

With power ratings to 22 Watts and voltage ratings as high as 6,000 volts in an axial-lead resistor with values to 30 Megohms, the Type HMS Power Film Resistors deliver the performance capabilities that can simplify circuit design and reduce equipment cost and complexity.

Type HMS Power Film Resistors provide all these features in a single resistor:

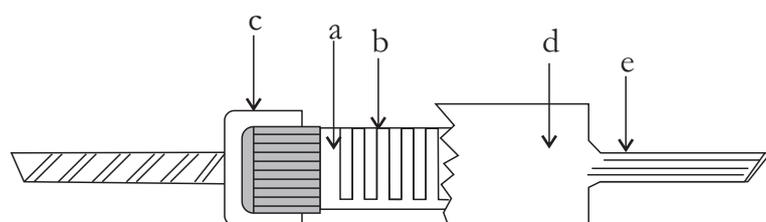
- Full power and voltage ratings, without derating:
 - for non-inductive performance.
 - for high resistance values that extend the critical resistance value up to 10 times.
- Higher voltage ratings without the limitations of minimum wire size and spacing.
- Excellent long-term stability.

Tests demonstrate typical stability of 0.05% per 1,000 hours over extended life.

● Features

- I. Micronox[®] resistance films are fired directly onto a ceramic core at temperatures above 1400° F (760°C). These resistance films have demonstrated outstanding stability when exposed to a high ambient temperature, thermal shock and high power densities.
- II. This unique approach to precision power resistors opens new design possibilities by providing a wider resistance range, precise temperature characteristics, and higher temperature and power handling capability.
- III. The Serpentine Pattern used in this patented product contain features which enhance high stability in High Power Resistor applications.
- IV. Most models are manufactured with “KWX” Non-Inductive serpentine resistive pattern that provides for neighboring lines to carry current in opposite directions, thereby achieving maximum cancellation of flux fields over the entire length of the resistor. This efficient non-inductive construction is accomplished without derating of any performance advantages.
- V. The result is a truly non-inductive resistor that is about as inductive as a straight piece of wire the length of the resistor body. This efficient design means faster settling times and minimum distortion in all types of high frequency circuits.

● Construction



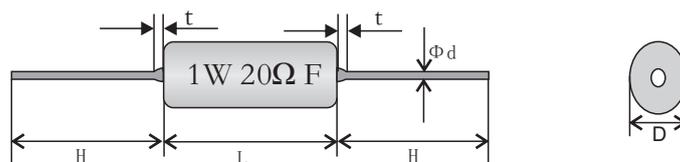
a	High AL2O3
b	High Stability Electric Conduction Film
c	Iron Cap
d	Silicon Resin Coating
e	Tinned copper lead wire

*The Type HMS Power Film Resistor is constructed with Micronox[®] resistance films bonded to a high strength solid ceramic core. Nickel alloy end caps and axial leads complete the assembly. Encapsulation is provided by a high temperature silicone conformal coating.

*Type HMS: Lead material is Nickel Clad Copper, with thin Gold Plate, solderable.

*For welding applications, optional pure nickel leads are available on Models HMS126, HMS150, HMS151, HMS175, HMS176, HMS210. Contact Caddock Applications Engineering.

● Dimensions



Type	Power		Dimensions(mm)				
	@+25°C	@+125°C	L	D	C ± 3	d ± 0.05	t Max
HMS126	0.25W	0.25W	5.2 ± 1.0	2.0 ± 0.5	28	0.52	1.5
HMS150	0.50W	0.30W	5.2 ± 1.0	2.0 ± 0.5	28	0.52	1.5
HMS151	0.50W	0.50W	6.5 ± 1.0	2.5 ± 0.5	28	0.64	1.5
HMS175	0.75W	0.45W	6.5 ± 1.0	2.5 ± 0.5	28	0.64	1.5
HMS176	0.75W	0.75W	8.0 ± 1.0	2.5 ± 0.5	28	0.64	2.0
HMS210	1.0W	0.60W	8.0 ± 1.0	2.5 ± 1.0	28	0.64	1.5
HMS214	1.0W	0.60W	8.0 ± 1.0	3.0 ± 1.0	33	0.64	1.5
HMS220	2.0W	1.20W	11.0 ± 1.0	3.5 ± 1.0	33	0.64	2.5
HMS221	3.0W	1.80W	15.0 ± 1.0	4.0 ± 1.0	33	0.81	2.5
HMS223	3.0W	1.80W	12.0 ± 1.0	6.0 ± 1.0	33	1.02	2.5
HMS244	4.0W	2.40W	24.0 ± 1.0	6.0 ± 1.0	33	1.02	2.5
HMS245	4.0W	2.40W	14.5 ± 1.5	8.0 ± 1.0	33	1.02	2.5
HMS260	6.0W	3.60W	24.5 ± 1.5	8.0 ± 1.0	33	1.02	2.5
HMS281	8.0W	4.80W	23.0 ± 1.5	9.0 ± 1.0	33	1.02	2.5
HMS310	10.0W	6.00W	32.0 ± 1.5	9.0 ± 1.0	33	1.02	2.5
HMS313	12.5W	7.50W	51.0 ± 2.0	9.0 ± 1.0	33	1.02	2.5
HMS315	15.0W	9.00W	51.0 ± 2.0	9.0 ± 1.0	33	1.02	2.5
HMS322	22.0W	13.2W	76.5 ± 2.0	9.0 ± 1.0	33	1.02	2.5

