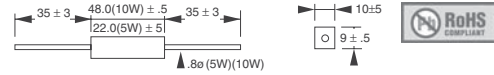


# YAGEO 5 and 10 Watt Wirewound and Metal Oxide Film Rectangular Resistors, 5%

**Axial Lead Type • Operating Temperature Range:** -55°C ~ 155°C

• Exceptionally small and sturdy; mechanically safe. Excellent electrical characteristics. • The materials used and the construction techniques ensure excellent flame resistance, arc resistance and moisture resistance as well as self-extinguishing capabilities. They will withstand the most rigorous loading test. • Applicable specifications: EIA RS-344 and EIA RC649.

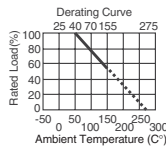


0.30	0.56	1.0	1.8	3.3	5.6	10	18	33	56	100	180	330	560	1.0K	1.8K
0.33	0.62	1.1	2.0	3.6	6.2	11	20	36	62	110	200	360	620	1.1K	2.0K
0.39	0.68	1.2	2.2	3.9	6.8	12	22	39	68	120	220	390	680	1.2K	
0.43	0.75	1.3	2.4	4.3	7.5	13	24	43	75	130	240	430	750	1.3K	
0.47	0.82	1.5	2.7	4.7	8.2	15	27	47	82	150	270	470	820	1.5K	
0.51	0.91	1.6	3.0	5.1	9.1	16	30	51	91	160	300	510	910	1.6K	

1.0	1.8	3.3	5.6	10	18	33	56	100	180	330	560	1.0K	1.8K
1.1	2.0	3.6	6.2	11	20	36	62	110	200	360	620	1.1K	2.0K
1.2	2.2	3.9	6.8	12	22	39	68	120	220	390	680	1.2K	2.2K
1.3	2.4	4.3	7.5	13	24	43	75	130	240	430	750	1.3K	2.4K
1.5	2.7	4.7	8.2	15	27	47	82	150	270	470	820	1.5K	2.7K
1.6	3.0	5.1	9.1	16	30	51	91	160	300	510	910	1.6K	3.0K

Description	Digi-Key Part No.†	1	10	100	1,000	5,000	10,000
<b>5 Watt, 5% Wirewound Rectangular Resistors, Bulk Package, 0.30Ω – 180Ω</b>	(Value)W-5-ND	.33	2.78	22.24	133.44	119.54/M	105.64/M
<b>5 Watt, 5% Metal Oxide Film Rectangular Resistors, Bulk Package, 200Ω – 2.0KΩ</b>	(Value)W-5-ND	.33	2.78	22.24	133.44	119.54/M	105.64/M
<b>10 Watt, 5% Wirewound Rectangular Resistors, Bulk Package, 1.0Ω – 270Ω</b>	(Value)W-10-ND	.49	4.07	32.58	195.46	175.10/M	154.74/M
<b>10 Watt, 5% Metal Oxide Film Rectangular Resistors, Bulk Package, 300Ω – 3.0KΩ</b>	(Value)W-10-ND	.49	4.07	32.58	195.46	175.10/M	154.74/M

† For complete part number, substitute the value from Standard Resistor Values chart for (Value).



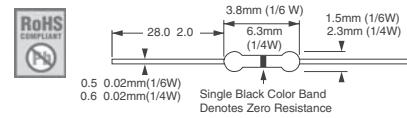
RS105-ND 0.30Ω – 0.91Ω – 5 each 60 Resistors .....	\$23.95
RS205-ND 1.0Ω – 9.1Ω – 4 each 96 Resistors .....	\$32.95
RS305-ND 10Ω – 91Ω – 4 each 96 Resistors .....	\$32.95
RS405-ND 100Ω – 2.0KΩ – 3 each 96 Resistors .....	\$32.95

Two each of all 10 watt standard resistor values listed above. A total of 168 resistors.	
RS110-ND .....	\$72.95

## YAGEO Zero Ohm Jumper Wires

**Applications:** Generally they are used for the following reasons: • Inability to connect two points on a PC Board due to other circuit paths which must be crossed over. • An After-the-Fact design change that requires new point connections. • Circuit tuning by changing point connections.

