

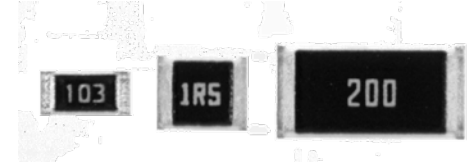
# RMCF/RMCP Series

General Purpose Thick Film Standard Power  
and High Power Chip Resistor

Stackpole Electronics, Inc.

Resistive Product Solutions

- Features:
- RMCF – standard power ratings
  - RMCP – high power ratings
  - Nickel Barrier terminations standard
  - Power derating from 100% at 70°C to zero at +155°C
  - RoHS compliant



## Electrical Specifications

Type / Code	Old Type Code	Power Rating (Watts) @ 70°C	Maximum Working Voltage (1)	Maximum Overload Voltage	Maximum Current	Resistance Temperature Coefficient	Ohmic Range ( $\Omega$ ) and Tolerance (2)	
							1%	5%
RMCF0201	1/20	0.05W	25V	50V	1 Amp	$\pm 400$ ppm/°C $\pm 200$ ppm/°C	1 - 9.76 10 - 10M	1 - 9.1 10 - 10M
RMCF0402	1/16S	0.063W	50V	100V	1 Amp	$\pm 300$ ppm/°C $\pm 200$ ppm/°C $\pm 100$ ppm/°C $\pm 200$ ppm/°C	0.2 - 0.59 0.604 - 9.76 10 - 1M 1.02M - 10M	0.2 - 0.56 0.62 - 9.1 10 - 1M 1.1M - 20M
RMCF0603	1/16	0.1W	50V	100V	1 Amp	$\pm 600$ ppm/°C $\pm 200$ ppm/°C $\pm 100$ ppm/°C $\pm 200$ ppm/°C	0.1 - 0.976 1 - 9.76 10 - 1M 1.02M - 10M	0.1 - 0.91 1 - 20M - -
RMCF0805	1/10	0.125W	150V	300V	2 Amp	$\pm 200$ ppm/°C $\pm 100$ ppm/°C $\pm 200$ ppm/°C	0.1 - 9.76 10 - 1M 1.02M - 10M	0.1 - 20M - -
RMCF1206	1/8	0.25W	200V	400V	2 Amp	$\pm 200$ ppm/°C $\pm 100$ ppm/°C $\pm 200$ ppm/°C	0.1 - 9.76 10 - 1M 1.02M - 10M	0.1 - 20M - -
RMCF1210	1/4	0.33W(3)	200V	400V	3 Amp	$\pm 200$ ppm/°C $\pm 400$ ppm/°C $\pm 200$ ppm/°C $\pm 100$ ppm/°C	0.1 - 0.976 1 - 9.76 - 10 - 10M	0.1 - 0.91 1 - 9.1 10 - 20M -
RMCF2010	1/2	0.75W	200V	400V	3 Amp	$\pm 200$ ppm/°C $\pm 400$ ppm/°C $\pm 200$ ppm/°C $\pm 100$ ppm/°C	0.1 - 0.976 1 - 9.76 - 10 - 10M	0.1 - 0.91 1 - 9.1 10 - 10M -
RMCF2512	1	1W	200V	400V	3 Amp	$\pm 200$ ppm/°C $\pm 400$ ppm/°C $\pm 200$ ppm/°C $\pm 100$ ppm/°C	0.1 - 0.976 1 - 9.76 - 10 - 10M	0.1 - 0.91 1 - 9.1 10 - 10M -
RMCP0402	1/16S	0.1W	50V	100V	1 Amp	$\pm 200$ ppm/°C $\pm 100$ ppm/°C	1 - 9.76 10 - 1M	1 - 9.76 10 - 1M
RMCP0603	1/16	0.125W	50V	100V	1 Amp	$\pm 200$ ppm/°C $\pm 100$ ppm/°C	1 - 9.76 10 - 1M	1 - 9.76 10 - 1M
RMCP0805	1/10	0.25W	150V	300V	2 Amp	$\pm 200$ ppm/°C $\pm 100$ ppm/°C	1 - 9.76 10 - 1M	1 - 9.76 10 - 1M
RMCP1206	1/8	0.33W	200V	400V	2 Amp	$\pm 200$ ppm/°C $\pm 100$ ppm/°C	1 - 9.76 10 - 1M	1 - 9.76 10 - 1M
RMCP1210	1/4	0.5W	200V	400V	3 Amp	$\pm 200$ ppm/°C $\pm 100$ ppm/°C	1 - 9.76 10 - 1M	1 - 9.76 10 - 1M
RMCP2010	1/2	1W	200V	400V	3 Amp	$\pm 200$ ppm/°C $\pm 100$ ppm/°C	1 - 9.76 10 - 1M	1 - 9.76 10 - 1M
RMCP2512	1	2W	200V	400V	3 Amp	$\pm 200$ ppm/°C $\pm 100$ ppm/°C	1 - 9.76 10 - 1M	1 - 9.76 10 - 1M

