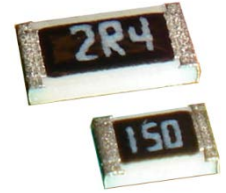


- Features:
- Excellent pulse withstanding performance
  - Broad resistance range
  - Higher anti-surge performance compared with RMCF Series
  - Lower values may be available – contact factory
  - 1% and wider tolerances are qualified to AEC-Q200
  - RoHS compliant



Electrical Specifications							
Type / Code	Power Rating (Watts) @ 70°C	Maximum Working Voltage	Maximum Overload Voltage	Resistance Temperature Coefficient	Ohmic Range (Ω) and Tolerance		
					0.5%	1%	5%, 10%, 20%
RPC0603	0.1W	50V	100V	±200 ppm/°C	10 - 294	1 - 294	1 - 270
				±100 ppm/°C	300 - 1M		
RPC0805	0.25W	150V	300V	±200 ppm/°C	10 - 294	1 - 294	1 - 270
				±100 ppm/°C	300 - 20M		
RPC1206	0.33W	200V	400V	±200 ppm/°C	10 - 20	1 - 20	
				±100 ppm/°C	20.5 - 20M		22 - 20M
RPC1210	0.5W	200V	400V	±200 ppm/°C	10 - 20	1 - 20	
				±100 ppm/°C	20.5 - 20M		22 - 20M
RPC2010	0.75W	400V	800V	±200 ppm/°C	10 - 20	1 - 20	
				±100 ppm/°C	20.5 - 20M		22 - 20M
RPC2512	1.5W	500V	1000V	±200 ppm/°C	10 - 20	1 - 20	
				±100 ppm/°C	20.5 - 20M		22 - 20M

Working Voltage =  $v(P \cdot R)$  or Max. Working Voltage listed above, whichever is lower.

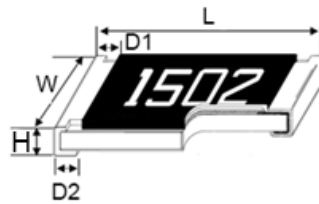
Overload Voltage =  $2.5 \cdot v(P \cdot R)$  or Max. Overload Voltage listed above, whichever is lower.

Electrical Specifications – High Power							
Type / Code	Power Rating (Watts) @ 70°C	Maximum Working Voltage	Maximum Overload Voltage	Resistance Temperature Coefficient	Ohmic Range (Ω) and Tolerance		
					0.5%	1%	5%
RPC0603...-HP	0.2W	50V	100V	±200 ppm/°C	10 - 294	1 - 294	
				±100 ppm/°C	300 - 1M		
RPC0805...-HP	0.4W	150V	300V	±200 ppm/°C	10 - 294	1 - 294	
				±100 ppm/°C	300 - 1M		
RPC1206...-HP	0.5W	200V	400V	±200 ppm/°C	10 - 20	1 - 20	
				±100 ppm/°C	20.5 - 20M		22 - 20M
RPC1210...-HP	0.75W	200V	400V	±200 ppm/°C	10 - 20	1 - 20	
				±100 ppm/°C	20.5 - 20M		22 - 20M
RPC2010...-HP	1W	400V	800V	±200 ppm/°C	10 - 20	1 - 20	
				±100 ppm/°C	20.5 - 20M		22 - 1M

Working Voltage =  $v(P \cdot R)$  or Max. Working Voltage listed above, whichever is lower.

Overload Voltage =  $2.5 \cdot v(P \cdot R)$  or Max. Overload Voltage listed above, whichever is lower.