**Specifications:** • Maximum Resistance: 0.004Ω on 1/6 watt, 0.003Ω on 1/4 watt • Typical Resistance: 0.002Ω on both • Lead Material: tin-plated copper • Body Material: electrical grade, high performance molding compound • Minimum Insulation Resistance – Dry: 10,000MΩ, Wet: 100MΩ • Minimum Dielectric Withstanding Voltage – Atmospheric: 500V RMS, Reduced: 325V RMS • Insulation Flammability: resistor-insulation is self extinguishing within 10 seconds after externally applied flame is removed • Current Rating: 25 Amps at 25°C, derating to 0 Amps at 150°C.



Description	Digi-Key Part No.	5	200	1,000	5,000	10,000	50,000
<b>1/6 Watt, Zerohm Jumper, Bulk Package</b>	0.0EBK-ND	.22	6.98	14.00	12.84/M	11.63/M	10.74/M
<b>1/6 Watt, Zerohm Jumper, Tape and Reel (5,000 Pieces/Reel)</b>	0.0ETR-ND	—	—	—	15.80/M	14.87/M	12.16/M
<b>1/4 Watt, Zerohm Jumper, Bulk Package</b>	0.0QBK-ND	.30	5.55	11.28	10.38/M	9.41/M	8.69/M
<b>1/4 Watt, Zerohm Jumper, Tape and Reel (5,000 Pieces/Reel)</b>	0.0QTR-ND	—	—	—	12.11/M	11.39/M	9.34/M



## YAGEO 5% Carbon Film Resistors Available In 1/6, 1/4 and 1/2 Watt

### CFR Series

**Characteristics**  
 • Operating Temperature Range: -55°C ~ 155°C • Solderability: 235°C for 5±0.5 seconds • Short Time Overload: 2.5 Times RCW V for 5 seconds • Resistance To Solvent: Trichroethane for 1 minute with ultrasonic • Pulse Overload: 4 times RCW V 10,000 cycles (1 second on, 25 seconds off)



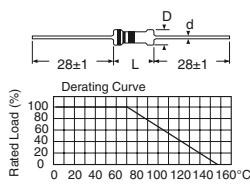
1.0	1.6	2.7	4.3	6.8	11	18	30	47	75	120	200	330	510	820	1.3K	2.2K	3.6K	5.6K	9.1K	15K	24K	39K	62K	100K	160K	270K	430K	680K	1.1M	1.8M	3.0M	4.7M	7.5M
1.1	1.8	3.0	4.7	7.5	12	20	33	51	82	130	220	360	560	910	1.5K	2.4K	3.9K	6.2K	10K	16K	27K	43K	68K	110K	180K	300K	470K	750K	1.2M	2.0M	3.3M	5.1M	8.2M
1.2	2.0	3.3	5.1	8.2	13	22	36	56	91	150	240	390	620	1.0K	1.6K	2.7K	4.3K	6.8K	11K	18K	30K	47K	75K	120K	200K	330K	510K	820K	1.3M	2.2M	3.6M	5.6M	9.1M
1.3	2.2	3.6	5.6	9.1	15	24	39	62	100	160	270	430	690	1.1K	1.8K	3.0K	4.7K	7.5K	12K	20K	33K	51K	82K	130K	220K	360K	560K	910K	1.5M	2.4M	3.9M	6.2M	10M
1.5	2.4	3.9	6.2	10	16	27	43	68	110	180	300	470	750	1.2K	2.0K	3.3K	5.1K	8.2K	13K	22K	36K	56K	91K	150K	240K	390K	620K	1.0M	1.6M	2.7M	4.3M	6.8M	

Type (Power Rating)	Dimensions - mm			Max. Working Voltage	Max. Overload Voltage	Dielectric Withstanding Voltage	Rated Ambient Temperature	Temperature Cycling	Resistance Range	Resistance Tolerance
1/6 Watt ±	3.3 ± 0.4	1.8 ± 0.3	0.5 ± 0.05	150V	300V	300V	70°C	-55°C ~ 155°C	1.0Ω ~ 10MΩ	±5%
1/4 Watt	6.3 ± 0.5	2.3 ± 0.3	0.6 ± 0.05	250V	500V	500V	70°C	-55°C ~ 155°C	1.0Ω ~ 10MΩ	±5%
1/2 Watt	9.0 ± 0.5	3.2 ± 0.5	0.6 ± 0.05	350V	700V	500V	70°C	-55°C ~ 155°C	1.0Ω ~ 10MΩ	±5%

