

# RESISTOR WIREWOUND HIGH POWER RATING

## RWH SERIES



### KEY FEATURES

- Excellent Pulse Handling
- Resistance Tolerances to  $\pm 0.01\%$
- Resistance from 0.02 to 260kOhms
- MIL-R-26 / MIL-R-39007 Power Ratings
- Low TCR:  $\pm 20\text{ppm}/^\circ\text{C}$  Standard
- Non-Inductive Windings available

### APPLICATIONS

- HDVC Systems
- Braking Systems
- Power Supplies
- Fluid Heater

### PRODUCT SUMMARY

PRODUCT SERIES (RWH)	POWER RATING (W)	DIELECTRIC STRENGTH	TOLERANCE	TEMPERATURE COEFFICIENT	TEMPERATURE RANGE
Miniature Axial	1 to 15	<b>500 VAC:</b> E01, E02, E03, E04, E05, E06	$\pm 0.01\%$ to $\pm 10\%$ (1% Standard)	<ul style="list-style-type: none"> <li>• <math>&gt;10\Omega</math> : <math>\pm 20\text{ppm}/^\circ\text{C}</math></li> <li>• <math>1\Omega</math> to <math>10\Omega</math> : <math>\pm 50\text{ppm}/^\circ\text{C}</math></li> <li>• <math>&lt;1\Omega</math> : Call Factory</li> </ul>	-55°C to + 250°C
Axial	0.1 to 15	<b>500 VAC:</b> F01, F02, F03, F04, F05, F06, F07			<b>Characteristic U:</b> -55°C to + 275°C
		<b>1000 VAC:</b> All Others			<b>Characteristic V:</b> -55°C to + 350°C

### HOW TO ORDER

RWH	S	E02	T	U	003K8	F	S
RESISTOR WIREWOUND HIGH POWER	WINDINGS	PACKAGE CODE, WATTS, RESISTANCE	OPERATING TEMPERATURE	TEMPERATURE COEFFICIENT OF RESISTANCE (TCR)	RESISTANCE	TOLERANCE	PACKING
	S = Standard N = Non-Inductive	<b>Miniature Axial</b> E01, 1.0W, 33Vmax E02, 1.0W, 33Vmax  <b>Axial</b> F01, 0.1W, 8.5Vmax F02, 0.4W, 20Vmax  See Table	T = -55°C to +250°C U = -55°C to +275°C V = -55°C to +350°C	U = $\pm 20\text{ppm}/^\circ\text{C}$ Q = $\pm 50\text{ppm}/^\circ\text{C}$ Z = Special	0R038 = 0.038 $\Omega$ 003K8 = 3.8K $\Omega$ 038K0 = 38.0K $\Omega$ 380K0 = 380.0K $\Omega$ 003M8 = 3.8M $\Omega$  Letter denotes decimal place. R = decimal, "K" $10^3$ , "M" $10^6$  Remaining 4 digits are significant or placeholders.	T = $\pm 0.01\%$ Q = $\pm 0.02\%$ A = $\pm 0.05\%$ B = $\pm 0.1\%$ F = $\pm 1.0\%$ J = $\pm 5.0\%$ K = $\pm 10.0\%$	S = Bulk T = Tape & Reel

For Tin/Lead coated leads, add "- Pb" to part number.

Standard Termination Finish: Matte Tin (Sn)

Example P/N: RWHSE02TU003K8FS is Resistor Wirewound High Power, Standard, 1.0W, 33V, -55°C to +250°C,  $\pm 20\text{ppm}/^\circ\text{C}$ , 3.8K $\Omega$ ,  $\pm 1.0\%$ , bulk

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### MINIATURE AXIAL



Package Code	E01	E02	E03	E04	E05	E06	E07	E08	E09	
Max Resistance ( $\Omega$ ) <sup>1</sup>	3.4k	3.4k	7.5k	7.5k	10k	10k	12.5k	25k	32k	
Max Working Voltage (V)	33	33	42	42	80	80	135	162	194	
Power Rating (W)	1	1	1.5	1.5	2	2	3	4	5	
Dimensions Inches [mm]	<b>A</b> $\pm 0.062"$ [ $\pm 1.57$ mm]	0.250 [6.35]	0.250 [6.35]	0.312 [7.92]	0.312 [7.92]	0.406 [10.31]	0.406 [10.31]	0.350 [8.89]	0.560 [14.22]	0.500 [12.70]
	<b>B</b> $\pm 0.031"$ [ $\pm 0.79$ mm]	0.085 [2.16]	0.085 [2.16]	0.078 [1.98]	0.078 [1.98]	0.094 [2.39]	0.094 [2.39]	0.156 [3.96]	0.187 [4.75]	0.218 [5.54]
	<b>C</b> <sup>2</sup> $\pm 0.002"$ [ $\pm 0.05$ mm]	0.020 [0.51]	0.025 [0.64]	0.020 [0.51]	0.025 [0.64]	0.025 [0.64]	0.020 [0.51]	0.032 [0.81]	0.032 [0.81]	0.040 [1.02]
MIL-R-26 / MIL-R-39007	RW-81 RWR-81	RW-81 RWR-81	RWR-82	RWR-82	RW-80 RWR-80	RW-80 RWR-80				

