

### Features:

- Reliable multilayer terminals
- Higher component and equipment reliability
- Excellent performance at high voltage
- Special construction to prevent sulfur contamination
- AEC-Q200 qualified
- RoHS compliant
- Halogen free
- REACH compliant



Electrical Specifications						
Type/Code	Power Rating (W) @ 70°C	Maximum Operating Voltage (V) <sup>(1)</sup>	Maximum Overload Voltage (V) <sup>(2)</sup>	TCR (ppm/°C)	Ohmic Range (Ω) and Tolerance	
					1%	5%
RVCA0402	0.063	100	200	± 100	39K - 1M	
				± 200	1.02M - 10M	1.1M - 20M
				± 400	-	22M - 100M
RVCA0603	0.1	200	400	± 100	56K - 1M	
				± 200	1.02M - 10M	1.1M - 20M
				± 400	-	22M - 100M
RVCA0805	0.125	400	800	± 100	100K - 1M	
				± 200	1.02M - 10M	1.1M - 20M
				± 400	-	22M - 100M
RVCA1206	0.25	500	1000	± 100	100K - 1M	
				± 200	1.02M - 10M	1.1M - 20M
				± 400	-	22M - 100M
RVCA2010	0.5	2000	3000	± 100	51K - 1M	
				± 200	1.02M - 10M	1.1M - 20M
				± 400	-	22M - 100M
RVCA2512	1	3000	4000	± 100	30K - 1M	
				± 200	1.02M - 10M	1.1M - 20M
				± 400	-	22M - 100M

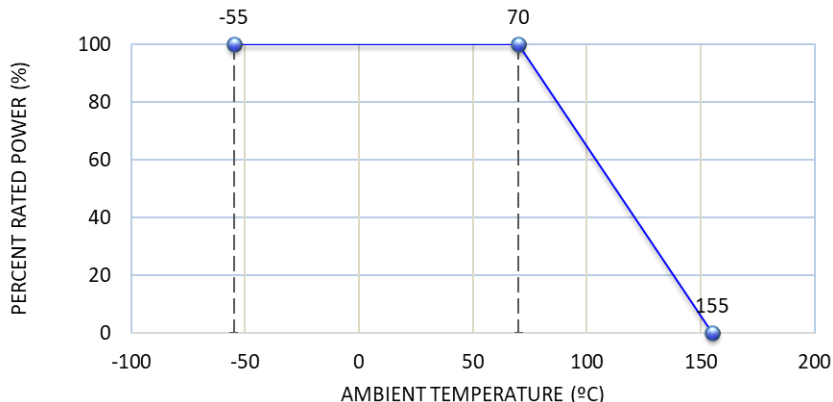
(1) Operating Voltage =  $\sqrt{P \cdot R}$  or max. operating voltage listed above, whichever is lower.

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

Operating temperature range is -55 to +155°C

Mechanical Specifications							
Type/Code	Weight (g) (1000 pc.)	L Body Length	W Body Width	T Body Height	D2 Top Termination	D2 Bottom Termination	Unit
RVCA0402	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
RVCA0603	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
RVCA0805	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
RVCA1206	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
RVCA2010	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
RVCA2512	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

Power Derating Curve:

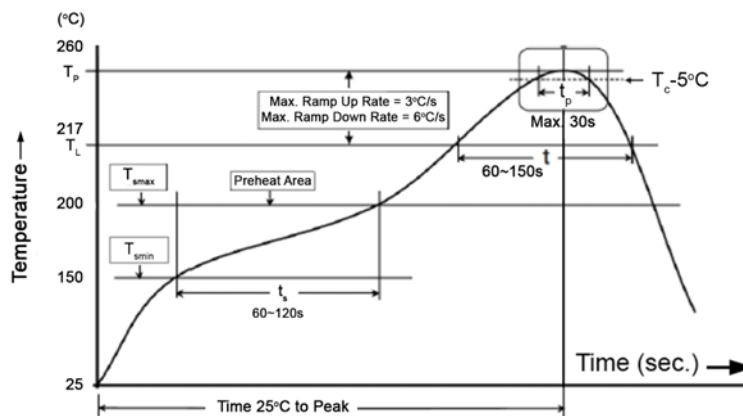


Performance Characteristics			
Item	Test Method	Requirement	
		± 1%	± 5%
Temperature Coefficient of Resistance (TCR)	JIS-C-5201-1 4.8; IEC-60115-1 4.8 At 25°C/-55°C and 25°C/+125°C, 25°C is the reference temperature	As specified	
Short Time Overload	JIS-C-5201-1 4.13; IEC-60115-1 4.13 RCWV*2.5 or Max. Overload Voltage, whichever is lower for 5 seconds	± (1% + 0.05Ω)	± (2% + 0.05Ω)
Insulation Resistance	JIS-C-5201-1 4.6; IEC-60115-1 4.6 Max. Overload Voltage for 1 minute	≥ 10G	
Operational Life	MIL-STD-202 Method 108 Condition D steady State TA=125°C at derated power. Measurement at 24 ± 4 hours after test conclusion.	± (2% + 0.05Ω)	± (3% + 0.1Ω)
Biased Humidity	MIL-STD-202 Method 103 1000 hours 85°C/85% R.H. 10% of operating power	± (2% + 0.05Ω)	± (3% + 0.1Ω)
High Temperature Exposure	MIL-STD-202 Method 108 at +155°C for 1000 hours	± (1% + 0.05Ω)	± (1.5% + 0.1Ω)
Board Flex	AEC-Q200-005 Bending once for 60 seconds 2010, 2512 sizes: 2mm; Other sizes: 3mm	± (1% + 0.05Ω)	
Solderability	JIS-C-5201-1 4.17; IEC-60115-1 4.17 245 ± 5°C for 3 seconds	95% min. coverage	
Resistance to Soldering Heat	JIS-C-5201-1 4.18; IEC-60115-1 4.18 260 ± 5°C for 10 seconds	± (0.5% + 0.05Ω)	± (1% + 0.05Ω)
Voltage Proof	JIS-C-5201-1 4.7; IEC-60115-1 4.7 0402: 150V for 1 minute 0603: 300V for 1 minute All other sizes: 500V for 1 minute	No breakdown or flashover	
Leaching	JIS-C-5201-1 4.18; IEC-60068-2-58 8.2.1 260 ± 5°C for 30 seconds	Individual leaching area ≤ 5% Total leaching area ≤ 10%	
Temperature Cycling	JESD22 Method JA-104 -55°C to + 125°C, 1000 cycles	± (1% + 0.05Ω)	
Mechanical Shock	MIL-STD-202 Method 213 Wave form: Tolerance for half sine shock pulse. Peak value is 100g's. Normal duration (D) is 6.	± (1% + 0.05Ω)	
Vibration	MIL-STD-202 Method 204 5g's for 20 minutes, 12 cycles each of 3 orientations, 10 - 2000 Hz	± (1% + 0.05Ω)	

Performance Characteristics			
Item	Test Method	Requirement	
		± 1%	± 5%
ESD	AEC-Q200-002 Human body model 0402/0603: 1KV All other sizes: 2KV	± (3% + 0.05Ω)	
Resistance to Solvents	ML-STD-202 Method 215 Add aqueous wash chemical - OKEM Clean or equivalent. Do not use banned solvents	No visible damage on appearance and marking.	
Terminal Strength	AEC-Q200-006 Force of 1.8 Kg for 60 seconds	No breakage	
Flammability	UL-94 V-0 or V-1 are acceptable. Electrical test not required.	No ignition of the tissue paper or scorching on the pinewood board	
Sulfur Test	EIA-977 (Condition A) 60 ± 2°C, no power rating for 500 hours	Δ R ± 1%	Δ R ± 5%

RCWV (Rated continuous working voltage) =  $\sqrt{P \cdot R}$  or max. operating voltage, whichever is lower.  
Storage temperature is 15~28 °C, Humidity < 80% R.H.  
Shelf life is 2 years from production date.

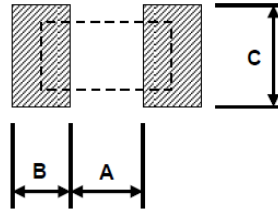
### Soldering Condition



Number of reflow cycles allowed: 3 times

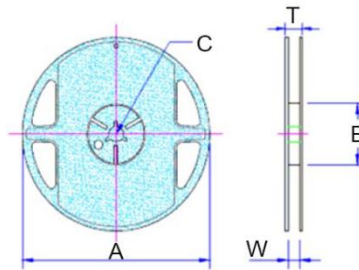
Profile Feature	Pb-Free Assembly
Min. temperature (T <sub>smin</sub> )	150°C
Max. temperature (T <sub>smax</sub> )	200°C
Preheating time (ts) from (T <sub>smin</sub> to T <sub>smax</sub> )	60-120 seconds
Ramp-up rate (T <sub>L</sub> to T <sub>P</sub> )	3°C/second max.
Liquidous temperature (T <sub>L</sub> )	217°C
Time (t <sub>L</sub> ) maintained above T <sub>L</sub>	60-150 seconds
Min. Peak temperature (T <sub>P</sub> min)	235°C
Max. Peak temperature (T <sub>P</sub> max)	260°C
Time (t <sub>p</sub> ) within 5°C of the specified classification temperature (T <sub>C</sub> )	30 seconds max.
Ramp-down rate (T <sub>P</sub> to T <sub>L</sub> )	6°C/second max.
Time 25°C to peak temperature	8 minutes max.

