

High Voltage Non-Inductive Resistors for HV Dividers, Precision HV circuits

Willow offers our HS series for applications demanding Low TCR & Low VCR requirements. Specially designed for High Voltage Functional Non-Inductive Divider Sets & High Voltage Precision Measurement systems.

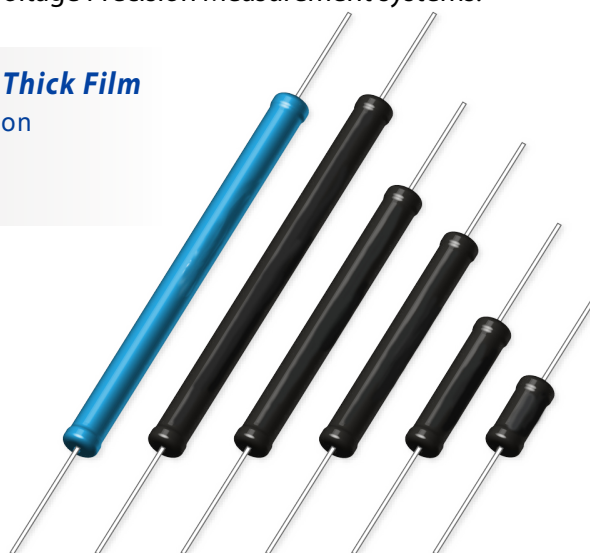
HS Precision High Voltage Resistor, Non-Inductive Thick Film

Epoxy conformal full coat for excellent humidity protection

Resistance tolerance offered : 0.5% 1% 2% 5%

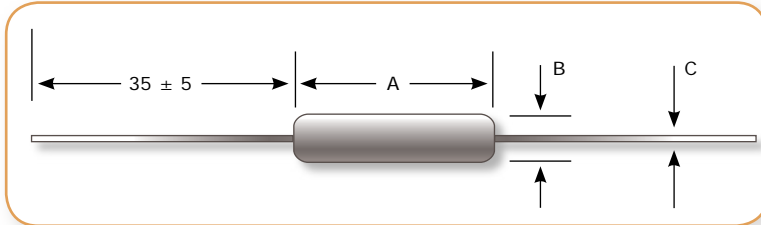
(0.1% special upto 100Megohm of HS15 HS19 HS25)

- * Temperature Coefficient of Resistance: 75ppm/°C std. and (20ppm/°C 35ppm/°C 50ppm/°C 60ppm/°C 85ppm/°C as special)
- * Load Life Stability of 0.25% per 1000hours at rated power.
- * Resistance range : 100kΩ to 1GΩ, and extended to 100Terohms
- * Various Models related with Voltage Ratings from 2.5kV to 48kV in free air.
- * NCR: Non-contact resistance design between resistive parts and termination.

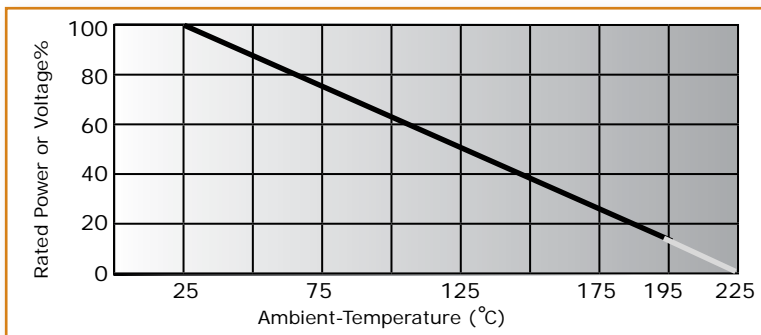


Model Nr.	Wattage in 25°C free air	1) Wattage in Molded	2) Max. Working Voltage[kV]	Impulse Voltage [kV] 1.2/50µS	Std. Resistance [ohm] Min. Max.	Extended Resistance [ohm]	Dimensions in millimeters (inches)			SMD type
							A	B	C	
HS15	0.2	N/A	2.0	4.0	100K 500M	see UR-series	15+/-1.5 (.590)	5+/-1.5 (.197)	0.8	N/A
HS19	0.3	N/A	2.5	5.0	100K 500M	see UR-series	19+/-1.5 (.748)	5+/-1.5 (.197)	0.8	N/A
HS25	0.5	N/A	4.5	9.0	100K 500M	see UR-series	25.4+/-1.5 (1.0)	5+/-1.5 (.197)	0.8	N/A
HS24	1.5	N/A	4.0	8.0	100K 500M	see UR-series	24.0+/-1.5 (.944)	8+/-1.0 (.314)	1.0	available
HS39	2.5	0.8	10.0	20	100K 1G	see UR-series	39.0+/-1.5 (1.50)	8+/-1.0 (.314)	1.0	available
HS52	3.0	1.0	15.0	30	100K 1G	see UR-series	52.0+/-1.5 (2.04)	8+/-1.0 (.314)	1.0	available
HS76	4.5	1.5	22.5	40	1M 1G	upto 10T	76.0+/-2 (3.0)	8+/-1.5 (.314)	1.0	on request
HS102	6.0	2.0	32.0	50	1M 1G	upto 100T	102+/-2 (4.01)	9+/-1.0 (.354)	1.0	N/A
HS117	7.0	2.3	35.0	60	1M 1G	1K~900K	117+/-2 (4.6)	9+/-1.0 (.354)	1.0	N/A
HS127	7.5	2.5	37.0	65	1M 1G	1K~900K	127+/-2 (5.0)	9+/-1.0 (.354)	1.0	N/A
HS137	8.0	2.7	40.0	70	1M 1G	1K~900K	137+/-2 (5.4)	9+/-1.0 (.354)	1.0	N/A
HS152	9.0	3.0	48.0	77	1M 1G	upto 100T	152+/-2 (6.0)	9+/-1.0 (.354)	1.0	N/A