Package Code	E10	E11	E12	E13	
Max Resistance ( $\Omega$ ) <sup>1</sup>	50k	95k	150k	260k	
Max Working Voltage (V)	258	425	607	1050	
Power Rating (W)	6	7	10	15	
Dimensions Inches [mm]	<b>A</b> $\pm 0.062"$ [ $\pm 1.57$ mm]	0.625 [15.88]	0.875 [22.23]	1.220 [30.99]	1.780 [45.21]
	<b>B</b> $\pm 0.031"$ [ $\pm 0.79$ mm]	0.250 [6.35]	0.312 [7.92]	0.312 [7.92]	0.375 [9.53]
	<b>C</b> <sup>2</sup> $\pm 0.002"$ [ $\pm 0.05$ mm]	0.040 [1.02]	0.040 [1.02]	0.040 [1.02]	0.040 [1.02]
MIL-R-26 / MIL-R-39007		RW-84			



<sup>1</sup> For non-inductive windings / divide maximum resistance by 2

<sup>2</sup> Lead Diameter:

18 AWG = 0.040" / 20 AWG = 0.032" / 22 AWG = 0.025" / 24 AWG = 0.020"

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**AXIAL**



Package Code		F01	F02	F03	F04	F05	F06	F07	F08	F09	F10
Max Resistance ( $\Omega$ ) <sup>1</sup>		500	2.5k	2.5k	7.5k	7.5k	10k	10k	12.5k	22k	22k
Max Working Voltage (V)		8.5	20	20	29	29	52	52	60	130	140
Power Rating (W)	U	0.1	0.4	0.4	0.75	0.75	1.0	1.0	1.5	2.5	3.0
	V	0.25	0.5	0.5	0.9	0.9	1.5	1.5	2.0	3.0	3.75
Dimensions Inches [mm]	A $\pm 0.062"$ [ $\pm 1.57$ mm]	0.150 [3.81]	0.250 [6.35]	0.250 [6.35]	0.330 [8.38]	0.330 [8.38]	0.406 [10.31]	0.406 [10.31]	0.350 [8.89]	0.500 [12.70]	0.560 [14.22]
	B $\pm 0.031"$ [ $\pm 0.79$ mm]	0.078 [1.98]	0.094 [2.39]	0.094 [2.39]	0.094 [2.39]	0.094 [2.39]	0.094 [2.39]	0.094 [2.39]	0.156 [3.96]	0.187 [4.75]	0.187 [4.75]
	C <sup>2</sup> $\pm 0.002"$ [ $\pm 0.05$ mm]	0.018 [0.45]	0.020 [0.51]	0.025 [0.64]	0.020 [0.51]	0.025 [0.64]	0.020 [0.51]	0.025 [0.64]	0.032 [0.81]	0.032 [0.81]	0.032 [0.81]
MIL-R-26 / MIL-R-39007							RW-70	RW-70		RW-69	RW-79

Package Code		F11	F12	F13	F14	F15	F16	F17	F18	F19	F20
Max Resistance ( $\Omega$ ) <sup>1</sup>		40k	40k	30k	45k	45k	91k	65k	95k	150k	100k
Max Working Voltage (V)		140	140	140	210	210	360	390	504	650	590
Power Rating (W)	U	3.0	3.0	3.0	4.0	4.0	5.0	5.0	5.0	7.0	7.0
	V	4.0	4.0	3.5	5.5	5.5	6.5	6.5	6.5	9.0	9.0
Dimensions Inches [mm]	A $\pm 0.062"$ [ $\pm 1.57$ mm]	0.500 [12.70]	0.500 [12.70]	0.500 [12.70]	0.675 [17.15]	0.675 [17.15]	0.875 [22.23]	0.970 [24.64]	1.025 [26.04]	1.375 [34.93]	1.400 [35.56]
	B $\pm 0.031"$ [ $\pm 0.79$ mm]	0.250 [6.35]	0.250 [6.35]	0.200 [5.08]	0.270 [6.68]	0.270 [6.68]	0.312 [7.92]	0.250 [6.35]	0.312 [7.92]	0.375 [9.52]	0.312 [7.92]
	C <sup>2</sup> $\pm 0.002"$ [ $\pm 0.05$ mm]	0.040 [1.02]	0.032 [0.81]	0.032 [0.81]	0.040 [1.02]	0.032 [0.81]	0.040 [1.02]	0.032 [0.81]	0.040 [1.02]	0.040 [1.02]	0.032 [0.81]
MIL-R-26 / MIL-R-39007							RW-74		RW-67		

