

## ULV/ULH TYPE (UL<sup>®</sup> Approved)

The ULV(V=vertical & ULH(H=horizontal) models are UL approved metal-clad, wire-wound high-power resistors designed for industrial and other applications. Our extruded aluminium housing provides rugged and strong protection. These models are available with flying leads or Tab terminals and can be ordered with inductive or non-inductive windings. To conform to UL safety requirements, ULV/ULH models differ from IRV/IRH models in that: The resistance range is smaller, the flying leads are UL approved and the dielectric strength depends on the ohmic value.

### GENERAL SPECIFICATIONS

| Model      | Wattage Rating on Heat Sink | Resistance Range [ohms] |              |               |              | Resistance Tolerance            |
|------------|-----------------------------|-------------------------|--------------|---------------|--------------|---------------------------------|
|            |                             | Inductive               |              | Non-Inductive |              |                                 |
|            |                             | Tab terminals           | Flying leads | Tab terminals | Flying leads |                                 |
| ULH/ULV60  | 60                          | 0.1-375                 | 0.1-400      | 0.1-180       | 0.1-180      | +-2.0(G)<br>+-5.0(J)<br>+-10(K) |
| ULH/ULV80  | 80                          | 0.1-281                 | 0.1-910      | 0.1-110       | 0.1-110      |                                 |
| ULH/ULV100 | 100                         | 0.1-225                 | 0.1-1.1K     | 0.1-225       | 0.1-240      |                                 |
| ULH/ULV120 | 120                         | 0.1-187                 | 0.1-1.3K     | 0.1-187       | 0.1-300      |                                 |
| ULH/ULV150 | 150                         | 0.1-150                 | 0.1-1.6K     | 0.1-150       | 0.1-390      |                                 |
| ULH/ULV200 | 200                         | 0.1-450                 | 0.1-2.2K     | 0.1-450       | 0.1-1K       |                                 |
| ULH/ULV300 | 300                         | 0.1-300                 | 0.1-2.7K     | 0.1-300       | 0.1-1.5K     |                                 |
| ULH/ULV400 | 400                         | 0.1-225                 | 0.1-4.3K     | 0.1-225       | 0.1-2.2K     |                                 |
| ULH/ULV500 | 500                         | 0.1-180                 | 0.1-6.8K     | 0.1-180       | 0.1-3K       |                                 |



