

Features:

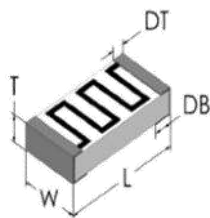
- Voltage ratings to 20000 volts
- Resistance values to 10GΩ
- Ultra-high stability
- Very low noise
- Tolerances to 1%
- Tolerances 10% and wider are typically untrimmed
- TCR to 100 ppm/°C
- RoHS compliant, REACH compliant, and halogen free



Electrical Specifications			
Type/Code	TCR (ppm/°C)	Maximum Working Voltage (V)	Ohmic Range (Ω) and Tolerance
			1%, 2%, 5%, 10%, 20%
UHV2010	100 200	3000	100M - 158M
		4000	162M - 357M
		6000	365M - 10G
UHV2512	100 200	4000	121M - 249M
		6000	255M - 442M
		8000	453M - 698M
		10000	715M - 10G
UHV3512	100 200	4000	100M - 196M
		6000	200M - 324M
		8000	332M - 523M
		10000	536M - 732M
		12000	750M - 976M
		14000	1G - 10G
UHV4020	100 200	6000	150M - 249M
		8000	255M - 392M
		10000	402M - 562M
		12000	576M - 768M
		14000	787M - 976M
		16000	1G - 10G
UHV5020	100 200	6000	100M - 158M
		8000	162M - 249M
		10000	255M - 357M
		12000	365M - 487M
		14000	499M - 634M
		16000	649M - 976M
		20000	1G - 10G

Due to the high resistance values offered, the power rating for a given size and resistance value should be calculated by V^2/R .
Because of the high voltage ratings, these resistors should be potted to ensure terminal isolation.

Mechanical Specifications



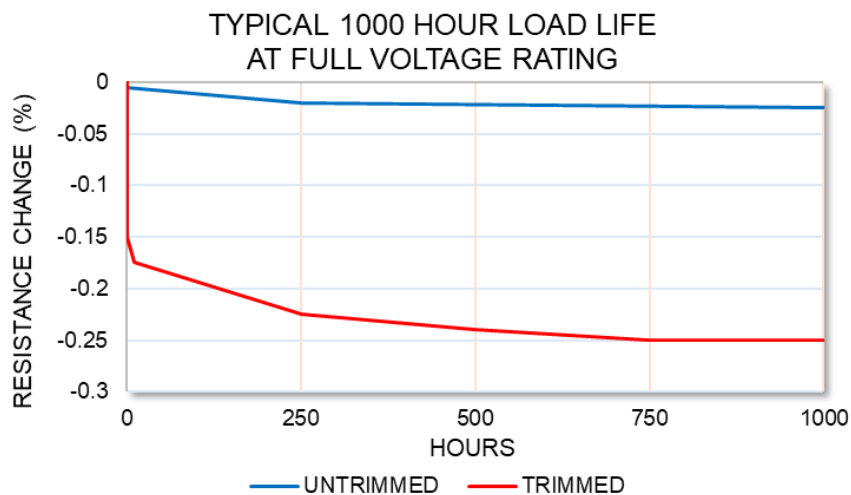
Type/Code	L Body Length	W Body Width	Thickness (Max.)	DT Top Termination	DB Bottom Termination	Unit
UHV2010	0.200 ± 0.010 5.08 ± 0.25	0.100 ± 0.005 2.54 ± 0.13	0.030 0.76	0.018 ± 0.010 0.46 ± 0.25	0.020 ± 0.010 0.51 ± 0.25	inches mm
UHV2512	0.250 ± 0.010 6.35 ± 0.25	0.125 ± 0.005 3.18 ± 0.13	0.030 0.76	0.020 ± 0.010 0.51 ± 0.25	0.024 ± 0.010 0.61 ± 0.25	inches mm
UHV3512	0.350 ± 0.010 8.89 ± 0.25	0.125 ± 0.005 3.18 ± 0.13	0.030 0.76	0.020 ± 0.010 0.51 ± 0.25	0.024 ± 0.010 0.61 ± 0.25	inches mm
UHV4020	0.400 ± 0.010 10.16 ± 0.25	0.200 ± 0.005 5.08 ± 0.13	0.030 0.76	0.025 ± 0.010 0.64 ± 0.25	0.030 ± 0.010 0.76 ± 0.25	inches mm
UHV5020	0.500 ± 0.010 12.70 ± 0.25	0.200 ± 0.005 5.08 ± 0.13	0.030 0.76	0.030 ± 0.010 0.76 ± 0.25	0.030 ± 0.010 0.76 ± 0.25	inches mm

