Features:

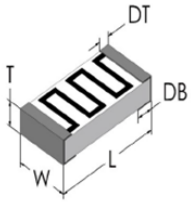
- Voltage ratings to 20000 volts
- Resistance values to 10GΩ
- Ultra-high stability
- Very low noise
- Tolerances to 1%
- Tolerances 10% and wider are typically untrimmed
- TCR to 100 ppm/ºC
- RoHS compliant, REACH compliant, and halogen free

Electrical Specifications

Type/Code	TCR (ppm/ºC)	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

Mechanical Specifications (cont.)

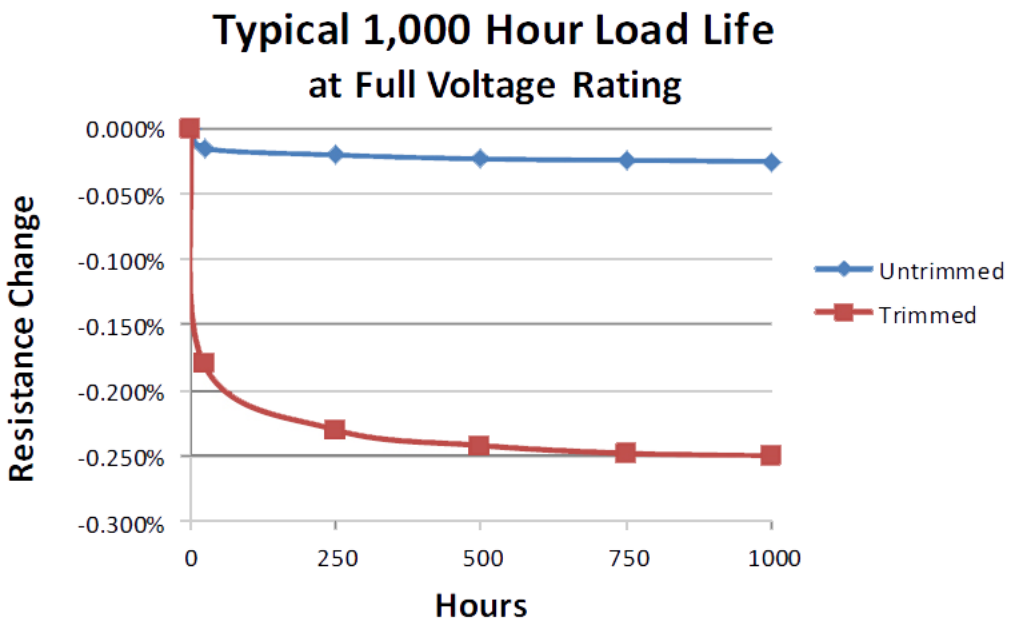
Type/Code	L Body Length	W Body Width	Thickness (Max.)	DT Top Termination	DB Bottom Termination	Unit
UHV3512	0.350 ± 0.010 8.89 ± 0.25	0.125 ± 0.005 3.18 ± 0.13	0.030 0.76	0.020 ± 0.010 0.51 ± 0.25	0.024 ± 0.010 0.61 ± 0.25	inches mm
UHV4020	0.400 ± 0.010 10.16 ± 0.25	0.200 ± 0.005 5.08 ± 0.13	0.030 0.76	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

