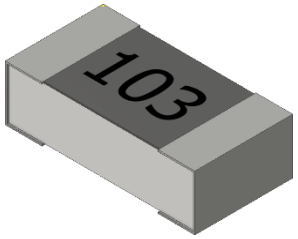
RMCF / RMCP Series

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 70ºC to zero at +155ºC
- RoHS compliant, REACH compliant, and halogen free
- AEC-Q200 compliant (except 01005 size)
- For ultra-high power, see RMCP-UP Series – Thick Film Ultra High-Power Chip Resistor

Electrical Specifications - RMCF

Type/Code	Power Rating (W) @ 70ºC	Max. Working Voltage (V) (1)	Max. Overload Voltage (V)	Jumper Rated Current (A)	TCR (ppm/ºC)	Ohmic Range (Ω) and Tolerance (2)	
						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	
					± 100	10 - 1M	
					± 200	1.02M - 22.1M	1.1M - 22M
RMCF0603	0.1	75	150	1	± 500	0.1 - 0.499	
					± 400	0.5 - 0.976	
					± 200	1 - 9.76	1 - 9.1
					± 100	10 - 1M	10 - 10M
					± 200	1.02M - 22.1M	11M - 22M
RMCF0805	0.125	150	300	2	± 200	0.1 - 9.76	0.1 - 9.1
					± 100	10 - 1M	10 - 10M
					± 200	1.02M - 22.1M	11M - 22M
RMCF1206	0.25	200	400	2	± 200	0.1 - 9.76	0.1 - 9.1
					± 100	10 - 10M	
					± 200	10.2M - 22.1M	11M - 22M
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 √(P*R) or maximum working voltage
(2) Contact Stackpole for higher or lower values

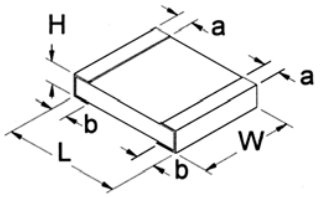
Electrical Specifications - RMCP						
Type/Code	Power Rating (W) @ 70ºC	Max. Working Voltage (V) (1)	Max. Overload Voltage (V)	Jumper Rated Current (A)	TCR (ppm/ºC)	Ohmic Range (Ω) and Tolerance (2)
						1%, 5%
RMCP0201	0.063	25	50	1	-200 / +400	1 - 9.76
					± 200	10 - 10M
RMCP0402	0.125	50	100	1.5	± 200	1 - 9.76
					± 100	10 - 10M
RMCP0603	0.25	75	150	2	± 200	1 - 9.76
					± 100	10 - 10M
RMCP0805	0.33	150	300	2.5	± 200	1 - 9.76
					± 100	10 - 10M
RMCP1206	0.5	200	400	3.5	± 400	1 - 9.76
					± 100	10 - 10M
RMCP1210	0.66	200	400	5	± 400	1 - 9.76
					± 100	10 - 10M
RMCP2010	1	200	400	6	± 200	1 - 9.76
					± 100	10 - 10M
RMCP2512	2	250	500	7	± 200	1 - 9.76
					± 100	10 - 10M

Notes: (1) Lesser of √(P*R) or maximum working voltage
(2) Contact Stackpole for higher or lower values
The resistance value range for RMCP jumper is max. 0.02Ω

Electrical Specifications - RMCF 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	10	
RMCF1206	2	10	
RMCF1210	3	12	
RMCF2010	3	12	
RMCF2512	3	15	