Performance Characteristics

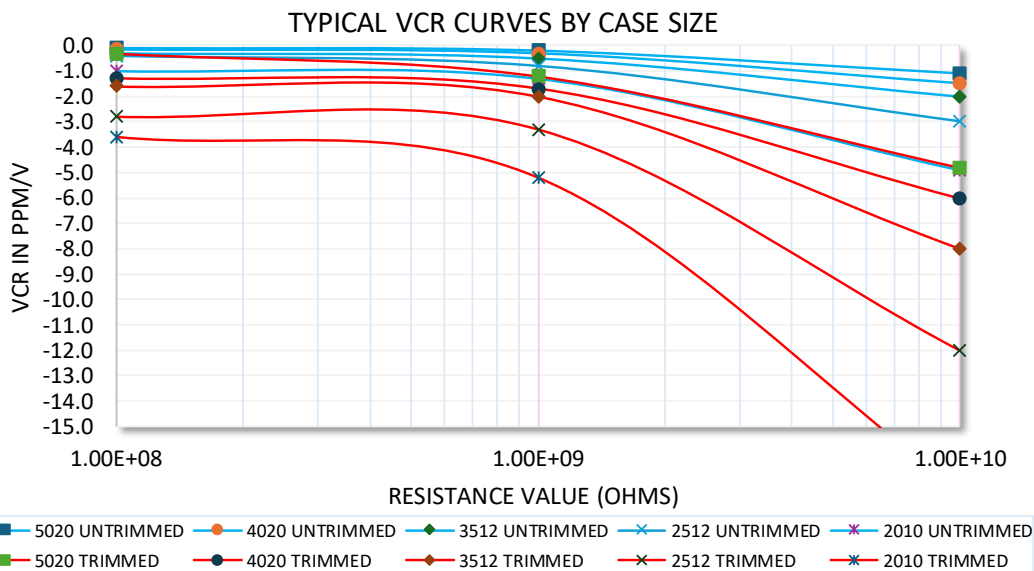
Test	Typical Performance
Short Time Overload	0.5%
Load Life	0.5%
Temperature Cycle	0.5%
Moisture Resistance	0.5%
Shock	0.25%
Vibration	0.25%
Dielectric Withstanding Voltage	0.25%
Resistance to Soldering Heat	0.25%
Parameter	Typical
TCR	Measured from 25 to 75°C
Pulse Capability	Consult Stackpole for pulse applications
Resistance Value	Measured at 100 V Consult Stackpole for custom test voltages

Operating temperature range is -55 to +150°C

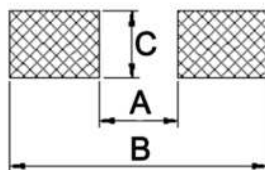
Load Life



VCR Curves



Recommended Solder Pad



Type/Code	A	B	C	Unit
UHV2010	0.138 3.50	0.240 6.10	0.110 2.80	inches mm
UHV2512	0.193 4.90	0.315 8.00	0.138 3.50	inches mm
UHV3512	0.290 7.37	0.415 10.54	0.138 3.50	inches mm
UHV4020	0.313 7.94	0.457 11.60	0.214 5.43	inches mm
UHV5020	0.290 10.70	0.415 14.35	0.214 5.43	inches mm

Recommended Solder Profile

This information is intended as a reference for solder profiles for Stackpole resistive components. These profiles should be compatible with most soldering processes. These are only recommendations. Actual numbers will depend on board density, geometry, packages used, etc., especially those cells labeled with “*”.

100% Matte Tin / RoHS Compliant Terminations

Soldering iron recommended temperatures: 330 to 350°C with minimum duration.
Maximum number of reflow cycles: 3.

Wave Soldering

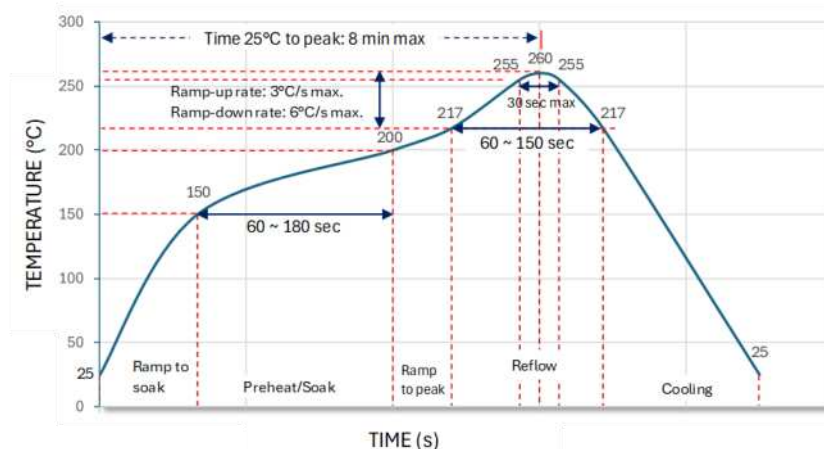
Description	Maximum	Recommended	Minimum
Preheat Time	80 seconds	70 seconds	60 seconds
Temperature Diff.	140°C	120°C	100°C
Solder Temp.	260°C	250°C	240°C
Dwell Time at Max.	10 seconds	5 seconds	*
Ramp DN (°C/sec)	N/A	N/A	N/A

Temperature Diff. = Difference between final preheat stage and soldering stage.

Convection IR Reflow

Description	Maximum	Recommended	Minimum
Ramp Up (°C/sec)	3°C/sec	2°C/sec	*
Dwell Time > 217°C	150 seconds	90 seconds	60 seconds
Solder Temp.	260°C	245°C	*
Dwell Time at Max.	30 seconds	15 seconds	10 seconds
Ramp DN (°C/sec)	6°C/sec	3°C/sec	*

Recommended Resistor Reflow Profile



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)
UHV	Ultra-High Voltage 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

U	H	V	B	3	5	1	2	F	K	D	5	0	0	M
Product Series		Size	Tolerance		Packaging				TCR		Resistance Value			
UHVB	Solderable wraparound (matte tin Sn99.9 on nickel barrier) RoHS Compliant	2010	Code	Tol	Code	Description	Size	Quantity	Code	ppm				
		2512	F	1%	T		2010	4000	D	100				
		3512	G	2%	K		2512	2000	L	200				
		4020	J	5%			All Sizes	1000						
5020	K	10%	500											
UHVS	Solderable wraparound (Sn63Pb37 solder over nickel barrier) Not RoHS Compliant		M	20%	D									
					C			250						