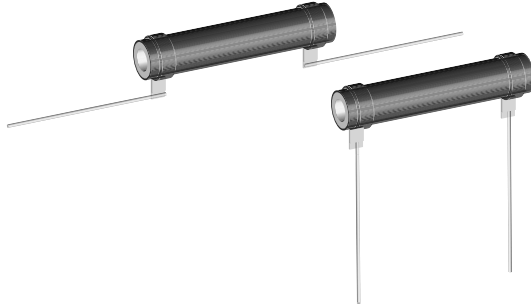


## Wirewound Resistor, Industrial Power, Vitreous Coated, Tubular


**FEATURES**

- High temperature vitreous coating
- Complete welded construction
- Excellent for intermittent power and pulsing application
- Available in non-inductive style (special “NI”) with Ayrton-Perry winding
- Various lead and terminal options
- Excellent stability in operation (< 3 % change resistance)
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

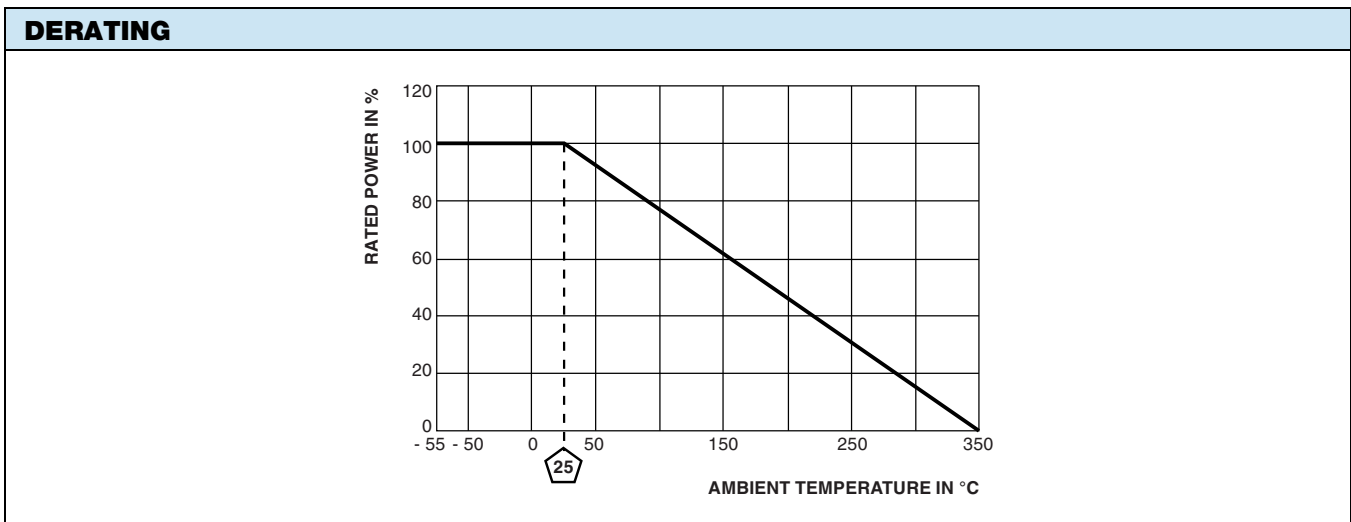


| STANDARD ELECTRICAL SPECIFICATIONS |                  |   |   |  |                       |
|------------------------------------|------------------|---|---|--|-----------------------|
| GLOBAL MODEL                       | HISTORICAL MODEL | POWER RATING<br>$P_{25\text{ }^\circ\text{C}}$<br>W | RESISTANCE RANGE<br>$\Omega$<br>$\pm 5\%$ | RESISTANCE RANGE<br>$\Omega$<br>$\pm 10\%$ | WEIGHT (typical)<br>g |
| FVTL05                             | FVTL-5           | 5   | 1.0 to 20.5K                              | 0.1 to 20.5K                               | 4.60                  |
| FVTS05                             | FVTS-5           | 5   | 1.0 to 20.5K                              | 0.1 to 20.5K                               | 4.60                  |
| FVWL5A                             | -                | 5.25  | 1.0 to 15K                                | 0.1 to 15K                                 | 2.12                  |
| FVTL5A                             | -                | 5.25  | 1.0 to 15K                                | 0.1 to 15K                                 | 2.12                  |
| FVWL05                             | FVWL-5           | 8   | 1.0 to 20.5K                              | 0.1 to 20.5K                               | 4.60                  |
| FVWL08                             | -                | 8   | 1.0 to 20.5K                              | 0.1 to 20.5K                               | 4.60                  |
| FVTL08                             | -                | 8   | 1.0 to 20.5K                              | 0.1 to 20.5K                               | 4.60                  |
| FVWL1A                             | -                | 10  | 1.0 to 29K                                | 0.10 to 29K                                | 6.24                  |
| FVTL10                             | FVTL-10          | 12  | 1.0 to 58K                                | 0.10 to 58K                                | 6.69                  |
| FVTS10                             | FVTS-10          | 12  | 1.0 to 58K                                | 0.10 to 58K                                | 6.69                  |
| FVWL10                             | FVWL-10          | 12  | 1.0 to 58K                                | 0.10 to 58K                                | 6.69                  |
| FVWL12                             | -                | 12  | 1.0 to 58K                                | 0.10 to 58K                                | 6.69                  |
| FVTL12                             | -                | 12  | 1.0 to 58K                                | 0.10 to 58K                                | 6.69                  |
| FVWL15                             | -                | 15  | 1.0 to 60K                                | 0.10 to 60K                                | 8.82                  |
