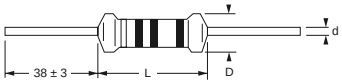
YAGEO 5% Metal Oxide Film Resistors PANASONIC®

RSF 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 Mil-Std-202E without producing mechanical or electrical damage.

Features: High surge/overload capability. Non-inductive design. Coating and marking resist Trichlorethelyne, Freon, and other cleaning agents.

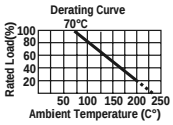


Type	Max. Working Volt.	Dimensions (mm) L	D	d
1W	350	13.0	4.5	0.8
2W	350	17.0	5.5	0.65

Characteristics:

Temperature Coefficient	±100 PPM Typ. ±200 Max
Insulation Resist.	10,000 MΩ Min
Load Life (1,000 hours)	◄1% Typ. ±3% Max
Short-time Overload	±0.5% Max
Temp. Cycling	±0.5% Max
Moisture Resistance	±1.0% Max
Shock & Vibration	±0.2% Max
Effect of Soldering	±0.5% Max
Voltage Coefficient	.001%/V
Current Noise	◄1μV/V

Derating Curve



Digi-Key® 1 and 2 Watt Resistor Assortment Kits

255 resistors per assortment. 5 each of the values in the ranges listed:

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

Standard Resistor Values — See below for complete part numbers when ordering.

0.47	0.82	1.5	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
0.51	0.91	1.6	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
0.56	1.0	1.8	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
0.62	1.1	2.0	3.6	5.6	9.1	15	24	39	62	100	160	270	430	680	1.1K	1.8K	3.0K	4.7K	7.5K	12K	20K	33K	51K	82K	130K	220K	360K	560K	910K
0.68	1.2	2.2	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
0.75	1.3	2.4																												

Description	Digi-Key Part Number	Pricing 1	10	100	1M	5M	10M
YAGEO							
1 Watt, 5% Metal Oxide Film Resistors Bulk Package (0.47-0.91Ω)	Value + "W-1-ND" (i.e. 0.47W-1-ND)	.27	1.96	12.60	77.00	68.60/M	61.60/M
1 Watt, 5% Metal Oxide Film Resistors Bulk Package (1.0-1.0MΩ)	Value + "W-1-ND" (i.e. 1.0W-1-ND)	.19	1.40	9.00	55.00	49.00/M	44.00/M
2 Watt, 5% Metal Oxide Film Resistors Bulk Package (0.47-0.91Ω)	Value + "W-2-ND" (i.e. 0.47W-2-ND)	.29	2.10	13.50	82.50	73.50/M	66.00/M
2 Watt, 5% Metal Oxide Film Resistors Bulk Package (1.0-1.0MΩ)	Value + "W-2-ND (i.e. 1.0W-2-ND)	.23	1.68	10.80	66.00	58.80/M	52.80/M

Description	Digi-Key Part Number	Pricing 1	5	100	1M	5M	10M
PANASONIC							
1 Watt, 5% Metal Oxide Film Resistors Bulk Package (0.47-68KΩ)	"P" + Value + "W-1BK-ND" (i.e. P20W-1BK-ND)	.23	.84	9.49	65.47	58.30/M	52.38/M
1 Watt, 5% Metal Oxide Film Resistors Tape and Reel (0.47-68KΩ)	"P" + Value + "W-1TR-ND" (i.e. P1.0KW-1TR-ND)	—	—	—	—	61.20/M	54.99/M
2 Watt, 5% Metal Oxide Film Resistors Bulk Package (0.47-100KΩ)	"P" + Value + "W-2BK-ND" (i.e. P20W-2BK-ND)	.27	1.00	12.86	78.78	70.11/M	62.88/M
2 Watt, 5% Metal Oxide Film Resistors Tape and Reel (0.47-100KΩ)	"P" + Value + "W-2TR-ND" (i.e. P1.0KW-2TR-ND)	266.94/3M		475.36/6M	854.20/12M	1661.05/27M	
3 Watt, 5% Metal Oxide Film Resistors Bulk Package (0.47-100KΩ)	"P" + Value + "W-3BK-ND" (i.e. P20W-3BK-ND)	.49	2.30	29.58	177.50	170.93/M	164.35/M
3 Watt, 5% Metal Oxide Film Resistors Tape and Reel (0.47-100KΩ)	"P" + Value + "W-3TR-ND" (i.e. P1.0KW-3TR-ND)	297.27/1,500		1058.75/6M	1664.72/10,500	3494.06/25,500	

Now Available In Tape and Reel

Matsushita fixed metal oxide film resistors feature small sized dimensions and have higher power rating at the same size as the conventional type.

Features: Flame retardancy of the exclusively formulated inorganic insulative material exhibits an equivalent performance requirements of UL-94 (VE-O) and when operated at a potential less than 16 times RCWV, Matsushita metal (oxide) film resistors never flame nor arc. The coating and markings resist normal washing of solvents, such as Freon (TE, TMC, TF), trichloroethane.