* < 1 second and 1 time

Mechanical Specifications



Type/Code	Typical Unit Weight (mg)	L Body Length	W Body Width	H Body Height	a Top Termination	b Bottom Termination	Unit
RMCF01005	0.07	0.016 ± 0.001 0.40 ± 0.02	0.008 ± 0.001 0.20 ± 0.02	0.005 ± 0.001 0.13 ± 0.02	0.004 ± 0.001 0.10 ± 0.03	0.004 ± 0.001 0.10 ± 0.03	inches mm
RMCF0201 RMCP0201	0.16	0.024 ± 0.001 0.60 ± 0.03	0.012 ± 0.001 0.30 ± 0.03	0.009 ± 0.002 0.23 ± 0.05	0.006 ± 0.002 0.15 ± 0.05	0.006 ± 0.002 0.15 ± 0.05	inches mm
RMCF0402 RMCP0402	0.5 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	0.006 ± 0.004 0.15 ± 0.10	0.010 ± 0.006 0.25 ± 0.15	inches mm
RMCF0603 RMCP0603	1.9 2.0	0.061 ± 0.006 1.55 ± 0.15	0.031 ± 0.006 0.80 ± 0.15	0.018 ± 0.006 0.45 ± 0.15	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
RMCF1206 RMCP1206	8.9	0.126 ± 0.010 3.20 ± 0.25	0.063 ± 0.006 1.60 ± 0.15	0.022 ± 0.006 0.55 ± 0.15	0.020 ± 0.012 0.50 ± 0.30	0.020 ± 0.012 0.50 ± 0.30	inches mm
RMCF1210 RMCP1210	15.55 15.96	0.126 ± 0.010 3.20 ± 0.25	0.098 ± 0.010 2.50 ± 0.25	0.022 ± 0.006 0.55 ± 0.15	0.020 ± 0.012 0.50 ± 0.30	0.020 ± 0.012 0.50 ± 0.30	inches mm
RMCF2010 RMCP2010	23.6 24.2	0.197 ± 0.008 5.00 ± 0.20	0.098 ± 0.008 2.50 ± 0.20	0.022 ± 0.006 0.55 ± 0.15	0.024 ± 0.012 0.60 ± 0.30	0.024 ± 0.014 0.60 ± 0.35	inches mm
RMCF2512 RMCP2512	40.02 39.45	0.248 ± 0.008 6.30 ± 0.20	0.126 ± 0.010 3.20 ± 0.25	0.022 ± 0.008 0.55 ± 0.20	0.024 ± 0.012 0.60 ± 0.30	0.024 ± 0.014 0.60 ± 0.35	inches mm

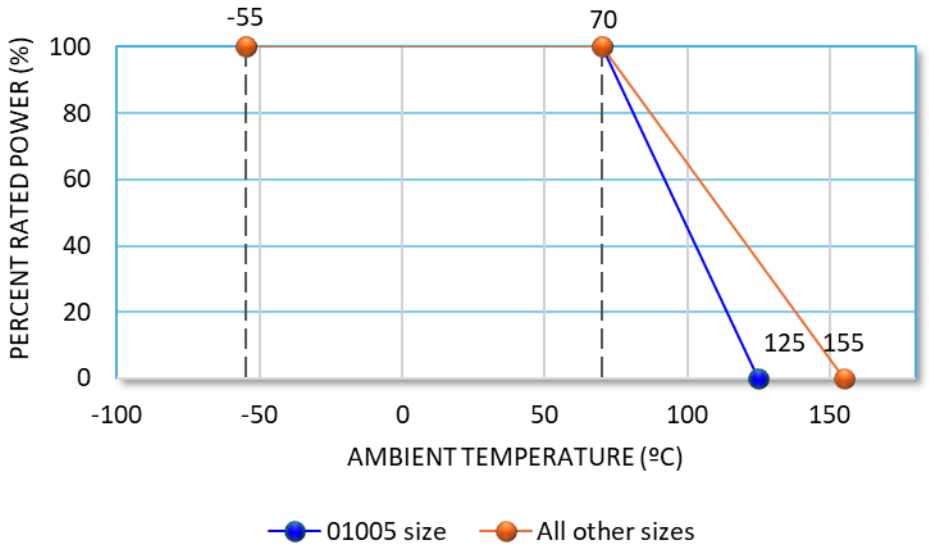
Performance Characteristics

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 = 1 A 0402 / 0603 = 2.5 A 0805 / 1206 / 1210 / 2010 / 2512 = 5 A
Dielectric Withstanding Voltage	No flashover or breakdown	100 VAC, 1 minute
Resistance to Soldering Heat	± 1%	260 ± 5ºC, for 10 seconds ± 0.5 seconds (Solder Bath)
Solderability	95% coverage, minimum	235 ± 5ºC, for 2 seconds ± 0.5 seconds (Colophonium flux)
Temperature Cycling	± (1% + 0.05Ω) Jumper (< 0.05Ω)	-65ºC: 30 minutes 25ºC: 2 to 3 minutes 155ºC: 30 minutes 25ºC: 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 ± 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.
Bending Strength	± (1% + 0.05Ω)	Bend of 2 mm for 5 ± 1 seconds

