

- Features:
- Inner terminations engineered to deter sulfur contamination
 - Non-standard resistance values available
 - Operating temperature range from -55°C to +155°C
 - Zero ohm available (max resistance 0.05Ω)
 - “-HP” denotes high power
 - RoHS compliant and halogen-free



Electrical Specifications							
Type / Code	Power Rating (Watts) @ 70°C	Maximum Working Voltage ⁽¹⁾	Maximum Overload Voltage ⁽²⁾	Maximum Current Jumper (Amp)	Resistance Temperature Coefficient	Ohmic Range (Ω) and Tolerance	
						0.5%	1% 5%
RMCS0201	0.05W	25V	50V	1 amp	± 200 ppm/°C	-	1 - 10M
RMCS0402	0.063W	50V	100V	1 amp	± 200 ppm/°C	1 - 9.76	
					± 100 ppm/°C	10 - 1M	
					± 200 ppm/°C	1.02M - 10M	
RMCS0603	0.1W	50V	100V	1 amp	± 200 ppm/°C	1 - 9.76	
					± 100 ppm/°C	10 - 1M	
					± 200 ppm/°C	1.02M - 10M	
RMCS0805	0.125W	150V	300V	2 amps	± 200 ppm/°C	1 - 9.76	
					± 100 ppm/°C	10 - 1M	
					± 200 ppm/°C	1.02M - 10M	
RMCS1206	0.25W	200V	400V	2 amps	± 200 ppm/°C	1 - 9.76	
					± 100 ppm/°C	10 - 1M	
					± 200 ppm/°C	1.02M - 10M	
RMCS1210	0.33W	200V	400V	2.5 amps	± 200 ppm/°C	1 - 9.76	
					± 100 ppm/°C	10 - 1M	
					± 200 ppm/°C	1.02M - 10M	
RMCS2010	0.75W	200V	400V	3.5 amps	± 200 ppm/°C	1 - 9.76	
					± 100 ppm/°C	10 - 1M	
					± 200 ppm/°C	1.02M - 10M	
RMCS2512	1W	250V	500V	4 amps	± 200 ppm/°C	1 - 9.76	
					± 100 ppm/°C	10 - 1M	
					± 200 ppm/°C	1.02M - 10M	

(1) Lesser of $\sqrt{P \cdot R}$ or maximum working voltage, whichever is lower.

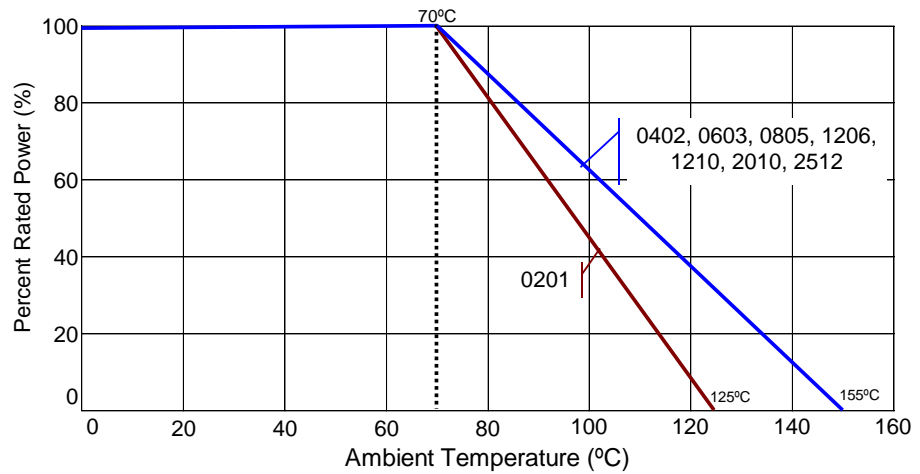
(2) $2.5 \cdot \sqrt{P \cdot R}$ or Max. Overload Voltage listed above, whichever is lower.