(1) Lesser of  $\sqrt{PR}$  or maximum working voltage.

(2) Contact factory for extended ohmic values.

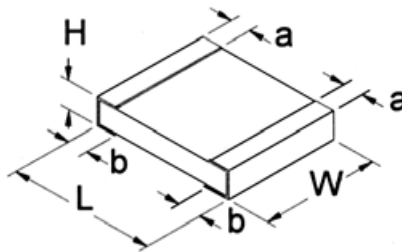
(3) Power rating is 0.5W for ohmic values below 1K $\Omega$ .

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## Mechanical Specifications

Type / Code	Average Unit Weight (mg)	L Body Length	W Body Width	H Body Height	a Top Termination	b Bottom	Unit
RMCF0201	0.15	0.024 ± 0.001 0.60 ± 0.03	0.012 ± 0.001 0.30 ± 0.03	0.009 ± 0.0004 0.23 ± 0.01	0.006 ± 0.002 0.15 ± 0.05	0.006 ± 0.002 0.15 ± 0.05	inches mm
RMCF0402	0.6	0.039 ± 0.004	0.020 ± 0.002	0.012 ± 0.004	0.008 ± 0.004	0.010 ± 0.006	inches
RMCP0402	0.6	1.00 ± 0.10	0.50 ± 0.05	0.30 ± 0.10	0.20 ± 0.10	0.25 ± 0.15	mm
RMCF0603	2.3	0.061 ± 0.006	0.031 + 0.006 / -0.004	0.018 ± 0.004	0.012 ± 0.008	0.012 ± 0.008	inches
RMCP0603	2.0	1.55 ± 0.15	0.80 + 0.15 / -0.10	0.45 ± 0.10	0.30 ± 0.20	0.30 ± 0.20	mm
RMCF0805	5.0	0.079 ± 0.008	0.049 ± 0.004	0.020 ± 0.006	0.014 ± 0.010	0.014 ± 0.010	inches
RMCP0805	4.4	2.00 ± 0.20	1.25 ± 0.10	0.50 ± 0.15	0.35 ± 0.25	0.35 ± 0.25	mm
RMCF1206	10.3	0.126 ± 0.010	0.063 ± 0.006	0.022 ± 0.006	0.020 ± 0.012	0.020 ± 0.012	inches
RMCP1206	8.9	3.20 ± 0.25	1.60 ± 0.15	0.55 ± 0.15	0.50 ± 0.30	0.50 ± 0.30	mm
RMCF1210	16.6	0.126 ± 0.010	0.098 ± 0.010	0.022 ± 0.006	0.020 ± 0.012	0.020 ± 0.012	inches
RMCP1210	16.0	3.20 ± 0.25	2.50 ± 0.25	0.55 ± 0.15	0.50 ± 0.30	0.50 ± 0.30	mm
RMCF2010	26.2	0.197 ± 0.008	0.098 ± 0.008	0.022 ± 0.006	0.024 ± 0.012	0.024 ± 0.014	inches
RMCP2010	24.2	5.00 ± 0.20	2.50 ± 0.20	0.55 ± 0.15	0.60 ± 0.30	0.60 ± 0.35	mm
RMCF2512	44.0	0.248 ± 0.008	0.126 ± 0.010	0.022 ± 0.006	0.024 ± 0.012	0.024 ± 0.014	inches
RMCP2512	39.4	6.30 ± 0.20	3.20 ± 0.25	0.55 ± 0.15	0.60 ± 0.30	0.60 ± 0.35	mm

