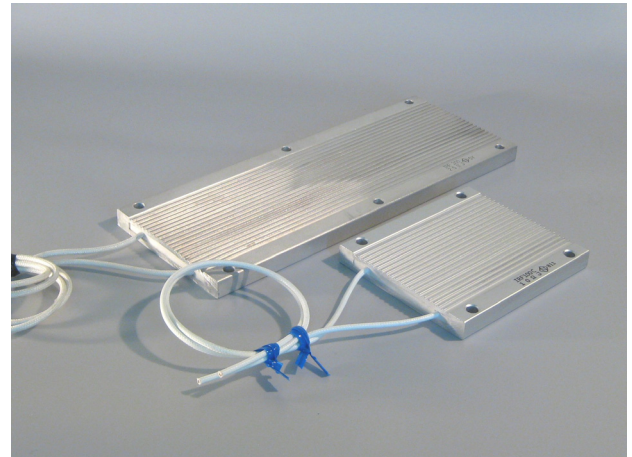


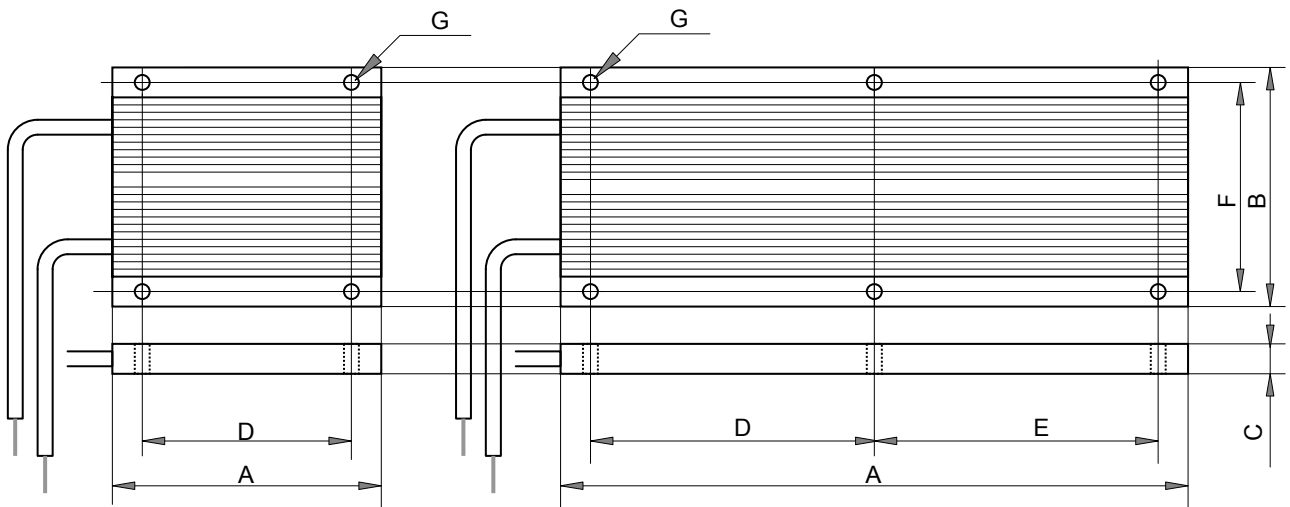
# Metal-Clad Wire Wound Resistors ULN, ULF, IRN, IRF



## Features and Applications

Flat and slim, 10mm height, light weighted metal clad wire wound power resistor with fly lead terminals. Flat chassis-mount style for 50W to 500W rated power has good heat conducting performance and excellent space factor for installation. Strong and stable resistance wire endures short time overload in power electronics. Applications for rush current protections, braking resistors in motor control, dumping resistor for inductive circuit.

