

## 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)


**STANDARD ELECTRICAL SPECIFICATIONS**

GLOBAL MODEL	HISTORICAL MODEL	POWER RATING <sup>(1)</sup> $P_{25^{\circ}\text{C}}$ W CHARACTERISTIC U + 250 °C	POWER RATING <sup>(1)</sup> $P_{25^{\circ}\text{C}}$ W CHARACTERISTIC V + 350 °C	RESISTANCE RANGE $\Omega$ $\pm 0.1\%$	RESISTANCE RANGE $\Omega$ $\pm 0.25\%$	RESISTANCE RANGE $\Omega$ $\pm 0.5\%, \pm 1\%,$ $\pm 5\%, \pm 10\%$	WEIGHT (typical) 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**

---

HISTORICAL MODEL

**5.6 k $\Omega$**

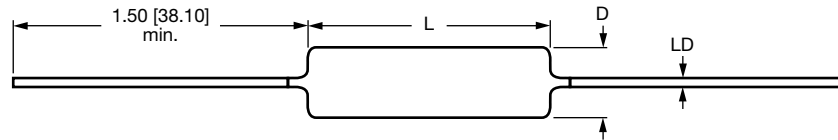
---

RESISTANCE VALUE

**5%**

---

TOLERANCE

**DIMENSIONS** in inches [millimeters]


MODEL	DIMENSIONS in inches [millimeters]		
	L	D	LD ± 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

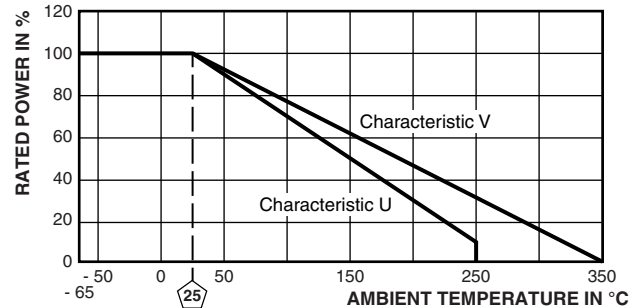
**Core:** ceramic: steatite or alumina, depending on physical size

**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



## **Disclaimer**

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Vishay products are not designed for use in life-saving or life-sustaining applications or any application in which the failure of the Vishay product could result in personal injury or death unless specifically qualified in writing by Vishay. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.