Performance Characteristics (cont.)		
Test	Test Specifications	Test Conditions (JIS-C 5202)
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 to 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 ± 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 to +155°C for all sizes except for 01005 size
Operating temperature range for 01005 is -55 to +125°C

Power Derating Curve:



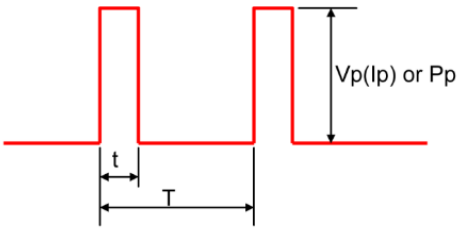
Repetitive Pulse Information
(This information is for reference only and is not guaranteed performance.)

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.

$Vp = K\sqrt{PxRxT/t}$

$Ip = K\sqrt{P/RxT/t}$

$Pp = K^2 xPxT/t$



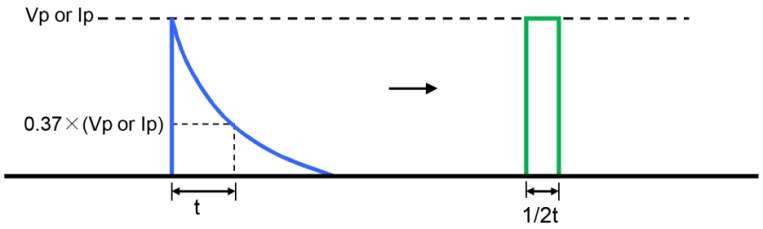
Where: Vp: Pulse limiting voltage (V)
Lp: Pulse limiting current (A)
Pp: Pulse limiting wattage (W)
P: Power rating (W)
R: Nominal resistance (ohm)
T: Repetitive period (sec)
t: Pulse duration (sec)
K: Coefficient by resistors type (refer to below matrix)
[Vr: Rated Voltage (V), Ir: Rated Current (A)]

Note 1: If T > 10 → T = 10 (sec), T/t > 1000 → T/t = 1000
Note 2: If T > 10 and T/t > 1000, “Pulse Limiting power (Single pulse) is applied
Note 3: If Vp < Vr (Ip < Ir or Pp < P), Vr (Ir, P) is Vp (Ip, Pp)
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”.

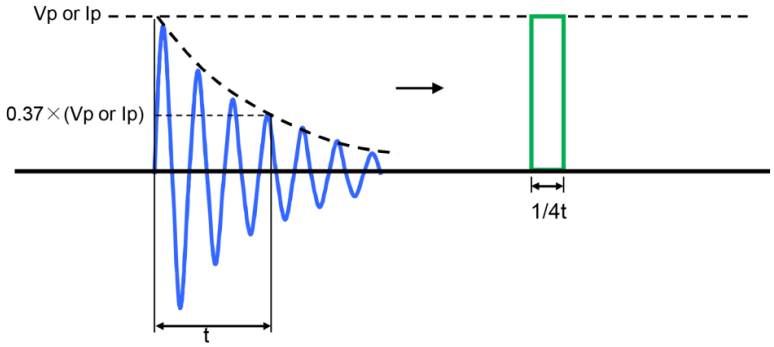
RMCF Coefficient (K) Matrix	
Ohmic Value	K
R < 10Ω	0.50
10Ω ≤ R < 100Ω	0.45
100Ω ≤ R < 1KΩ	0.35
1KΩ ≤ R < 10KΩ	0.25
10KΩ ≤ R	0.20

Waveform Transformation to Square Wave

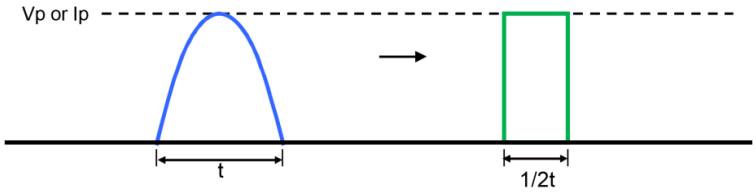
1. Discharge curve wave with time constant "t" → Square wave



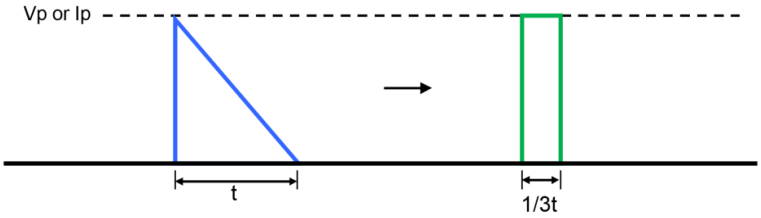
2. Damping oscillation wave with time constant of envelope "t" → Square wave



