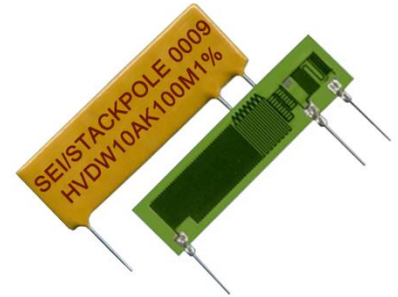


Features:

- Ohmic values to 2000G
- Voltage ratings to 40KV
- Ultra-high stability
- Tight tolerances to 0.1%
- Very low noise
- Low TCR to 25 ppm/°C
- Absolute tolerance typically $\pm 15\%$
- Resistance ratio = $(R1 + R2) / R2$ where $R1 > R2$
- The resistance value = the total resistance value of the part ($R1 + R2$)
- Custom solutions available
- 100% RoHS compliant and lead free without exemption
- Halogen free
- REACH compliant



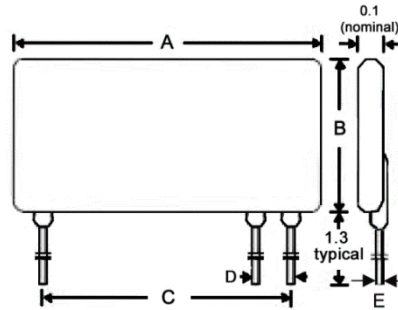
Utilizing fine film resistor deposition technology, Stackpole now offers a new level of stability and performance in leaded resistor dividers. Competing product technologies have constraints due to their dependence on certain limiting composite materials. Traditional thick film products have restricted performance characteristics, while thin film offerings are confined within certain Ohmic value ranges.

In addition to improving on these limitations, the fine film deposition demonstrates new characteristics, such as a longer high-aspect ratio trace of lower resistivity film.

These fine film resistor dividers provide unique design efficiency, versatility and linearity, through the combination of long line, high aspect ratio and higher conductivity film.

Electrical Specifications							
Case Size	Power Rating (W) @ 25 °C	Maximum Voltage Rating (KV)	TCR (ppm/°C)	Ohmic Range (Ω) and Ratio Tolerance			
				0.1%	0.25%	0.5%	1%
HVD...04	0.5	4	± 25	1M - 100M			
			± 50	100K - 100M		100K - 1G	
			± 100	100K - 100M		100K - 10G	100K - 50G
			± 200	100K - 100M		100M - 10G	100M - 50G
HVD...05	1	5	± 25	1M - 100M			
			± 50	100K - 100M		100K - 1G	
			± 100	100K - 100M		100K - 10G	100K - 50G
			± 200	100K - 100M		100M - 10G	100M - 50G
HVD...10	1	10	± 25	1M - 100M	1M - 500M		
			± 50	100K - 100M	100K - 500M	100K - 10G	
			± 100	100K - 100M	100K - 500M	100K - 10G	100K - 50G
			± 200	100K - 100M	100K - 100M	100M - 10G	100M - 50G
HVD...20	2	20	± 25	1M - 100M	1M - 500M		
			± 50	100K - 100M	100K - 500M	100K - 10G	
			± 100	100K - 100M	100K - 500M	100K - 10G	100K - 50G
			± 200	100K - 100M	100K -100M	100M - 10G	100M - 50G
HVD...30	3	30	± 25	1M - 100M	1M - 500M		
			± 50	100K - 100M	100K - 500M	100K - 10G	
			± 100	100K - 100M	100K - 500M	100K - 10G	100K - 50G
			± 200	100K - 100M	100K -100M	100M - 10G	100M - 50G
HVD...40	6	40	± 25	1M - 100M	1M - 500M		
			± 50	100K - 100M	100K - 500M	100K - 10G	
			± 100	100K - 100M	100K - 500M	100K - 10G	100K - 50G
			± 200	100K - 100M	100K -100M	100M - 10G	100M - 50G