## Performance Characteristics

Test	Test Conditions (JIS C 5202)	Test Results
Short Time Overload	2.5x rated voltage for 5 seconds	± (2% + 0.1Ω)
Dielectric Withstanding Voltage	100 VAC, 1 minute	± (1% + 0.05Ω)
Resistance to Soldering Heat	260°C ±5°C, for 10 sec. ±0.5 sec. (Solder Bath)	± 1%
Solderability	235°C ±5°C, for 2 sec. ±0.5 sec. (Colophonium flux)	95% coverage, minimum
Temperature Cycle	-65°C: 30 min. 25°C: 2 to 3 min. 155°C: 30 min. 25°C: 2 to 3 min. (5 Cycles)	±(1% + 0.05Ω) Jumper (<0.05Ω)
Endurance (Damp load)	40°C ± 2°C, 90% RH, Rated Load 90 min. On, 30 min. Off for 1,000 hrs. -0hrs./+48hrs.	±(3% + 0.1Ω) Jumper (<0.05Ω)
Endurance (Rated load)	70°C ± 2°C, Rated Load 90 min. On, 30 min. Off for 1,000 hrs. -0hrs./+48hrs.	±(3% + 0.1Ω) Jumper (<0.05Ω)
Voltage Coefficient	1/10 rated voltage for 3 sec. max. then rated voltage for 3 sec. max.	±100 (ppm/V)
Robustness of Termination	Bend of 3mm for 5 ± 1 sec.	± (1% + 0.05 Ohm)

Operating Temperature Range: -55°C to +125°C (0201 size)  
-55°C to +155°C (all others)

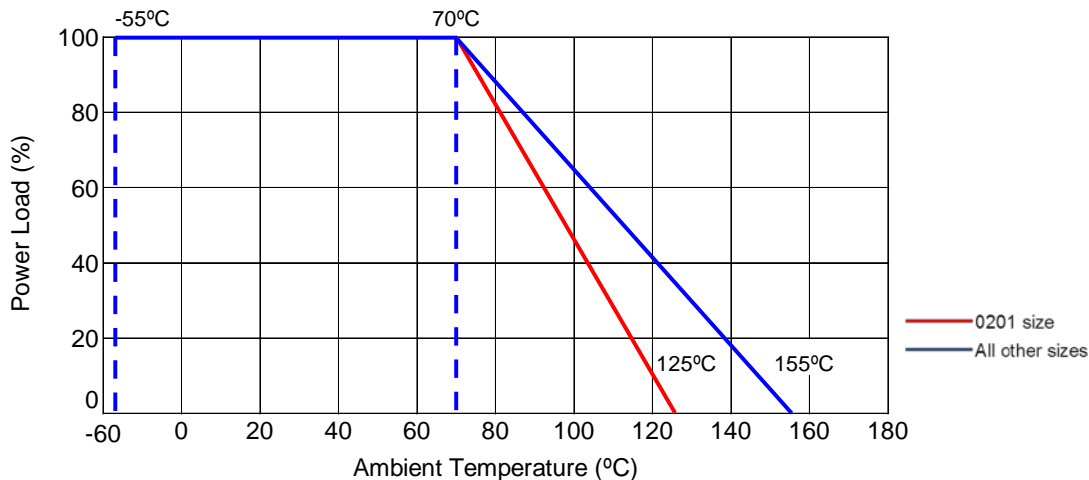
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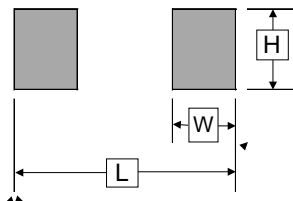
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## Power Derating Curve:



## Standard Solder Land Pattern



Standard Solder Land Pattern				
SIZE	L	H	W	Unit
0201	0.031	0.017	0.011	inches
	0.79	0.43	0.28	mm
0402	0.051	0.024	0.016	inches
	1.30	0.60	0.40	mm
0603	0.079	0.035	0.020	inches
	2.00	0.90	0.50	mm
0805	0.102	0.051	0.028	inches
	2.60	1.30	0.70	mm
1206	0.150	0.067	0.035	inches
	3.80	1.70	0.90	mm
1210	0.150	0.098	0.035	inches
	3.80	2.50	0.90	mm
2010	0.232	0.098	0.039	inches
	5.90	2.50	1.00	mm
2512	0.283	0.126	0.039	inches
	7.20	3.20	1.00	mm

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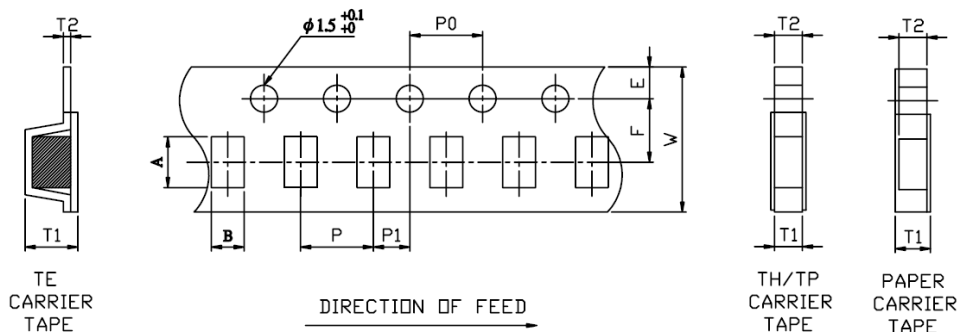
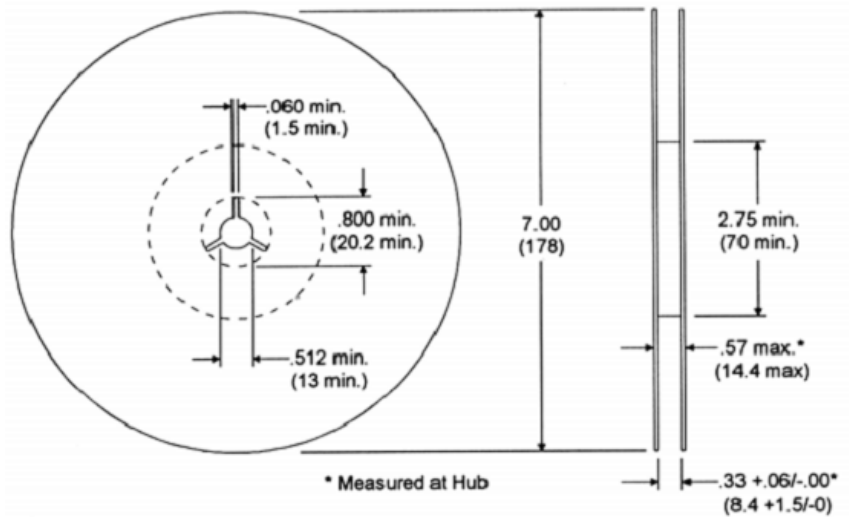
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## Packaging (EIA Standard RS-481)

Nominal dimensions:

Inches (mm)



