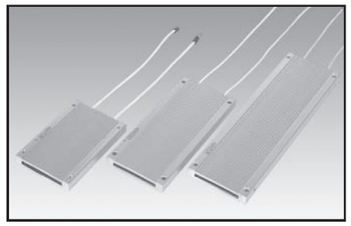
IRN, ULN, IRF, ULF

RoHS COMPLIANT | IP 65 | IP 67 Silicone Molding



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 or tab terminals. 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[Ω]	Tolerance (%)
IRN 50 / ULN 50C	50W	1 ~ 420	D [±0.5] F [±1.0] G [±2.0] J [±5.0] K [±10]
IRN 100 / ULN 100C	100W	1 ~ 1.1K	
IRN 150 / ULN 150C	150W	1 ~ 1.75K	
IRF 100 / ULF 100C	100W	1 ~ 1.1K	
IRF 150 / ULF 150C	150W	1 ~ 1.75K	
IRF 200 / ULF 200C	200W	1 ~ 2.2K	
IRF 250 / ULF 250C	250W	1 ~ 2.79K	
IRF 300 / ULF 300C	300W	1 ~ 3.5K	
IRF 400	400W	1 ~ 4.45K	
ULF 400C		1 ~ 3.08K	
IRF 500	500W	1 ~ 5.78K	
ULF 500C		1 ~ 2.46K	

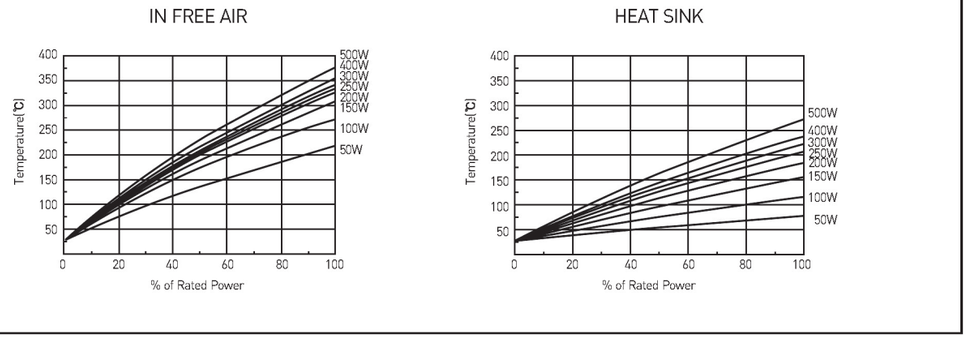
■ CHARACTERISTICS

Values in [ ] mean change in Ω after test

Temperature Range		Cement: -55~200℃, Silicone: -55~150℃
Insulation Resistance		20MΩ minimum
Dielectric Withstanding Voltage	IRN / IRF	Available options: Standard: AC1500, 2500V, 3000V, 4500V(maximum leakage current: 2mA)
	ULN / ULF	* See note: 500V for 1 minute: not more than 50V [1000V+(Voltage ratingx2)] for 1 minute: 50~600V [2000V+(Voltage ratingx2.25)] for 1 minute: 601~1500V
Temp. Coefficient		±260ppm /℃ maximum
Short Time Overload	±[1%+0.05Ω]	50W: 5 x Power rating 5 sec., 100W~500W: 5 x Power rating 5 sec.
Moisture Resistance	±[2%+0.05Ω]	40℃, 95% RH, DC100V case to terminal, 500 hours
Thermal Shock	±[1%+0.05Ω]	Power rating 30 minutes, -25℃ 15 minutes
Vibration	±[1%+0.05Ω]	10Hz~55Hz~10Hz (1 minute), 2 hours each direction
Moisture Load Life	±[2%+0.05Ω]	40℃, 95%RH, 0.1 x Power rating 1.5 hours on, 30 minutes off, 500 hours
Load Life	±[5%+0.05Ω]	Power rating 1.5 hours on, 30 minutes off, 500 hours

*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



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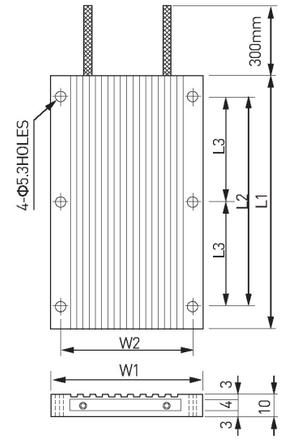
■ DIMENSIONS [mm]

Model	Dimensions(mm) L1±1	L2±0.3	W1±0.3	W2±0.3	Weight(g)
IRN 50 / ULN 50C	70	50	60	50	100
IRN 100 / ULN 100C	120	100	60	50	160
IRN 150 / ULN 150C	170	150	60	50	220
IRF 100 / ULF 100C	90	70	80	70	155
IRF 150 / ULF 150C	120	100	80	70	200
IRF 200 / ULF 200C	150	130	80	70	245
IRF 250 / ULF 250C	180	160	80	70	290
IRF 300 / ULF 300C	210	190	80	70	335
IRF 400 / ULF 400C	270	250	80	70	430
IRF 500 / ULF 500C	330	310	80	70	525



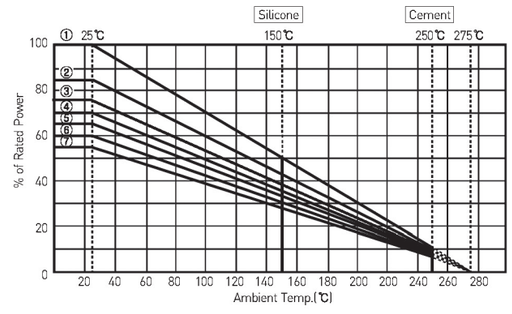
Silicon Heat Resistance Wire
1.25㎟ → 23A(60℃)
2.0㎟ → 33A(60℃)
UL 3512, AWG#16 → 26A(25℃)
IRF/ULF300, 400, 500 have 6 mounting holes.
Exact locations for the additional holes are shown in between the corner mounting holes. L2(L3=1/2 of L2)

■ FLYING LEADS

Model	2㎟	1.25㎟	UL 3512 AWG 16
IRN / F 50 ~ 150	×	1Ω ~	×
IRF 200	1Ω ~ 4Ω	4.1Ω ~	×
IRF 250	1Ω ~ 5Ω	5.1Ω ~	×
IRF 300	1Ω ~ 6Ω	6.1Ω ~	×
IRF 400	1Ω ~ 8Ω	8.1Ω ~	×
IRF 500	1Ω ~ 10Ω	10.1Ω ~	×
ULN / F 50C ~ 500C	×	×	1Ω ~

*Option: Flying leads options of UL3135, UL3139, UL3071, UL3172 are also available

■ DERATING CURVES



① IRF, IRN, ULF, ULN100~500 on heat sink, IRN, ULN 50 in free air
② IRF, IRN, ULF, ULN100 in free air
③ IRF, IRN, ULF, ULN150 in free air
④ IRF, ULF200 in free air
⑤ IRF, ULF250~300 in free air
⑥ IRF, ULF400 in free air
⑦ IRF, ULF500 in free air

Heat sink size: IRF, IRN, ULF, ULN100~200 = 200×200×3 mm
IRF, ULF 250~400 = 400×400×3 mm
IRF, ULF 500 = 600×600×3 mm

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

■ ORDERING PROCEDURE EXAMPLE

IRF500 (Model #) | C (Filling Material) | 100Ω (Resistance) | J (Tolerance)

C=Cement(standard)
S=Silicone

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