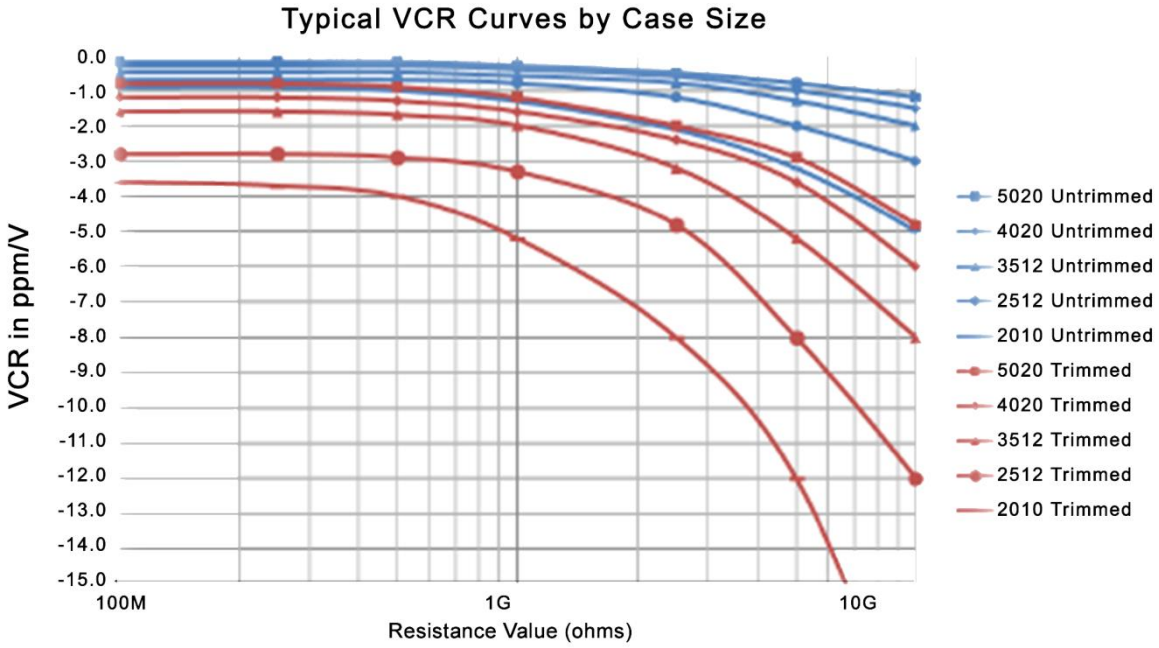
Test	Typical Performance
Short Time Overload	0.5%
Load Life	0.5%
Temperature Cycle	0.5%
Moisture Resistance	0.5%
Shock	0.25%
Vibration	0.25%
Dielectric Withstanding Voltage	0.25%
Resistance to Soldering Heat	0.25%
Parameter	**Typical**
TCR	Measured from 25°C to 75°C
Pulse Capability	Consult Stackpole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

Operating temperature range is -55 to +150ºC

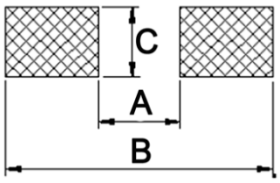
Load Life



VCR Curves



Recommended Pad Layouts



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

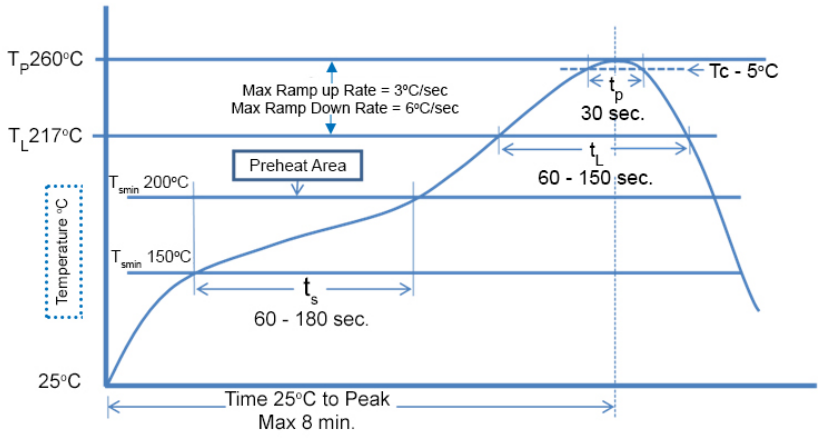
Soldering iron recommended temperatures: 330 to 350°C with minimum duration.
Maximum number of reflow cycles: 3.

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-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

U	H	V	B	3	5	1	2	F	K	D	5	0	0	M

Product Series

UHVB	Solderable wraparound (matte tin Sn99.9 on nickel barrier) RoHS Compliant
UHVS	Solderable wraparound (Sn63Pb37 solder over nickel barrier) Not RoHS Compliant

Size

Size
2010
2512
3512
4020
5020

Tolerance

Code	Tol
F	1%
G	2%
J	5%
K	10%
M	20%

Packaging

Code	Description	Size	Quantity
T	Tape and Reel Plastic Tape	2010	4000
		2512	2000
K		All Sizes	1000
D			500
C			250

TCR

Code	ppm
D	100
L	200

Resistance Value

Four characters with the multiplier used as the decimal holder.
90 Mohm = 90M0 250 Mohm = 250M 1 Gohm = 1G00