



Flat Type Metal Clad Wire Wound Resistors

The IRN(N=Narrow and flat)&IRF(F=Flat) models are metal-clad, wirewound, high-power, low inductance resistors designed for industrial and other applications where space is at a premium and performance is a must. The ULN and ULF are UL approved versions of these models. All of these models use an extruded aluminum housing providing rugged and strong protection. The flat design allows excellent heat dissipation. These models are available with flying leads. The most common applications for these models are : Motor drives, braking and snubber applications and power sources for industrial equipment.



GENERAL SPECIFICATIONS

Model	Rated Power (on Heat Sink)	Resistance Range	Resistance Tolerance
IRN 50 / ULN 50C	50W	1Ω~420Ω	D [±0.5%]
IRN 100 / ULN 100C	100W	1Ω~1.1KΩ	
IRN 150 / ULN 150C	150W	1Ω~1.75KΩ	F [±1.0%]
IRF 100 / ULF 100C	100W	1Ω~1.1KΩ	
IRF 150 / ULF 150C	150W	1Ω~1.75KΩ	G [±2.0%]
IRF 200 / ULF 200C	200W	1Ω~2.2KΩ	
IRF 250 / ULF 250C	250W	1Ω~2.79KΩ	J [±5.0%]
IRF 300 / ULF 300C	300W	1Ω~3.5KΩ	
IRF 400	400W	1Ω~4.45KΩ	K [±10.0%]
ULF 400C		1Ω~3.08KΩ	
IRF 500	500W	1Ω~5.78KΩ	
ULF 500C		1Ω~2.46KΩ	

*ULN = UL type of IRN / ULF = UL type of IRF

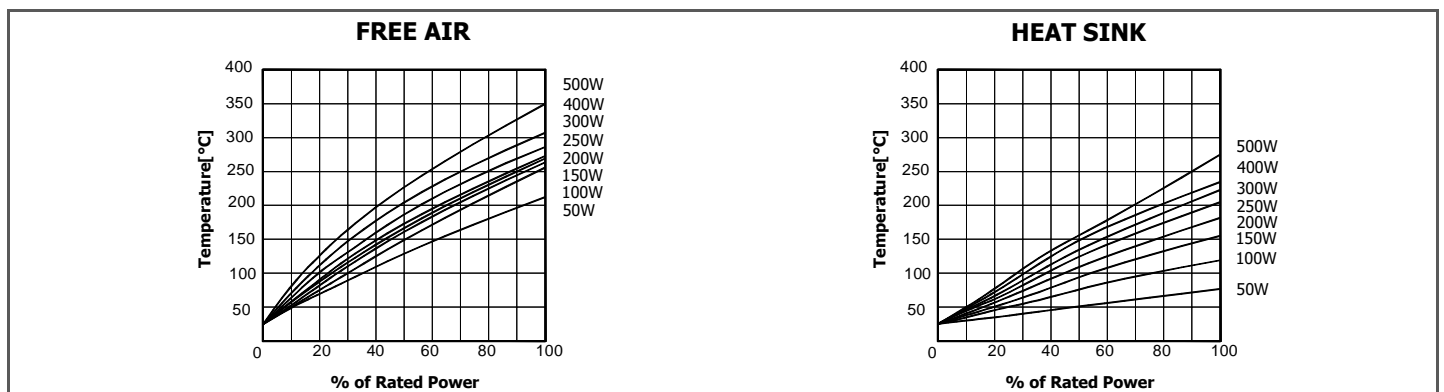
CHARACTERISTICS

Values in [] mean change in Ω after test

Operating Temp.	Cement : -55°C~+200°C, Silicone : -55°C~+150°C		
Insulation Resistance	20MΩ minimum		
Dielectric Withstanding Voltage	IRN / IRF	Available options : AC1500V,2500V,3500V,4500V for 1min. ; Max. leakage current : 2mA	
	ULN / ULF	*See note 2200V for 1minute (Max input voltage Max 600V)	
Temperature Coefficient	±260ppm/°C maximum		
Short Time Overload	±[1%+0.05Ω]	5×Power rating 5seconds	
Moisture Resistance	±[2%+0.05Ω]	40°C, 95% RH, DC100C case to terminal, 500hours	
Thermal Shock	±[1%+0.05Ω]	Power rating 30minutes, -25°C, 15minutes	
Vibration	±[1%+0.05Ω]	10Hz-55Hz-10Hz (1minute), 2hours each direction	
Moisture Load Life	±[2%+0.05Ω]	40°C, 95% RH, 0.1×Power rating 1.5hours on, 0.5hours off, 500hours	
Load Life	±[5%+0.05Ω]	Power rating 1.5hours on, 0.5hours off, 500hours	

*Note : ULN / ULF dielectric withstanding voltage options of AC 1500V, 3500V, 4500V are also available. Optional dielectric withstanding voltage must be higher than standard (calculated by formula)