Electrical Specifications – High Power						
Type / Code	Power Rating (Watts) @ 70°C	Maximum Working Voltage ⁽¹⁾	Maximum Overload Voltage ⁽²⁾	Resistance Temperature Coefficient	Ohmic Range (Ω) and Tolerance	
					1%	5%
RMCS0201_-HP	0.083W	25V	50V	± 200 ppm/°C	10 - 1M	
RMCS0402_-HP	0.1W	50V	100V	± 200 ppm/°C	1 - 9.76	
				± 100 ppm/°C	10 - 1M	
RMCS0603_-HP	0.25W	75V	150V	± 200 ppm/°C	1 - 9.76	
				± 100 ppm/°C	10 - 1M	
RMCS0805_-HP	0.33W	150V	300V	± 200 ppm/°C	1 - 9.76	
				± 100 ppm/°C	10 - 1M	
RMCS1206_-HP	0.33W	200V	400V	± 200 ppm/°C	1 - 9.76	
				± 100 ppm/°C	10 - 1M	
RMCS1210_-HP	0.5W	200V	400V	± 200 ppm/°C	1 - 9.76	
				± 100 ppm/°C	10 - 1M	
RMCS2010_-HP	1W	200V	400V	± 200 ppm/°C	1 - 9.76	
				± 100 ppm/°C	10 - 1M	

(1) Lesser of $\sqrt{P \cdot R}$ or maximum working voltage, whichever is lower.

(2) $2.5 \cdot \sqrt{P \cdot R}$ or Max. Overload Voltage listed above, whichever is lower.

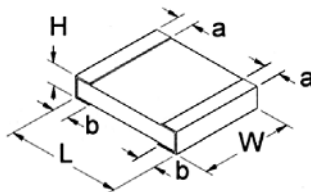
Power Derating Curve:



Performance Characteristics					
Test	Test Method	Test Specification			Test Condition
		±1% and below	±5%	Jumper	
Temperature Coefficient of Resistance (T.C.R.)	JIS-C-5201-1 4.8 IEC-60115-1 4.8	As specified in Electrical Specifications table			-55°C~+125°C, 25°C is the reference temperature
Short Time Overload	JIS-C-5201-1 4.13 IEC-60115-1 4.13	±(1%+0.05Ω)	±(2%+0.05Ω)	<50mΩ	RCWV*2.5 or Max. Overload Voltage whichever is lower for 5 seconds, 2 seconds for high power series.
Insulation Resistance	JIS-C-5201-1 4.6 IEC-60115-1 4.6	≥10G			Max. Overload Voltage for 1 minute
Endurance	JIS-C-5201-1 4.25 IEC-60115-1 4.25.1	±(2%+0.1Ω)	±(3%+0.1Ω)	<100mΩ	70±2°C, RCWV for 1000 hours with 1.5 hours "ON" and 0.5 hour "OFF"
Damp Heat with Load	JIS-C-5201-1 4.24 IEC-60115-1 4.24	±(2%+0.1Ω)	±(3%+0.1Ω)	<100mΩ	40±2°C, 90~95% R.H., RCWV for 1000 hours with 1.5 hours "ON" and 0.5 hour "OFF"
Dry Heat	JIS-C-5201-1 4.23 IEC-60115-1 4.23.2	±(1%+0.05Ω)	±(1.5%+0.1Ω)	<50mΩ	At +125/+155°C for 1000 hours
Bending Strength	JIS-C-5201-1 4.33 IEC-60115-1 4.33	±(1%+0.05Ω)	±(1%+0.05Ω)	<50mΩ	Bending once for 5 seconds 2010, 2512 sizes: 2mm / Other sizes: 3mm
Solderability	JIS-C-5201-1 4.17 IEC-60115-1 4.17	95% minimum coverage			245±5°C for 3 seconds
Resistance to Soldering Heat	JIS-C-5201-1 4.18 IEC-60115-1 4.18	±(0.5%+0.05Ω)	±(1%+0.05Ω)	<50mΩ	260±5°C for 10 seconds
Voltage Proof	JIS-C-5201-1 4.7 IEC-60115-1 4.7	No breakdown or flashover			1.42 times Max. Operating Voltage for 1 minute
Leaching	JIS-C-5201-1 4.18 IEC-60068-2-58 8.2.1	Individual leaching area ≤ 5% Total leaching area ≤ 10%			260±5°C for 30 seconds
Rapid change of Temperature	JIS-C-5201-1 4.19 IEC-60115-1 4.19	±(0.5%+0.05Ω)	±(1%+0.05Ω)	<50mΩ	-55°C to +125°C/+155°C, 5 cycles
Sulfur Test	ASTM-B-809-95	±(0.5%+0.05Ω)	±(0.5%+0.05Ω)	<50mΩ	H2S, 50±2°C, 91~93% R.H., no power rating for 1000 hours

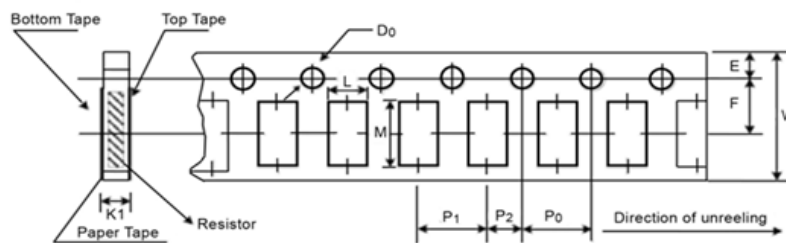
RCWV (Rated Continuous Working Voltage) = $\sqrt{P \cdot R}$ or Max. Operating Voltage, whichever is lower.
Storage Temperature: 15~28°C. Humidity <80% R.H.