† Power rating at 70°C = 1/6W

### Features:

- Industry's lowest cost
- Available in 1/6, 1/4 and 1/2 watt; packaged in bulk or tape/reel (1/2 watt in bulk only)
- Exceeds carbon comp MIL-R-11 performance
- Standard tolerance: ±5%
- Exceptional long-term stability



Description	Digi-Key Part No.†	5	200	1,000	5,000	10,000	50,000
<b>1/6 Watt, 5% Carbon Film Resistors, Bulk Package</b>	(Value)EBK-ND	.26	4.30	12.47	11.18/M	10.32/M	9.46/M
<b>1/6 Watt, 5% Carbon Film Resistors, Tape and Reel (5,000 pieces/reel – Order in multiples of 5,000)</b>	(Value)ETR-ND	—	—	—	13.46/M	12.42/M	9.94/M
<b>1/4 Watt, 5% Carbon Film Resistors, Bulk Package</b>	(Value)QBK-ND	.27	3.82	8.55	8.13/M	7.56/M	6.13/M
<b>1/4 Watt, 5% Carbon Film Resistors, Tape and Reel (5,000 pieces/reel – Order in multiples of 5,000)</b>	(Value)QTR-ND	—	—	—	8.75/M	8.07/M	6.46/M
<b>1/2 Watt, 5% Carbon Film Resistors, Bulk Package</b>	(Value)H-ND	.26	3.76	12.22	11.28/M	10.34/M	9.40/M

"E" = Sixth Watt; "Q" = Quarter Watt; "H" = Half Watt. Please be sure to specify. Half watt available in bulk package only.  
 † For complete part number, substitute the value from Standard Resistor Values chart for (Value).

### Digi-Key® 1/6 Watt Resistor Assortment – RoHS Compliant

RSE200-ND 200 each of all standard values 5%, 1/6 watt carbon film resistors in the series 1.0Ω – 10MΩ (33,800 total pieces) .....	\$409.00
RS112-ND Set of 5 each of 73 standard 5%, 1/6 watt carbon film resistors in the series 1.0Ω, 1.2Ω, 1.5Ω, 1.8Ω, 2.2Ω, etc., through 1.0MΩ (365 total pieces) .....	\$16.96
RS212-ND Set of 5 each of the 72 standard 5%, 1/6 watt carbon film resistors in the series 1.1Ω, 1.3Ω, 1.6Ω, 2.0Ω, 2.4Ω, etc., through 910KΩ (360 total pieces) .....	\$16.99

### Digi-Key® 1/4 Watt Resistor Assortment – RoHS Compliant

RSQ200-ND 200 each of all standard values 5%, 1/4 watt carbon film resistors in the series 1.0Ω – 10MΩ (33,800 total pieces) .....	\$239.00
RS125-ND Set of 5 each of 73 standard 5%, 1/4 watt carbon film resistors in the series 1.0Ω, 1.2Ω, 1.5Ω, 1.8Ω, 2.2Ω, etc., through 1.0MΩ (365 total pieces) .....	\$14.95
RS225-ND Set of 5 each of the 72 standard 5%, 1/4 watt carbon film resistors in the series 1.1Ω, 1.3Ω, 1.6Ω, 2.0Ω, 2.4Ω, etc., through 910KΩ (360 total pieces) .....	\$14.95

### Digi-Key® 1/2 Watt Resistor Assortment – RoHS Compliant

RSH200-ND 200 each of all standard values 5%, 1/2 watt carbon film resistors in the series 1.0Ω – 10MΩ (33,800 total pieces) .....	\$335.00
RS150-ND Set of 5 each of 73 standard 5%, 1/2 watt carbon film resistors in the series 1.0Ω, 1.2Ω, 1.5Ω, 1.8Ω, 2.2Ω, etc., through 1.0MΩ (365 total pieces) .....	\$16.95
RS250-ND Set of 5 each of the 72 standard 5%, 1/2 watt carbon film resistors in the series 1.1Ω, 1.3Ω, 1.6Ω, 2.0Ω, 2.4Ω, etc., through 910KΩ (360 total pieces) .....	\$16.95

