Features:

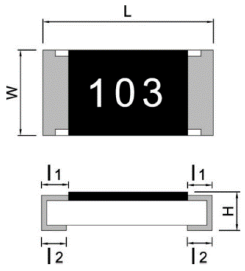
- Nickel barrier terminations standard
- High power rating for each case size
- RoHS compliant, REACH compliant, and halogen free

Electrical Specifications

Type/Code	Power Rating (W) @ 70ºC	Max. Working Voltage (V) (1)	Max. Overload Voltage (V)	TCR (ppm/ºC)	Ohmic Range (Ω) and Tolerance (2)	
					0.5%	1%, 2%, 5%
RMCP0402-UP	0.2	50	100	± 400	-	1 - 9.76
				± 100	10 - 1M	10 - 10M
RMCP0603-UP	0.33	150	200	± 400	-	1 - 9.76
				± 100	10 - 1M	10 - 10M
RMCP0805-UP	0.5	200	300	± 400	-	1 - 9.76
				± 100	10 - 1M	10 - 10M
RMCP1206-UP	0.75	200	400	± 400	-	1 - 9.76
				± 100	10 - 1M	10 - 10M
RMCP1210-UP	1			± 400	-	1 - 9.76
				± 100	10 - 1M	10 - 10M
RMCP2010-UP	1.5			± 400	-	1 - 9.76
				± 150	10 - 1M	10 - 10M
RMCP2512-UP	3	250	500	± 400	-	1 - 9.76
				± 150	10 - 1M	10 - 10M

Notes: (1) Lesser of √(P*R) or maximum working voltage
(2) Contact Stackpole for non-standard parts