Package Code		F21	F22	F23
Max Resistance ( $\Omega$ ) <sup>1</sup>		154k	260k	320k
Max Working Voltage (V)		620	850	1500
Power Rating (W)	U	7.0	10	15
	V	9.0	13	-
Dimensions Inches [mm]	A $\pm 0.062"$ [ $\pm 1.57$ mm]	1.200 [30.99]	1.780 [45.21]	1.810 [45.95]
	B $\pm 0.031"$ [ $\pm 0.79$ mm]	0.312 [7.92]	0.375 [9.52]	0.510 [12.95]
	C <sup>2</sup> $\pm 0.002"$ [ $\pm 0.05$ mm]	0.040 [1.02]	0.040 [1.02]	0.050 [1.27]
MIL-R-26 / MIL-R-39007			RW-78	

- <sup>1</sup> For non-inductive windings / divide maximum resistance by 2
- <sup>2</sup> Lead Diameter:  
18 AWG = 0.040" / 20 AWG = 0.032" / 22 AWG = 0.025" /  
24 AWG = 0.020" / 25 AWG = 0.018"



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### ENVIRONMENTAL PERFORMANCE

Environmental Performance (MIL-STD 202)	$\Delta R$		
	Miniature Axial	Axial - Characteristic U	Axial - Characteristic V
<b>Vibration</b>	$\pm 0.1\% + 0.05 \Omega$	$\pm 0.1\% + 0.05 \Omega$	$\pm 0.2\% + 0.05 \Omega$
<b>Load Life</b>	To 1% Depending on Resistance Value and Size	$\pm 1\% + 0.05 \Omega$	$\pm 3\% + 0.05 \Omega$
<b>Moisture Resistance</b>	$\pm 0.2\% + 0.05 \Omega$	$\pm 0.2\% + 0.05 \Omega$	$\pm 2\% + 0.05 \Omega$
<b>Dielectric</b>	$\pm 0.2\% + 0.05 \Omega$	$\pm 0.2\% + 0.05 \Omega$	$\pm 0.2\% + 0.05 \Omega$
<b>Storage</b>	$\pm 0.2\% + 0.05 \Omega$	$\pm 0.2\% + 0.05 \Omega$	$\pm 2\% + 0.05 \Omega$
<b>Shock</b>	$\pm 0.1\% + 0.05 \Omega$	$\pm 0.1\% + 0.05 \Omega$	$\pm 0.2\% + 0.05 \Omega$
<b>Thermal Shock</b>	$\pm 0.2\% + 0.05 \Omega$	$\pm 0.2\% + 0.05 \Omega$	$\pm 2\% + 0.05 \Omega$
<b>5X Overload (5s)</b>	$\pm 0.2\% + 0.05 \Omega$	$\pm 0.2\% + 0.05 \Omega$	$\pm 2\% + 0.05 \Omega$

#### CONSTRUCTION NOTES:

- ♦ Centerless ground ceramic core
- ♦ Tinned copper or copperweld leads
- ♦ All welded terminations
- ♦ High Temperature / trivalent / inorganic silicone coating

### PACKAGING INFORMATION

**MINIATURE AXIAL:** Bulk Only

**AXIAL:**

Package Code	F01	F02	F03	F04	F05	F06	F07	F08	F09	F10	F11	F12	F13	
<b>Bulk</b>	Bulk Only. No T&R	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	
<b>10" Reel</b>		2000	2000	2000	2000	2000	2000	2000	500	500	500	500	500	
<b>12" Reel</b>		3000	3000	3000	3000	3000	3000	3000	3000	1500	1500	1000	1000	1000
<b>14" Reel</b>		5000	5000	5000	5000	5000	5000	5000	5000	3000	3000	1500	1500	1500

Package Code	F14	F15	F16	F17	F18	F19	F20	F21	F22
<b>Bulk</b>	1000	1000	1000	1000	1000	1000	1000	1000	1000
<b>10" Reel</b>	N/A	N/A	N/A	500	N/A	N/A	N/A	N/A	N/A
<b>12" Reel</b>	500	500	500	1000	500	500	500	500	500
<b>14" Reel</b>	1000	1000	1000	1500	1000	750	750	750	750

Moisture Sensitivity Level: MSL-1

### AVAILABLE OPTIONS (Consult Factory)

- Special Testing Requirements
- Special Pulse Requirements

This datasheet is subject to change without notice.





Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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