### Packaging (0201, 0402)

Type	7" Reel Quantity (2mm pitch)	Typical Reel Weight	Reel Width	A	B	W	E	F	Unit
RMCF0201	10,000 pcs	3.4 oz 97.1 gr	0.315 8.00	0.027 ± 0.001 0.68 ± 0.03	0.015 ± 0.001 0.38 ± 0.03	0.315 ± 0.004 8.00 ± 0.10	0.069 ± 0.004 1.75 ± 0.10	0.069 ± 0.004 1.75 ± 0.10	inches mm
RMCF0402	10,000 pcs	3.3 oz 94.5 gr	0.315 8.00	0.045 ± 0.002 1.15 ± 0.05	0.026 ± 0.002 0.65 ± 0.05	0.315 ± 0.008 8.00 ± 0.20	0.069 ± 0.004 1.75 ± 0.10	0.138 ± 0.002 3.50 ± 0.05	inches mm

### Packaging (0201, 0402)

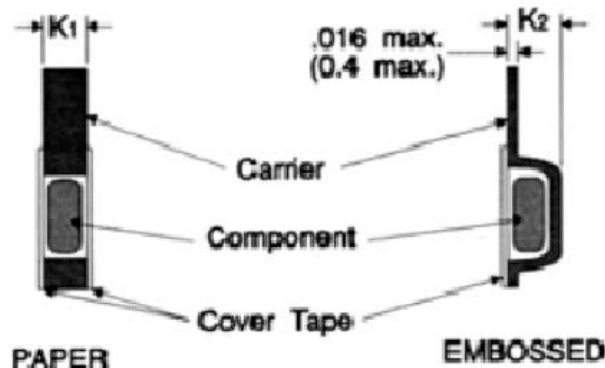
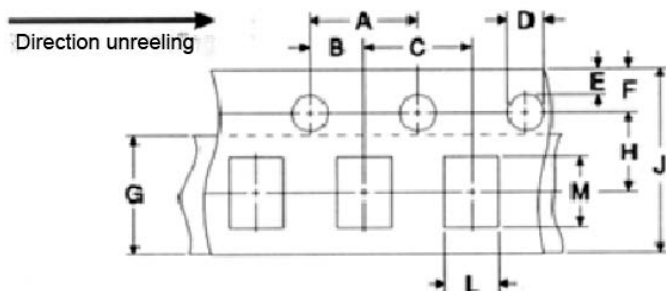
Type	T1	T2	P	P0	P1	Unit
RMCF0201	0.018 + 0.004 / -0 0.45 + 0.10 / -0	0.011 ± 0.001 0.28 ± 0.02	0.079 ± 0.002 2.00 ± 0.05	0.157 ± 0.002 4.00 ± 0.05	0.079 ± 0.002 2.00 ± 0.05	inches mm
RMCF0402	0.018 + 0.008 / -0 0.45 + 0.20 / -0	0.018 ± 0.002 0.45 ± 0.05	0.079 ± 0.004 2.00 ± 0.10	0.157 ± 0.002 4.00 ± 0.05	0.079 ± 0.002 2.00 ± 0.05	inches mm

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## Packaging (0603, 0805, 1206, 1210, 2010, 2512)

Type	7" Reel Quantity (1)	Typical Reel Weight		A	B	C	D	E	F	G	Unit
		oz	gr								
RMCF0603	5,000 pcs	4.3	123	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.004 2.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.059 + 0.004 / -0 1.50 + 0.10 / -0	0.039 1.00	0.069 ± 0.004 1.75 ± 0.10	0.197 5.00	inches mm
RMCF0805	5,000 pcs	5.3	150	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.004 2.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.059 + 0.004 / -0 1.50 + 0.10 / -0	0.039 1.00	0.069 ± 0.004 1.75 ± 0.10	0.197 5.00	inches mm
RMCF1206	5,000 pcs	6.0	170	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.004 2.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.059 + 0.004 / -0 1.50 + 0.10 / -0	0.039 1.00	0.069 ± 0.004 1.75 ± 0.10	0.197 5.00	inches mm
RMCF1210 (2)	4,000 pcs	4.4	125	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.004 2.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.059 + 0.004 / -0 1.50 + 0.10 / -0	0.039 1.00	0.069 ± 0.004 1.75 ± 0.10	0.197 5.00	inches mm
RMCF2010 (2)	4,000 pcs	7.1	201	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.004 2.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.059 + 0.004 / -0 1.50 + 0.10 / -0	0.039 1.00	0.069 ± 0.004 1.75 ± 0.10	0.197 5.00	inches mm
RMCF2512 (2)	4,000 pcs	9.4	267	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.004 2.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.059 + 0.004 / -0 1.50 + 0.10 / -0	0.039 1.00	0.069 ± 0.004 1.75 ± 0.10	0.197 5.00	inches mm