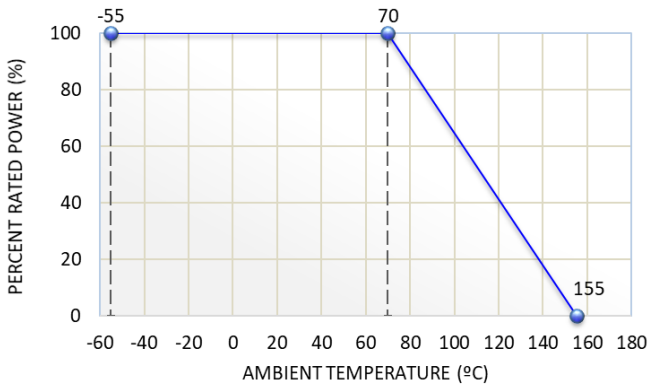
Mechanical Specifications

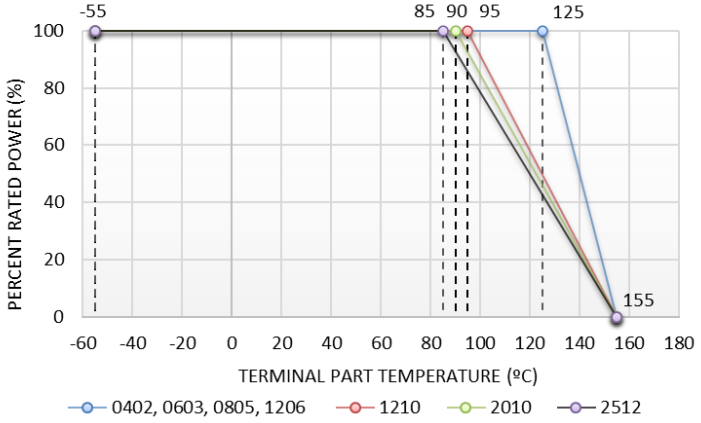


Type/Code	L	W	H	I_1	I_2	Unit
RMCP0402-UP	0.039 ± 0.0039	0.020 ± 0.0020	0.012 ± 0.0020	0.006 ± 0.0039	0.008 ± 0.0039	inches
	1.00 ± 0.10	0.50 ± 0.05	0.30 ± 0.05	0.15 ± 0.10	0.20 ± 0.10	mm
RMCP0603-UP	0.063 ± 0.0079	0.031 ± 0.0059	0.016 ± 0.0039	0.012 ± 0.008	0.012 ± 0.004	inches
	1.60 ± 0.20	0.80 ± 0.15	0.40 ± 0.10	0.30 ± 0.20	0.30 ± 0.10	mm
RMCP0805-UP	0.079 ± 0.008	0.049 ± 0.006	0.020 ± 0.006	0.012 ± 0.006	0.016 ± 0.006	inches
	2.00 ± 0.20	1.25 ± 0.15	0.50 ± 0.15	0.30 ± 0.15	0.40 ± 0.15	mm
RMCP1206-UP	0.120 ± 0.004	0.063 ± 0.008	0.022 ± 0.006	0.016 ± 0.008	0.020 ± 0.008	inches
	3.05 ± 0.10	1.60 ± 0.20	0.55 ± 0.15	0.40 ± 0.20	0.50 ± 0.20	mm
RMCP1210-UP	0.120 ± 0.004	0.098 ± 0.008	0.022 ± 0.006	0.020 ± 0.008	0.020 ± 0.008	inches
	3.05 ± 0.10	2.50 ± 0.20	0.55 ± 0.15	0.50 ± 0.20	0.50 ± 0.20	mm
RMCP2010-UP	0.197 ± 0.008	0.098 ± 0.008	0.022 ± 0.004	0.024 ± 0.008	0.024 ± 0.008	inches
	5.00 ± 0.20	2.50 ± 0.20	0.55 ± 0.10	0.60 ± 0.20	0.60 ± 0.20	mm
RMCP2512-UP	0.248 ± 0.008	0.126 ± 0.008	0.027 ± 0.006	0.024 ± 0.008	0.024 ± 0.008	inches
	6.30 ± 0.20	3.20 ± 0.20	0.68 ± 0.15	0.60 ± 0.20	0.60 ± 0.20	mm

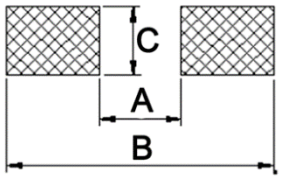
Performance Characteristics			
Test	Test Method	Test Conditions	Test Specifications
Temperature coefficient of Resistance (TCR)	JIS-C-5201-1 4.8 IEC-60115-1 4.8	At 25 /-55ºC and 25ºC/+155ºC, 25ºC is the reference temperature	As per specification
Short Time Overload	JIS-C-5201-1 4.13 IEC-60115-1 4.13	Ultra Power: 5 x Rated Power or Max. Overload Voltage whichever is less for 5 seconds	1% and below: ± (1%+0.05 Ω) 2%, 5%: ± (2%+0.1 Ω)
Leaching	JIS-C-5201-1 4.18 IEC-60068-2-58 8.2.1	260 ± 5ºC for 30 seconds	Individual leaching area ≤ 5% Total leaching area ≤ 10%
Resistance to Soldering Heat	JIS-C-5201-1 4.18 IEC-60115-1 4.18	260 ± 5ºC for 10 seconds	1% and below: ± (0.5%+0.05 Ω) 2%, 5%: ± (1%+0.05 Ω)
Rapid Change of Temperature	JIS-C-5201-1 4.19 IEC-60115-1 4.19	-55ºC to +150ºC, 5 cycles	1% and below: ± (0.5%+0.05 Ω) 2%, 5%: ± (1%+0.1 Ω)
Resistance to Solvent	JIS-C-5201-1 4.29	The tested resistor is immersed into isopropyl alcohol of 20~25ºC for 60 seconds, then the resistor is left in the room for 48 hours	1% and below: ± (0.5%+0.05 Ω) 2%, 5%: ± (0.5%+0.05 Ω)
Damp Heat with Load	JIS-C-5201-1 4.24 IEC-60115-1 4.24	40 ± 2ºC, 90~95% R.H. RCWV or Max. Working Voltage whichever is less for 1000 hours with 1.5 hours "ON" and 0.5 hour "OFF"	1% and below: ± (1%+0.05 Ω) 2%, 5%: ± (2%+0.05 Ω) Value < 1 Ω: ± (2%+0.05 Ω)
Load Life (Endurance)	JIS-C-5201-1 4.25 IEC-60115-1 4.25.1	70 ± 2ºC, RCWV or Max . Working Voltage whichever is less for 1000 hours with 1.5 hours "ON" and 0.5 hour "OFF"	1% and below: ± (1%+0.05 Ω) 2%, 5%: ± (3%+0.1 Ω) Value < 1 Ω: ± (3%+0.1 Ω)
Insulation Resistance	JIS-C-5201-1 4.6 IEC-60115-1 4.6	Apply 100VDC for 1 minute	≥ 10G Ω
Bending Strength	JIS-C-5201-1 4.33 IEC-60115-1 4.33	Bending once for 5 seconds 0402, 0603, 0805 = 5mm 1206, 1210 = 3mm 2010, 2512 = 2mm	1% and below: ± (1%+0.05 Ω) 2%, 5%: ± (1%+0.05 Ω)