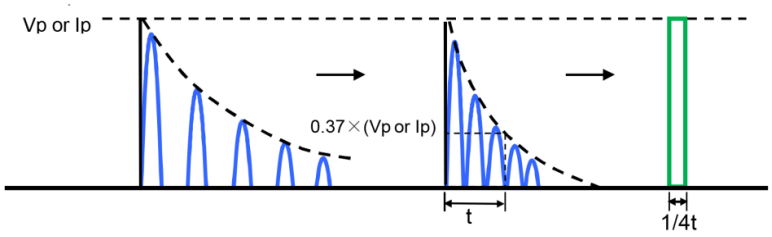
3. Half-wave rectification wave → Square wave



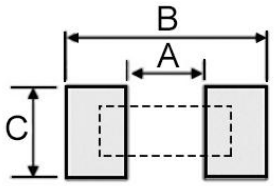
4. Triangular wave → Square wave



5. Special wave → Square wave



Recommended Solder Pad



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

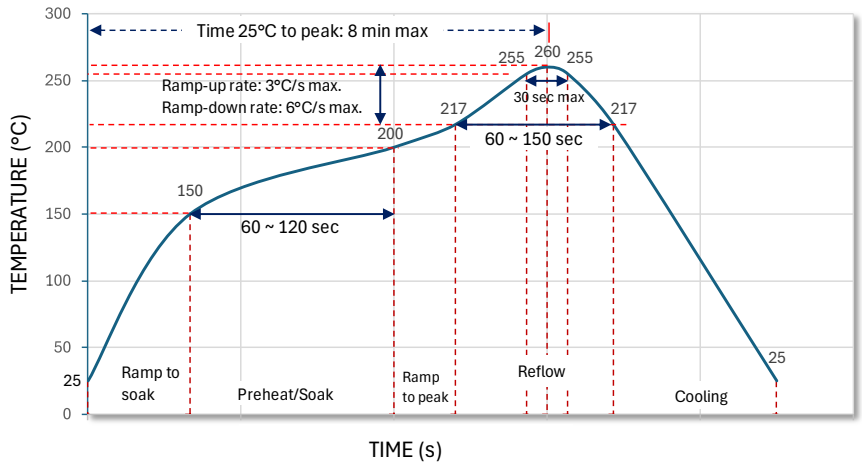
Soldering iron recommended temperatures: 330°C to 350°C with minimum duration.
Maximum number of reflow cycles is 3.

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.

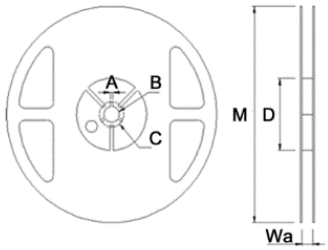
Convection IR Reflow			
Description	Maximum	Recommended	Minimum
Ramp Up (°C/sec)	3°C/sec	2°C/sec	*
Dwell Time > 217°C	150 seconds	90 seconds	60 seconds
Solder Temp.	260°C	245°C	*
Dwell Time at Max.	30 seconds	15 seconds	10 seconds
Ramp DN (°C/sec)	6°C/sec	3°C/sec	*

Recommended Resistor Reflow Profile



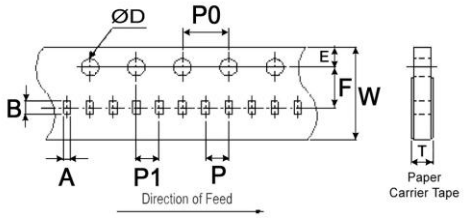
Packaging (EIA Standard RS-481)

Reel Specifications



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

Taping Specifications - Paper Tape (sizes 01005 - 1210)

