

# 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
- AEC-Q200 compliant (except RMCP0201)
- RoHS compliant and halogen free



## Electrical Specifications - RMCF

Type/Code	Power Rating (W) @ 70°C	Max. Working Voltage (V) <sup>(1)</sup>	Max. Overload Voltage (V)	Max. Jumper Current (A)	TCR (ppm/°C)	Ohmic Range (Ω) and Tolerance <sup>(2)</sup>	
						1%	5%
RMCF01005	0.03	15	30	0.5	± 300	10 - 97.6	
					± 200	100 - 1M	
RMCF0201	0.05	25	50	0.5	± 400	1 - 9.76	
					± 200	10 - 10M	
RMCF0402	0.063	50	100	1	± 200	1 - 9.76 <sup>(3)</sup>	
					± 100	10 - 1M	
					± 200	1.02M - 10M	1.1M - 20M
RMCF0603	0.1	75	150	1	± 500	0.1 - 0.499	
					± 400	0.5 - 0.976	
					± 200	1 - 9.76	1 - 20M
					± 100	10 - 1M	-
RMCF0805	0.125	150	300	2	± 200	0.1 - 9.76	0.1 - 20M
					± 100	10 - 1M	-
					± 200	1.02M - 10M	-
RMCF1206	0.25	200	400	2	± 200	0.1 - 9.76	0.1 - 20M
					± 100	10 - 1M	-
					± 200	1.02M - 10M	-
RMCF1210	0.5	200	400	3	± 200	0.1 - 0.976	
					± 400	1 - 9.76	
					± 100	10 - 10M	
RMCF2010	0.75	200	400	3	± 200	0.1 - 0.976	
					± 400	1 - 9.76	
					± 200	-	10 - 10M
					± 100	10 - 10M	-
RMCF2512	1	200	400	3	± 200	0.1 - 0.976	
					± 400	1 - 9.76	
					± 200	-	10 - 10M
					± 100	10 - 10M	-

Notes: (1) Lesser of  $\sqrt{P \cdot R}$  or maximum working voltage

(2) Contact Stackpole for extended ohmic values

(3) Contact Stackpole for lower ohmic values

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## Electrical Specifications - RMCP

Type/Code	Power Rating (W) @ 70°C	Max. Working Voltage (V) <sup>(1)</sup>	Max. Overload Voltage (V)	Max. Jumper Current (A)	TCR (ppm/°C)	Ohmic Range (Ω) and Tolerance <sup>(2)</sup>
						1%, 5%
RMCP0201	0.063	25	50	1	-200 / +400	1 - 9.76
						± 200
RMCP0402	0.125	50	100	1.5	± 200	1 - 9.76
						± 100
RMCP0603	0.25	75	150	2	± 200	1 - 9.76
						± 100
RMCP0805	0.33	150	300	2.5	± 200	1 - 9.76
						± 100
RMCP1206	0.5	200	400	3.5	± 400	1 - 9.76
						± 100
RMCP1210	0.66	200	400	5	± 400	1 - 9.76
						± 100
RMCP2010	1	200	400	6	± 200	1 - 9.76
						± 100
RMCP2512	2	250	500	7	± 200	1 - 9.76
						± 100

Notes: (1) Lesser of  $\sqrt{P \cdot R}$  or maximum working voltage

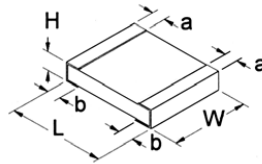
(2) Contact Stackpole for extended ohmic values

## Electrical Specifications - Jumper

Type/Code	Jumper Rated Current (A)	Max Overload Current (A)*	Jumper Resistance Value (Ω)
RMCF01005	0.5	1	0.05 max.
RMCF0201	0.5	1	
RMCF0402	1	3	
RMCF0603	1	5	
RMCF0805	2	5	
RMCF1206	2	10	
RMCF1210	3	12	
RMCF2010	3	12	
RMCF2512	3	15	

\* < 1 second and 1 time

## Mechanical Specifications



Type/Code	Average Unit Weight (mg)	L Body Length	W Body Width	H Body Height	a Top Termination	b Bottom Termination	Unit
RMCF01005	0.07	0.016 ± 0.0008 0.40 ± 0.02	0.008 ± 0.0008 0.20 ± 0.02	0.005 ± 0.0008 0.13 ± 0.02	0.004 ± 0.0012 0.10 ± 0.03	0.004 ± 0.0012 0.10 ± 0.03	inches mm
RMCF0201 RMCP0201	0.16	0.024 ± 0.0012 0.60 ± 0.03	0.012 ± 0.0012 0.30 ± 0.03	0.009 ± 0.0012 0.23 ± 0.03	0.006 ± 0.002 0.15 ± 0.05	0.006 ± 0.002 0.15 ± 0.05	inches mm
RMCF0402 RMCP0402	0.57 0.62	0.039 ± 0.004 1.00 ± 0.10	0.020 ± 0.002 0.50 ± 0.05	0.012 ± 0.004 0.30 ± 0.10	0.008 ± 0.004 0.20 ± 0.10	0.010 ± 0.006 0.25 ± 0.15	inches mm
RMCF0603 RMCP0603	1.88 2.04	0.061 ± 0.006 1.55 ± 0.15	0.031 ± 0.006 0.80 ± 0.15	0.018 ± 0.004 0.45 ± 0.10	0.012 ± 0.008 0.30 ± 0.20	0.012 ± 0.008 0.30 ± 0.20	inches mm
RMCF0805 RMCP0805	5.00 4.37	0.079 ± 0.008 2.00 ± 0.20	0.049 ± 0.004 1.25 ± 0.10	0.020 ± 0.006 0.50 ± 0.15	0.014 ± 0.010 0.35 ± 0.25	0.014 ± 0.010 0.35 ± 0.25	inches mm

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## Mechanical Specifications (cont.)