**Mechanical Specifications**



Type / Code	Weight (g) (1000 pcs)	L Body Length	W Body Width	H Body Height	D1 Top Termination	D2 Bottom Termination	Unit
RPC0603	2.042	0.063 ± 0.004 1.60 ± 0.10	0.031 ± 0.004 0.80 ± 0.10	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
RPC0805	4.368	0.079 ± 0.004 2.00 ± 0.10	0.049 ± 0.004 1.25 ± 0.10	0.020 ± 0.004 0.50 ± 0.10	0.014 ± 0.008 0.35 ± 0.20	0.016 ± 0.008 0.40 ± 0.20	inches mm
RPC1206	8.947	0.122 ± 0.004 3.10 ± 0.10	0.061 ± 0.004 1.55 ± 0.10	0.022 ± 0.004 0.55 ± 0.10	0.020 ± 0.010 0.50 ± 0.25	0.020 ± 0.008 0.50 ± 0.20	inches mm
RPC1210	15.959	0.122 ± 0.004 3.10 ± 0.10	0.102 ± 0.006 2.60 ± 0.15	0.022 ± 0.004 0.55 ± 0.10	0.020 ± 0.010 0.50 ± 0.25	0.020 ± 0.008 0.50 ± 0.20	inches mm
RPC2010	24.241	0.197 ± 0.004 5.00 ± 0.10	0.098 ± 0.006 2.50 ± 0.15	0.022 ± 0.004 0.55 ± 0.10	0.024 ± 0.010 0.60 ± 0.25	0.020 ± 0.008 0.50 ± 0.20	inches mm
RPC2512	39.448	0.250 ± 0.004 6.35 ± 0.10	0.122 ± 0.006 3.10 ± 0.15	0.022 ± 0.004 0.55 ± 0.10	0.024 ± 0.010 0.60 ± 0.25	0.020 ± 0.008 0.50 ± 0.20	inches mm

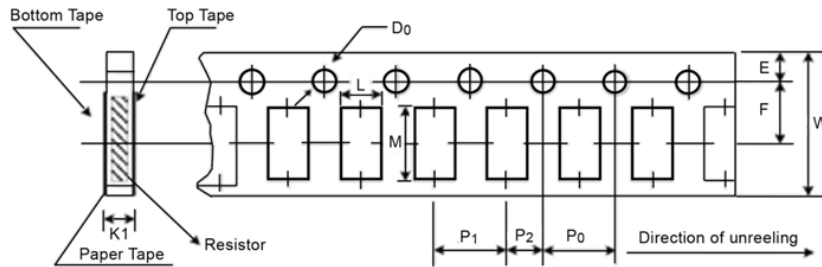
**Performance Characteristics**

Item	Test Method	Test Specification	Test Condition
Temperature Coefficient of Resistance (T.C.R.)	JIS-C-5201-1 4.8 IEC-60115-1 4.8	Within the specified tolerance	-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)	RCWV*2.5 or max. overload voltage whichever is lower for 5 seconds
Insulation Resistance	JIS-C-5201-1 4.6 IEC-60115-1 4.6	≥10G	Max. overload voltage for 1 minute
Endurance Tolerances of 0.5%, 1%	JIS-C-5201-1 4.25 IEC-60115-1 4.25.1	±(1%+0.05Ω)	70 ± 2°C, RCWV for 1000 hours with 1.5 hours "ON" and 0.5 hour "OFF"
Endurance Tolerances of 5%, 10%, 20%	JIS-C-5201-1 4.25 IEC-60115-1 4.25.1	±(3%+0.05Ω)	70 ± 2°C, RCWV for 1000 hours with 1.5 hours "ON" and 0.5 hour "OFF"
Damp Heat with Load Tolerances of 0.5%, 1%	JIS-C-5201-1 4.24	±(0.5%+0.05Ω)	40 ± 2°C, 90~95% R.H, RCWV for 1000 hour with 1.5 hours "ON" and 0.5 hour "OFF"
Damp Heat with Load Tolerances of 5%, 10%, 20%	JIS-C-5201-1 4.24	±(3%+0.05Ω)	40 ± 2°C, 90~95% R.H, RCWV for 1000 hours with 1.5 hours "ON" and 0.5 hour "OFF"
Dry Heat Tolerances of 0.5%, 1%	JIS-C-5201-1 4.23 IEC-60115-1 2.23.2	±(0.5%+0.05Ω)	At +155°C for 1000 hours
Dry Heat Tolerances of 5%, 10%, 20%	JIS-C-5201-1 4.23 IEC-60115-1 2.23.2	±(3%+0.05Ω)	At +155°C for 1000 hours
Bending Strength	JIS-C-5201-1 4.33 IEC-60115-1 4.33	±(1%+0.05Ω)	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% min. coverage	245 ± 5°C for 3 seconds
Resistance to Soldering Heat tolerances of 0.5%, 1%	JIS-C-5201-1 4.18 IEC-60115-1 4.18	±(0.5%+0.05Ω)	260 ± 5°C for 10 seconds
Resistance to Soldering Heat tolerances of 5%, 10%, 20%	JIS-C-5201-1 4.18 IEC-60115-1 4.18	±(1%+0.05Ω)	260 ± 5°C for 10 seconds