## Dimensional Specifications (mm)



IRN50, IRN100, IRN150  
IRF150, IRF200, IRF250  
ULN50, ULN100, ULN150  
ULF150, ULF200, ULF250

IRF300, IRF400, IRF500  
ULF300, ULF400, ULF500

(mm)	IRN50	IRN100	IRN150	IRF100	IRF150	IRF200	IRF250	IRF300	IRF400	IRF500
	ULN50	ULN100	ULN150	ULF100	ULF150	ULF200	ULF250	ULF300	ULF400	ULF500
A±1.0	70	120	170	90	120	150	180	210	270	330
B±0.3	60	60	60	80	80	80	80	80	80	80
C	10	10	10	10	10	10	10	10	10	10
D±0.3	50	100	150	70	100	130	160	95	125	155
E±0.3	-	-	-	-	-	-	-	95	125	155
F±0.3	50	50	50	70	70	70	70	70	70	70
G	4-φ5.3	4-φ5.3	4-φ5.3	4-φ5.3	4-φ5.3	4-φ5.3	4-φ5.3	6-φ5.3	6-φ5.3	4-φ5.3
Weight (grams)	100	160	220	155	200	245	290	335	430	525

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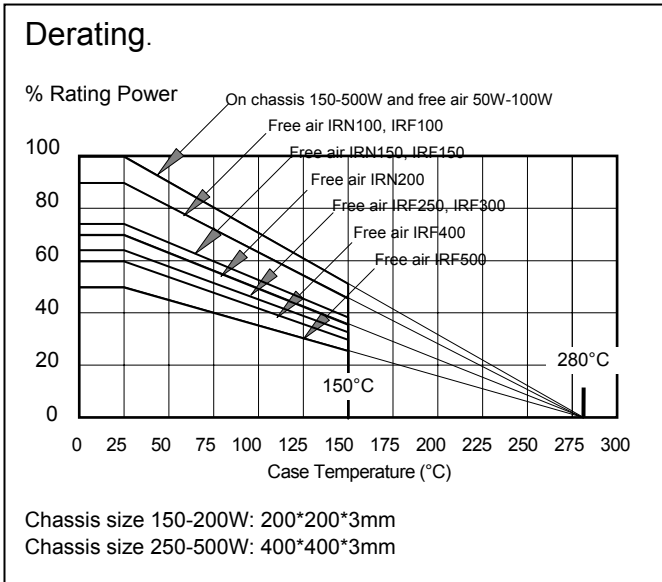
## ULN, ULF, IRN, IRF

### Ordering Information

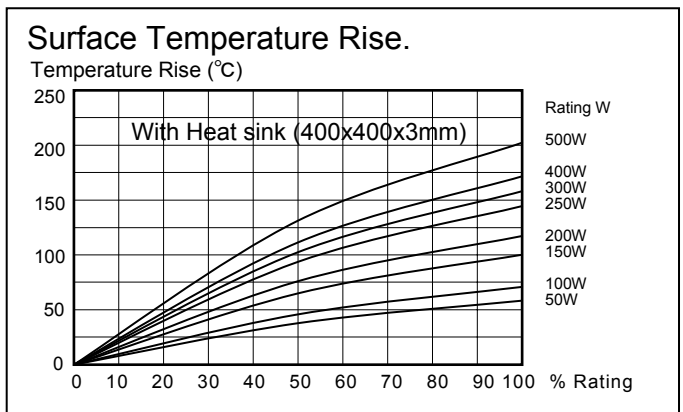
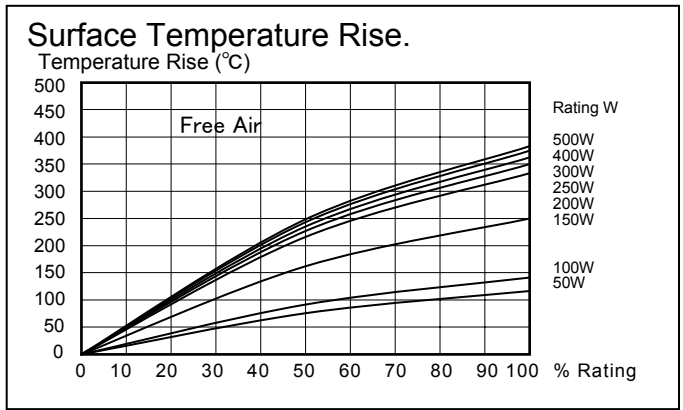
Type	Rated Power	Filling	Resistance	Tolerance	Insulation Volt	Wire Length
ULF	500	S	1R0	5%	4500V	FL300mm
ULN	50, 100, 150	S	1 ohm	0.5%	1000V	Any value
ULF	100	S(silicone)	See spec.	1.0%	1500V	
IRN	150	only		2.0%	2500V	
IRF	200			5.0%	3000V	
	250				4500V	
	300					
	400					
	500					