Type/Code	Average Unit Weight (mg)	L Body Length	W Body Width	H Body Height	a Top Termination	b Bottom Termination	Unit
RMCF1206	8.86	0.126 ± 0.010	0.063 ± 0.006	0.022 ± 0.006	0.020 ± 0.012	0.020 ± 0.012	inches
RMCP1206	8.95	3.20 ± 0.25	1.60 ± 0.15	0.55 ± 0.15	0.50 ± 0.30	0.50 ± 0.30	mm
RMCF1210	15.55	0.126 ± 0.010	0.098 ± 0.010	0.022 ± 0.006	0.020 ± 0.012	0.020 ± 0.012	inches
RMCP1210	15.96	3.20 ± 0.25	2.50 ± 0.25	0.55 ± 0.15	0.50 ± 0.30	0.50 ± 0.30	mm
RMCF2010	23.56	0.197 ± 0.008	0.098 ± 0.008	0.022 ± 0.006	0.024 ± 0.012	0.024 ± 0.014	inches
RMCP2010	24.24	5.00 ± 0.20	2.50 ± 0.20	0.55 ± 0.15	0.60 ± 0.30	0.60 ± 0.35	mm
RMCF2512	40.02	0.248 ± 0.008	0.126 ± 0.010	0.022 ± 0.008	0.024 ± 0.012	0.024 ± 0.014	inches
RMCP2512	39.45	6.30 ± 0.20	3.20 ± 0.25	0.55 ± 0.20	0.60 ± 0.30	0.60 ± 0.35	mm

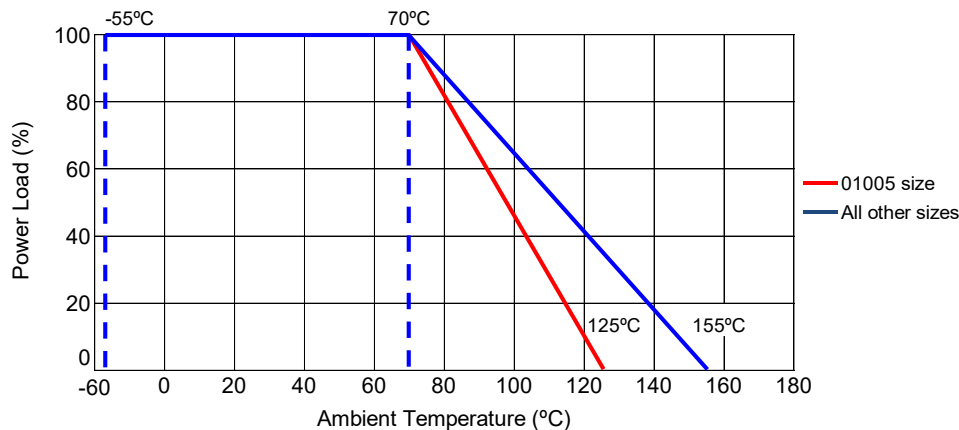
## Performance Characteristics

Test	Test Specifications	Test Conditions (JIS-C 5202)
Short Time Overload	± (2% + 0.1Ω)	2.5 X rated voltage for 5 seconds
	Jumper: Max 0.05Ω after test	0201 = 1A 0402 / 0603 / 0805 = 2.5A 1206 / 1210 / 2010 / 2512 = 5A
Dielectric Withstanding Voltage	No flashover or breakdown	100 VAC, 1 minute
Resistance to Soldering Heat	± 1%	260°C ± 5°C, for 10 seconds ± 0.5 seconds (Solder Bath)
Solderability	95% coverage, minimum	235°C ± 5°C, for 2 seconds ± 0.5 seconds (Colophonium flux)
Temperature Cycle	± (1% + 0.05Ω) Jumper (< 0.05Ω)	-65°C: 30 minutes 25°C: 2 to 3 minutes 155°C: 30 minutes 25°C: 2 to 3 minutes (5 Cycles)
Load Life (Endurance)	1% and below: ± (1% + 0.05Ω) 2% and 5%: ± (3% + 0.1Ω) Value < 1Ω: ± (3% + 0.1Ω) Jumper: Max 0.1Ω after test.	70°C ± 2°C, RCWV or max. working voltage whichever is less for 1000 hours with 1.5 hours "ON" and 0.5 hour "OFF"
Voltage Coefficient	± 100 (ppm/V)	1/10 rated voltage for 3 seconds max. then rated voltage for 3 seconds max.
Robustness of Termination	± (1% + 0.05Ω)	Bend of 3 mm for 5 ± 1 seconds
Resistance to Solvent	1%: ± (0.5% + 0.05Ω) 5%: ± (0.5% + 0.05Ω) Jumper: Max. 0.05Ω after test	The tested resistor should be immersed into isopropyl alcohol of 20°C ~ 25°C for 60 seconds. Then the resistor is left in the room for 48 hours.
Damp Heat with Load	1%: ± (1% + 0.05Ω) 5%: ± (2% + 0.05Ω) Values < 1Ω: ± (3% + 0.1Ω) Jumper: Max. 0.1Ω after test	40°C ± 2°C, 90%~95% R.H. RCWV or max. working voltage whichever is less for 1000 hours with 1.5 hours "ON" and 0.5 hours "OFF"

Operating temperature range is -55°C to +155°C for all sizes except for 01005 size

Operating temperature range for 01005 is -55°C to +125°C

### Power Derating Curve:



### Repetitive Pulse Information

(This information is for reference only and is not guaranteed performance.)

