Features:

- Inner terminations engineered to deter sulfur contamination
- Non-standard resistance values available
- Zero ohm available (max. resistance 0.05Ω)
- "-HP" denotes high power
- RoHS compliant and halogen free
- REACH compliant

Electrical Specifications

Type/Code	Power Rating (W) @ 70ºC	Maximum Working Voltage (V)(1)	Maximum Overload Voltage (V)(2)	Maximum Current Jumper (A)	TCR (ppm/ºC)	Ohmic Range (Ω) and Tolerance		
						0.5%	1%	5%
RMCS0201	0.05	25	50	1	± 200	-	1 - 10M	
RMCS0402	0.063	50	100	1	± 200	1 - 9.76		
					± 100	10 - 1M		
					± 200	1.02M - 10M		
RMCS0603	0.1	75	150	1	± 200	1 - 9.76		
					± 100	10 - 1M		
					± 200	1.02M - 10M		
RMCS0805	0.125	150	300	2	± 200	1 - 9.76		
					± 100	10 - 1M		
					± 200	1.02M - 10M		
RMCS1206	0.25	200	400	2	± 200	1 - 9.76		
					± 100	10 - 1M		
					± 200	1.02M - 10M		
RMCS1210	0.33	200	400	2.5	± 200	1 - 9.76		
					± 100	10 - 1M		
					± 200	1.02M - 10M		
RMCS2010	0.75	200	400	3.5	± 200	1 - 9.76		
					± 100	10 - 1M		
					± 200	1.02M - 10M		
RMCS2512	1	250	500	4	± 200	1 - 9.76		
					± 100	10 - 1M		
					± 200	1.02M - 10M		

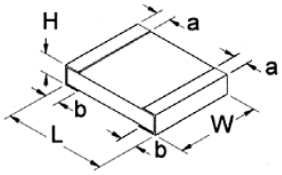
(1) Lesser of $\sqrt{P*R}$ or maximum working voltage, whichever is lower.
(2) 2.5* $\sqrt{P*R}$ or Max. Overload Voltage listed above, whichever is lower.

Electrical Specifications – High Power

Type/Code	Power Rating (W) @ 70ºC	Maximum Working Voltage (V)(1)	Maximum Overload Voltage (V)(2)	TCR (ppm/ºC)	Ohmic Range (Ω) and Tolerance		
					0.5%(3)	1%	5%
RMCS0201_-HP	0.083	25	50	± 200	-	10 - 1M	
RMCS0402_-HP	0.1	50	100	± 200	-	1 - 9.76	
				± 100	10 - 1M	10 - 1M	
RMCS0603_-HP	0.25	75	150	± 200	-	1 - 9.76	
				± 100	10 - 1M	10 - 1M	
RMCS0805_-HP	0.33	150	300	± 200	-	1 - 9.76	
				± 100	10 - 1M	10 - 1M	
RMCS1206_-HP	0.5	200	400	± 200	-	1 - 9.76	
				± 100	10 - 1M	10 - 1M	
RMCS1210_-HP	0.75	200	400	± 200	-	1 - 9.76	
				± 100	10 - 1M	10 - 1M	
RMCS2010_-HP	1	200	400	± 200	-	1 - 9.76	
				± 100	10 - 1M	10 - 1M	
RMCS2512_-HP	2	200	400	± 400	-	1 - 9.76	
				± 100	10 - 1M	10 - 10M	

(1) Lesser of $\sqrt{P*R}$ or maximum working voltage, whichever is lower.
(2) 2.5*$\sqrt{P*R}$ or Max. Overload Voltage listed above, whichever is lower.
(3) 0.5% tolerance for 0603 and 0805 requires lower power rating. Contact Stackpole for details.