Mechanical Characteristics



Case Size	A	B	C	D	E	Unit
HVD...04	0.500 ± 0.080	0.375 ± 0.030	0.400	0.200	0.025	inches
	12.70 ± 2.03	9.53 ± 0.76	10.16	5.08	0.644	mm
HVD...05	1.000 ± 0.080	0.375 ± 0.030	0.900	0.200	0.025	inches
	25.40 ± 2.03	9.53 ± 0.76	22.86	5.08	0.644	mm
HVD...10	1.500 ± 0.080	0.500 ± 0.030	1.300	0.200	0.025	inches
	38.10 ± 2.03	12.70 ± 0.76	33.02	5.08	0.644	mm
HVD...20	2.000 ± 0.080	0.750 ± 0.030	1.900	0.200	0.025	inches
	50.80 ± 2.03	19.05 ± 0.76	48.26	5.08	0.644	mm
HVD...30	3.000 ± 0.080	0.750 ± 0.030	2.900	0.200	0.025	inches
	76.20 ± 2.03	19.05 ± 0.76	73.66	5.08	0.644	mm
HVD...40	4.000 ± 0.080	0.750 ± 0.030	3.900	0.200	0.025	inches
	101.60 ± 2.03	19.05 ± 0.76	99.06	5.08	0.644	mm

Performance Characteristics

Test	Maximum ΔR
Short Time Overload	0.1%
Load Life	0.1%
Temperature Cycle	0.1%
Moisture Resistance	0.1%
Shock	0.05%
Vibration	0.05%
Dielectric Withstanding Voltage	0.05%
Resistance to Soldering Heat	0.05%
Parameter	Typical
Operating Temperature	-55°C to 150°C
TCR	measured from 25°C to 75°C
Resistance Value	measured at 100V (consult Stackpole for custom test voltages)

Recommended Solder Profiles

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 “**”.

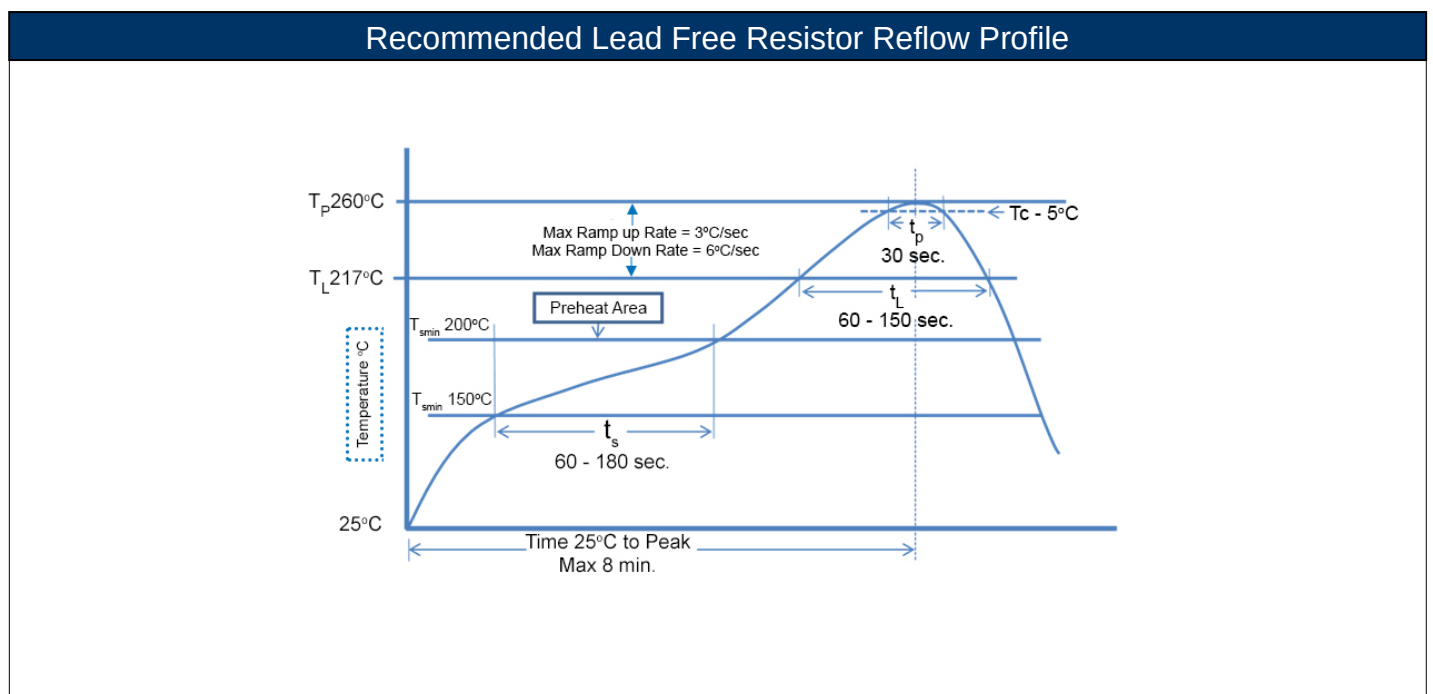
100% Matte Tin / RoHS Compliant Terminations