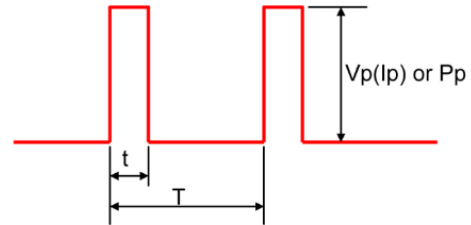
If repetitive pulses are applied to resistors, pulse wave form must be less than “Pulse limiting voltage”, “Pulse limiting current” or “Pulse limiting wattage” calculated by the formula below.

$$V_p = K\sqrt{P \times R \times T/t}$$

$$I_p = K\sqrt{P/R \times T/t}$$

$$P_p = K^2 \times P \times T/t$$

Where:  $V_p$ : Pulse limiting voltage (V)  
 $I_p$ : Pulse limiting current (A)  
 $P_p$ : Pulse limiting wattage (W)  
 $P$ : Power rating (W)  
 $R$ : Nominal resistance (ohm)  
 $T$ : Repetitive period (sec)  
 $t$ : Pulse duration (sec)  
 $K$ : Coefficient by resistors type (refer to below matrix)  
 $[V_r$ : Rated Voltage (V),  $I_r$ : Rated Current (A)]



Note 1: If  $T > 10 \rightarrow T = 10$  (sec),  $T/t > 1000 \rightarrow T/t = 1000$

Note 2: If  $T > 10$  and  $T/t > 1000$ , “Pulse Limiting power (Single pulse) is applied”

Note 3: If  $V_p < V_r$  ( $I_p < I_r$  or  $P_p < P$ ),  $V_r$  ( $I_r$ ,  $P$ ) is  $V_p$  ( $I_p$ ,  $P_p$ )

Note 4: Pulse limiting voltage (current, wattage) is applied at less than rated ambient temperature. If ambient temperature is more than the rated temperature (70°C), please decrease power rating according to “Power Derating Curve”

Note 5: Please assure sufficient margin for use period and conditions for “Pulse limiting voltage”

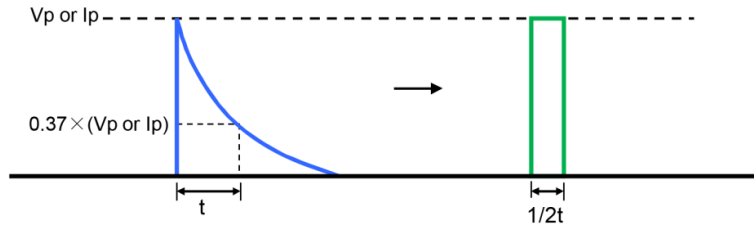
Note 6: If the pulse waveform is not square wave, please judge after transform the waveform into square wave according to the “Waveform Transformation to Square Wave”.

RMCF Coefficient (K) Matrix

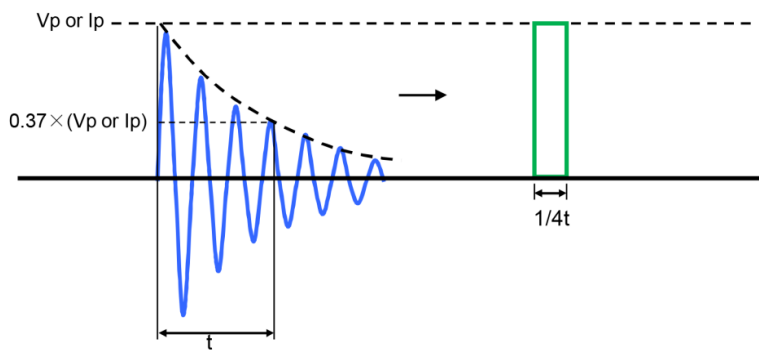
Ohmic Value	K
$R < 10\Omega$	0.50
$10\Omega \leq R < 100\Omega$	0.45
$100\Omega \leq R < 1K\Omega$	0.35
$1K\Omega \leq R < 10K\Omega$	0.25
$10K\Omega \leq R$	0.20

## Waveform Transformation to Square Wave

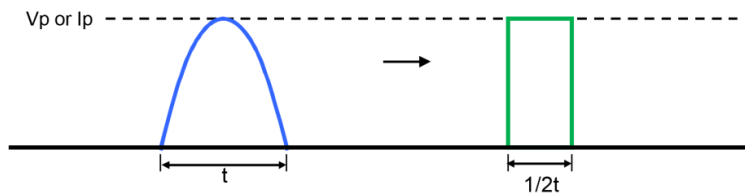
1. Discharge curve wave with time constant "t" → Square wave