More Product Available Online: [www.digikey.com](http://www.digikey.com)

Toll-Free: 1-800-344-4539 • Phone 218-681-6674 • Fax: 218-681-3380

# YAGEO 1% Metal Film Fixed Resistors 1/4 Watt

## MFR Series



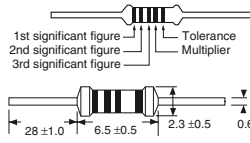
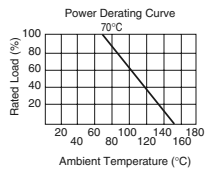
The MFR series Metal Film Resistors are manufactured using vacuum sputtering system to deposit multiple layers of mixed metals and passivative materials onto a carefully treated high grade ceramic substrate, the resistors are coated with layers of light-blue lacquer.

### General Specifications:

• Power Rating: 1/4 Watt • Maximum Working Voltage: 250V • Maximum Overload Voltage: 500V • Rated Ambient Temperature: 70°C • Temperature Cycling: -65°C - 150°C • Resistance Range: 10.0Ω - 1.00MΩ • Resistance Tolerance: ±1%.

### Electrical Specifications:

All measurements are taken at 25°C at 1KHz and 65% relative humidity, unless stated otherwise. • Type: MF-25 • Style: RN-55 • Power Rating: 1/4 Watt • Resistance Tolerance: ±1% • Temperature Coefficient: ±100PPM/°C



### Characteristics

Temperature Cycling, -65°C - 150°C	(%)	±0.25
Low Temperature Operation, -65°C	(%)	±0.25
Short Time Overload	(%)	±0.20
Terminal Strength, 5 lb. pull	(%)	±0.20
Resistance to Soldering Heat, 350°C	(%)	±0.10
Moisture Resistance, MII Std 202	(%)	±0.50
Life 1000 hrs. (Rated Power)	(%)	±0.50
Shock, 50G, 11ms	(%)	±0.20
Vibration - High Frequency, 10 - 2000Hz	(%)	±0.20
Insulation Resistance	(%)	>10 <sup>10</sup> Ω
Failure-Rate	(%)	10 <sup>-4</sup> /h

## 1% Metal Film Resistors Digi-Key® Assortment Kits

35% SAVINGS

Over Parts Purchased Separately



5 Each of Values 10Ω - 97.6Ω	RS1X-ND	\$29.95
5 Each of Values 100Ω - 976Ω	RS2X-ND	\$29.95
5 Each of Values 1.00KΩ - 9.76KΩ	RS3X-ND	\$29.95
5 Each of Values 10.0KΩ - 97.6KΩ	RS4X-ND	\$29.95
5 Each of Values 100KΩ - 1.00MΩ	RS5X-ND	\$29.95