Note: (1) 13" Reels with 10,000 pieces available.  
(2) Embossed taping standard on 1210, 2010 and 2512 sizes.

## Packaging (0603, 0805, 1206, 1210, 2010, 2512)

Type	H	J	K1	K2	L	M	Unit
RMCF0603	0.217 ± 0.002 5.50 ± 0.05	0.315 ± 0.004 8.00 ± 0.10	0.043 ± max 1.10 ± max	-	0.043 ± 0.008 1.10 ± 0.20	0.075 ± 0.008 1.90 ± 0.20	inches mm
RMCF0805	0.217 ± 0.002 5.50 ± 0.05	0.315 ± 0.004 8.00 ± 0.10	0.043 ± max 1.10 ± max	-	0.065 ± 0.008 1.65 ± 0.20	0.094 ± 0.008 2.4 ± 0.20	inches mm
RMCF1206	0.217 ± 0.002 5.50 ± 0.05	0.315 ± 0.004 8.00 ± 0.10	0.043 ± max 1.10 ± max	0.094 max 2.40 max	0.079 ± 0.004 2.00 ± 0.10	0.138 ± 0.002 3.50 ± 0.05	inches mm
RMCF1210	0.217 ± 0.002 5.50 ± 0.05	0.315 ± 0.004 8.00 ± 0.10	-	0.094 max 2.40 max	0.110 ± 0.008 2.80 ± 0.20	0.142 ± 0.008 3.60 ± 0.20	inches mm
RMCF2010	0.217 ± 0.002 5.50 ± 0.05	0.472 ± 0.004 12.00 ± 0.10	-	0.094 max 2.40 max	0.110 ± 0.008 2.80 ± 0.20	0.217 ± 0.008 5.50 ± 0.20	inches mm
RMCF2512	0.217 ± 0.002 5.50 ± 0.05	0.472 ± 0.004 12.00 ± 0.10	-	0.094 max 2.40 max	0.150 ± 0.008 3.80 ± 0.20	0.264 ± 0.008 6.70 ± 0.20	inches mm