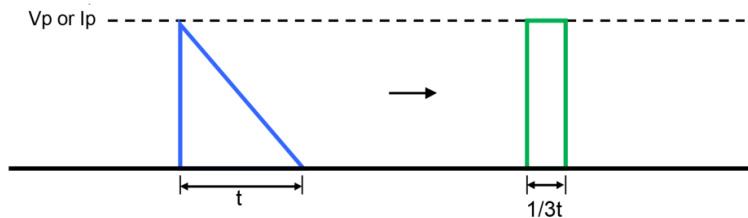
2. Damping oscillation wave with time constant of envelope "t" → Square wave



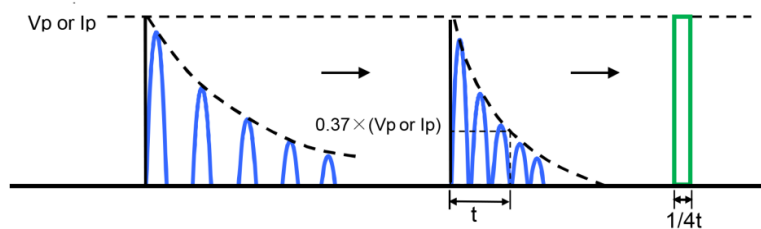
3. Half-wave rectification wave → Square wave



4. Triangular wave → Square wave



5. Special wave → Square wave



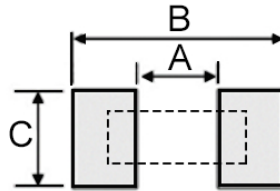
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## Recommended Pad Layout



Type/Code	A	B	C	Unit
RMCF01005	0.008 0.20	0.020 0.50	0.008 0.20	inches mm
RMCF0201 RMCP0201	0.012 0.30	0.039 1.00	0.016 0.40	inches mm
RMCF0402 RMCP0402	0.020 0.50	0.059 1.50	0.024 0.60	inches mm
RMCF0603 RMCP0603	0.031 0.80	0.083 2.10	0.035 0.90	inches mm
RMCF0805 RMCP0805	0.047 1.20	0.118 3.00	0.051 1.30	inches mm
RMCF1206 RMCP1206	0.087 2.20	0.165 4.20	0.063 1.60	inches mm
RMCF1210 RMCP1210	0.087 2.20	0.165 4.20	0.110 2.80	inches mm
RMCF2010 RMCP2010	0.138 3.50	0.240 6.10	0.110 2.80	inches mm
RMCF2512 RMCP2512	0.193 4.90	0.315 8.00	0.138 3.50	inches mm

## Recommended Solder Profile

This information is intended as a reference for solder profiles for Stackpole resistive components. These profiles should be compatible with most soldering processes. These are only recommendations. Actual numbers will depend on board density, geometry, packages used, etc., especially those cells labeled with “\*\*”.

## 100% Matte Tin / RoHS Compliant Terminations

Soldering iron recommended temperatures: 330°C to 350°C with minimum duration.

Maximum number of reflow cycles: 3.

## Wave Soldering

Description	Maximum	Recommended	Minimum
Preheat Time	80 seconds	70 seconds	60 seconds
Temperature Diff.	140°C	120°C	100°C
Solder Temp.	260°C	250°C	240°C
Dwell Time at Max.	10 seconds	5 seconds	*
Ramp DN (°C/sec)	N/A	N/A	N/A

Temperature Diff. = Difference between final preheat stage and soldering stage.

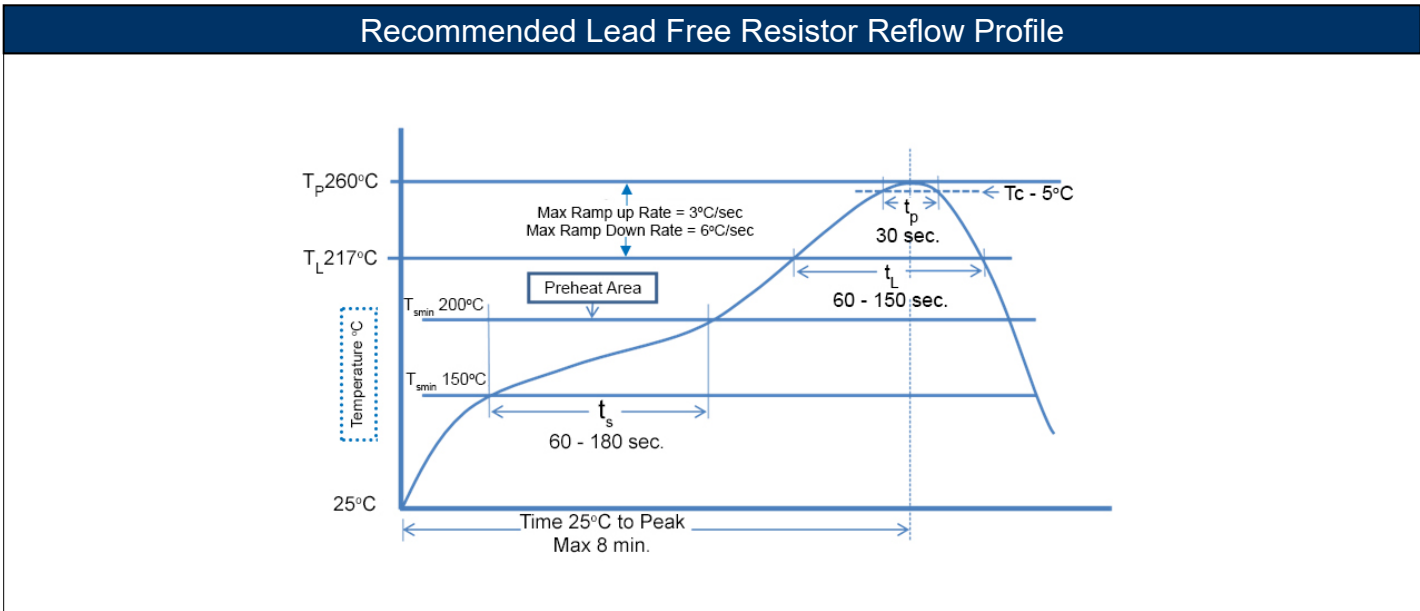
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Convection IR Reflow			
Description	Maximum	Recommended	Minimum
Ramp Up (°C/sec)	3°C/sec	2°C/sec	*
Dwell Time > 217°C	150 seconds	90 seconds	60 seconds
Solder Temp.	260°C	245°C	*
Dwell Time at Max.	30 seconds	15 seconds	10 seconds
Ramp DN (°C/sec)	6°C/sec	3°C/sec	*



