



## WIRE WOUND RESISTORS SILICONE COATED TYPE

### HFA SERIES

- Especially designed for kitchen appliances sector
- Available uncoated if required
- 1W to 10W
- R10 to 51K



Alloy Resistance  
Wire Wound  
On Fibre Glass Core

Mechanically Crimped  
Termination Assembly

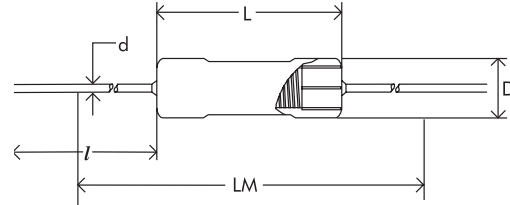
Flame Retardant  
Silicone Coating/ Uncoated  
Depending On Application





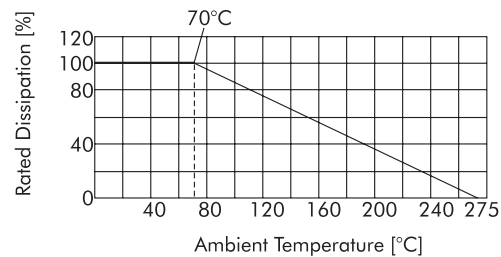
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## PHYSICAL CONFIGURATION



HTR TYPE	POWER RATING at 70°C	DIMENSIONS (mm)					RESISTANCE RANGE		TYPICAL WEIGHT PER PC (gms)
		L (max)	D (max)	$l$ ±2	LM ±1	d ±0.05	min	max	
F-1	1W	15.0	4.5	38	35	0.8	R10	6K8	1.18
F-2	2W	18.0	4.5	38	35	0.8	R10	8K6	1.20
F-3	3W	20.0	5.50	38	40	0.8	R20	12K	1.24
F-5	5W	27.0	5.50	38	45	1.0	R27	20K	1.60
F-7	7W	38.0	5.50	38	60	1.0	R47	30K	1.90
F-9	9W	47.0	5.75	38	65	1.0	R47	40K	2.22
F-10	10W	53.0	5.75	38	70	1.0	R60	51K	2.34

## DERATING CURVE



## ELECTRICAL & ENVIRONMENTAL CHARACTERISTICS / DATA

PARAMETER/PERFORMANCE TEST & TEST METHOD	PERFORMANCE REQUIREMENTS
<b>Power Rating</b> (Rated Ambient Temperature)	Full Power dissipation at 70°C and linearly derated to zero at 275°C. (Refer Derating Curve above)
<b>Resistance Tolerances Available</b>	±10% (K); ±5% (J)
<b>Operating Temperature Range</b>	-55°C to +275°C with suitable derating as per derating curve
<b>Voltage Rating / Limiting Voltage/ Max Working Voltage</b>	$V = \sqrt{P \times R}$
<b>Voltage Proof / Dielectric Withstanding Voltage</b> (based on limiting voltage x 2 for 60 secs)	$\Delta R \pm [2\% + R05]$ - No flashover, mechanical damage, arcing or insulation breakdown
<b>Short Time Overload</b> (5 x Rated Power upto 2 watts and 10 x Rated Power 3 watts and above for 5 secs)	$\Delta R \pm [3\% + R05]$ - Average
<b>Temperature Co-efficient of Resistance</b>	± 60 to 500 ppm/°C (Depending on resistance value)
<b>Thermal Shock</b> [From -55°C to +275°C, 5 cycles, 30 min. dwell time]	$\Delta R \pm [5\% + R05]$
<b>Damp Heat</b> (Steady State) / <b>Humidity</b> (70°C at 95% R.H for 250 hours)	$\Delta R \pm [5\% + R05]$
<b>Endurance - Load Life</b> (70°C with limiting voltage - 1.5 hours on / 0.5 hours off for 1000 hours)	$\Delta R \pm [5\% + R05]$ - Average
<b>Solvent Resistance</b> [IPA for 60 secs ± 10 secs]	No effect on coating / marking

## MECHANICAL SPECIFICATIONS

PARAMETER/PERFORMANCE TEST & TEST METHOD	PERFORMANCE REQUIREMENTS
<b>Pull Test / Robustness of Terminations</b> (Direct load 2 to 4.5 kgs depending on size for 15 secs)	No effect
<b>Resistance to Soldering Heat</b> (260°C - 270°C for 4 secs)	$\Delta R \pm [2.5\% + R05]$ - Typical
<b>Solderability</b> (As per IEC - 60068 - 2 - 20Ta)	Must meet the requirements laid down
<b>Marking</b>	As per IEC Pub. 60062



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## TYPICAL APPLICATIONS

- Kitchen Appliances : Mixers, Blenders, Percolators, Cooking Ranges, Toasters and Deep Fryers.
- Automotive Equipment : Horns, Ignitions, Voltage Regulators, Instrument Gauges and Windshield Wipers.
- These resistors can also be used as a resistor cum fuse. In order to ensure that the device functions as it should, the device needs to be tailor-made for each particular application. Please consult factory.
- Depending on application, the resistor terminations may be tin plated copper clad steel (copperweld®) instead of tin plated copper.

### Note:

1. The leads of the resistor can be bent and cut as per requirements for quick PCB mounting.  
Please send detailed drawings of the type of preforming required.

2. Types F1, F2, F3, F5, F7, F9 & F10 can be supplied in taped form.  
Please refer to tape / ammo pack specifications. Tape / Reel on request.

## ORDERING INFORMATION

Series	Type	Packing	Resistance Value	Tolerance
HFA	F2 / F2*	Bulk F2 / F2* Tape & Ammo F2T / F2*T Tape & Reel F2TR / F2*TR	100R	K

1. For RoHS Version – F2 \*
2. For Tape & Reel - F2 TR
3. For Tape & Ammo pack - F2 T