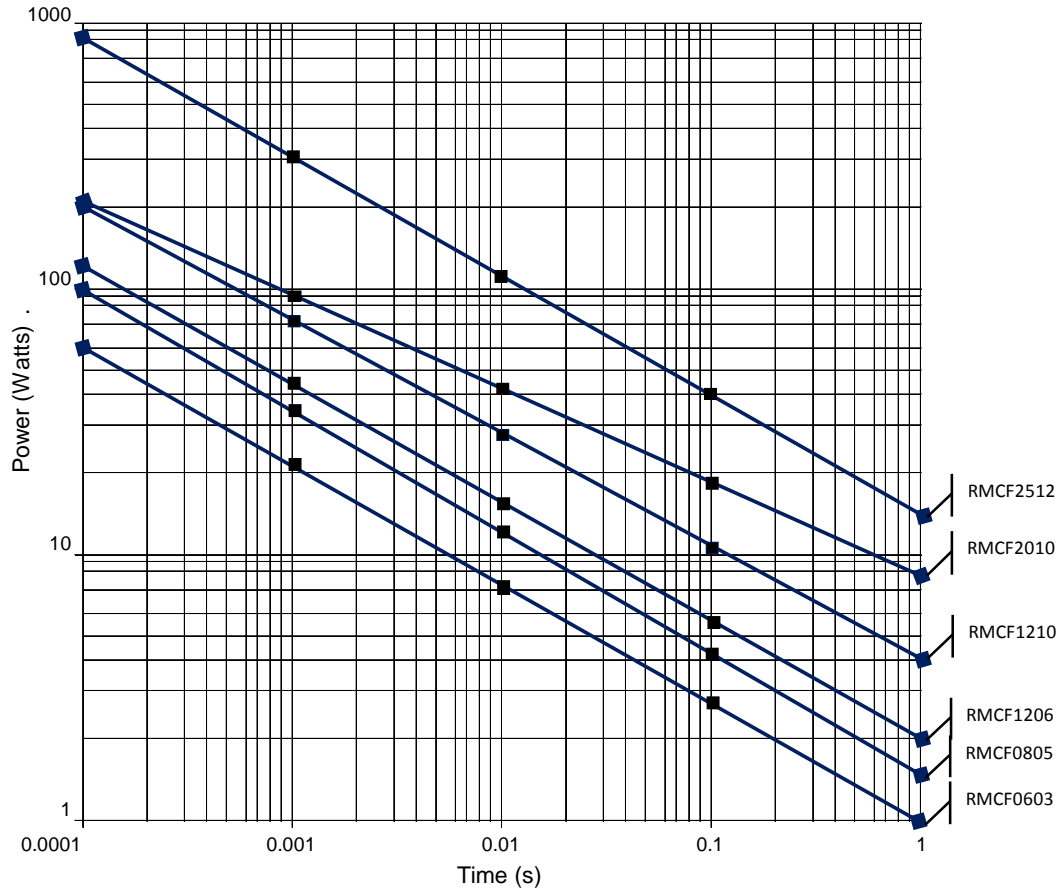
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## Pulse Power:



Pulse Power						
Size	Time (s)					Unit
	0.0001	0.001	0.01	0.1	1	
RMCF0603	60	21.5	7.6	2.8	1	Watts
RMCF0805	94	34	12	4.4	1.6	Watts
RMCF1206	120	43	15	5.6	2	Watts
RMCF1210	240	86	31	11	4	Watts
RMCF2010	210	96	41	18	8	Watts
RMCF2512	800	300	110	42	16	Watts

The data provided are for reference only. They are typical performance for this product but are not guaranteed. The actual pulse handling of each individual resistor may vary depending on a variety of factors including resistance tolerance and resistance value. Stackpole Electronics, Inc. assumes no liability for the use of this information. Customers should validate the performance of these products in their applications. Contact Stackpole marketing to discuss specific pulse application requirements.

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## Temperature Measurement of Resistor Surface

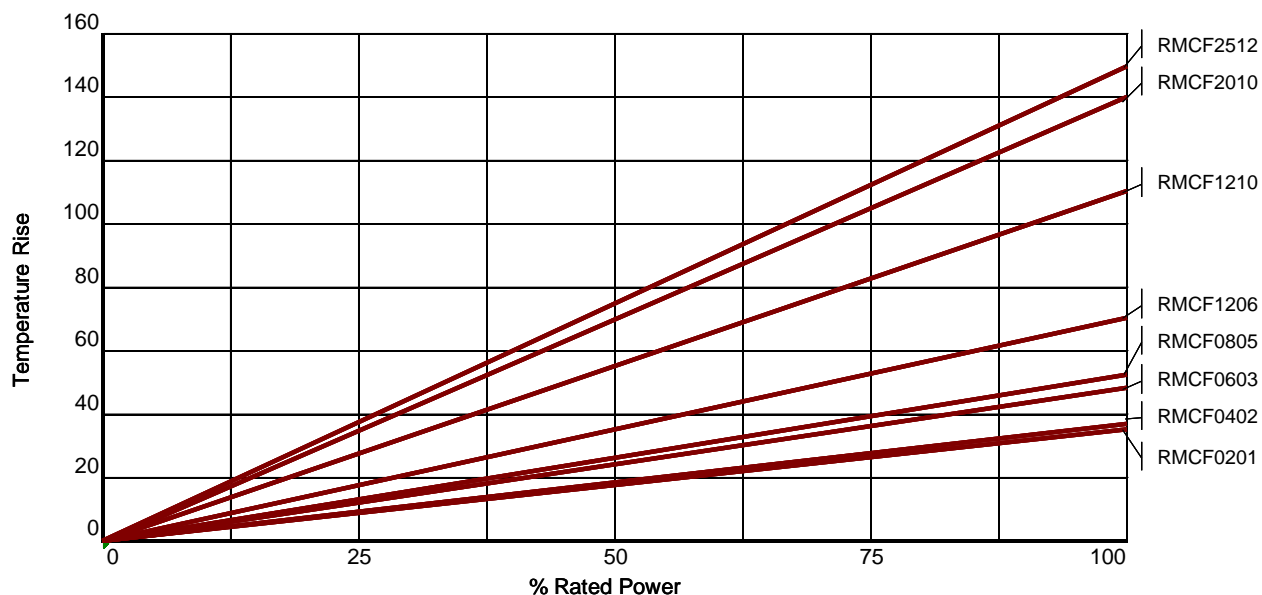
Description: The resistor surface generated temperature variation after applied rated voltage.