DIMENSIONS [mm]



DERATING CURVE



* Rated power , and voltage of %

APPLICATION GUIDE ; HS SERIES

- Automated Test (ATE)
- Medical (Imaging)
- Ion Source
- Chromatography (Gas)
- Medical (Radiation Therapy)
- Military , Radar ,Laser ,Plasma
- Measurements (High Voltage)
- * HV Capacitor Charging, Discharging
- Electric Power Transmission High Voltage
- Medical (Blood Analyzers)
- Corona Generators
- Multichannel Analyzers
- Ozone Generating
- Detectors
- Nuclear Instrumentation
- Electron Beam
- Pulse Generators
- Surface Analysis
- C T , MRI
- Electrophoresis
- Image Intensifier
- Surface Analysis
- Piezo. Focusing (Poling)
- High Voltage Dividers
- Stress Testing
- Agricultural Sensors
- Klystron, Magnetron ,Microwave

SPECIFICATIONS

Resistance Tolerance :

1% 2% 5% & 0.5%.

And special tolerance (from 0.1MΩ to 100MΩ ; 0.1%, 0.25% as special order available upon request for HS15 HS19 HS25)

Endurable Harsh to Environment (Temperature) :

-55°C to +195°C , Max. brokable temperature on resistives is 600? (for 70min.)

Temperature Coefficient of Resistance:

Std. 75ppm/°C referenced to 25°C, ΔR taken at -25°C and +70°C, Other special TCR on request (20ppm/°C, 35ppm/°C, 50ppm/°C, 60ppm/°C ,85ppm/°C)

Overload/Voltage :

5 times rated power with applied voltage not to exceed 1.5times maximum continuous operating voltage for 5 seconds ΔR 0.2% max.

Thermal Shock :

Mil-Std-202, Method- 107, Cond. C, ΔR 0.2% max.

Load Life :

1.000 hours at rated power ΔR 0.2% max.

Moisture Resistance :

Mil-Std-202, Method 106, ΔR 0.25% max.

Lead Material :

Tinned plated copper soldsderable semi-flexible axial wire.

Insulation Resistance :

10,000MΩ Min.

Termination Cap of Material:

Tinned Cap.

Encapsulation :

Epoxy conformal.

Resistive Material :

Thick Film.

Contact method between Resistives and

Termination Caps :

Individual Conductive Pads . So , called "NCR" Non-contact resistance.

+ Custom dimension & specification , Ohmic Value available upon request.

+ Voltage restricted by the rated power

+ Above Electrical specification applicable for : From HS15 to HS24 ; 0.1MΩ to 200MΩ . From HS39 to HS152 ; 0.1MΩ to 1GΩ only

1) in fully epoxy/or silicone rubber molded case condition, precision high voltage dividers required very long life stability in harsh condition

2) Vdc, Vrms standard.



Voltage Coefficient of Resistance (VCR)

Temperature Coefficient	R-Range	1GΩ to 10GΩ	10.1GΩ to 300GΩ	301GΩ to 1TΩ	1.1TΩ to 10TΩ		ΔR taken at 25°C and 70°C
	[ppm/°C]	200	300	1000	1500		
Voltage Coefficient	R-Range	10GΩ to 19GΩ	20GΩ to 100GΩ	200GΩ to 1TΩ	10TΩ		Measured at 100vdc and 1000vdc
	VCR	0.002%/V	0.007%/V	0.01%/V	0.05%/V		
Resistance Tolerance [%]	R-Range	1GΩ	2GΩ ~10GΩ	20GΩ ~100GΩ	200GΩ~1TΩ	10TΩ	Measured at 1000vdc Standard
	Std.	+/-1%(F)	+/-2%(G)	+/-5%(J)	+/-10%(K)	+/-20%	
	Custom	+/-0.5	+/-1%	+/-2%	+/-5%	+/-10%	