Packaging (EIA Standard RS-481)

### Packaging Specifications

Reel Type	Wa	M	A	B	C	D	Unit
7" reel for 8 mm tape	0.354 ± 0.020	7.008 ± 0.079	0.079 ± 0.020	0.531 ± 0.020	0.827 ± 0.020	2.362 ± 0.039	inches
8 mm tape	9.00 ± 0.50	178.00 ± 2.00	2.00 ± 0.50	13.50 ± 0.50	21.00 ± 0.50	60.00 ± 1.00	mm
10" reel for 8 mm tape	0.394 ± 0.020	10.000 ± 0.079	0.079 ± 0.020	0.531 ± 0.020	0.827 ± 0.020	3.937 ± 0.039	inches
8 mm tape	10.00 ± 0.50	254.00 ± 2.00	2.00 ± 0.50	13.50 ± 0.50	21.00 ± 0.50	100.00 ± 1.00	mm

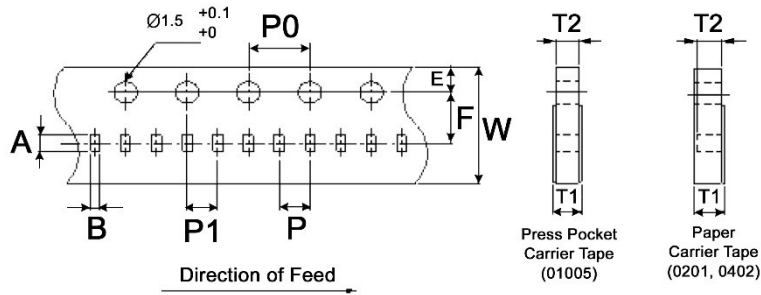
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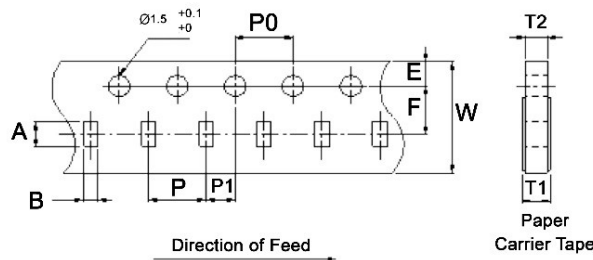
## Taping Specifications - 01005, 0201, 0402



Type/Code	7" Reel Quantity	Typical Full Reel Weight (g)	Tape Width	A	B	W	E	F	Unit
RMCF01005	10000	127.3 ± 12.0	0.315 8.00	0.018 ± 0.001 0.45 ± 0.02	0.010 ± 0.001 0.25 ± 0.02	0.315 ± 0.012 8.00 ± 0.30	0.069 ± 0.004 1.75 ± 0.10	0.138 ± 0.002 3.50 ± 0.05	inches mm
RMCF0201 RMCP0201	10000	97.2 ± 9.0	0.315 8.00	0.028 ± 0.006 0.70 ± 0.15	0.016 ± 0.006 0.40 ± 0.15	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
RMCF0402 RMCP0402	10000	94.5 ± 9.0	0.315 8.00	0.047 ± 0.006 1.20 ± 0.15	0.028 ± 0.006 0.70 ± 0.15	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

Type/Code	T1	T2	P	P0	P1	Unit
RMCF01005	0.012 ± 0.001 0.31 ± 0.03	0.007 ± 0.001 0.17 ± 0.03	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
RMCF0201 RMCP0201	0.015 ± 0.006 0.38 ± 0.15	0.011 ± 0.001 0.28 ± 0.02	0.079 ± 0.004 2.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.002 2.00 ± 0.05	inches mm
RMCF0402 RMCP0402	0.016 ± 0.008 0.40 ± 0.20	0.016 ± 0.002 0.40 ± 0.05	0.079 ± 0.004 2.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.002 2.00 ± 0.05	inches mm