Mechanical Specifications



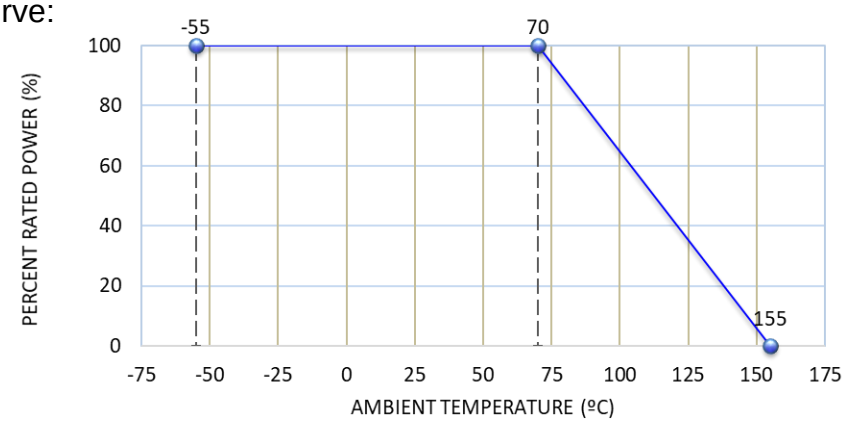
Type/Code	Weight (g) (1000 pieces)	L Body Length	W Body Width	H Body Height	a Top Termination	b Bottom Termination	Unit
RMCS0201	0.15	0.024 ± 0.001 0.60 ± 0.03	0.012 ± 0.001 0.30 ± 0.03	0.009 ± 0.001 0.23 ± 0.03	0.006 ± 0.002 0.15 ± 0.05	0.006 ± 0.002 0.15 ± 0.05	inches mm
RMCS0402	0.62	0.039 ± 0.006 1.00 ± 0.15	0.020 ± 0.002 0.50 ± 0.05	0.014 ± 0.004 0.35 ± 0.10	0.008 ± 0.006 0.20 ± 0.15	0.008 ± 0.006 0.20 ± 0.15	inches mm
RMCS0603	2.042	0.063 ± 0.008 1.60 ± 0.20	0.031 ± 0.004 0.80 ± 0.10	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
RMCS0805	4.368	0.079 ± 0.008 2.00 ± 0.20	0.049 ± 0.006 1.25 ± 0.15	0.020 ± 0.006 0.50 ± 0.15	0.014 ± 0.008 0.35 ± 0.20	0.016 ± 0.008 0.40 ± 0.20	inches mm
RMCS1206	8.947	0.122 ± 0.006 3.10 ± 0.15	0.061 ± 0.010 1.55 ± 0.25	0.022 ± 0.006 0.55 ± 0.15	0.020 ± 0.012 0.50 ± 0.30	0.020 ± 0.008 0.50 ± 0.20	inches mm
RMCS1210	15.959	0.122 ± 0.006 3.10 ± 0.15	0.102 ± 0.012 2.60 ± 0.30	0.022 ± 0.006 0.55 ± 0.15	0.020 ± 0.010 0.50 ± 0.25	0.020 ± 0.008 0.50 ± 0.20	inches mm
RMCS2010	24.241	0.197 ± 0.008 5.00 ± 0.20	0.098 ± 0.008 2.50 ± 0.20	0.022 ± 0.004 0.55 ± 0.10	0.024 ± 0.010 0.60 ± 0.25	0.020 ± 0.012 0.50 ± 0.30	inches mm
RMCS2512	39.448	0.248 ± 0.008 6.30 ± 0.20	0.124 ± 0.008 3.15 ± 0.20	0.022 ± 0.006 0.55 ± 0.15	0.024 ± 0.010 0.60 ± 0.25	0.022 ± 0.010 0.55 ± 0.25	inches mm
RMCS2512_-HP	39.448	0.248 ± 0.008 6.30 ± 0.20	0.126 ± 0.008 3.20 ± 0.20	0.024 ± 0.008 0.60 ± 0.20	0.024 ± 0.012 0.60 ± 0.30	0.024 ± 0.012 0.60 ± 0.30	inches mm

Performance Characteristics

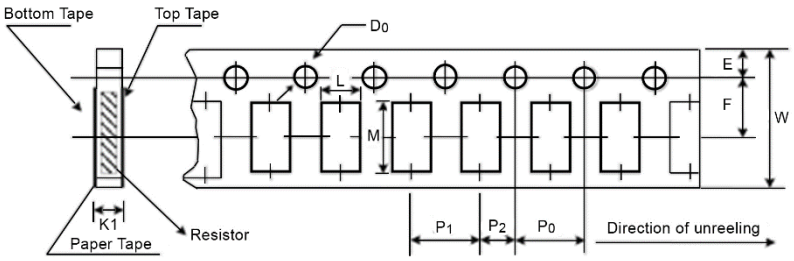
Test	Test Method	Test Specification			Test Condition
		±1% and below	±5%	Jumper	
Short Time Overload	JIS-C-5201-1 4.13 IEC-60115-1 4.13	± (1% + 0.05Ω)	± (2% + 0.05Ω)	< 50mΩ	RCWV*2.5 or Max. Overload Voltage whichever is lower for 5 seconds, 2 seconds for high power series.
Insulation Resistance	JIS-C-5201-1 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	70ºC ± 2ºC, 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	40ºC ± 2ºC, 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 +125ºC/+155ºC 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: 2 mm / Other sizes: 3 mm
Solderability	JIS-C-5201-1 4.17 IEC-60115-1 4.17	95% minimum coverage			245ºC ± 5ºC 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	260ºC ± 5ºC 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%			260ºC ± 5ºC 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	-55ºC to +125ºC/+155ºC, 5 cycles
Sulfur Test	ASTM-B-809-95	± (0.5% + 0.05Ω)	± (0.5% + 0.05Ω)	< 50mΩ	H2S, 50ºC ± 2ºC, 91~93% R.H., no power rating for 1000 hours

