

## Wirewound Resistor, Commercial Power, Silicone Coated, Axial Lead


**FEATURES**

- High temperature coating (> 350 °C)
- Complete welded construction
- Available in non-inductive styles with Ayrton-Perry winding for lowest reactive components, special "NI"
- Will meet flammability requirements of UL 94 V-0
- 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 <sup>(1)</sup><br>$P_{25\text{ }^\circ\text{C}}$ W<br>CHARACTERISTIC U<br>+ 250 °C | POWER RATING <sup>(1)</sup><br>$P_{25\text{ }^\circ\text{C}}$ W<br>CHARACTERISTIC V<br>+ 350 °C | RESISTANCE RANGE<br>$\Omega$<br>$\pm 0.1\%$ | RESISTANCE RANGE<br>$\Omega$<br>$\pm 0.25\%$ | RESISTANCE RANGE<br>$\Omega$<br>$\pm 0.5\%, \pm 1\%,$<br>$\pm 5\%, \pm 10\%$ | WEIGHT (typical)<br>g |
|--------------|------------------|---|---|---|--|--|-----------------------|
| FA3/4        | FA3/4            | 0.75  | 1.0   | 0.499 to 1.0K                               | 0.499 to 1.5K                                | 0.1 to 1.5K  | 0.26                  |
| FA001        | FA1              | 1.0   | 1.5   | 0.499 to 1.3K                               | 0.499 to 4.0K                                | 0.1 to 4.0K  | 0.51                  |
| FA01A        | FA1A             | 1.0   | 1.5   | 0.499 to 2.74K                              | 0.499 to 5.0K                                | 0.1 to 5.0K  | 0.35                  |
| FA002        | FA2              | 2.0   | 2.6   | 0.499 to 4.49K                              | 0.499 to 7.2K                                | 0.1 to 7.2K  | 0.87                  |
| FA003        | FA3              | 3.0   | 3.6   | 0.499 to 8.6K                               | 0.499 to 9.5K                                | 0.1 to 9.5K  | 0.87                  |
| FA03A        | FA3A             | 3.0   | 3.7   | 0.499 to 6.5K                               | 0.1 to 11.0K                                 | 0.1 to 11.0K   | 0.93                  |
| FA004        | FA4              | 4.0   | 5.0   | 0.499 to 12.7K                              | 0.1 to 24.0K                                 | 0.1 to 24.0K   | 1.36                  |
| FA04B        | FA4B             | 4.0   | 5.0   | 0.499 to 10.5K                              | 0.1 to 14.0K                                 | 0.1 to 14.0K   | 0.93                  |
| FA005        | FA5              | 5.0   | 6.5   | 0.499 to 25.7K                              | 0.1 to 42.0K                                 | 0.1 to 42.0K   | 3.01                  |
| FA07A        | FA7A             | 7.0   | 8.0   | 0.499 to 41.4K                              | 0.1 to 63.0K                                 | 0.1 to 63.0K   | 3.29                  |
| FA007        | FA7              | 7.0   | 8.0   | 0.499 to 41.4K                              | 0.1 to 80.0K                                 | 0.1 to 80.0K   | 3.90                  |
| FA10A        | FA10A            | 10.0  | 11.0  | 0.499 to 73.4K                              | 0.1 to 92.0K                                 | 0.1 to 92.0K   | 4.70                  |
| FA010        | FA10             | 10.0  | 12.5  | 0.499 to 73.4K                              | 0.1 to 100K                                  | 0.1 to 100K  | 8.71                  |

**Note**

<sup>(1)</sup> Vishay Central FA models have two power ratings depending on operation temperature and stability requirements

**GLOBAL PART NUMBER INFORMATION**

Global Part Numbering example: **FA0105K600JE12** (visit [www.vishay.net](http://www.vishay.net) Vishay Dale parts numbering manual for all options)

F
A
0
1
0
5
K
6
0
0
J
E
1
2
 
 
 

**GLOBAL MODEL**  
(5 digits)  
  
(see Standard Electrical Specifications Global Model column for options)

