HVR82 Flat High-Resistance High-Voltage Resistors

Features

- Resistance values up to 10TΩ (10^{13}Ω).
- Low noise and low voltage coefficient.
- TCR as low as ±25ppm/°C.
- Custom sizes available.
- Various encapsulations for different application environments.

HVR82 provides stable performance over a wide resistance range for high-voltage, high-temperature and non-inductive applications.



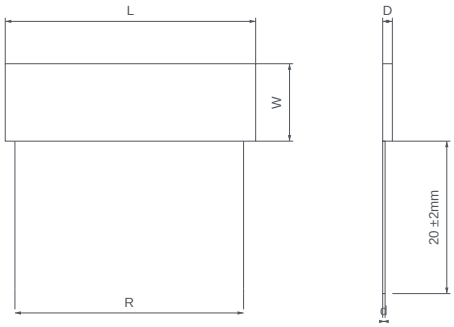
Applications

High-voltage power supplies, medical equipment, power sensing, static elimination, high-voltage circuits, pulse circuits, ionization facilities and X-ray systems.

Coating Options

Coating	Colour	Application
Epoxy E	Yellow / black	For all applications, especially epoxy and insulating-oil encapsulation.
Polymer P	Blue	Helps increase power; particularly suitable for values >1GΩ.
Silicone S	Gray	Strong heat dissipation and insulation.

Outline Dimensions • mm

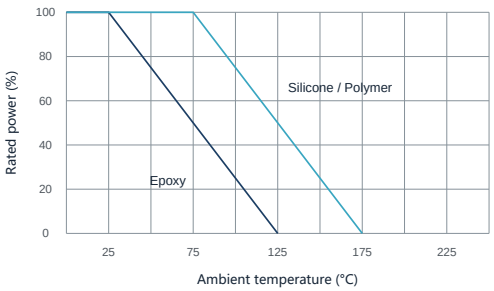


L/W/R/D/d retain their source definitions. The lead-length callout is 20 ±2mm.

Dimensional Data • mm

Model	L±1	W±1	R±0.5	Dmax	d	Leads
HVR82-1005	11	6	7.6	2.54	0.4, 0.6	20 ±2
HVR82-1805	19	6	16.3	2.54	0.4, 0.6	20 ±2
HVR82-1408	14	8	10.16	2.54	0.6, 0.8	20 ±2
HVR82-2606	26	6	23	2.54	0.6, 0.8	20 ±2
HVR82-2510	25	10	22	2.54	0.6, 0.8	20 ±2
HVR82-2708	27	8	22.8	2.54	0.6, 0.8	20 ±2
HVR82-2810	27	8.5	23	2.54	0.6, 0.8	20 ±2
HVR82-30	31	7	28	2.54	0.6, 0.8	20 ±2
HVR82-2116	21	16	18	2.54	0.6, 0.8	20 ±2
HVR82-40	41	7	38	2.54	0.6, 0.8	20 ±2
HVR82-2520	26	21	18	2.54	0.8	20 ±2
HVR82-3815	38.5	14.5	35.5	2.54	0.8	20 ±2
HVR82-5109	52.5	9	48.2	2.54	0.8	20 ±2
HVR82-5215	51.5	14.5	48.2	2.54	0.8	20 ±2
HVR82-5127	52.5	27.5	45.8	2.54	0.8	20 ±2
HVR82-6512	65	12.5	61	2.54	0.8	20 ±2
HVR82-8020	80	20	76.8	2.54	0.8	20 ±2
HVR82-10012	100	12	96	2.54	0.8	20 ±2

Power Derating



Performance

Item	Specification
Load life	Rated power, 125°C, 1000h; ΔR <0.2%
Insulation resistance	>10GΩ
Overload	5s, 5Pe; ΔR ≤0.20%
Thermal shock	ΔR ≤0.1%
Moisture resistance	ΔR ≤0.1%