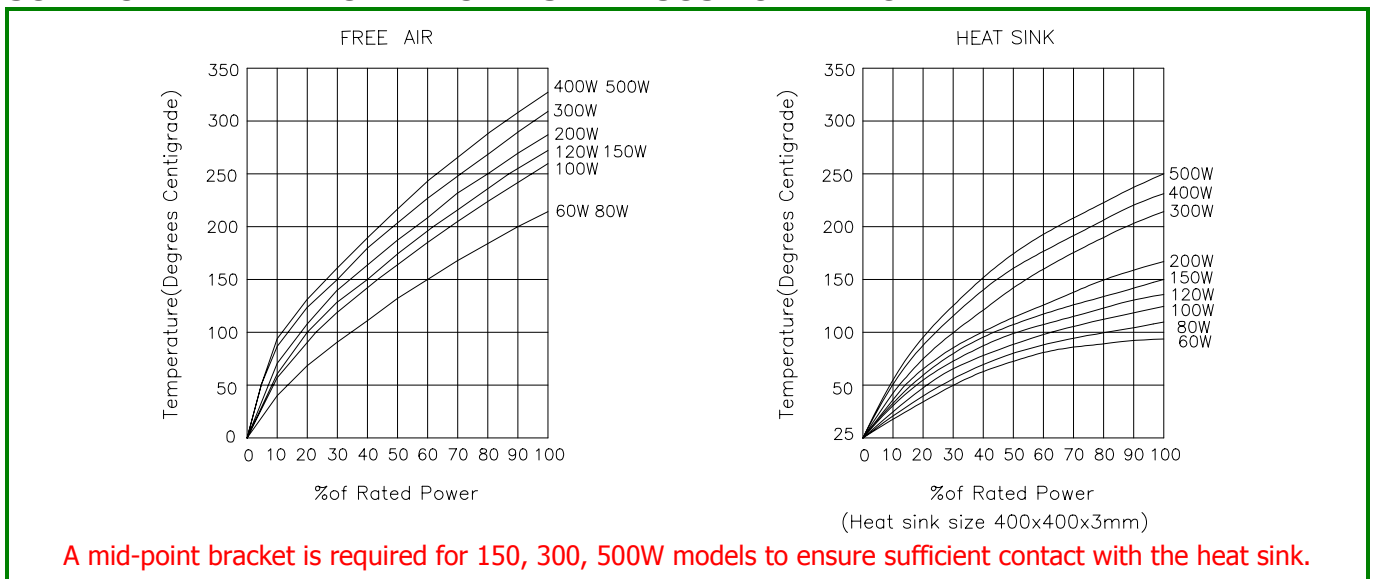
### CHARACTERISTICS

Values in [ ] mean change in ohms after test

|                       |                                  |  |
|-----------------------|----------------------------------|--|
| Temperature Range     | -55C to 200C                     |  |
| Insulation Resistance | 20M ohms minimum                 |  |
| Dielectric Strength   | [1000V+(rated voltage×2)] / min. |  |
| Temp. Coefficient     | +-260ppm/C maximum               |  |
| Short Time Overload   | +-[2%+0.05ohms]                  | 60W:5Xwattage rating-5second, 80to500W: 10Xwattage rating-5seconds |
| Moisture Resistance   | +-[3%+0.05 ohms]                 | 40C, 95% RH, DC100V case to terminal (500hrs.)                     |
| Thermal Shock         | +-[2%+0.05 ohms]                 | wattage rating 30min., -25C, 15minutes                             |
| Vibration             | +-[1%+0.05 ohms]                 | 10Hz-55Hz-10Hz (1min.),2hrs. each direction                        |
| Moisture Load Life    | +-[3%+0.05 ohms]                 | 40C,95%RH,0.1Xwattage rating, 1.5h.on,30min.off,500 hours          |
| Load Life             | +-[5%+0.05 ohms]                 | Wattage rating 1.5h. on, 30min. off, 500hours                      |