## Taping Specifications - 0603, 0805, 1206, 1210



Type/Code	7" Reel Quantity <sup>(1)</sup>	Typical Full Reel Weight (g)	Tape Width	A	B	W	E	Unit
RMCF0603 RMCP0603	5000	118.3 ± 11.0	0.315 8.00	0.071 ± 0.008 1.80 ± 0.20	0.041 ± 0.008 1.05 ± 0.20	0.315 ± 0.008 8.00 ± 0.20	0.069 ± 0.004 1.75 ± 0.10	inches mm
RMCF0805 RMCP0805	5000	139.2 ± 13.0	0.315 8.00	0.093 ± 0.010 2.35 ± 0.25	0.063 ± 0.010 1.60 ± 0.25	0.315 ± 0.008 8.00 ± 0.20	0.069 ± 0.004 1.75 ± 0.10	inches mm
RMCF1206 RMCP1206	5000	151.4 ± 15.0	0.315 8.00	0.140 ± 0.010 3.55 ± 0.25	0.077 ± 0.010 1.95 ± 0.25	0.315 ± 0.008 8.00 ± 0.20	0.069 ± 0.004 1.75 ± 0.10	inches mm
RMCF1210 RMCP1210	4000	175.7 ± 17.0	0.315 8.00	0.138 ± 0.008 3.50 ± 0.20	0.110 ± 0.010 2.80 ± 0.25	0.315 ± 0.008 8.00 ± 0.20	0.069 ± 0.004 1.75 ± 0.10	inches mm



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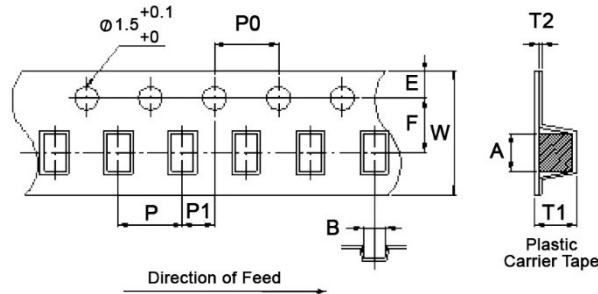
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## Taping Specifications - 0603, 0805, 1206, 1210 (cont.)

Type/Code	F	T1	T2	P	P0	P1	Unit
RMCF0603	0.138 ± 0.002	0.024 ± 0.008	0.024 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	inches
RMCP0603	3.50 ± 0.05	0.60 ± 0.20	0.60 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	mm
RMCF0805	0.138 ± 0.002	0.030 ± 0.008	0.030 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	inches
RMCP0805	3.50 ± 0.05	0.75 ± 0.20	0.75 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	mm
RMCF1206	0.138 ± 0.002	0.030 ± 0.008	0.030 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	inches
RMCP1206	3.50 ± 0.05	0.75 ± 0.20	0.75 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	mm
RMCF1210	0.138 ± 0.002	0.030 ± 0.008	0.030 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	inches
RMCP1210	3.50 ± 0.05	0.75 ± 0.20	0.75 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	mm

## Taping Specifications - 2010, 2512



Type/Code	7" Reel Quantity	Typical Full Reel Weight (g)	Tape Width	A	B	W	E	F	Unit
RMCF2010	4000	183.1 ± 18.0	0.472	0.217 ± 0.012	0.110 ± 0.008	0.472 ± 0.008	0.069 ± 0.004	0.217 ± 0.002	inches
RMCP2010			12.00	5.50 ± 0.30	2.80 ± 0.20	12.00 ± 0.20	1.75 ± 0.10	5.50 ± 0.05	mm
RMCF2512	4000	255.3 ± 25.0	0.472	0.264 ± 0.008	0.134 ± 0.008	0.472 ± 0.008	0.069 ± 0.004	0.217 ± 0.002	inches
RMCP2512			12.00	6.70 ± 0.20	3.40 ± 0.20	12.00 ± 0.20	1.75 ± 0.10	5.50 ± 0.05	mm

Type/Code	T1	T2	P	P0	P1	Unit
RMCF2010	0.041 ± 0.008	0.009 ± 0.006	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	inches
RMCP2010	1.05 ± 0.20	0.23 ± 0.15	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	mm
RMCF2512	0.041 ± 0.008	0.009 ± 0.006	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	inches
RMCP2512	1.05 ± 0.20	0.23 ± 0.15	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	mm

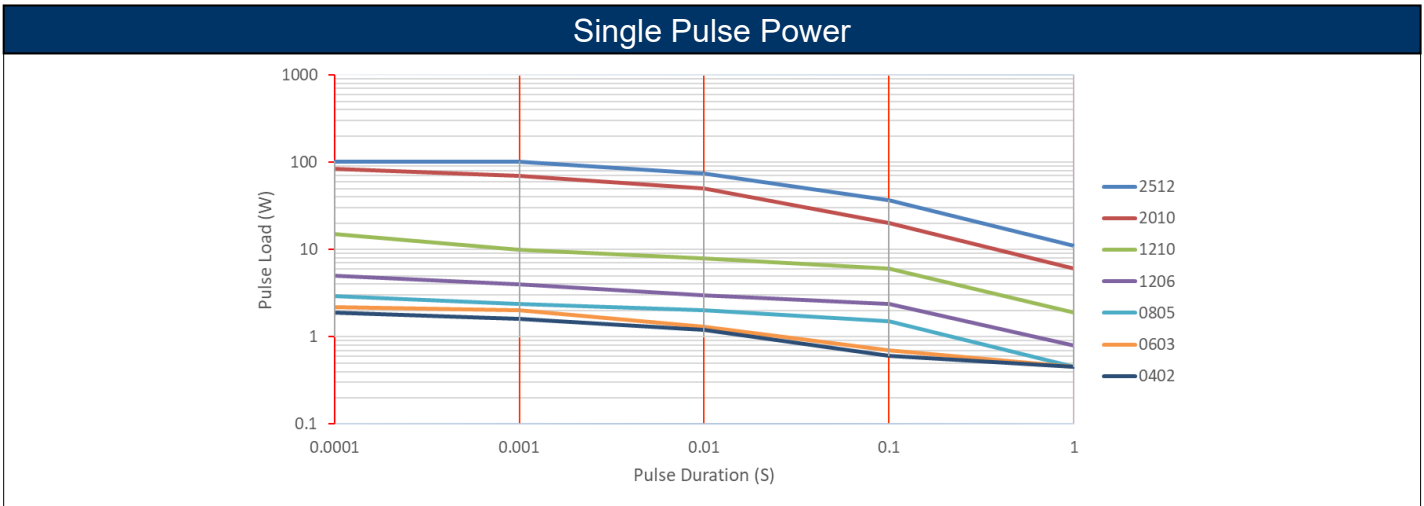
Note: Plastic carrier tape used for 2010 and 2512 sizes.