### Recommended Pad Layout



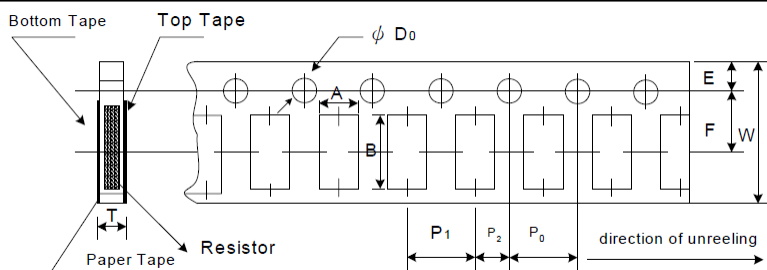
Type/Code	A	B	C	Unit
RVCA0402	0.020	0.018	0.024	inches
	0.50	0.45	0.60	mm
RVCA0603	0.035	0.024	0.035	inches
	0.90	0.60	0.90	mm
RVCA0805	0.047	0.028	0.051	inches
	1.20	0.70	1.30	mm
RVCA1206	0.079	0.035	0.063	inches
	2.00	0.90	1.60	mm
RVCA2010	0.150	0.035	0.110	inches
	3.80	0.90	2.80	mm
RVCA2512	0.193	0.063	0.138	inches
	4.90	1.60	3.50	mm

### Reel Specifications



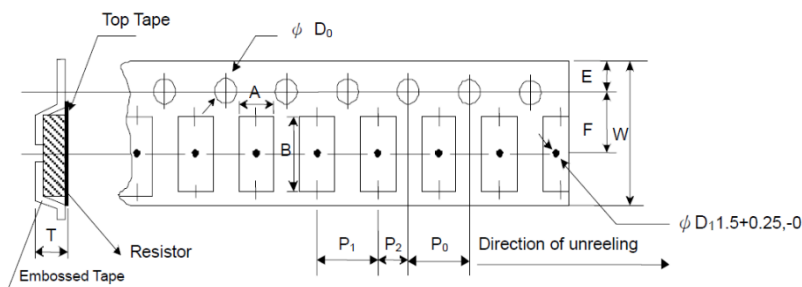
Type/Code	Packaging/Quantity	A	B	C	W	T	Unit	
RVCA0402	Paper	10000	7.028 ± 0.059 178.50 ± 1.50	2.362 +0.039/-0 60.00 +1.00/-0	0.512 ± 0.008 13.00 ± 0.20	0.354 ± 0.020 9.00 ± 0.50	0.492 ± 0.020 12.50 ± 0.50	inches mm
RVCA0603, RVCA0805 RVCA1206		5000	7.028 ± 0.059 178.50 ± 1.50	2.362 +0.039/-0 60.00 +1.00/-0	0.512 ± 0.008 13.00 ± 0.20	0.354 ± 0.020 9.00 ± 0.50	0.492 ± 0.020 12.50 ± 0.50	inches mm
RVCA2010, RVCA2512	Embossed	4000	7.028 ± 0.059 178.50 ± 1.50	2.362 +0.039/-0 60.00 +1.00/-0	0.512 ± 0.020 13.00 ± 0.50	0.512 ± 0.020 13.00 ± 0.50	0.512 ± 0.020 13.00 ± 0.50	inches mm

**Packaging Specifications – Paper Tape**



Type/Code	A	B	W	E	F	Unit
RVCA0402	0.026 ± 0.004 0.65 ± 0.10	0.045 ± 0.004 1.15 ± 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
RVCA0603	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
RVCA0805	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
RVCA1206	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
Type/Code	P0	P1	P2	D0	T	Unit
RVCA0402	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 ± 0.004 0.45 ± 0.10	inches mm
RVCA0603	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.002 4.00 ± 0.05	0.079 ± 0.002 2.00 ± 0.05	0.059 +0.004/-0 1.50 +0.10/-0	0.028 ± 0.004 0.70 ± 0.10	inches mm
RVCA0805	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.002 4.00 ± 0.05	0.079 ± 0.002 2.00 ± 0.05	0.059 +0.004/-0 1.50 +0.10/-0	0.033 ± 0.004 0.85 ± 0.10	inches mm
RVCA1206	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.002 4.00 ± 0.05	0.079 ± 0.002 2.00 ± 0.05	0.059 +0.004/-0 1.50 +0.10/-0	0.033 ± 0.004 0.85 ± 0.10	inches mm

**Packaging Specifications – Plastic Tape**



Type/Code	A	B	W	E	F	Unit
RVCA2010	0.110 ± 0.004 2.80 ± 0.10	0.213 ± 0.008 5.40 ± 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
RVCA2512	0.138 ± 0.004 3.50 ± 0.10	0.264 ± 0.004 6.70 ± 0.10	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	P0	P1	P2	D0	T	Unit
RVCA2010	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
RVCA2512	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

### 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)
RVCA	Automotive Grade High Voltage Thick Film Flat Chip Resistor	SMD	YES <sup>(1)</sup>	100% Matte Sn over Ni	Always	Always

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