| FVTL15                             | -                | 15  | 1.0 to 60K                                | 0.10 to 60K                                | 8.82                  |
| FVWL2A                             | -                | 20  | 1.0 to 95K                                | 0.10 to 95K                                | 11.36                 |
| FVTL2A                             | -                | 20  | 1.0 to 95K                                | 0.10 to 95K                                | 11.36                 |
| FVTL20                             | FVTL-20          | 20  | 1.0 to 95K                                | 0.10 to 95K                                | 12.57                 |
| FVTS20                             | FVTS-20          | 20  | 1.0 to 95K                                | 0.10 to 95K                                | 12.57                 |
| FVWL20                             | FVWL-20          | 20  | 1.0 to 95K                                | 0.10 to 95K                                | 12.57                 |

| TECHNICAL SPECIFICATIONS        |          |  |
|---------------------------------|----------|--|
| PARAMETER                       | UNIT     | FVT RESISTOR CHARACTERISTICS   |
| Temperature Coefficient         | ppm/°C   | $\pm 260$ for 20 $\Omega$ and above, $\pm 400$ for 1 $\Omega$ to 20 $\Omega$ , special TC's available please contact factory |
| Short Time Overload             | -        | 10 x rated power for 5 s   |
| Dielectric Withstanding Voltage | $V_{AC}$ | 1000, from terminal to mounting hardware   |
| Maximum Working Voltage         | V        | $(P \times R)^{1/2}$   |
| Operating Temperature Range     | °C       | -55 to +350  |



| GLOBAL PART NUMBER INFORMATION  |  |   |   |   |   |  |   |   |   |   |   |   |   |   |   |  |  |
|---|--|---|---|---|---|--|---|---|---|---|---|---|---|---|---|--|--|
| Global Part Numbering example: FVTL05R2E25R00JE (visit <a href="http://www.vishay.net">www.vishay.net</a> SAP parts manual for all options) |  |   |   |   |   |  |   |   |   |   |   |   |   |   |   |  |  |
| F   | V  | T   | L   | 0   | 5   | R  | 2 | E | 2 | 5 | R | 0 | 0 | J | E |  |  |
| GLOBAL MODEL<br>(6 digits)<br><br>(see Standard Electrical Specifications Global Model column for options)                                  | TERMINAL DESIGNATION<br>(2 digits)<br><b>A1</b><br><b>A2</b><br><b>R1</b><br><b>R2</b> | TERMINAL FINISH<br>(1 digit)<br><b>E</b> = lead (Pb)-free | VALUE<br>(5 digits)<br><b>R</b> = decimal<br><b>K</b> = thousand<br><b>1R500</b> = 1.5 Ω<br><b>1K500</b> = 1.5 kΩ | TOLERANCE<br>(1 digit)<br><b>J</b> = ± 5 %<br><b>K</b> = ± 10 % | PACKAGING CODE<br>(1 digit)<br><b>E</b> = lead (Pb)-free cell and bulk pack | SPECIAL<br>(up to 2 digits)<br><br>(dash number) from <b>1</b> to <b>99</b> as applicable<br><b>NI</b> = non-inductive<br><b>92</b> = 203 or 209 style push-in bracket as applicable |   |   |   |   |   |   |   |   |   |  |  |
| Historical Part Number example: FVTL-5-25-5 %   |  |   |   |   |   |  |   |   |   |   |   |   |   |   |   |  |  |
| FVTL-5  |  | 25 Ω  |   | 5 %   |   |  |   |   |   |   |   |   |   |   |   |  |  |
| HISTORICAL MODEL  |  | RESISTANCE VALUE  |   | TOLERANCE   |   | SPECIAL  |   |   |   |   |   |   |   |   |   |  |  |