Power Derating Curve:



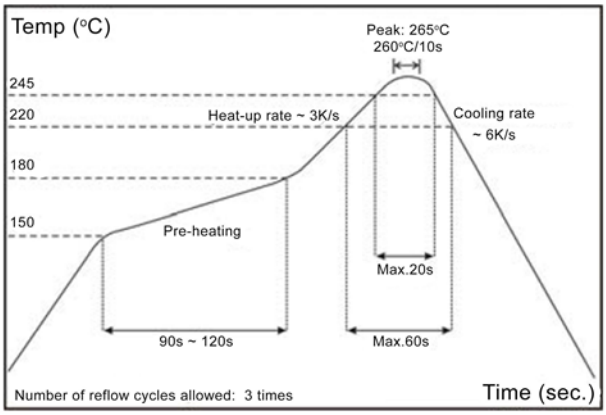


Recommended Pad Layout

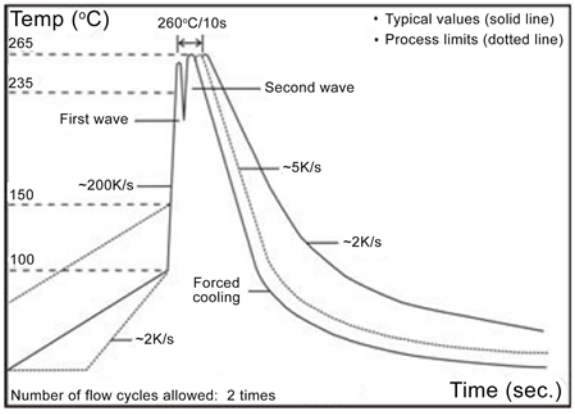


Type/Code	A	B	C	Unit
RMCP0402-UP	0.020 0.50	0.063 1.60	0.028 0.70	inches mm
RMCP0603-UP	0.031 0.80	0.094 2.40	0.039 1.00	inches mm
RMCP0805-UP	0.051 1.30	0.118 3.00	0.055 1.40	inches mm
RMCP1206-UP	0.087 2.20	0.165 4.20	0.067 1.70	inches mm
RMCP1210-UP	0.079 2.00	0.173 4.40	0.110 2.80	inches mm
RMCP2010-UP	0.138 3.50	0.260 6.60	0.110 2.80	inches mm
RMCP2512-UP	0.193 4.90	0.319 8.10	0.138 3.50	inches mm

Recommended Soldering Parameters



IR Reflow Soldering



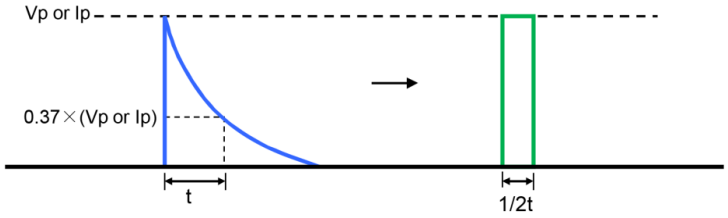
Wave Soldering (Flow Soldering)

Rework temperature (hot air equipment): 350ºC, 3~5 seconds
Recommended reflow methods:

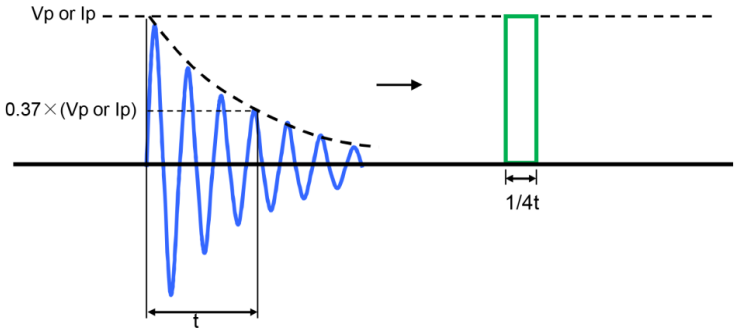
- IR, vapor phase oven, hot air oven.
- If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

Waveform Transformation to Square Wave

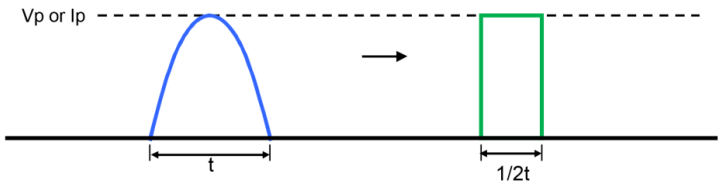
1. Discharge curve wave with time constant “t” → Square wave



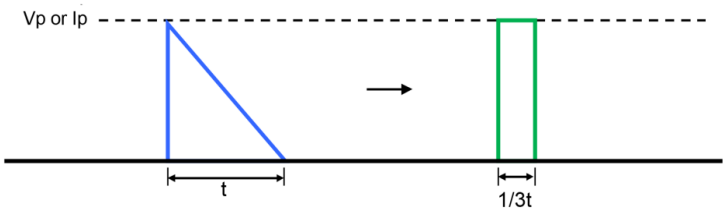
2. Damping oscillation wave with time constant of envelope “t” → Square wave



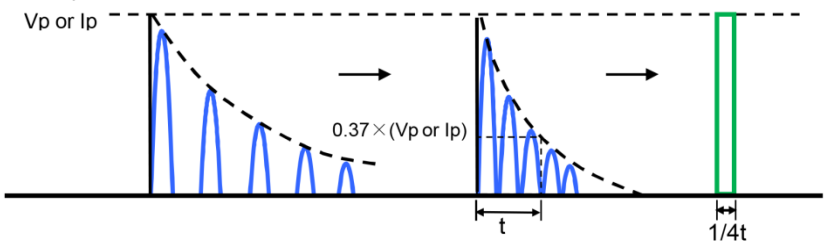
3. Half-wave rectification wave → Square wave



4. Triangular wave → Square wave

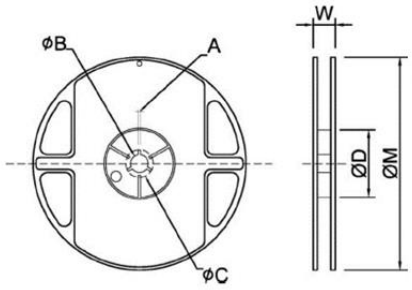


5. Special wave → Square wave



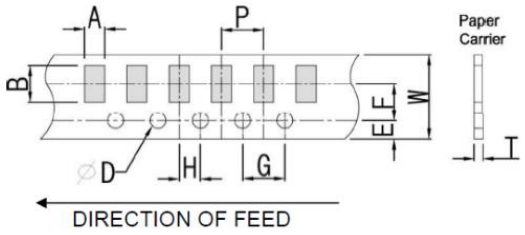
Packaging (EIA Standard RS-481)

Reel Specifications



Size	Size / Quantity		A	B	C	D	W	M	Unit
0402	7"	10K/Reel	0.079 ± 0.020 2.00 ± 0.50	0.531 ± 0.039 13.50 ± 1.00	0.827 ± 0.039 21.00 ± 1.00	2.362 ± 0.039 60.00 ± 1.00	0.453 ± 0.079 11.50 ± 2.00	7.008 ± 0.079 178.00 ± 2.00	Inches mm
0603, 0805 1206, 1210		5K/Reel					0.453 ± 0.079 11.50 ± 2.00		Inches mm
2010, 2512		4K/Reel					0.630 ± 0.079 16.00 ± 2.00		Inches mm
0603, 0805, 1206	10"	10K/Reel				3.937 ± 0.039 100.00 ± 1.00	0.453 ± 0.079 11.50 ± 2.00	10.000 ± 0.079 254.00 ± 2.00	Inches mm