Mechanical Specifications



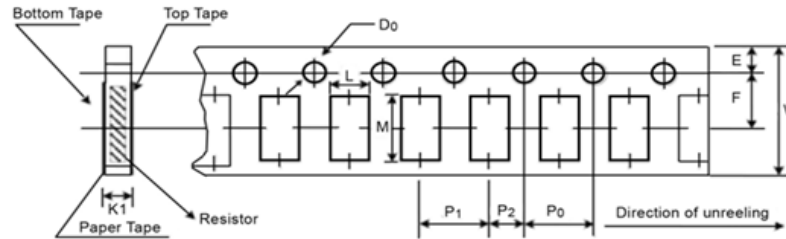
Type / Code	Weight (g) (1000 pieces)	L	W	H	a	b	Unit
		Body Length	Body Width	Body Height	Top Termination	Bottom Termination	
RMCS0201	0.15	0.024 ± 0.001	0.012 ± 0.001	0.009 ± 0.001	0.006 ± 0.002	0.006 ± 0.002	inches
		0.60 ± 0.03	0.30 ± 0.03	0.23 ± 0.03	0.15 ± 0.05	0.15 ± 0.05	mm
RMCS0402	0.62	0.039 ± 0.002	0.020 ± 0.002	0.014 ± 0.002	0.008 ± 0.004	0.008 ± 0.004	inches
		1.00 ± 0.05	0.50 ± 0.05	0.35 ± 0.05	0.20 ± 0.10	0.20 ± 0.10	mm
RMCS0603	2.042	0.063 ± 0.004	0.031 ± 0.004	0.018 ± 0.004	0.012 ± 0.008	0.012 ± 0.008	inches
		1.60 ± 0.10	0.80 ± 0.10	0.45 ± 0.10	0.30 ± 0.20	0.30 ± 0.20	mm
RMCS0805	4.368	0.079 ± 0.004	0.049 ± 0.004	0.020 ± 0.004	0.014 ± 0.008	0.016 ± 0.008	inches
		2.00 ± 0.10	1.25 ± 0.10	0.50 ± 0.10	0.35 ± 0.20	0.40 ± 0.20	mm
RMCS1206	8.947	0.122 ± 0.004	0.061 ± 0.004	0.022 ± 0.004	0.020 ± 0.010	0.020 ± 0.008	inches
		3.10 ± 0.10	1.55 ± 0.10	0.55 ± 0.10	0.50 ± 0.25	0.50 ± 0.20	mm
RMCS1210	15.959	0.122 ± 0.004	0.102 ± 0.006	0.022 ± 0.004	0.020 ± 0.010	0.020 ± 0.008	inches
		3.10 ± 0.10	2.60 ± 0.15	0.55 ± 0.10	0.50 ± 0.25	0.50 ± 0.20	mm
RMCS2010	24.241	0.197 ± 0.004	0.098 ± 0.006	0.022 ± 0.004	0.024 ± 0.010	0.020 ± 0.008	inches
		5.00 ± 0.10	2.50 ± 0.15	0.55 ± 0.10	0.60 ± 0.25	0.50 ± 0.20	mm
RMCS2512	39.448	0.250 ± 0.004	0.122 ± 0.006	0.022 ± 0.004	0.024 ± 0.010	0.020 ± 0.008	inches
		6.35 ± 0.10	3.10 ± 0.15	0.55 ± 0.10	0.60 ± 0.25	0.50 ± 0.20	mm