Performance Characteristics (cont.)			
Item	Test Method	Test Specification	Test Condition
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 tolerances of 0.5%, 1%	JIS-C-5201-1 4.18 IEC-60115-1 4.18	±(0.5%+0.05Ω)	-55°C to + 150°C , 5 cycles
Rapid Change of Temperature tolerances of 5%, 10%, 20%	JIS-C-5201-1 4.18 IEC-60115-1 4.18	±(1%+0.05Ω)	-55°C to + 150°C , 5 cycles

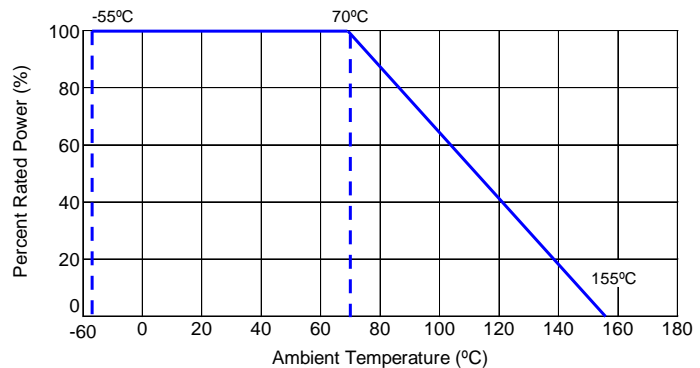
RCWV (Rated Continuous Working Voltage)=  $\sqrt{P \cdot R}$  or Max. Working Voltage whichever is Storage Temperature: 25±3°C; humidity < 80% R.H.

**Packaging Specifications - Paper Tape**

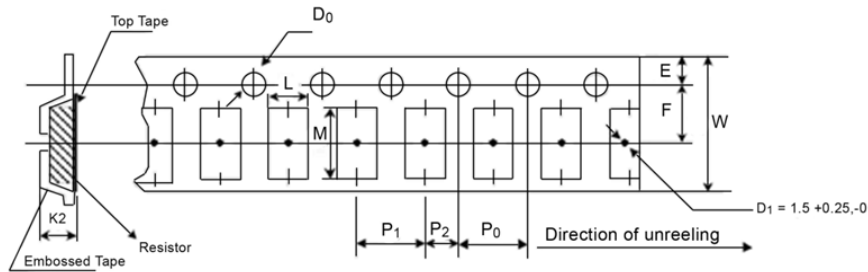


Type	L	M	W	E	F	Unit
RPC0603	0.043 ± 0.004 1.10 ± 0.10	0.075 ± 0.004 1.90 ± 0.10	0.315 ± 0.008 8.00 ± 0.20	0.069 ± 0.004 1.75 ± 0.10	0.138 ± 0.002 3.50 ± 0.05	inches mm
RPC0805	0.063 ± 0.004 1.60 ± 0.10	0.094 ± 0.008 2.40 ± 0.20	0.315 ± 0.008 8.00 ± 0.20	0.069 ± 0.004 1.75 ± 0.10	0.138 ± 0.002 3.50 ± 0.05	inches mm
RPC1206	0.075 ± 0.004 1.90 ± 0.10	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
RPC1210	0.110 ± 0.004 2.80 ± 0.10	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	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	ØD <sub>0</sub>	K <sub>1</sub> /K <sub>2</sub>	Unit
RPC0603	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.394 4.00 ± 10.00	0.079 ± 0.002 2.00 ± 0.05	0.059 ± 0.004 1.50 ± 0.10	0.028 ± 0.004 0.70 ± 0.10	inches mm
RPC0805	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.394 4.00 ± 10.00	0.079 ± 0.002 2.00 ± 0.05	0.059 ± 0.004 1.50 ± 0.10	0.033 ± 0.004 0.85 ± 0.10	inches mm
RPC1206	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.394 4.00 ± 10.00	0.079 ± 0.002 2.00 ± 0.05	0.059 ± 0.004 1.50 ± 0.10	0.033 ± 0.004 0.85 ± 0.10	inches mm
RPC1210	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.394 4.00 ± 10.00	0.079 ± 0.002 2.00 ± 0.05	0.059 ± 0.004 1.50 ± 0.10	0.033 ± 0.004 0.85 ± 0.10	inches mm

Power Derating Curve:

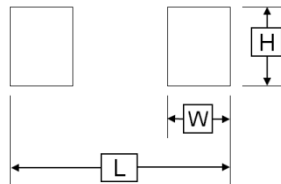


**Packaging Specifications – Embossed Plastic Tape**



Type	L	M	W	E	F	Unit
RPC2010	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
RPC2512	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	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	ØD <sub>0</sub>	K <sub>1</sub> /K <sub>2</sub>	Unit
RPC2010	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.394 4.00 ± 10.00	0.079 ± 0.002 2.00 ± 0.05	0.059 ± 0.004 1.50 ± 0.10	0.047 - 0.000 1.20 - 0.00	inches mm
RPC2512	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.394 4.00 ± 10.00	0.079 ± 0.002 2.00 ± 0.05	0.059 ± 0.004 1.50 ± 0.10	0.047 - 0.000 1.20 - 0.00	inches mm

**Recommended Pad Layout**



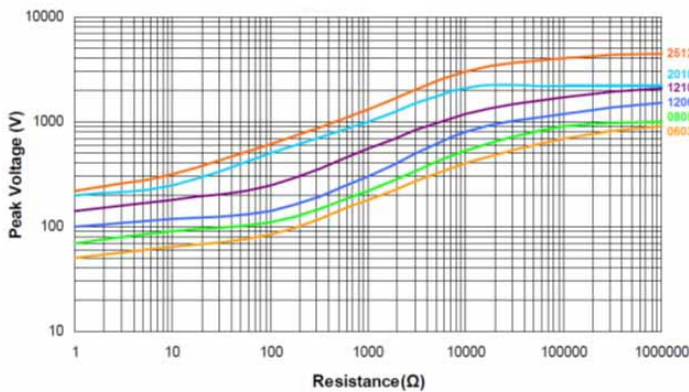
SIZE	L	H	W	Unit
RPC0201	0.031 0.79	0.017 0.43	0.011 0.28	inches mm
RPC0402	0.051 1.30	0.024 0.60	0.016 0.40	inches mm
RPC0603	0.079 2.00	0.035 0.90	0.020 0.50	inches mm
RPC0805	0.102 2.60	0.051 1.30	0.028 0.70	inches mm
RPC1206	0.150 3.80	0.067 1.70	0.035 0.90	inches mm
RPC1210	0.150 3.80	0.098 2.50	0.035 0.90	inches mm
RPC2010	0.232 5.90	0.098 2.50	0.039 1.00	inches mm
RPC2512	0.283 7.20	0.126 3.20	0.039 1.00	inches mm

**Lightning Surge**

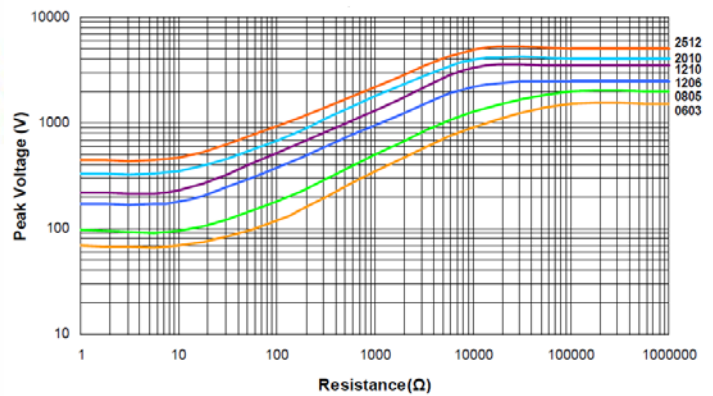
Resistors are tested in accordance with IEC 60115-1 using both 1.2/50us and 10/700 pulse shapes. The limit of acceptance is a shift in resistance of less than 1% from the initial value.