# RMCF / RMCP Series

General Purpose Thick Film Standard Power and High-Power Chip Resistor

Stackpole Electronics, Inc.

Resistive Product Solutions



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.

## Temperature Measurement of Resistor Surface

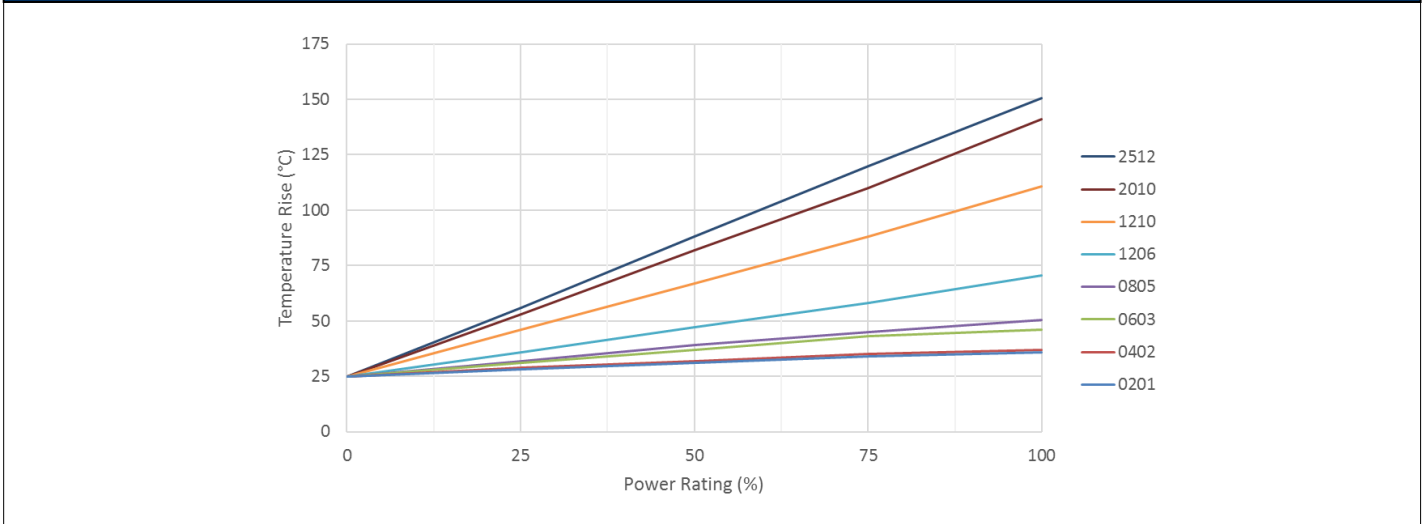
Description: The resistor surface generated temperature variation after applied rated voltage.  
Products and power:

Size	0201	0402	0603	0805	1206	1210	2010	2512
R-V	15K	40.2K	57.6K	180K	182K	100K	100K	75K
Rated Power (W)	1/20	1/16	1/10	1/8	1/4	1/2	3.4	1
Max Rated Voltage (V)	25	50	75	150	200	200	200	200

Test method: Measure component surface temperature directly after the temperature stabilizes.

Test result: As per table below:

## Hot Spot Temperature - RMCF



Size	0201	0402	0603	0805	1206	1210	2010	2512
Surface Temp. (°C)	36	37	46.2	50.4	70.6	110.6	141	150.4

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The thermal resistance of the RMCP will be similar to the RMCF. For example, the RMCF2512 and the RMCP2512 will have similar surface temperatures at 1W; the RMCP is designed to withstand higher temperatures associated with high power levels.

## Part Marking Specifications



### 1% Marking

The nominal resistance is marked on the surface of the overcoating with the use of 4 digit markings.  
0201 and 0402 are not marked.



### 5% Marking

The nominal resistance is marked on the surface of the overcoating with the use of 3 digit markings.  
0201 and 0402 are not marked.

For shared E24/E96 values, 1% tolerance product may be marked with three digit marking instead of the standard four digit marking for all other E96 values. All E24 values available in 1% tolerance are also marked with three digit marking.