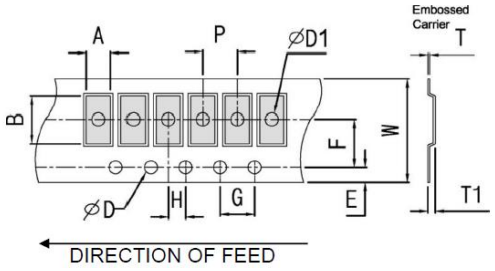
Packaging Specifications – Paper Tape



Size	A	B	W	E	F	Unit
0402	0.028 ± 0.004 0.70 ± 0.10	0.047 ± 0.004 1.20 ± 0.10	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
0603	0.041 ± 0.008 1.05 ± 0.20	0.071 ± 0.008 1.80 ± 0.20				inches mm
0805	0.061 ± 0.008 1.55 ± 0.20	0.091 ± 0.008 2.30 ± 0.20				inches mm
1206	0.075 ± 0.008 1.90 ± 0.20	0.138 ± 0.008 3.50 ± 0.20				inches mm
1210	0.112 ± 0.008 2.85 ± 0.20	0.138 ± 0.008 3.50 ± 0.20				inches mm

Size	G	H	T	D	P	Unit
0402	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.002 2.00 ± 0.05	0.018 ± 0.004 0.45 ± 0.10	0.059 +0.004/-0 1.5 +0.10/-0	0.079 ± 0.004 2.00 ± 0.10	inches mm
0603			0.024 ± 0.004 0.60 ± 0.10			inches mm
0805			0.030 ± 0.004 0.75 ± 0.10			inches mm
1206			0.030 ± 0.004 0.75 ± 0.10			inches mm
1210			0.030 ± 0.004 0.75 ± 0.10			inches mm

Packaging Specifications – Plastic Tape



Size	A	B	W	E	F	G	Unit
2010	0.110 ± 0.008 2.80 ± 0.20	0.220 ± 0.008 5.60 ± 0.20	0.472 ± 0.004 12.00 ± 0.10	0.069 ± 0.004 1.75 ± 0.10	0.217 ± 0.002 5.50 ± 0.05	0.157 ± 0.004 4.00 ± 0.10	inches mm
2512	0.134 ± 0.008 3.40 ± 0.20	0.264 ± 0.008 6.70 ± 0.20					inches mm

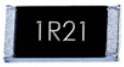
Size	H	T	D	D1	T1	P	Unit
2010	0.079 ± 0.002 2.00 ± 0.05	0.009 ± 0.004 0.23 ± 0.10	0.059 +0.004/-0 1.5 +0.10/-0	0.059 ± 0.004 1.50 ± 0.10	0.037 ± 0.006 0.95 ± 0.15	0.157 ± 0.004 4.00 ± 0.10	inches mm
2512							

Part Marking Instructions

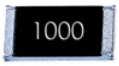
E96 and E24 Values for 0805-2512 (0.5% and 1% tolerances)

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.



1.21Ω

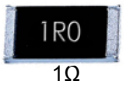


100Ω

E24 Values for 0805-2512 (5% tolerance)

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

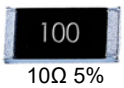
1.2 KΩ

E24 Values for 0603

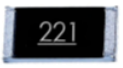
The nominal resistance is marked on the surface of the overcoating with the use of **three character markings**.

1. Values between 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.

4.7Ω 5%



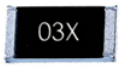
10Ω 5%



220Ω 1%

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: 0402 size is 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	Lead-Free Mfg. Effective Date (Std Product Series)	Lead-Free Effective Date Code (YY/WW)
RMCP	General Purpose High Power Thick Film 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	P	0	6	0	3	J	T	1	0	R	0	-	U	P

Code

Code	Description
RMCP	Ultra High Power

Size

Size	W
0402	0.2
0603	0.33
0805	0.5
1206	0.75
1210	1
2010	1.5
2512	3

Tolerance

Code	Tol	Value
D	0.5%	E96
F	1%	E24
J	5%	E24

Packaging

Code	Description	Size	Quantity
T	7" Reel Paper Tape	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

Special

Code	Description
-UP	Ultra High Power