**VALUE**  
(5 digits)  
  
R = decimal  
K = thousand  
1R500 = 1.5  $\Omega$   
1K500 = 1.5 k $\Omega$

**TOLERANCE**  
(1 digit)  
  
B =  $\pm 0.1\%$   
C =  $\pm 0.25\%$   
D =  $\pm 0.5\%$   
F =  $\pm 1\%$   
J =  $\pm 5\%$   
K =  $\pm 10\%$

**PACKAGING CODE**  
(3 digits)  
  
E07 = tape / reel  
(FA004, FA005, FA07A)  
E08 = tape / reel  
(FA3/4, FA001, FA01A)  
E29 = tape / reel  
(FA007, FA010, FA10A)  
E48 = tape / reel  
(FA002, FA003, FA03A, FA04B)  
E12 = bulk, up to 100 pc boxes

**SPECIAL**  
(up to 3 digits)  
  
(dash number) from 1 to 999 as applicable  
NI = non-inductive

Historical Part Number example: **FA10 5.6K 5%**

**FA10**

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HISTORICAL MODEL

**5.6 k $\Omega$**

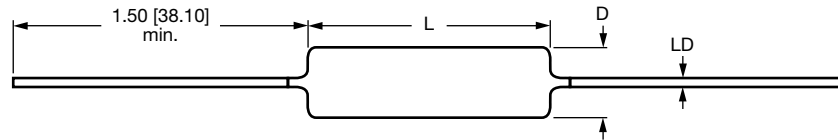
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RESISTANCE VALUE

**5%**

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TOLERANCE

**DIMENSIONS** in inches [millimeters]


| MODEL | DIMENSIONS in inches [millimeters] |                              |                       |
|-------|------------------------------------|------------------------------|-----------------------|
|       | L                                  | D                            | LD<br>± 0.002 [0.051] |
| FA3/4 | 0.250 ± 0.030 [6.35 ± 0.762]       | 0.095 ± 0.015 [2.41 ± 0.381] | 0.020 [0.508]         |
| FA001 | 0.375 ± 0.030 [9.53 ± 0.762]       | 0.135 ± 0.030 [3.43 ± 0.762] | 0.032 [0.813]         |
| FA01A | 0.410 ± 0.030 [10.41 ± 0.762]      | 0.110 ± 0.030 [2.79 ± 0.762] | 0.020 [0.508]         |
| FA002 | 0.500 ± 0.062 [12.70 ± 1.57]       | 0.185 ± 0.031 [4.70 ± 0.787] | 0.032 [0.813]         |
| FA003 | 0.500 ± 0.062 [12.70 ± 1.57]       | 0.185 ± 0.031 [4.70 ± 0.787] | 0.032 [0.813]         |
| FA03A | 0.560 ± 0.062 [14.22 ± 1.57]       | 0.187 ± 0.031 [4.75 ± 0.787] | 0.032 [0.813]         |
| FA004 | 0.770 ± 0.062 [19.55 ± 1.57]       | 0.230 ± 0.031 [5.84 ± 0.787] | 0.032 [0.813]         |
| FA04B | 0.560 ± 0.062 [14.22 ± 1.57]       | 0.187 ± 0.031 [4.75 ± 0.787] | 0.032 [0.813]         |
| FA005 | 0.875 ± 0.062 [22.33 ± 1.57]       | 0.312 ± 0.031 [7.92 ± 0.787] | 0.032 [0.813]         |
| FA07A | 1.22 ± 0.062 [30.99 ± 1.57]        | 0.312 ± 0.031 [7.92 ± 0.787] | 0.032 [0.813]         |
| FA007 | 1.55 ± 0.062 [39.37 ± 1.57]        | 0.295 ± 0.031 [7.49 ± 0.787] | 0.032 [0.813]         |
| FA10A | 1.75 ± 0.062 [44.45 ± 1.57]        | 0.295 ± 0.031 [7.49 ± 0.787] | 0.032 [0.813]         |
| FA010 | 1.78 ± 0.062 [45.21 ± 1.57]        | 0.375 ± 0.031 [9.53 ± 0.787] | 0.040 [1.02]          |