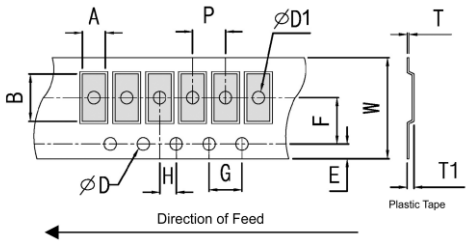


Type/Code	Nominal Typical Full Reel Weight (g)	Tape Width	A	B	W	E	Unit
RMCF01005	127.3	0.315 8.00	0.009 ± 0.002 0.24 ± 0.05	0.018 ± 0.004 0.45 ± 0.10	0.315 ± 0.008 8.00 ± 0.20	0.069 ± 0.004 1.75 ± 0.10	inches mm
RMCF0201 RMCP0201	97.2	0.315 8.00	0.016 ± 0.006 0.40 ± 0.15	0.028 ± 0.006 0.70 ± 0.15	0.315 ± 0.008 8.00 ± 0.20	0.069 ± 0.004 1.75 ± 0.10	inches mm
RMCF0402 RMCP0402	94.5	0.315 8.00	0.028 ± 0.006 0.70 ± 0.15	0.047 ± 0.006 1.20 ± 0.15	0.315 ± 0.008 8.00 ± 0.20	0.069 ± 0.004 1.75 ± 0.10	inches mm
RMCF0603 RMCP0603	118.3	0.315 8.00	0.041 ± 0.008 1.05 ± 0.20	0.071 ± 0.008 1.80 ± 0.20	0.315 ± 0.008 8.00 ± 0.20	0.069 ± 0.004 1.75 ± 0.10	inches mm
RMCF0805 RMCP0805	139.2	0.315 8.00	0.063 ± 0.010 1.60 ± 0.25	0.093 ± 0.010 2.35 ± 0.25	0.315 ± 0.008 8.00 ± 0.20	0.069 ± 0.004 1.75 ± 0.10	inches mm
RMCF1206 RMCP1206	151.4	0.315 8.00	0.077 ± 0.010 1.95 ± 0.25	0.140 ± 0.010 3.55 ± 0.25	0.315 ± 0.008 8.00 ± 0.20	0.069 ± 0.004 1.75 ± 0.10	inches mm
RMCF1210 RMCP1210	175.7	0.315 8.00	0.110 ± 0.010 2.80 ± 0.25	0.138 ± 0.008 3.50 ± 0.20	0.315 ± 0.008 8.00 ± 0.20	0.069 ± 0.004 1.75 ± 0.10	inches mm

Taping Specifications - Paper Tape (sizes 01005 - 1210)

Type/Code	F	T	P	P0	P1	DØ	Unit
RMCF01005	0.138 ± 0.002 3.50 ± 0.05	0.016 ± 0.004 0.40 ± 0.10	0.079 ± 0.004 2.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.004 2.00 ± 0.10	0.059 +0.004/-0 1.50 +0.10/-0	inches mm
RMCF0201 RMCP0201	0.138 ± 0.002 3.50 ± 0.05	0.015 ± 0.006 0.38 ± 0.15	0.079 ± 0.004 2.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.004 2.00 ± 0.10	0.059 +0.004/-0 1.50 +0.10/-0	inches mm
RMCF0402 RMCP0402	0.138 ± 0.002 3.50 ± 0.05	0.016 ± 0.008 0.40 ± 0.20	0.079 ± 0.004 2.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.004 2.00 ± 0.10	0.059 +0.004/-0 1.50 +0.10/-0	inches mm
RMCF0603 RMCP0603	0.138 ± 0.002 3.50 ± 0.05	0.024 ± 0.004 0.60 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.004 2.00 ± 0.10	0.059 +0.004/-0 1.50 +0.10/-0	inches mm
RMCF0805 RMCP0805	0.138 ± 0.002 3.50 ± 0.05	0.030 ± 0.004 0.75 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.004 2.00 ± 0.10	0.059 +0.004/-0 1.50 +0.10/-0	inches mm
RMCF1206 RMCP1206	0.138 ± 0.002 3.50 ± 0.05	0.030 ± 0.004 0.75 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.004 2.00 ± 0.10	0.059 +0.004/-0 1.50 +0.10/-0	inches mm
RMCF1210 RMCP1210	0.138 ± 0.002 3.50 ± 0.05	0.030 ± 0.004 0.75 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.004 2.00 ± 0.10	0.059 +0.004/-0 1.50 +0.10/-0	inches mm