### Standard Resistor Values

10.0	18.7	34.8	64.9	121	226	422	787	1.47K	2.74K	5.11K	9.53K	17.8K	33.2K	61.9K	115K	215K	402K	750K
10.2	19.1	35.7	66.5	124	232	432	806	1.50K	2.80K	5.23K	9.76K	18.2K	34.0K	63.4K	118K	221K	412K	768K
10.5	19.6	36.5	68.1	127	237	442	825	1.54K	2.87K	5.36K	10.0K	18.7K	34.8K	64.9K	121K	226K	422K	787K
10.7	20.0	37.4	69.8	130	243	453	845	1.58K	2.94K	5.49K	10.2K	19.1K	35.7K	66.5K	124K	232K	432K	806K
11.0	20.5	38.3	71.5	133	249	464	866	1.62K	3.01K	5.62K	10.5K	19.6K	36.5K	68.1K	127K	237K	442K	825K
11.3	21.0	39.2	73.2	137	255	475	887	1.65K	3.09K	5.76K	10.7K	20.0K	37.4K	69.8K	130K	243K	453K	845K
11.5	21.5	40.2	75.0	140	261	487	909	1.69K	3.16K	5.90K	11.0K	20.5K	38.3K	71.5K	133K	249K	464K	866K
11.8	22.1	41.2	76.8	143	267	499	931	1.74K	3.24K	6.04K	11.3K	21.0K	39.2K	73.2K	137K	255K	475K	887K
12.1	22.6	42.2	78.7	147	274	511	953	1.78K	3.32K	6.19K	11.5K	21.5K	40.2K	75.0K	140K	261K	487K	909K
12.4	23.2	43.2	80.6	150	280	523	976	1.82K	3.40K	6.34K	11.8K	22.1K	41.2K	76.8K	143K	267K	499K	931K
12.7	23.7	44.2	82.5	154	287	536	1.00K	1.87K	3.48K	6.49K	12.1K	22.6K	42.2K	78.7K	147K	274K	511K	953K
13.0	24.3	45.3	84.5	158	294	549	1.02K	1.91K	3.57K	6.65K	12.4K	23.2K	43.2K	80.6K	150K	280K	523K	976K
13.3	24.9	46.4	86.6	162	301	562	1.05K	1.96K	3.65K	6.81K	12.7K	23.7K	44.2K	82.5K	154K	287K	536K	1.00M
13.7	25.5	47.5	88.7	165	309	576	1.07K	2.00K	3.74K	6.98K	13.0K	24.3K	45.3K	84.5K	158K	294K	549K	1.00M
14.0	26.1	48.7	90.9	169	316	590	1.10K	2.05K	3.83K	7.15K	13.3K	24.9K	46.4K	86.6K	162K	301K	562K	1.00M
14.3	26.7	49.9	93.1	174	324	604	1.13K	2.10K	3.92K	7.32K	13.7K	25.5K	47.5K	88.7K	165K	309K	576K	1.00M
14.7	27.4	51.1	95.3	178	332	619	1.15K	2.15K	4.02K	7.50K	14.0K	26.1K	48.7K	90.9K	169K	316K	590K	1.00M
15.0	28.0	52.3	97.6	182	340	634	1.18K	2.21K	4.12K	7.68K	14.3K	26.7K	49.9K	93.1K	174K	324K	604K	1.00M
15.4	28.7	53.6	100	187	348	649	1.21K	2.26K	4.22K	7.87K	14.7K	27.4K	51.1K	95.3K	178K	332K	619K	1.00M
15.8	29.4	54.9	102	191	357	665	1.24K	2.32K	4.32K	8.06K	15.0K	28.0K	52.3K	97.6K	182K	340K	634K	1.00M
16.2	30.1	56.2	105	196	365	681	1.27K	2.37K	4.42K	8.25K	15.4K	28.7K	53.6K	100K	187K	348K	649K	1.00M
16.5	30.9	57.6	107	200	374	698	1.30K	2.43K	4.53K	8.45K	15.8K	29.4K	54.9K	102K	191K	357K	665K	1.00M
16.9	31.6	59.0	110	205	383	715	1.33K	2.49K	4.64K	8.66K	16.2K	30.1K	56.2K	105K	196K	365K	681K	1.00M
17.4	32.4	60.4	113	210	392	732	1.37K	2.55K	4.75K	8.87K	16.5K	30.9K	57.6K	107K	200K	374K	698K	1.00M
17.8	33.2	61.9	115	215	402	750	1.40K	2.61K	4.87K	9.09K	16.9K	31.6K	59.0K	110K	205K	383K	715K	1.00M
18.2	34.0	63.4	118	221	412	768	1.43K	2.67K	4.99K	9.31K	17.4K	32.4K	60.4K	113K	210K	392K	732K	1.00M

Description	Value Range	Digi-Key Part No.†	5	200	1,000	5,000	Pricing 10,000	50,000	100,000	500,000	1,000,000
1/4 Watt, Bulk Package	10.0 - 1.00MΩ	(Value)XBK-ND	.49	7.41	19.16	16.36/M	14.06/M	11.25/M	—	—	—
1/4 Watt, Tape and Reel - (5,000 pcs/reel - Order in multiples of 5,000)	10.0 - 1.00MΩ	(Value)XTR-ND	—	—	—	18.57/M	15.84/M	12.87/M	10.89/M	8.91/M	7.92/M

† For complete part number, substitute the value from Standard Resistor Values chart for (Value).