Packaging Specifications – Paper Tape



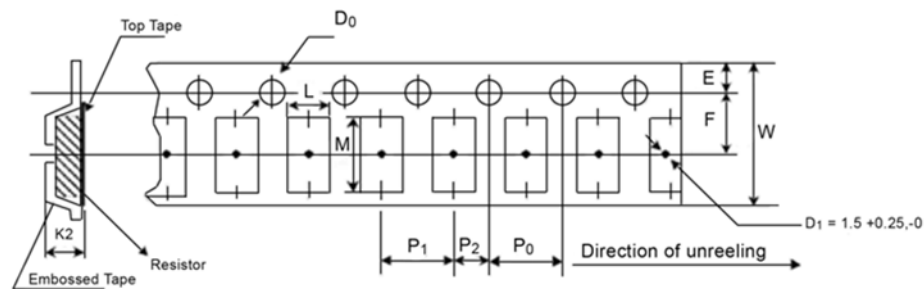
Type	L	M	W	E	F	Unit
RMCS0201	0.015 ± 0.002	0.027 ± 0.002	0.315 ± 0.008	0.069 ± 0.004	0.138 ± 0.002	inches
	0.38 ± 0.05	0.68 ± 0.05	8.00 ± 0.20	1.75 ± 0.10	3.50 ± 0.05	mm
RMCS0402	0.026 ± 0.004	0.045 ± 0.004	0.315 ± 0.008	0.069 ± 0.004	0.138 ± 0.002	inches
	0.65 ± 0.10	1.15 ± 0.10	8.00 ± 0.20	1.75 ± 0.10	3.50 ± 0.05	mm
RMCS0603	0.043 ± 0.004	0.075 ± 0.004	0.315 ± 0.008	0.069 ± 0.004	0.138 ± 0.002	inches
	1.10 ± 0.10	1.90 ± 0.10	8.00 ± 0.20	1.75 ± 0.10	3.50 ± 0.05	mm
RMCS0805	0.063 ± 0.004	0.094 ± 0.008	0.315 ± 0.008	0.069 ± 0.004	0.138 ± 0.002	inches
	1.60 ± 0.10	2.40 ± 0.20	8.00 ± 0.20	1.75 ± 0.10	3.50 ± 0.05	mm
RMCS1206	0.075 ± 0.004	0.138 ± 0.008	0.315 ± 0.008	0.069 ± 0.004	0.138 ± 0.002	inches
	1.90 ± 0.10	3.50 ± 0.20	8.00 ± 0.20	1.75 ± 0.10	3.50 ± 0.05	mm
RMCS1210	0.110 ± 0.004	0.138 ± 0.008	0.315 ± 0.008	0.069 ± 0.004	0.138 ± 0.002	inches
	2.80 ± 0.10	3.50 ± 0.20	8.00 ± 0.20	1.75 ± 0.10	3.50 ± 0.05	mm

Packaging Specifications – Paper Tape (cont.)



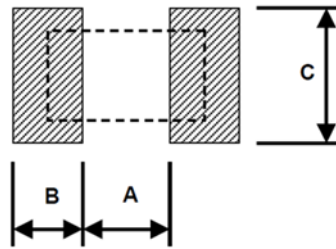
Type	P ₀	P ₁	P ₂	ØD ₀	K ₁ /K ₂	Unit
RMCS0201	0.157 ± 0.004	0.079 ± 0.002	0.079 ± 0.002	0.059 ± 0.004	0.017 ± 0.008	inches
	4.00 ± 0.10	2.00 ± 0.05	2.00 ± 0.05	1.50 ± 0.10	0.42 ± 0.20	mm
RMCS0402	0.157 ± 0.004	0.079 ± 0.002	0.079 ± 0.002	0.059 ± 0.004	0.018 ± 0.004	inches
	4.00 ± 0.10	2.00 ± 0.05	2.00 ± 0.05	1.50 ± 0.10	0.45 ± 0.10	mm
RMCS0603	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.059 ± 0.004	0.028 ± 0.004	inches
	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	1.50 ± 0.10	0.70 ± 0.10	mm
RMCS0805	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.059 ± 0.004	0.033 ± 0.004	inches
	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	1.50 ± 0.10	0.85 ± 0.10	mm
RMCS1206	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.059 ± 0.004	0.033 ± 0.004	inches
	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	1.50 ± 0.10	0.85 ± 0.10	mm
RMCS1210	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.059 ± 0.004	0.033 ± 0.004	inches
	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	1.50 ± 0.10	0.85 ± 0.10	mm