RCWV (Rated Continuous Working Voltage) = $\sqrt{P*R}$ or Max. Operating Voltage, whichever is lower.
Storage Temperature: 15ºC ~ 28ºC. Humidity < 80% R.H.
Operating temperature range is -55°C to +155°C

Power Derating Curve:

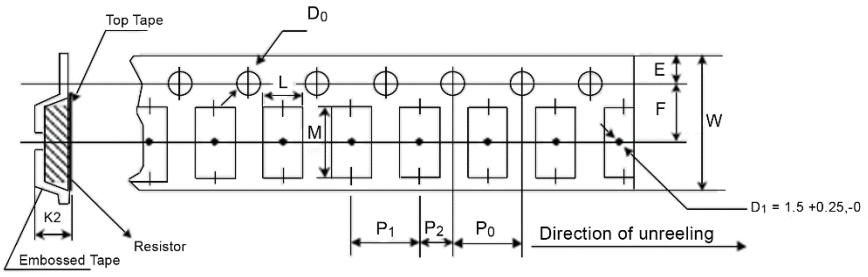


Packaging Specifications – Paper Tape



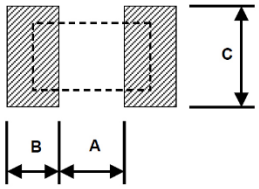
Type/Code	L	M	W	E	F	Unit
RMCS0201	0.015 ± 0.002 0.38 ± 0.05	0.027 ± 0.002 0.68 ± 0.05	0.315 ± 0.008 8.00 ± 0.20	0.069 ± 0.004 1.75 ± 0.10	0.138 ± 0.002 3.50 ± 0.05	inches mm
RMCS0402	0.026 ± 0.006 0.65 ± 0.15	0.045 ± 0.006 1.15 ± 0.15	0.315 ± 0.008 8.00 ± 0.20	0.069 ± 0.004 1.75 ± 0.10	0.138 ± 0.002 3.50 ± 0.05	inches mm
RMCS0603	0.043 ± 0.010 1.10 ± 0.25	0.075 ± 0.010 1.90 ± 0.25	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
RMCS0805	0.063 ± 0.010 1.60 ± 0.25	0.094 ± 0.010 2.40 ± 0.25	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
RMCS1206	0.075 ± 0.008 1.90 ± 0.20	0.138 ± 0.008 3.50 ± 0.20	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
RMCS1210	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	0.138 ± 0.002 3.50 ± 0.05	inches mm
Type/Code	P_0	P1	P2	$ØD_0$	K1	Unit
RMCS0201	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.002 2.00 ± 0.05	0.079 ± 0.002 2.00 ± 0.05	0.059 +0.004 / -0 1.50 +0.10 / -0	0.017 ± 0.008 0.42 ± 0.20	inches mm
RMCS0402	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.002 2.00 ± 0.05	0.079 ± 0.002 2.00 ± 0.05	0.059 +0.004 / -0 1.50 +0.10 / -0	0.018 ± 0.008 0.45 ± 0.20	inches mm
RMCS0603	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.002 2.00 ± 0.05	0.059 +0.004 / -0 1.50 +0.10 / -0	0.028 ± 0.008 0.70 ± 0.20	inches mm
RMCS0805	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.002 2.00 ± 0.05	0.059 +0.004 / -0 1.50 +0.10 / -0	0.033 ± 0.008 0.85 ± 0.20	inches mm
RMCS1206	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.002 2.00 ± 0.05	0.059 +0.004 / -0 1.50 +0.10 / -0	0.033 ± 0.008 0.85 ± 0.20	inches mm
RMCS1210	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.002 2.00 ± 0.05	0.059 +0.004 / -0 1.50 +0.10 / -0	0.030 ± 0.008 0.75 ± 0.20	inches mm