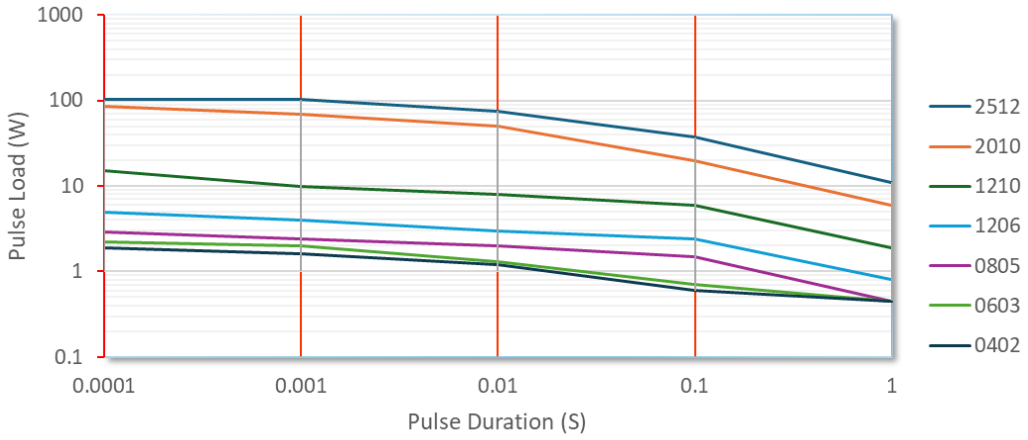
Taping Specifications - Plastic Tape (sizes 2010 and 2512)



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

Type/Code	G	H	T	ØD	ØD1	T1	P	Unit
RMCF2010 RMCP2010	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.002 2.00 ± 0.05	0.009 ± 0.004 0.23 ± 0.10	0.059 +0.004/-0 1.50 +0.10/-0	0.059 ± 0.004 1.50 ± 0.10	0.035 ± 0.008 0.90 ± 0.20	0.157 ± 0.004 4.00 ± 0.10	inches mm
RMCF2512 RMCP2512	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.002 2.00 ± 0.05	0.009 ± 0.004 0.23 ± 0.10	0.059 +0.004/-0 1.50 +0.10/-0	0.059 ± 0.004 1.50 ± 0.10	0.035 ± 0.008 0.90 ± 0.20	0.157 ± 0.004 4.00 ± 0.10	inches mm

Single Pulse Power



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 at marketing@seielect.com to discuss specific pulse application requirements.

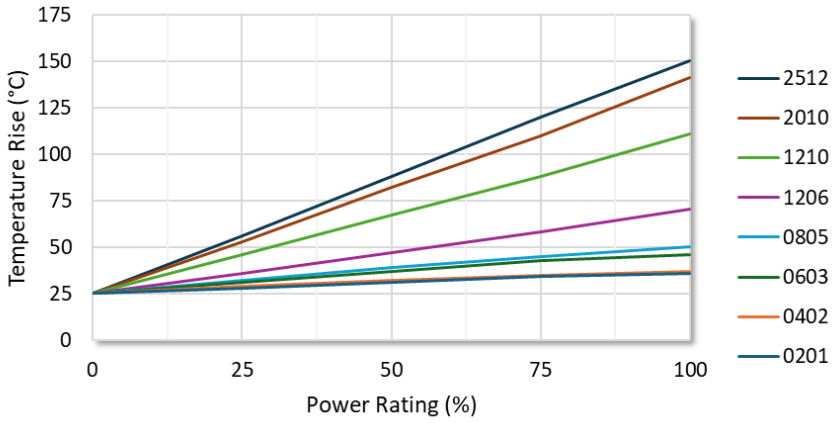
Temperature Measurement of Resistor Surface

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

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

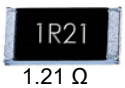
The thermal resistance of the RMCP will be similar to the RMCF. For example, the RMCF2512 and the RMCP2512 will have similar surface temperatures at 1W; the RMCP is designed to withstand higher temperatures associated with high power levels.

Part Marking Specifications

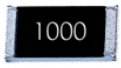
E96 Values for 0805-2512 (1% tolerance)

The nominal resistance is marked on the surface of the overcoating with the use of **four character markings**.

1. Values <100Ω will use "R" as the decimal holder.



1.21 Ω



100 Ω

E24 Values for 0805-2512 (1% tolerance)

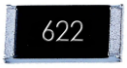
The nominal resistance is marked on the surface of the overcoating with the use of **three or four character markings**.