### Specifications and Performances

	ULN50	ULN100	ULN150	ULF100	ULF150	ULF200	ULF250	ULF300	ULF400	ULF500
UL certified	ULN50	ULN100	ULN150	ULF100	ULF150	ULF200	ULF250	ULF300	ULF400	ULF500
Standard	IRN50	IRN100	IRN150	IRF100	IRF150	IRF200	IRF250	IRF300	IRF400	IRF500
Rating Power(W)	50	100	150	100	150	200	250	300	400	500
Free Rating Power(W)	50	90	112	90	112	140	162	195	240	250
Resistance(ohm)	1-420	1-1.1K	1-1.75K	1-1.1K	1-1.75K	1-2.2K	1-2.97K	1-3.5K	1-3.08K	1-2.46K
TCR	±260ppm/°C(H)									
Tolerance (%)	±0.5%(D), ±1.0%(F), ±2.0%(G), ±5.0%(J), ±10%(K)									
Dielectric Strength	AC1000V (AC1500V, AC2500V, AC3000V, AC4500V are available), at leakage current 2mA.									
Temperature Range	-55 deg C to +200 deg C at Cement filled. (-55 deg C to +150 deg C at Silicone filled)									
Insulation Resistance	< 20MΩ									
Short Time Over Load	±1%, (Rating power×10 in 5 seconds interval) (IRN50, Rating power×5 in 5 seconds interval)									
Humidity	±1%,									
Thermal Shock	±1%, (After power with rating for 30 minutes, -15 deg C, 15 minutes)									
Vibration	±1%, (10Hz-55Hz-10Hz, 1minute cycle, for 2 hours with x-y direction)									
Humidity	±1%, (40 deg C, 95%-RH, 0.1*power rating, 1.5hours on 0.5hours off, 500hours)									
Load Life	±1%, (Power rating, 1.5hours on 0.5hours off, 500hours)									
Filling	Silicone only									
Terminals	1.25mm <sup>2</sup> (except below resistance) 2.0mm <sup>2</sup> (IRF200-1-4ohm, IRF250-1-5ohm, IRF300-1-6ohm, IRF400-1-8ohm, IRF500-1-10ohm)									



Note: Thickness of the aluminum case of a resistor is 3mm, and since the crevice between the portions filled up with the internal resistance object is 4mm, please do not do make hole processing to the central part of a case main part.