Packaging Specifications – Embossed Plastic Tape



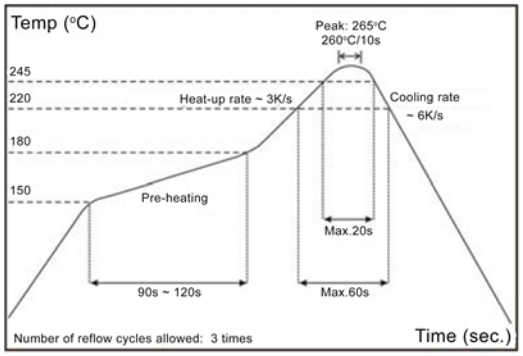
Type/Code	L	M	W	E	F	Unit
RMCS2010	0.110 ± 0.008 2.80 ± 0.20	0.217 ± 0.008 5.50 ± 0.20	0.472 ± 0.012 12.00 ± 0.30	0.069 ± 0.004 1.75 ± 0.10	0.217 ± 0.002 5.50 ± 0.05	inches mm
RMCS2512	0.138 ± 0.008 3.50 ± 0.20	0.264 ± 0.008 6.70 ± 0.20	0.472 ± 0.012 12.00 ± 0.30	0.069 ± 0.004 1.75 ± 0.10	0.217 ± 0.002 5.50 ± 0.05	inches mm
Type/Code	P_0	P1	P2	ØD_0	K2	Unit
RMCS2010	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.002 2.00 ± 0.05	0.059 +0.004 / -0 1.50 +0.10 / -0	0.047 - 0 1.20 - 0	inches mm
RMCS2512	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.002 2.00 ± 0.05	0.059 +0.004 / -0 1.50 +0.10 / -0	0.047 - 0 1.20 - 0	inches mm

Recommended Pad Layout

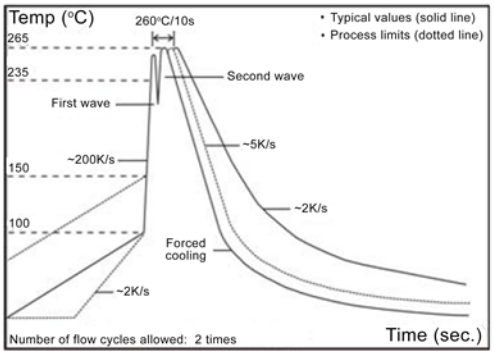


Type/Code	a	b	c	Unit
RMCS0201	0.012 0.30	0.010 0.25	0.012 0.30	inches mm
RMCS0402	0.024 0.60	0.020 0.50	0.028 0.70	inches mm
RMCS0603	0.035 0.90	0.031 0.80	0.039 1.00	inches mm
RMCS0805	0.051 1.30	0.031 0.80	0.055 1.40	inches mm
RMCS1206	0.087 2.20	0.039 1.00	0.067 1.70	inches mm
RMCS1210	0.079 2.00	0.035 0.90	0.110 2.80	inches mm
RMCS2010	0.150 3.80	0.035 0.90	0.110 2.80	inches mm
RMCS2512	0.193 4.90	0.063 1.60	0.138 3.50	inches mm

Soldering Condition



IR Reflow Soldering



Wave Soldering (Flow Soldering)

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

Part Marking Instructions

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.

Marking 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 represents a specific multiplier as follows:

Z = 0.01	A = 10	D = 10,000
Y = 0.1	B = 100	E = 100,000
X = 1	C = 1,000	F = 1,000,000

EXAMPLE:

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

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

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-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

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

Product Series

RMCS	Sulfur Resistant

Size / Power Rating (W)

Size	RMCS	-HP
0201	0.05	0.083
0402	0.063	0.1
0603	0.1	0.25
0805	0.125	0.33
1206	0.25	0.5
1210	0.33	0.75
2010	0.75	1
2512	1	2

Tolerance

Code	Tol	Value
D	0.5%	E96
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

Resistance Value

Four characters with the multiplier used as the decimal holder.

1 ohm = 1R00
100 Kohm = 100K
1.02 Mohm = 1M02
Zero ohm jumper = 0R00

Special

Code	Description
blank	Standard
-HP	High Power