E24 Code	10	11	12	13	15	16	18	20	22	24	27	30	33	36	39	43	47	51	56	62	68	75	82	91

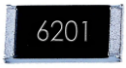
3-digit marking in E24 values (1% tolerance)
First and second digits are E24 code; third digit is the multiplier. Values < 100Ω will use "R" as the decimal holder

4-digit marking in E24 values (1% tolerance)
Values < 100Ω will use "R" as the decimal holder

3 or 4-digit marking		
Resistance	6.2 KΩ	
Marking	3-digit	4-digit
	622	6201



6.2 KΩ

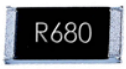


6.2 KΩ

E24 Values for 0805-2512 (5% tolerance, ≤ 0.91Ω)

The nominal resistance is marked on the surface of the overcoating with the use of **four character markings.**

1. Values ≤ 0.91Ω will use "R" as the decimal holder.



0.68Ω

E24 Values for 0805-2512 (5% tolerance, ≥ 1Ω)

The nominal resistance is marked on the surface of the overcoating with the use of **three character markings**.

1. Values between 1Ω and 9.1Ω will use "R" as the decimal holder.

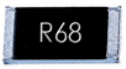
1Ω

1.2 KΩ

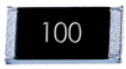
E24 Values for 0603

The nominal resistance is marked on the surface of the overcoating with the use of **three character markings**.

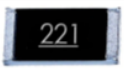
1. Values between 0.1Ω and 9.1Ω will use "R" as the decimal holder.
2. Values ≥10Ω will use no decimal holder.
3. 5% tolerance is not underlined. 1% tolerance is underlined.
   (Effective date for 1% underline marking is date codes on/or after April 1st. 2025)
4. Values that are both E24 and E96 follow E96 marking rules.



0.68Ω 5%



10Ω 5%

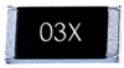


220Ω 1%

Part Marking Specifications (cont.)

E96 Values for 0603 size (1% tolerances)

A two character 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 from "Y" - "F" represents a specific multiplier.



10.5Ω

Alpha Character = Multiplier	
Y = 0.1	C = 1000
X = 1	D = 10000
A = 10	E = 100000
B = 100	F = 1000000

Chip Marking	Value
01B =	10.0 x 100 = 1 KΩ
25C =	17.8 x 1000 = 17.8 KΩ
93D =	90.9 x10000 = 909 KΩ

E96

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

Note: 01005, 0201, and 0402 sizes are unmarked.

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
RMCF	General Purpose Thick Film Standard Power Chip Resistor	SMD	YES(1)	100% Matte Sn over Ni
RMCP	General Purpose Thick Film High-Power Chip Resistor	SMD	YES(1)	100% Matte Sn over Ni

Note (1): RoHS compliant by means of exemption 7c-I.

"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.

How to Order - RMCF

R	M	C	F	0	6	0	3	J	T	4	K	7	0

Product Series
Code
RMCF

Size	
Size	W
01005	0.03
0201	0.05
0402	0.063
0603	0.1
0805	0.125
1206	0.25
1210	0.5
2010	0.75
2512	1

Tolerance		
Code	Tol	Value
F	1%	E96, E24
J	5%	E24
Z	Jumper	

Packaging			
Code	Description	Size	Quantity
T	7" Reel Paper Tape	01005	10000
		0201, 0402	10000
		0603, 0805, 1206	5000
		1210	4000
	7" Reel Plastic Tape	2010, 2512	4000
G	10" Reel Paper Tape	0603, 0805, 1206	10000

Resistance Value
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

How to Order - RMCP

R	M	C	P	0	6	0	3	J	T	4	K	7	0

Product Series
Code
RMCP

Size	
Size	W
0201	0.063
0402	0.125
0603	0.25
0805	0.33
1206	0.5
1210	0.66
2010	1
2512	2

Tolerance		
Code	Tol	Value
F	1%	E96, E24
J	5%	E24
Z	Jumper	

Packaging			
Code	Description	Size	Quantity
T	7" Reel Paper Tape	0201, 0402	10000
		0603, 0805 1206, 1210	5000
	7" Reel Plastic Tape	2010, 2512	4000
G	10" Reel Paper Tape	0603, 0805 1206	10000

Resistance Value
Four characters with the multiplier used as the decimal holder.
1 ohm = 1R00 10 Kohm = 10K0 1 Mohm = 1M00