Soldering iron recommended temperatures: 330°C 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

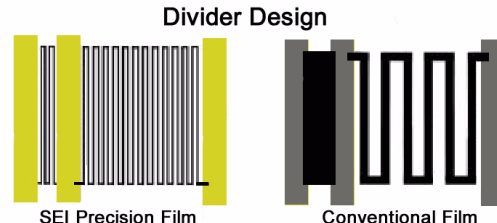
Temperature Diff. = Difference between final preheat stage and soldering stage.

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	*



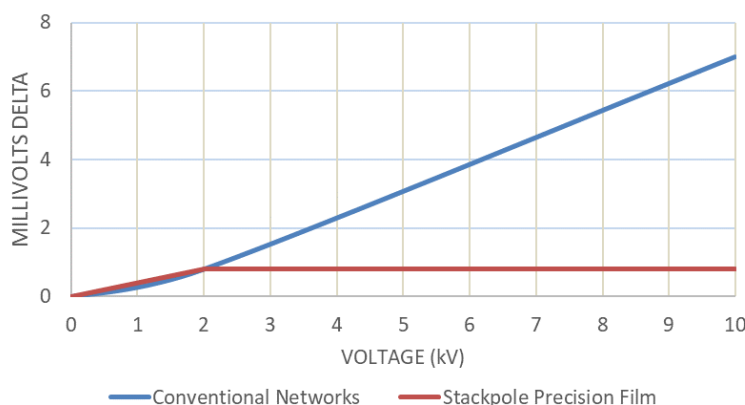
Design Flexibility

The HVD series can accommodate virtually any divider ratio due to the long serpentine pattern in the fine film manufacturing, combined with the utilization of low ohms/square thick film inks. Please contact SEI with custom design needs.



Excellent VCR Tracking:

The VCR is virtually flat over a wide range of values.



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)
HVD	High Voltage Leaded Resistor Dividers	Radial Special	YES	96.3/3.7 Sn/Ag	Always	Always

"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. 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.

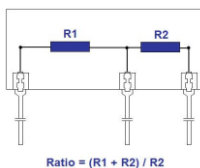
How to Order

1	2	3	4	5	6	7	8	9	10	11	12	13	
H	V	D	W	0	4	A	E	2	0	0	5	B	
Product Series		Lead Style		Power Rating		Ratio ⁽³⁾		Absolute TCR ⁽¹⁾		Total R Value ⁽²⁾⁽⁴⁾		Ratio Tolerance	
Code	Description	Code	Description	Size	W	Code	Description	Code	TCR (ppm/°C)	2005		Code	Description
HVD	High Voltage Plate Resistor Divider	S	Spade	04	0.5	A	1,000:1	E	± 25			B	± 0.1%
		W	Wire	05	1	B	100:1	C	± 50			C	± 0.25%
				10	1	C	Other	D	± 100			D	± 0.5%
				20	2			L	± 200			F	± 1%
				30	3							G	± 2%
				40	6							J	± 5%
												K	± 10%
												M	± 20%

Note (1): TCR tracking typically < 25% of the absolute TCR to a minimum of 10 ppm/°C

Note (2): Express value as a four digit number, the first three numbers are the significant value and the fourth number is the number of zeros

Note (3): Resistance ratio = $(R1 + R2) / R2$ where $R1 > R2$



Note (4): The resistance value = the total resistance value of the part ($R1 + R2$)

Note (5): Parts come in bulk packaging. MOQ = 50 pieces.