**MATERIAL SPECIFICATIONS**

**Element:** copper-nickel alloy or nickel-chrome alloy, depending on resistance value

**Core:** ceramic, steatite

**Coating:** special high temperature vitreous

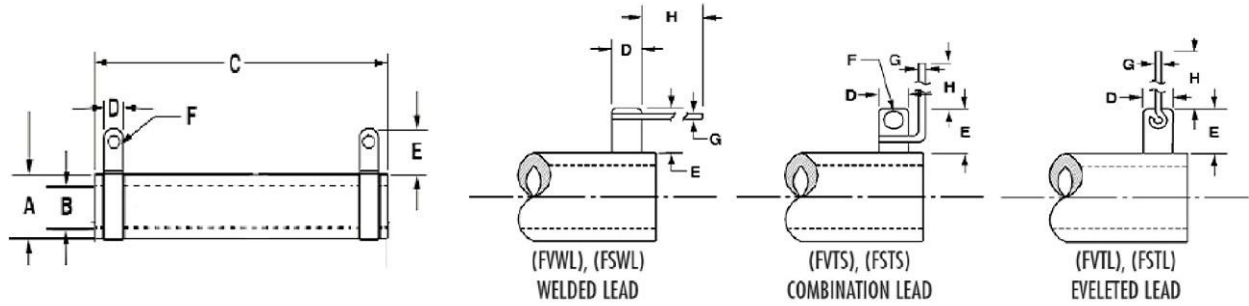
**Standard Terminals:** tinned alloy 42

**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.

**DIMENSIONS** in inches [millimeters]


| MODEL  | CORE DIMENSIONS (REF.) |                  |                  | TERMINAL                 |                          |                          | DESIGNATION | LEADS                    |                          | BRACKET TYPE |
|--------|------------------------|------------------|------------------|--------------------------|--------------------------|--------------------------|-------------|--------------------------|--------------------------|--------------|
|        | A                      | B                | C                | D<br>± 0.005<br>[± 0.12] | E<br>± 0.015<br>[± 0.38] | F<br>± 0.005<br>[± 0.12] |             | G<br>± 0.002<br>[± 0.05] | H<br>± 0.125<br>[± 3.18] |              |
| FVTL05 | 0.313<br>[7.94]        | 0.188<br>[4.76]  | 1.000<br>[25.40] | 0.188<br>[4.78]          | 0.406<br>[10.31]         | 0.132<br>[3.35]          | R2          | 0.032<br>[0.813]         | 2.90<br>[73.66]          | 209          |
| FVTS05 | 0.313<br>[7.94]        | 0.188<br>[4.76]  | 1.000<br>[25.40] | 0.188<br>[4.78]          | 0.406<br>[10.31]         | 0.132<br>[3.35]          | R2          | 0.032<br>[0.813]         | 1.50<br>[38.10]          | 209          |
| FVWL5A | 0.250<br>[6.35]        | 0.125<br>[3.18]  | 0.625<br>[15.88] | 0.063<br>[1.59]          | 0.188<br>[4.76]<br>typ.  | n/a                      | A2          | 0.032<br>[0.813]         | 1.50<br>[38.10]          | -            |
| FVTL5A | 0.250<br>[6.35]        | 0.125<br>[3.18]  | 0.625<br>[15.88] | 0.063<br>[1.59]          | 0.188<br>[4.76]<br>typ.  | n/a                      | R2          | 0.032<br>[0.813]         | 1.50<br>[38.10]          | -            |
| FVWL05 | 0.313<br>[7.94]        | 0.188<br>[4.76]  | 1.000<br>[25.40] | 0.125<br>[3.175]         | 0.188<br>[4.78]          | -                        | A2          | 0.032<br>[0.813]         | 1.50<br>[38.10]          | 209          |
| FVWL08 | 0.313<br>[7.94]        | 0.188<br>[4.76]  | 1.000<br>[25.40] | 0.125<br>[3.175]         | 0.188<br>[4.78]          | n/a                      | R1          | 0.040<br>[1.20]          | 1.50<br>[38.10]          | -            |
| FVTL08 | 0.313<br>[7.94]        | 0.188<br>[4.76]  | 1.000<br>[25.40] | 0.125<br>[3.175]         | 0.188<br>[4.78]          | n/a                      | A1          | 0.040<br>[1.20]          | 1.50<br>[38.10]          | -            |
| FVWL1A | 0.438<br>[11.11]       | 0.313<br>[7.94]  | 1.000<br>[25.40] | 0.125<br>[3.18]          | 0.188<br>[4.76]<br>typ.  | n/a                      | A1          | 0.040<br>[1.02]          | 1.50<br>[38.10]          | -            |