**1. 1.2/50us Lightning Surge**

RPC-HP (High Power) All Tolerances  
RPC (Std. Power) Tolerances of 0.5% and 1%

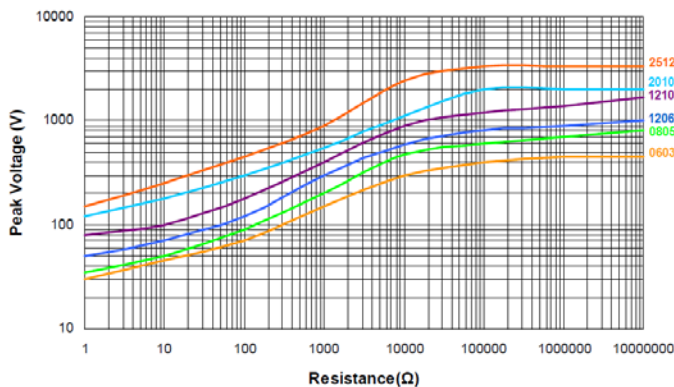


RPC (Std. Power)  
Tolerances of 5%, 10% and 20%

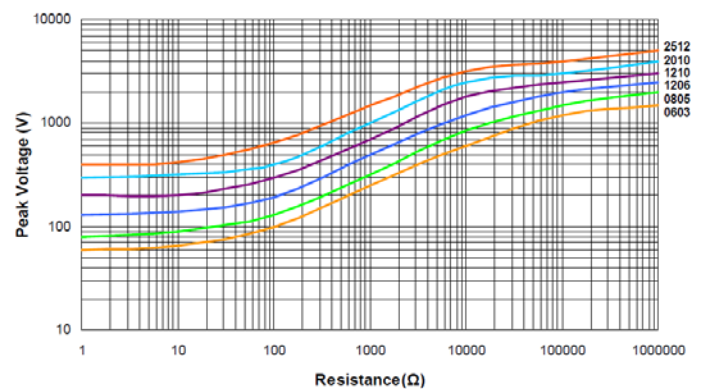


**2. 10/700us Lightning Surge**

RPC-HP (High Power) All Tolerances  
RPC (Std. Power) Tolerances of 0.5% and 1%



RPC (Std. Power)  
Tolerances of 5%, 10% and 20%





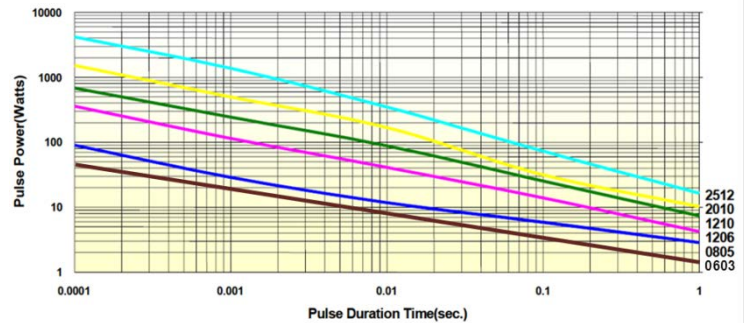
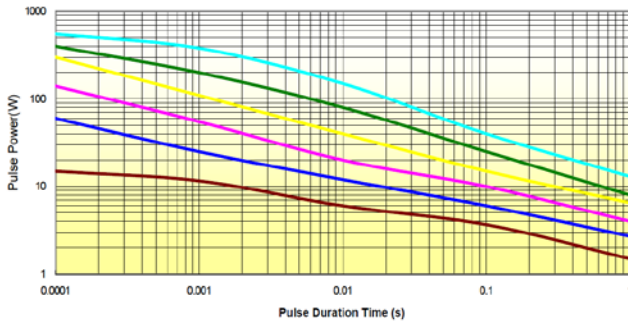
**Pulse Withstand Capacity**

The single impulse graph is the result of 50 impulses of rectangular shape applied at one minute intervals. The limit of acceptance was a shift in resistance of less than 1% from the initial value. The power applied was subject to the restrictions of the maximum permissible impulse voltage graph shown.

**Single Pulse Power (100 Ohm)**

RPC-HP (High Power) All Tolerances  
RPC (Std. Power) Tolerances of 0.5% and 1%

RPC (Std. Power)  
Tolerances of 5%, 10% and 20%



This data is for the 100Ω resistance value for each size. Pulse power handling is dependent on the resistance value. For resistance values higher or lower than 100Ω, contact Stackpole for advice on pulse handling characteristics of your particular resistance value of interest.

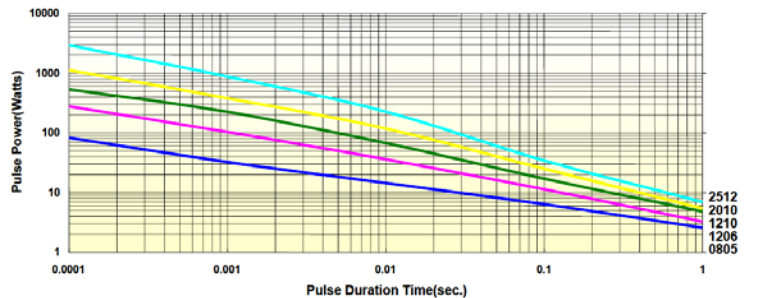
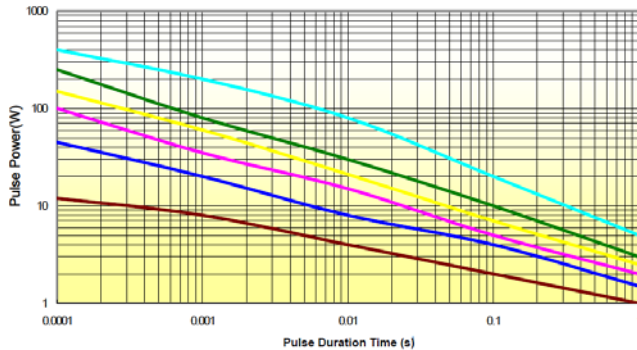
**Continuous Pulse**