● Applications And Ratings

Type	Power		Resistance Range(Ω) F = ± 1%	Max. Voltage	Dielectric.Strength	T.C.R
	@+25°C	@+125°C				
HMS126	0.25W	0.25W	20Ω~1M	200	500	50 ppm/°C. TC referenced to +25°C, ΔR taken at -15°C and +105°C.
HMS150	0.50W	0.30W	20Ω~2K	*	500	
HMS151	0.50W	0.50W	20Ω~2M	300	750	
HMS175	0.75W	0.45W	20Ω~2M	*	750	
HMS176	0.75W	0.75W	45Ω~5M	500	750	
HMS210	1.0W	0.60W	45Ω~3K	*	750	
HMS214	1.0W	0.60W	45Ω~5M	500	800	
HMS220	2.0W	1.20W	20Ω~10M	1000	800	
HMS221	3.0W	1.80W	45Ω~10M	1000	1000	
HMS223	3.0W	1.80W	20Ω~4M	800	800	
HMS244	4.0W	2.40W	45Ω~15M	1000	1000	
HMS245	4.0W	2.40W	20Ω~6M	1000	1000	
HMS260	6.0W	3.60W	45Ω~15M	1000	1000	
HMS281	8.0W	4.80W	45Ω~8M	1000	1000	
HMS310	10.0W	6.00W	45Ω~20M	1000	1000	
HMS313	12.5W	7.50W	50Ω~30M	1000	1000	
HMS315	15.0W	9.00W	50Ω~1M	1000	1000	
HMS322	22.0W	13.2W	100Ω~1.5M	1000	1000	

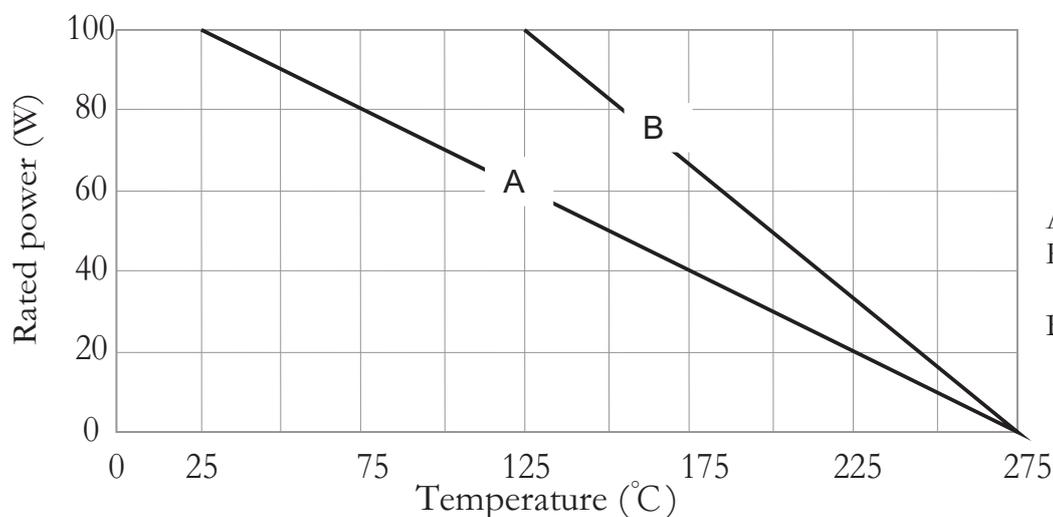
Ordering Information

Example:

HMS126	0.25	20R00	F
(1)	(2)	(3)	(4)
Series Name	Power Rating	Resistance	Resistance Tolerance

- (1) Series Name: HMS126, HMS150, HMS151, HMS175.....
- (2) Power Rating: 0.25W, 0.30W, 0.50W, 0.75W, 1.0W, 2.0W, 3.0W, 4.0W.....
- (3) Resistance: 20R00=20Ω, 1MR00=1MΩ
- (4) Resistance Tolerance: F= ± 1%

Derating Curve



A - all HMS models except HMS126, HMS151, HMS176

B - HMS126, HMS151, HMS176

Performance

Resistance Tolerance:	± 1% (tolerances to 0.1% on special order).
Temperature Coefficient:	50 ppm/°C. TC referenced to +25°C, ΔR taken at -15°C and +105°C.
Insulation Resistance:	10,000 Megohms, min.
Overload/Overvoltage:	5 times rated power with applied voltage not to exceed 1.5 times maximum continuous operating voltage for 5 seconds. ΔR 0.5% max. or 0.5 ohm max., whichever is greater.
Thermal Shock:	Mil-Std-202, Method 107, Cond. C, ΔR 0.5% max. or 0.5 ohm max., whichever is greater.
Moisture Resistance:	Mil-Std-202, Method 106, ΔR 0.5% max. or 0.5 ohm max., whichever is greater.
Load Life:	1,000 hours at rated power at +25°C or +125°C (see derating curve), not to exceed rated voltage, ΔR 0.5% max. or 0.5 ohm max., whichever is greater.
Maximum Operating Temperature:	+275° C.
Encapsulation:	High Temperature Silicone Conformal.