Characteristics:

Temperature Coefficient	R. Wattage of 1, 2, 3 ±200ppm/°C
Voltage Coefficient	25ppm/V Max
Insulation Resist.	10,000 MΩ Min
Temp. Cycling	±(1% + 0.05Ω) Max
Short-time Overload	±(2% + 0.05Ω) Max
Humidity (Steady State)	±(2% + 0.05Ω) Max
Load Life in Humidity	±(5% + 0.05Ω) Max
Load Life	±(5% + 0.05Ω) Max
Resistance to Soldering Heat	±(1% + 0.05Ω) Max
Vibration Low Freq	±(1% + 0.05Ω) Max
Thermal Shock	±(2% + 0.05Ω) Max
Noise	1.0μV/V Max

Type	Max. Working Volt.	Dimensions (mm) L	D	d
1W	350	9.0	2.8	0.65
2W	350	12.0	4.0	0.80
3W	350	15.0	5.5	0.80

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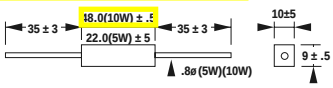
YAGEO 5 and 10 Watt Wirewound Rectangular Resistors 5%

Axial Lead Type

- **Operating Temperature Range: −55° to +250°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.



5 Watt Standard Resistor Values — See below for complete part numbers when ordering.

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

10 Watt Standard Resistor Values — See below for complete part numbers when ordering.

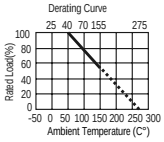
1.0	1.8	3.3	5.6	10	18	33	56	100	180	300	470	750	1.2K	2.0K
1.1	2.0	3.6	6.2	11	20	36	62	110	200	330	510	820	1.3K	2.2K
1.2	2.2	3.9	6.8	12	22	39	68	120	220	360	560	910	1.5K	2.4K
1.3	2.4	4.3	7.5	13	24	43	75	130	240	390	620	1.0K	1.6K	2.7K
1.5	2.7	4.7	8.2	15	27	47	82	150	270	430	680	1.1K	1.8K	3.0K
1.6	3.0	5.1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

Description	Digi-Key Part Number	Pricing 1	10	100	1M	5M	10M
5 Watt, 5% Metal Wirewound Rectangular Resistors, Bulk Package	Value + "W-5-ND" (i.e. 0.30W-5-ND)	.41	3.41	27.28	163.68	146.63/M	129.58/M
10 Watt, 5% Wirewound Rectangular Resistors, Bulk Package	Value + "W-10-ND" (i.e. 1.0W-10-ND)	.60	5.01	40.08	240.48	215.43/M	190.38/M

Characteristics

Temperature Coefficient	±300 PPM/°C
Insulation Resistance	100 MΩ
Load Life (1,000 hours)	±5% + 0.05Ω
Short-Time Overload	±2% + 0.05Ω
Dielectric Withstanding Volt	±2% + 0.05Ω
Moisture Resistance	±5% + 0.05Ω
Shock and Vibration	±1% + 0.05Ω
Effect of Soldering	±2% + 0.05Ω

Derating Curve



Digi-Key® 5 Watt Resistor Assortment Kit

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**

Digi-Key® 10 Watt Resistor Assortment Kit

2 each of all 10 watt standard resistor values listed above. A total of 168 resistors.

R110-ND **$72.95**

YAGEO Zerohm Jumper Wires

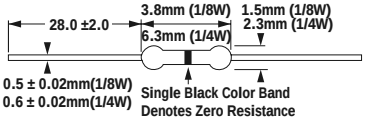
Applications:

Generally they are used for the following reasons:

- Inability to connect two points on a P.C. 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: 0.004 ohm on 1/8 watt, 0.003 ohm on 1/4 watt; Typical Resistance: 0.002 ohm on both; Lead Material: tin-plated copper; Body Material: electrical grade, high performance molding compound; Min. Insulation Resistance — Dry: 10,000 megΩ, Wet: 100 megΩ; Min. 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.	Pricing 5	200	1M	5M	10M	50M
1/8 Watt, Zerohm Jumper, Bulk Package	0.0EBK-ND	.26	8.11	16.28	14.93/M	13.52/M	12.48/M
1/8 Watt, Zerohm Jumper, Tape/Reel (5M Pcs./Reel)	0.0ETR-ND	—	—	—	18.37/M	17.29/M	14.14/M
1/4 Watt, Zerohm Jumper, Bulk Package	0.0QBK-ND	.27	4.93	10.03	9.23/M	8.37/M	7.73/M
1/4 Watt, Zerohm Jumper, Tape/Reel (5M Pcs./Reel)	0.0QTR-ND	—	—	—	11.53/M	10.85/M	8.90/M