The continuous load graph was obtained by applying repetitive rectangular pulses where the pulse period was adjusted so that the average power dissipated in the resistor was equal to its rated power at 70°C. Again the limit of acceptance was a shift in resistance of less than 1% from the initial value.

**Continuous Pulse Power (100 Ohm)**

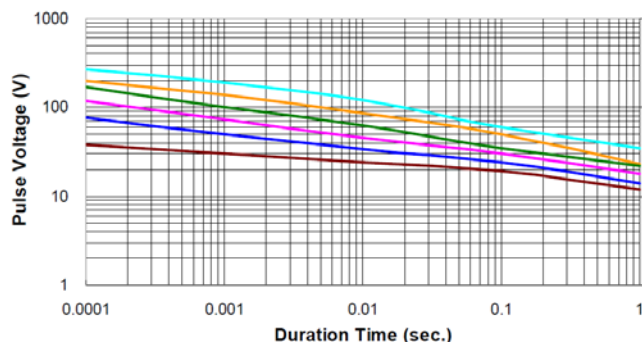
RPC-HP (High Power) All Tolerances  
RPC (Std. Power) Tolerances of 0.5% and 1%

RPC (Std. Power)  
Tolerances of 5%, 10% and 20%

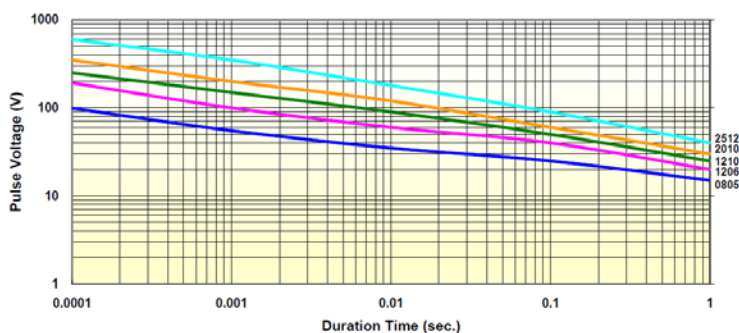


Pulse Voltage (100 Ohm)

RPC-HP (High Power) All Tolerances  
RPC (Std. Power) Tolerances of 0.5% and 1%



RPC (Std. Power)  
Tolerances of 5%, 10% and 20%



**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 2). 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.

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)
RPC	Pulse Withstanding Thick Film Surface Mount Chip Resistor	SMD	YES(1)	100% Matte Sn over Ni	Jan-03	03/01

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

**“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	
	<b>R</b>	<b>P</b>	<b>C</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>6</b>	<b>F</b>	<b>T</b>	<b>1</b>	<b>R</b>	<b>2</b>	<b>0</b>	<b>-</b>	<b>H</b>	<b>P</b>

Product Series	Size	Power	Tolerance			Packaging				Resistance Value	Special	
Code			Code	Tol	Value	Code	Description	Size	Quantity	Four characters with the multiplier used as the decimal holder.	Code	Description
RPC												
Pulse Withstanding	0603	0.1W	D	0.5%	E96	T	7" Reel Paper Tape	0603	5,000	300 ohm = 300R	HP	High Power
	0603(HP)	0.2W	F	1%	E24							
	0805	0.25W	J	5%								
	0805(HP)	0.4W	K	10%								
	1206	0.33W	M	20%		G	7" Reel Plastic Tape	2010	4,000	10.2 Kohm = 10K2		
	1206(HP)	0.5W										
	1210	0.5W										
	1210(HP)	0.75W										
	2010	0.75W					10" Reel Paper Tape	0805	10,000	1 Mohm = 1M00		
	2010(HP)	1W										
	2512	1.5W										