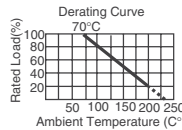
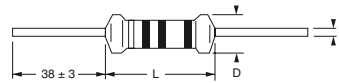
# YAGEO 5% Metal Oxide Film Resistors

## RFS Series



These Metal Oxide Resistors offer lower cost alternatives to Carbon Composition Resistors and General Purpose Metal Films. They can replace many low power General Purpose wirewound applications. These Metal Oxides meet overload tests in accordance with UL specification #1412 without producing a fire hazard. They withstand solvents in accordance with article MII-Std-202E without producing mechanical or electrical damage.

**Features:** High surge/overload capability. Non-inductive design. Coating and marking resist Trichlorethylene, Freon, and other cleaning agents. The RFS Series resistors are coated with layers of gray flame-proof lacquer.



Type	Max. Working Volt.	Dimensions (mm)		
		L	D	d
1W	350	11.5 ± 1.0	4.5 ± 0.5	0.8 ± 0.05
2W	350	15.5 ± 1.0	5.0 ± 0.5	0.8 ± 0.05

### Digi-Key® 1 and 2 Watt Resistor Assortment Kits

255 resistors per assortment. Five each of the values in the ranges listed below:

	0.47Ω - 56Ω	62Ω - 7.5KΩ	8.2KΩ - 1.0M	Price Each
1 Watt	RS101-ND	RS201-ND	RS301-ND	\$26.95
2 Watt	RS102-ND	RS202-ND	RS302-ND	\$29.95

### Standard Resistor Values

0.47	1.2	3.3	8.2	22	56	150	390	1.0K	2.7K	6.8K	18K	47K	120K	330K	820K
0.51	1.3	3.6	9.1	24	62	160	430	1.1K	3.0K	7.5K	20K	51K	130K	360K	910K
0.56	1.5	3.9	10	27	68	180	470	1.2K	3.3K	8.2K	22K	56K	150K	390K	1.0M
0.62	1.6	4.3	11	30	75	200	510	1.3K	3.6K	9.1K	24K	62K	160K	430K	1.0M
0.68	1.8	4.7	12	33	82	220	560	1.5K	3.9K	10K	27K	68K	180K	470K	1.0M
0.75	2.0	5.1	13	36	91	240	620	1.6K	4.3K	11K	30K	75K	200K	510K	1.0M
0.82	2.2	5.6	15	39	100	270	680	1.8K	4.7K	12K	33K	82K	220K	560K	1.0M
0.91	2.4	6.2	16	43	110	300	750	2.0K	5.1K	13K	36K	91K	240K	620K	1.0M
1.0	2.7	6.8	18	47	120	330	820	2.2K	5.6K	15K	39K	100K	270K	680K	1.0M
1.1	3.0	7.5	20	51	130	360	910	2.4K	6.2K	16K	43K	110K	300K	750K	1.0M

Description	Digi-Key Part No.†	1	10	100	Pricing 1,000	5,000	10,000
1 Watt, 5% Metal Oxide Film Resistors, Bulk Package, 0.47 - 0.91Ω	(Value)W-1-ND	.22	1.62	10.40	63.55	56.62/M	50.85/M
1 Watt, 5% Metal Oxide Film Resistors, Bulk Package, 1.0 - 1.0MΩ	(Value)W-1-ND	.15	1.12	7.20	44.00	39.20/M	35.20/M
2 Watt, 5% Metal Oxide Film Resistors, Bulk Package, 0.47 - 0.91Ω	(Value)W-2-ND	.23	1.73	11.13	68.01	60.59/M	54.41/M
2 Watt, 5% Metal Oxide Film Resistors, Bulk Package, 1.0 - 1.0MΩ	(Value)W-2-ND	.18	1.35	8.65	52.88	47.12/M	42.31/M

† For complete part number, substitute the value from Standard Resistor Values chart for (Value).

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