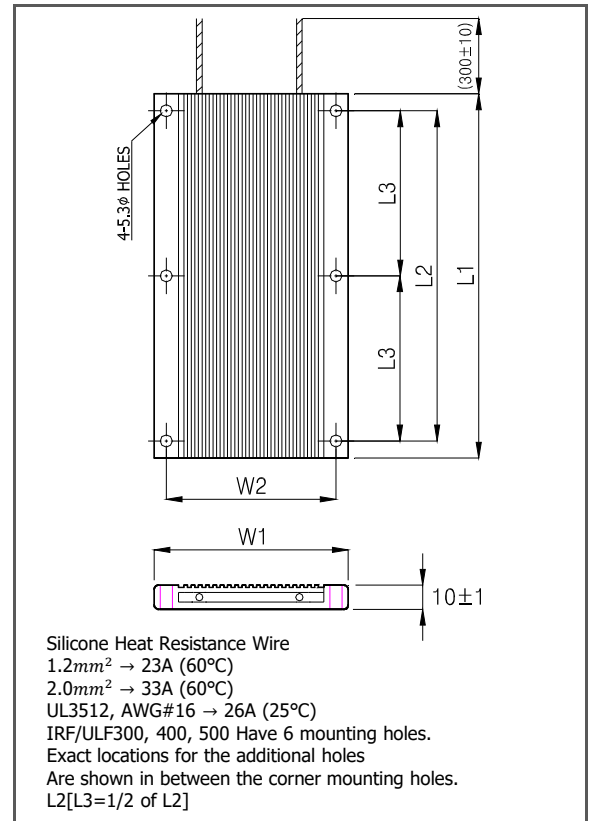
SURFACE TEMPERATURE INCREASE VERSUS POWER LOAD





DIMENSIONS [mm]

Model	Dimensions [mm]				Weight
	L1±1	L2±0.5	W1±0.5	W2±0.5	
IRN 50 / ULN 50C	70	50	60	50	100g
IRN 100 / ULN 100C	120	100	60	50	160g
IRN 150 / ULN 150C	170	150	60	50	220g
IRF 100 / ULF 100C	90	70	80	70	155g
IRF 150 / ULF 150C	120	100	80	70	200g
IRF 200 / ULF 200C	150	130	80	70	245g
IRF 250 / ULF 250C	180	160	80	70	290g
IRF 300 / ULF 300C	210	190	80	70	335g
IRF 400 / ULF 400C	270	250	80	70	430g
IRF 500 / ULF 500C	330	310	80	70	525g

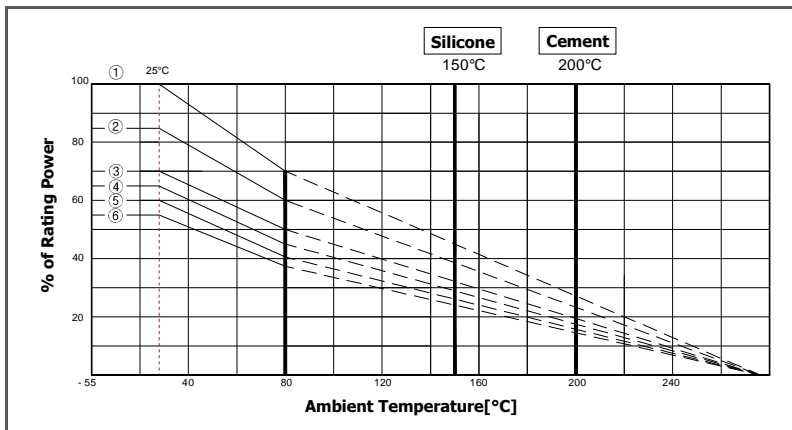


FLYING LEADS

Model	2mm ²	1.25mm ²	UL3512 AWG16
IRN/F 50~150	X	1Ω ~	X
IRF 200	1Ω ~ 4Ω	4.1Ω ~	X
IRF 250	1Ω ~ 5Ω	5.1Ω ~	X
IRF 300	1Ω ~ 6Ω	6.1Ω ~	X
IRF 400	1Ω ~ 8Ω	8.1Ω ~	X
IRF 500	1Ω ~ 10Ω	10.1Ω ~	X
ULN/F 50C~500C	X	X	1Ω ~

* Option : Other options of flying leads are also available. Please ask RARA for more info. On this

DERATING CURVES

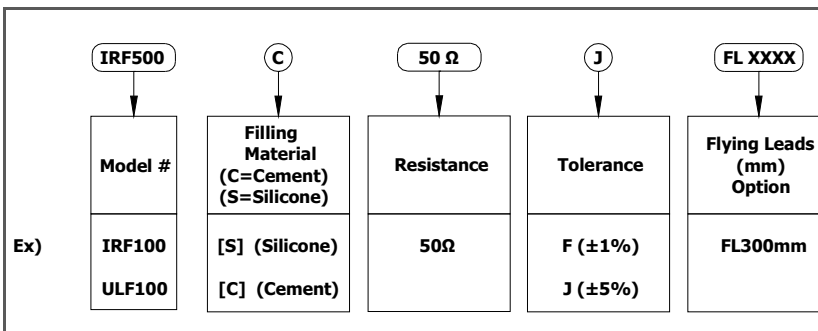


- ① IRN, IRF, ULN, ULF 100~500 on heat sink
IRN, ULN 50 in free air
- ② IRN, IRF, ULN, ULF 100 in free air
- ③ IRN, IRF, ULN, ULF 150 in free air
- ④ IRF, ULF 200 ~ 300 in free air
- ⑤ IRF, ULF 400 in free air
- ⑥ IRF, ULF 500 in free air

Heat sink size : IRN, IRF, ULN, ULF50~200 : AL 200×200×3mm
 IRF, ULF 250~400 : AL 400×400×3mm
 IRF, ULF 500 : AL 600×600×3mm

This curve is for cement filled resistors only.
 For silicone filled resistors, care must be taken to maintain the surface temperature below 150°C. In some applications, mounting on a heat sink is advisable.

ORDERING PROCEDURE EXAMPLE



Thermostat options are available for these models : Internal and discreet connection. Please ask RARA for more info on this.