Products and power:

Stackpole P/N	RMCF0201	RMCF0402	RMCF0603	RMCF0805	RMCF1206	RMCF1210	RMCF2010	RMCF2512
R-V	15K	40.2K	57.6K	180K	182K	100K	100K	75K
Rated Power	1/20W	1/16W	1/10W	1/8W	1/4W	1/2W	3/4W	1W
Maximum Rated Voltage	25V	50V	75V	150V	200V	200V	200V	200V

Test method: To measure surface temperature directly after test product reach to the constant temperature.

Test result: As per table below:



Heat Rise								
Type	0201	0402	0603	0805	1206	1210	2010	2512
Surface Temperature	36°C	37°C	46.2°C	50.4°C	70.6°C	110.6°C	141°C	150.4°C

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## How to Order RMCF

1	2	3	4	5	6	7	8	9	10	11	12	13	14
R	M	C	F	0	6	0	3	J	T	4	K	7	0

Product Series		Size	Power	Tolerance			Packaging				Resistance Value
RMCF	Thick Film Chip Resistors	0201	0.05W	Code	Tol	Value	Code	Description	Size	Quantity	Four characters with the multiplier used as the decimal holder. 0.1 ohm = R100 4.70 ohm = 4R70 10.0 Kohm = 10K0 1 Mohm = 1M00 Zero ohm jumper = 0R00
		0402	0.063W	F	1%	E96, E24	T	7" Reel - Paper Tape	0201, 0402	10,000	
		0603	0.1W	J	5%	E24	T		7" Reel - Plastic Tape	1210, 2010, 2512	
		0805	0.125W	Z	jumper		G	10" Reel - Paper Tape	0603, 0805, 1206	10,000	
		1206	0.25W				B	Bulk	0603, 0805, 1206	1,000	
		1210	0.33W								
		2010	0.75W								
2512	1W										

## How to Order RMCP

1	2	3	4	5	6	7	8	9	10	11	12	13	14
R	M	C	P	0	6	0	3	J	T	4	K	7	0

Product Series		Size	Power Rating	Tolerance			Packaging				Resistance Value
RMCP	High Power	0402	0.1W	Code	Tol	Value	Code	Description	Size	Quantity	Four characters with the multiplier used as the decimal holder. 1 ohm = 1R00 10 Kohm = 10K0 1 Mohm = 1M00
		0603	0.125W	F	1%	E96, E24	T	7" Reel Paper Tape	0402	10,000	
		0805	0.25W	J	5%	E24	T		0603, 0805	5,000	
		1206	0.33W				T		1206, 1210	4,000	
		1210	0.5W				G	10" Reel Paper Tape	0603, 0805	10,000	
		2010	1W						1206, 1210		
		2512	2W								