**TECHNICAL SPECIFICATIONS**

| PARAMETER                       | UNIT            | FA RESISTOR CHARACTERISTICS  |
|---------------------------------|-----------------|--|
| Temperature Coefficient         | ppm/°C          | ± 30 for 10 Ω and above; ± 50 for 1.0 Ω to 9.9 Ω; ± 90 for 0.5 Ω to 0.99 Ω |
| Terminal Strength               | lb              | 5 min (FA3/4 and FA01A) and 10 min for all others                          |
| Dielectric Withstanding Voltage | V <sub>AC</sub> | 500 for FA01A and smaller; 1000 for FA002 and larger                       |
| Operating Temperature Range     | °C              | Characteristic U = -65 to +250, Characteristic V = -65 to +350             |
| Maximum Working Voltage         | V               | (P × R) <sup>1/2</sup>   |

**MATERIAL SPECIFICATIONS**

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

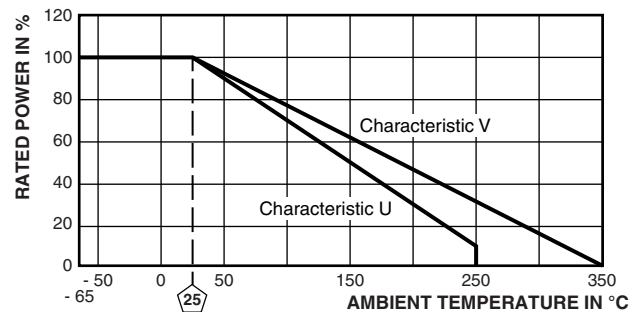
**Core:** ceramic: steatite or alumina, depending on physical size

**Coating:** special high temperature silicone

**Standard Terminals:** tinned copper clad steel

**End Caps:** stainless steel

**Part Marking:** CENTRAL, model, value, tolerance, date code

**DERATING**

**PERFORMANCE**

| TEST                            | CONDITIONS OF TEST  | TEST LIMITS           |                       |
|---------------------------------|---|-----------------------|-----------------------|
|                                 |   | (CHARACTERISTIC U)    | (CHARACTERISTIC V)    |
| Dielectric Withstanding Voltage | 500 V <sub>RMS</sub> 1 min for FA01A and smaller; 1000 V <sub>RMS</sub> 1 min for all others                            | ± (0.1 % + 0.05 Ω) ΔR | ± (0.1 % + 0.05 Ω) ΔR |
| High Frequency Vibration        | Frequency varied 10 Hz to 2000 Hz, 20 g peak, 2 directions 6 h each   | ± (0.1 % + 0.05 Ω) ΔR | ± (0.2 % + 0.05 Ω) ΔR |
| High Temperature Exposure       | 250 h at +250 °C for U Characteristic, +350 °C for V Characteristic   | ± (0.5 % + 0.05 Ω) ΔR | ± (4.0 % + 0.05 Ω) ΔR |
| Load Life                       | 2000 h at 25 °C at rated power, 1.5 h "ON", 0.5 h "OFF"   | ± (0.5 % + 0.05 Ω) ΔR | ± (3.0 % + 0.05 Ω) ΔR |
| Low Temperature Storage         | -65 °C for 24 h   | ± (0.2 % + 0.05 Ω) ΔR | ± (2.0 % + 0.05 Ω) ΔR |
| Moisture Resistance             | MIL-STD-202 Method 106, 7b not applicable   | ± (0.2 % + 0.05 Ω) ΔR | ± (2.0 % + 0.05 Ω) ΔR |
| Shock, Specified Pulse          | MIL-STD-202 Method 213, 100 g's for 6 ms, 10 shocks   | ± (0.1 % + 0.05 Ω) ΔR | ± (0.2 % + 0.05 Ω) ΔR |
| Thermal Shock                   | Rated power applied until thermally stable, then 15 min at -55 °C   | ± (0.2 % + 0.05 Ω) ΔR | ± (2.0 % + 0.05 Ω) ΔR |
| Short Time Overload             | 5x rated power (3.70 W smaller), 10x rated power (4 W and larger) for 5 s   | ± (0.2 % + 0.05 Ω) ΔR | ± (2.0 % + 0.05 Ω) ΔR |
| Terminal Strength               | Pull test 5 s to 10 s, 5 lb (FA3/4 and FA01A), 10 lb for all others; torsion test - 3 alternating directions, 360° each | ± (0.1 % + 0.05 Ω) ΔR | ± (1.0 % + 0.05 Ω) ΔR |



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