Electrical Specifications

Model	P at 25°C (W)	Max. voltage (V)	Resistance range (Ω)	Tolerance (±%) by resistance (Ω)	TCR (±ppm/°C) by resistance (Ω)	VCR (ppm/V) by resistance (Ω)
HVR82-1005	0.50	2500	1K~10G	1K~100M: 0.5,1,2,5,10 100M~10G: 1,2,5,10	1K~1G: 25,50,100 1G~10G: 50,100	1K~100M: -2.0 100M~1G: -10.0 1G~10G: -25
HVR82-1805	0.75	4000	1K~10G	1K~100M: 0.5,1,2,5,10 100M~10G: 1,2,5,10	1K~1G: 25,50,100 1G~10G: 50,100	1K~100M: -1.0 100M~1G: -5.0 1G~10G: -20
HVR82-1408	0.75	5000	1K~10G	1K~100M: 0.5,1,2,5,10 100M~10G: 1,2,5,10	1K~1G: 25,50,100 1G~10G: 50,100	1K~100M: -1.0 100M~1G: -5.0 1G~10G: -20
HVR82-2606	1.00	8000	1K~100G	1K~100M: 0.5,1,2,5,10 100M~100G: 1,2,5,10	1K~1G: 25,50,100 1G~100G: 50,100	1K~200M: -1.0 200M~1G: -5.0 1G~100G: -20
HVR82-2510	1.50	8000	1K~100G	1K~100M: 0.5,1,2,5,10 100M~100G: 1,2,5,10	1K~1G: 25,50,100 1G~100G: 50,100	1K~200M: -1.0 200M~1G: -5.0 1G~100G: -20
HVR82-2708	1.50	10000	1K~100G	1K~100M: 0.5,1,2,5,10 100M~100G: 1,2,5,10	1K~1G: 25,50,100 1G~100G: 50,100	1K~200M: -1.0 200M~1G: -5.0 1G~100G: -20
HVR82-2810	1.50	10000	1K~100G	1K~100M: 0.5,1,2,5,10 100M~100G: 1,2,5,10	1K~1G: 25,50,100 1G~100G: 50,100	1K~200M: -1.0 200M~1G: -5.0 1G~100G: -20
HVR82-30	1.00	10000	1K~100G	1K~100M: 0.5,1,2,5,10 100M~100G: 1,2,5,10	1K~1G: 25,50,100 1G~100G: 50,100	1K~200M: -1.0 200M~1G: -5.0 1G~100G: -20
HVR82-2116	2.00	15000	1K~200G	1K~100M: 0.5,1,2,5,10 100M~200G: 1,2,5,10	1K~1G: 25,50,100 1G~200G: 50,100	1K~400M: -0.5 400M~2G: -2.0 2G~200G: -10

TCR test range: +25°C~+85°C. VCR test voltages: 500V, 1kV, 10kV and 20kV.

Special tolerances, TCR, VCR and sizes are available by agreement, e.g. 0.1%, 15ppm/°C and 0.05ppm/V.

Electrical Specifications • continued

Model	P at 25°C (W)	Max. voltage (V)	Resistance range (Ω)	Tolerance (±%) by resistance (Ω)	TCR (±ppm/°C) by resistance (Ω)	VCR (ppm/V) by resistance (Ω)
HVR82-40	1.50	15000	1K~200G	1K~100M: 0.5,1,2,5,10 100M~200G: 1,2,5,10	1K~1G: 25,50,100 1G~200G: 50,100	1K~400M: -0.5 400M~2G: -2.0 2G~200G: -10
HVR82-2520	2.00	20000	5K~200G	5K~200M: 0.5,1,2,5,10 200M~200G: 1,2,5,10	5K~1G: 25,50,100 1G~200G: 50,100	5K~400M: -0.2 400M~2G: -2.0 2G~200G: -10
HVR82-3815	2.50	20000	5K~200G	5K~200M: 0.5,1,2,5,10 200M~200G: 1,2,5,10	5K~1G: 25,50,100 1G~200G: 50,100	5K~400M: -0.2 400M~2G: -2.0 2G~200G: -10
HVR82-5109	2.00	25000	5K~200G	5K~200M: 0.5,1,2,5,10 200M~200G: 1,2,5,10	5K~1G: 25,50,100 1G~200G: 50,100	5K~400M: -0.2 400M~2G: -2.0 2G~200G: -10
HVR82-5215	4.00	30000	5K~10T	5K~200M: 0.5,1,2,5,10 200G~10T: 5,10	5K~1G: 25,50,100 200G~10T: 250,500	5K~400M: -0.1 400M~2G: -2.0 2G~100G: -5.0 100G~10T: -25
HVR82-5127	5.00	40000	5K~10T	5K~200M: 0.5,1,2,5,10 200G~10T: 5,10	5K~1G: 25,50,100 200G~10T: 250,500	5K~600M: -0.1 600M~2G: -1.0 2G~100G: -5.0 100G~10T: -25
HVR82-6512	4.00	40000	5K~10T	5K~200M: 0.5,1,2,5,10 200G~10T: 5,10	5K~1G: 25,50,100 200G~10T: 250,500	5K~600M: -0.1 600M~2G: -1.0 2G~100G: -5.0 100G~10T: -25
HVR82-8020	7.50	50000	10K~10T	5K~200M: 0.5,1,2,5,10 200G~10T: 5,10	5K~1G: 25,50,100 200G~10T: 250,500	5K~600M: -0.1 600M~2G: -1.0 2G~100G: -5.0 100G~10T: -25
HVR82-10012	6.50	60000	10K~10T	5K~200M: 0.5,1,2,5,10 200G~10T: 5,10	5K~1G: 25,50,100 200G~10T: 250,500	5K~600M: -0.1 600M~2G: -1.0 2G~100G: -5.0 100G~10T: -25

Ordering Example

HVR82-3815E	520M	F	100ppm
Series / size / coating	Resistance	Tolerance	TCR

E: epoxy; P: polymer; S: silicone. Availability depends on resistance value.