Packaging Specifications – Embossed Plastic Tape



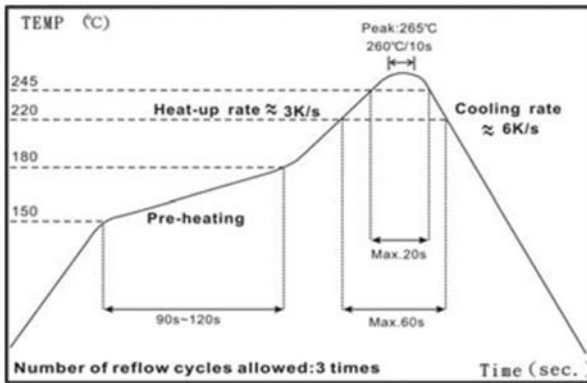
Type	L	M	W	E	F	Unit
RMCS2010	0.110 ± 0.008	0.217 ± 0.008	0.472 ± 0.012	0.069 ± 0.004	0.217 ± 0.002	inches
	2.80 ± 0.20	5.50 ± 0.20	12.00 ± 0.30	1.75 ± 0.10	5.50 ± 0.05	mm
RMCS2512	0.138 ± 0.008	0.264 ± 0.008	0.472 ± 0.012	0.069 ± 0.004	0.217 ± 0.002	inches
	3.50 ± 0.20	6.70 ± 0.20	12.00 ± 0.30	1.75 ± 0.10	5.50 ± 0.05	mm
Type	P ₀	P ₁	P ₂	ØD ₀	K ₁ /K ₂	Unit
RMCS2010	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.059 ± 0.004	0.047 - 0	inches
	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	1.50 ± 0.10	1.20 - 0	mm
RMCS2512	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.059 ± 0.004	0.047 - 0	inches
	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	1.50 ± 0.10	1.20 - 0	mm

Recommended Pad Layout

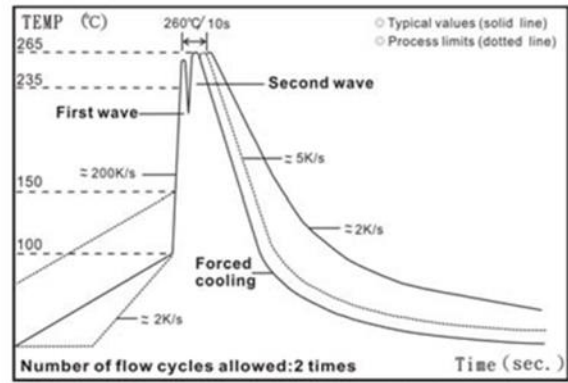


Type / Code	A	B	C	Unit
RMCS0201	0.012	0.010	0.012	inches
	0.30	0.25	0.30	mm
RMCS0402	0.020	0.018	0.024	inches
	0.50	0.45	0.60	mm
RMCS0603	0.035	0.024	0.035	inches
	0.90	0.60	0.90	mm
RMCS0805	0.047	0.028	0.051	inches
	1.20	0.70	1.30	mm
RMCS1206	0.079	0.035	0.063	inches
	2.00	0.90	1.60	mm
RMCS1210	0.079	0.035	0.110	inches
	2.00	0.90	2.80	mm
RMCS2010	0.150	0.035	0.110	inches
	3.80	0.90	2.80	mm
RMCS2512	0.193	0.063	0.138	inches
	4.90	1.60	3.50	mm

Soldering Condition



IR Reflow Soldering



Wave Soldering (Flow Soldering)

- (1) Time of IR reflow soldering at maximum temperature point 260°C:10s
- (2) Time of wave soldering at maximum temperature point 260°C:10s
- (3) Time of soldering iron at maximum temperature point 410°C:5s

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)
RMCS	Sulfur Resistant Thick Film Surface Mount Chip Resistor	SMD	YES(1)	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.

How to Order

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

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

Product Series	Sulfur Resistant	Power Rating		Tolerance			Packaging				Resistance Value		Special		
		Size	RMCS	RMCS-HP	Code	Tol	Value	Code	Description	Size	Quantity	Four characters with the multiplier used as the decimal holder.		Code	Description
		0201	0.05W	0.083W	D	0.5%	E96, E24	G	10" Reel - Paper Tape	0201, 0402	15,000	1 ohm = 1R00 100 Kohm = 100K 1.02 Mohm = 1M02 Zero ohm jumper = 0R00		-HP	High Power
		0402	0.063W	0.1W	F	1%	E24	T	7" Reel - Paper Tape	0603, 0805	5,000				
		0603	0.1W	0.25W	J	5%	E24			1206, 1210					
		0805	0.125W	0.33W	Z		Jumper			2010, 2512	4,000				
		1206	0.25W	0.33W											
		1210	0.33W	0.5W											
		2010	0.75W	1W											
		2512	1W	NA											