.125 (3.18) | 4.000 (101.60) | 06 | 15 |
| FVT075 | 0.688 (17.48) | 6.000 (152.4) | 0.563 (14.30) | 0.313 (7.95) | 0.094 (2.39) | 5.562 (141.27) | 06 | 15 |
| FVT75A | 0.906 (23.01) | 6.000 (152.4) | 0.750 (19.05) | 0.500 (12.70) | 0.094 (2.39) | 5.562 (141.27) | 06 | 15 |
| FVT080 | 1.313 (33.34) | 4.000 (101.6) | 1.125 (28.58) | 0.750 (19.05) | 0.219 (5.56) | 2.812 (71.42) | 20 | 15 |
| FVT100 | 0.906 (23.01) | 6.500 (165.1) | 0.750 (19.05) | 0.500 (12.70) | 0.125 (3.18) | 6.000 (152.40) | 06 | 15 |
| FVT130 | 1.313 (33.35) | 6.500 (165.1) | 1.125 (28.58) | 0.750 (19.05) | 0.282 (7.16) | 5.374 (136.50) | 20 | 15 |
| FVT160 | 1.313 (33.35) | 8.500 (215.9) | 1.125 (28.58) | 0.750 (19.05) | 0.267 (6.78) | 7.404 (188.06) | 20 | 15 |
| FVT175 | 1.313 (33.34) | 8.500 (215.9) | 1.125 (28.58) | 0.750 (19.05) | 0.219 (5.56) | 7.312 (185.72) | 20 | 15 |
| FVT200 FVT225 | 1.313 (33.35) | 10.500 (266.7) | 1.125 (28.58) | 0.750 (19.05) | 0.266 (6.76) | 9.406 (238.91) | 20 | 15 |

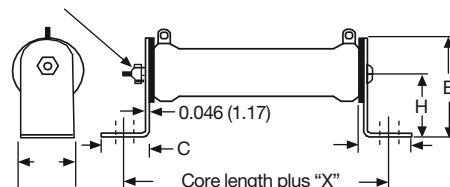
TERMINAL DIMENSIONS in inches (millimeters)


| DIMENSIONS | TERMINAL STYLE | | | | | |
|-------------|------------------|-----------------|-----------------|------------------|------------------|------------------|
| | 20 | 02 | 05 | 06 | 14 | 15 |
| WIDTH A | 0.375 (9.53) | 0.188 (4.76) | 0.188 (4.76) | 0.250 (6.35) | 0.188 (4.76) | 0.250 (6.35) |
| HEIGHT B | 0.562 (14.07) | 0.393 (9.98) | 0.393 (9.98) | 0.500 (12.70) | 0.563 (14.29) | 0.594 (15.08) |
| DIAMETER C | 0.204 (5.18) | 0.133 (3.38) | 0.133 (3.38) | 0.172 (4.36) | 0.050 (1.27) | 0.065 (1.65) |
| THICKNESS D | 0.020 (0.51) | 0.020 (0.51) | 0.020 (0.51) | 0.020 (0.51) | 0.020 (0.51) | 0.031 (0.79) |

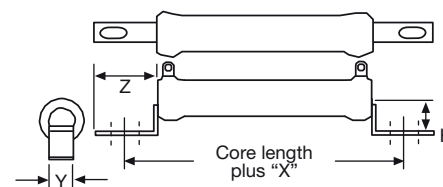
MOUNTING HARDWARE

| 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 |
| FVT005 | n/a | 202 | n/a |
| FVT010 | 101 | 202 | 301 |
| FVT020 | 101 | 203 | 301 |
| FVT20A | 101 | 203 | 301 |
| FVT025 | 102 | 204 | 301 |
| FVT25A | 102 | 206 | 302 |
| FVT25B | 102 | 205 | 301 |
| FVT050 | 102 | 204 | 302 |
| FVT50A | 102 | 206 | 302 |
| FVT50B | 102 | 208 | 302 |
| FVT075 | 102 | 204 | 301 |
| FVT75A | 102 | 206 | 302 |
| FVT100 | 102 | 206 | 302 |
| FVT130 | 103 | 207 | 302 |
| FVT175 | 103 | 207 | 303 |
| FVT200 | 103 | 207 | 303 |
| FVT225 | 103 | 207 | 303 |

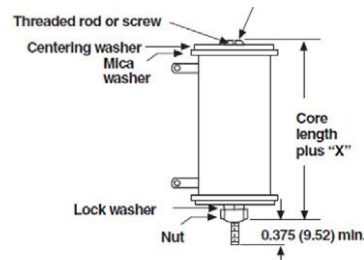
DIMENSIONS in inches (millimeters)

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 (44.45) |
| 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) |
| 208 | 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) |

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 |

**TECHNICAL SPECIFICATIONS**

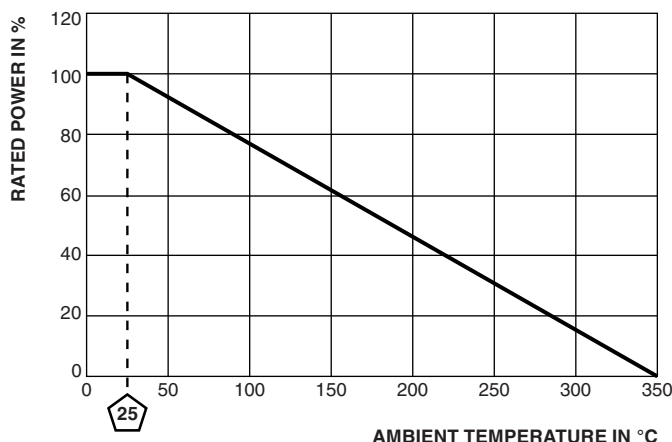
| PARAMETER | UNIT | RESISTOR CHARACTERISTICS |
|--|------------------|---|
| Power Rating | W | 5 to 225 |
| Resistance Range | Ω | 0.1 to 645K |
| Resistance Tolerance | % | 5 |
| Temperature Coefficient | ppm/°C | ± 260 for 20 Ω and above, ± 400 for 1 Ω to 19.99 Ω |
| Operating Temperature | °C | -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 | - | 10 x rated power for 5 s |
| Surge Windings | | Available |
| Maximum Working Voltage | - | $(P \times R)^{0.5}$ |
| Insulation Resistance | Ω | 1M |
| Dielectric Voltage | V _{RMS} | 1000 V _{AC} |
| Creepage | | Varies by wattage, see "Terminal Setback" in Dimensions table |
| Terminal Sleeves | | n/a |
| Inductance | μ H | 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 |

NON-INDUCTIVE

Models of equivalent physical and electrical specifications are available with non-inductive (Ayrton-Perry) winding. They are identified by adding the letters "NI" to the end of the part number in the special section. For non-inductive models the maximum resistance values are lower, see Standard Electrical Specifications table.

DERATING



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