## Mark Instructions for 0603 1% Chip Resistors (per EIA-J)

A two-digit number is assigned to each standard R-Value (E96) as shown in the chart below. This is followed by one alpha character which is used as a multiplier. Each letter "Y" – "F" represents a specific multiplier as follows:

Y = 0.1	X = 1	A = 10	B = 100
C = 1000	D(d) = 10000	E = 100000	F = 1000000

EXAMPLE:

Chip Marking	Explanation	Value
01B	01 means 10.0 and B = 100	10.0 x 100 = 1 K ohm
25C	25 means 17.8 and C = 1,000	17.8 x 1,000 = 17.8 K ohm
93D	93 means 90.9 and D = 10,000	90.9 x 10,000 = 909 K ohm

## E96

1%	#	1%	#	1%	#	1%	#	1%	#	1%	#
10.0	01	14.7	17	21.5	33	31.6	49	46.4	65	68.1	81
10.2	02	15.0	18	22.1	34	32.4	50	47.5	66	69.8	82
10.5	03	15.4	19	22.6	35	33.2	51	48.7	67	71.5	83
10.7	04	15.8	20	23.2	36	34.0	52	49.9	68	73.2	84
11.0	05	16.2	21	23.7	37	34.8	53	51.1	69	75.0	85
11.3	06	16.5	22	24.3	38	35.7	54	52.3	70	76.8	86
11.5	07	16.9	23	24.9	39	36.5	55	53.6	71	78.7	87
11.8	08	17.4	24	25.5	40	37.4	56	54.9	72	80.6	88
12.1	09	17.8	25	26.1	41	38.3	57	56.2	73	82.5	89
12.4	10	18.2	26	26.7	42	39.2	58	57.6	74	84.5	90
12.7	11	18.7	27	27.4	43	40.2	59	59.0	75	86.6	91
13.0	12	19.1	28	28.0	44	41.2	60	60.4	76	88.7	92
13.3	13	19.6	29	28.7	45	42.2	61	61.9	77	90.9	93
13.7	14	20.0	30	29.4	46	43.2	62	63.4	78	93.1	94
14.0	15	20.5	31	30.1	47	44.2	63	64.9	79	95.3	95
14.3	16	21.0	32	30.9	48	45.3	64	66.5	80	97.6	96

## RoHS Compliance

Stackpole Electronics has joined the worldwide effort to reduce the amount of lead in electronic components and to meet the various regulatory requirements now prevalent, such as the European Union's directive regarding "Restrictions on Hazardous Substances" (RoHS 3). As part of this ongoing program, we periodically update this document with the status regarding the availability of our compliant components. All our standard part numbers are compliant to EU Directive 2011/65/EU of the European Parliament as amended by Directive (EU) 2015/863/EU as regards the list of restricted substances.

RoHS Compliance Status						
Standard Product Series	Description	Package / Termination Type	Standard Series RoHS Compliant	Lead-Free Termination Composition	Lead-Free Mfg. Effective Date (Std Product Series)	Lead-Free Effective Date Code (YY/WW)
RMCF	General Purpose Thick Film Surface Mount Chip Resistor	SMD	YES <sup>(1)</sup>	100% Matte Sn over Ni	Jan-04 (Japan) Jan-05 (Taiwan, China)	04/01 05/01
RMCP	General Purpose High Power Thick Film Chip Resistor	SMD	YES <sup>(1)</sup>	100% Matte Sn over Ni	Always	Always

Note (1): RoHS Compliant by means of exemption 7c-l.

## "Conflict Metals" Commitment

We at Stackpole Electronics, Inc. are joined with our industry in opposing the use of metals mined in the "conflict region" of the eastern Democratic Republic of the Congo (DRC) in our products. Recognizing that the supply chain for metals used in the electronics industry is very complex, we work closely with our own suppliers to verify to the extent possible that the materials and products we supply do not contain metals sourced from this conflict region. As such, we are in compliance with the requirements of Dodd-Frank Act regarding Conflict Minerals.

## Compliance to "REACH"

We certify that all passive components supplied by Stackpole Electronics, Inc. are SVHC (Substances of Very High Concern) free and compliant with the requirements of EU Directive 1907/2006/EC, "The Registration, Evaluation, Authorization and Restriction of Chemicals", otherwise referred to as REACH. Contact us for complete list of REACH Substance Candidate List.

## Environmental Policy

It is the policy of Stackpole Electronics, Inc. (SEI) to protect the environment in all localities in which we operate. We continually strive to improve our effect on the environment. We observe all applicable laws and regulations regarding the protection of our environment and all requests related to the environment to which we have agreed. We are committed to the prevention of all forms of pollution.

# RMCF / RMCP Series

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and High-Power Chip Resistor

Stackpole Electronics, Inc.

Resistive Product Solutions

## 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		Tolerance			Packaging				Resistance Value	
Code	Description	Size	W	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	
RMCF	Thick Film Chip	01005	0.03	F	1%	E96, E24	T	7" Reel - Paper Tape	01005	10000		
		0201	0.05	J	5%	E24			0201, 0402	10000		
		0402	0.063	Z Jumper					0603, 0805, 1206	5000		
		0603	0.1						1210	4000		
		0805	0.125						2010, 2512		4000	
		1206	0.25									
		1210	0.5				G	10" Reel - Paper Tape	0603, 0805, 1206	10000		
		2010	0.75									
		2512	1									

## 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		Tolerance			Packaging				Resistance Value	
Code	Description	Size	W	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	
RMCP	High Power	0201	0.063	F	1%	E96, E24	T	7" Reel Paper Tape	0201, 0402	10000		
		0402	0.125	J	5%	E24			0603, 0805	5000		
		0603	0.25	Z Jumper					1206, 1210	4000		
		0805	0.33						2010, 2512	4000		
		1206	0.5									
		1210	0.66									
		2010	1				G	10" Reel Paper Tape	0603, 0805	10000		
		2512	2						1206, 1210	8000		

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