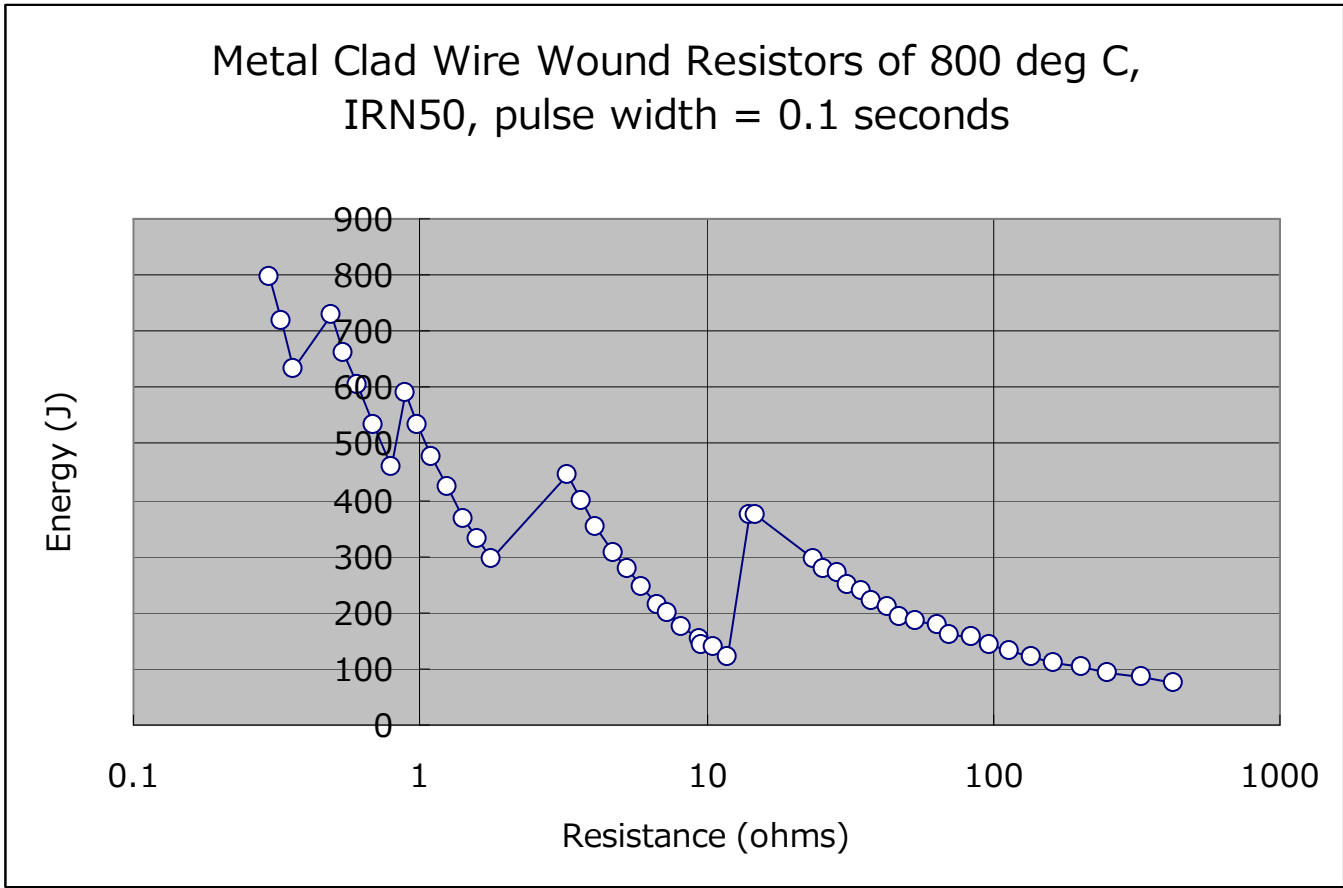


# Metal-Clad Wire Wound Resistors

ULN, ULF, IRN, IRF

Typical Absorbed Energy Datasheet of 800 deg C  
at pulse width = 0.1 seconds, IRN50

Resistance[Ω]	<b>0.3</b>	<b>0.33</b>	<b>0.36</b>	<b>0.49</b>	<b>0.54</b>	<b>0.61</b>	<b>0.69</b>	<b>0.79</b>	<b>0.89</b>	<b>0.98</b>	<b>1.09</b>	<b>1.24</b>	<b>1.42</b>
Energy[J]	797	718	634	731	662	603	533	460	589	534	478	425	368
Resistance[Ω]	<b>1.58</b>	<b>1.77</b>	<b>3.27</b>	<b>3.64</b>	<b>4.12</b>	<b>4.74</b>	<b>5.27</b>	<b>5.93</b>	<b>6.77</b>	<b>7.29</b>	<b>8.24</b>	<b>9.48</b>	<b>10.53</b>
Energy[J]	331	294	445	399	353	307	276	245	215	199	176	153	138
Resistance[Ω]	<b>11.84</b>	<b>12.64</b>	<b>14.08</b>	<b>14.73</b>	<b>23.74</b>	<b>25.47</b>	<b>28.64</b>	<b>30.82</b>	<b>34.86</b>	<b>37.83</b>	<b>42.9</b>	<b>46.86</b>	<b>53.56</b>
Energy[J]	122	436	400	373	296	276	269	249	240	221	211	193	184
Resistance[Ω]	<b>63.57</b>	<b>70.43</b>	<b>83.95</b>	<b>97.39</b>	<b>113.41</b>	<b>137.11</b>	<b>162.16</b>	<b>204.15</b>	<b>252.12</b>	<b>329.89</b>	<b>426.53</b>	---	---
Energy[J]	179	161	155	143	131	122	110	103	92	85	75	---	---



Note: The diameter of resistance wire varies according to a resistance, and the thermal capacity of resistance wire changes. When thermal capacity of the wire increases, the pulse energy durability shows a tendency to increase. Since we provide another resistors of the IRN-IRF series as well as IRN50, please call factory.