| FVTL10 | 0.313<br>[7.94]        | 0.188<br>[4.76]  | 1.750<br>[44.45] | 0.188<br>[4.78]          | 0.406<br>[10.31]         | 0.132<br>[3.35]          | R1          | 0.040<br>[1.02]          | 2.90<br>[73.66]          | 209          |
| FVTS10 | 0.313<br>[7.94]        | 0.188<br>[4.76]  | 1.750<br>[44.45] | 0.188<br>[4.78]          | 0.406<br>[10.31]         | 0.132<br>[3.35]          | R1          | 0.040<br>[1.02]          | 1.50<br>[38.10]          | 209          |
| FVWL10 | 0.313<br>[7.94]        | 0.188<br>[4.76]  | 1.750<br>[44.45] | 0.125<br>[3.175]         | 0.188<br>[4.78]          | -                        | A1          | 0.040<br>[1.02]          | 1.50<br>[38.10]          | 209          |
| FVWL12 | 0.313<br>[7.94]        | 0.188<br>[4.76]  | 1.750<br>[44.45] | 0.125<br>[3.175]         | 0.188<br>[4.76]<br>typ.  | n/a                      | A1          | 0.040<br>[1.02]          | 1.50<br>[38.10]          | -            |
| FVTL12 | 0.313<br>[7.94]        | 0.188<br>[4.76]  | 1.750<br>[44.45] | 0.125<br>[3.175]         | 0.188<br>[4.76]<br>typ.  | n/a                      | R1          | 0.040<br>[1.02]          | 1.50<br>[38.10]          | -            |
| FVWL15 | 0.438<br>[11.11]       | 0.313<br>[7.94]  | 1.500<br>[38.10] | 0.125<br>[3.18]          | 0.188<br>[4.76]<br>typ.  | n/a                      | A1          | 0.040<br>[1.02]          | 1.50<br>[38.10]          | -            |
| FVTL15 | 0.438<br>[11.11]       | 0.313<br>[7.94]  | 1.500<br>[38.10] | 0.125<br>[3.18]          | 0.188<br>[4.76]<br>typ.  | n/a                      | R1          | 0.040<br>[1.02]          | 1.50<br>[38.10]          | -            |
| FVWL2A | 0.438<br>[11.11]       | 0.260<br>[6.604] | 2.000<br>[50.8]  | 0.125<br>[3.18]          | 0.188<br>[4.76]<br>typ.  | -                        | A1          | 0.040<br>[1.02]          | 1.50<br>[38.10]          | -            |
| FVTL2A | 0.438<br>[11.11]       | 0.313<br>[7.94]  | 2.000<br>[50.80] | 0.125<br>[3.18]          | 0.188<br>[4.76]<br>typ.  | 0.133<br>[3.37]          | R1          | 0.040<br>[1.02]          | 1.65<br>[41.91]          | -            |
| FVTL20 | 0.438<br>[11.11]       | 0.260<br>[6.604] | 2.000<br>[50.8]  | 0.188<br>[4.78]          | 0.406<br>[10.32]         | 0.133<br>[3.37]          | R1          | 0.040<br>[1.02]          | 1.65<br>[41.91]          | 203          |
| FVTS20 | 0.438<br>[11.11]       | 0.260<br>[6.604] | 2.000<br>[50.8]  | 0.188<br>[4.78]          | 0.406<br>[10.32]         | 0.133<br>[3.37]          | R1          | 0.040<br>[1.02]          | 1.50<br>[38.10]          | 203          |
| FVWL20 | 0.438<br>[11.11]       | 0.260<br>[6.604] | 2.000<br>[50.8]  | 0.125<br>[3.175]         | 0.188<br>[4.78]          | -                        | A1          | 0.040<br>[1.02]          | 1.50<br>[38.10]          | 203          |



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