Applied voltage : AC RMS voltage

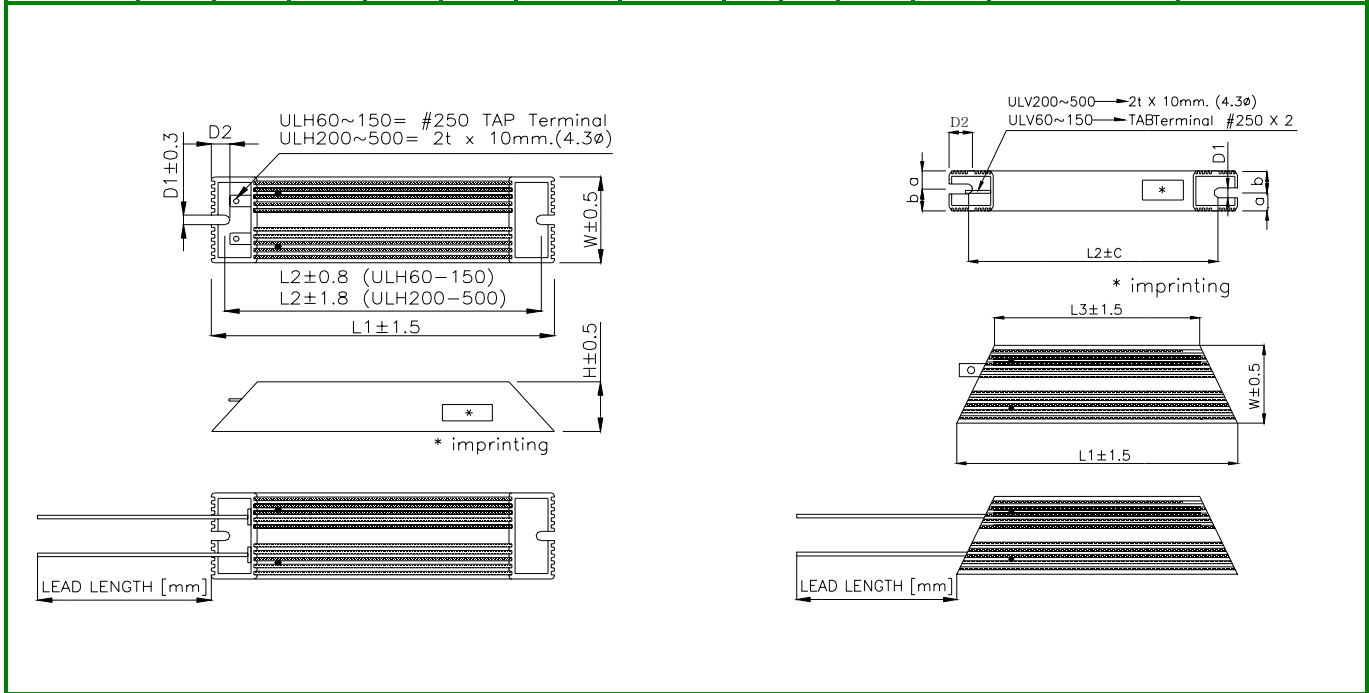
### SURFACE TEMPERATURE INCREASE VERSUS POWER LOAD



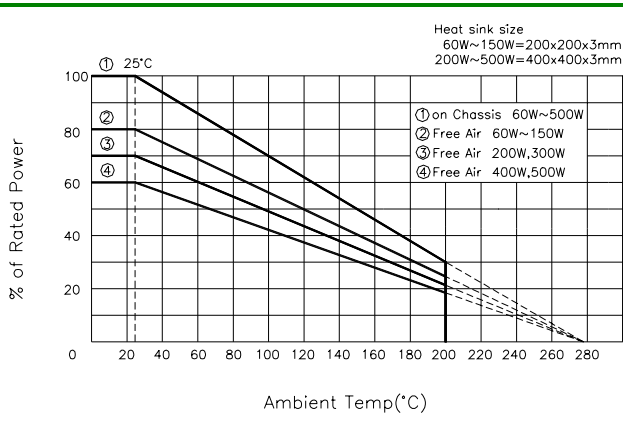
## ULV/ULH TYPE

### DIMENSIONS IRH/IRV TYPE

| Model       | Dimensions [mm] |     |     |    |    |         |         |    | Weight [g] |     | Flying Leads<br>UL E120271(AWM), NO.3512 |                    |               |
|-------------|-----------------|-----|-----|----|----|---------|---------|----|------------|-----|--|--------------------|---------------|
|             | L1              | L2  | L3  | W  | H  | D1+-0.3 | D2+-0.3 | a  | b          | IRH | IRV                                      | AWG 10             | AWG 14        |
| ULH/ULV 60  | 100             | 87  | 60  | 41 | 22 | 4.3     | 8.65    | 10 | 12         | 110 | 113                                      | X                  | 0.10ohms & up |
| ULH/ULV 80  | 150             | 137 | 110 | 41 | 22 | 4.3     | 8.65    | 10 | 12         | 195 | 189                                      | X                  |               |
| ULH/ULV 100 | 165             | 152 | 125 | 41 | 22 | 4.3     | 8.65    | 10 | 12         | 216 | 215                                      | X                  |               |
| ULH/ULV 120 | 182             | 169 | 142 | 41 | 22 | 4.3     | 8.65    | 10 | 12         | 245 | 241                                      | X                  |               |
| ULH/ULV 150 | 210             | 197 | 170 | 41 | 22 | 4.3     | 8.65    | 10 | 12         | 283 | 290                                      | X                  | 0.11ohms & up |
| ULH/ULV 200 | 165             | 146 | 125 | 60 | 30 | 5.3     | 12      | 13 | 17         | 485 | 447                                      | 0.1ohms - 0.15ohms | 0.16ohms & up |
| ULH/ULV 300 | 215             | 196 | 175 | 60 | 30 | 5.3     | 12      | 13 | 17         | 600 | 600                                      | 0.1ohms - 0.22ohms | 0.23ohms & up |
| ULH/ULV 400 | 265             | 246 | 225 | 60 | 30 | 5.3     | 12      | 13 | 17         | 770 | 780                                      | 0.1ohms - 0.30ohms | 0.31ohms & up |
| ULH/ULV 500 | 335             | 316 | 295 | 60 | 30 | 5.3     | 12      | 13 | 17         | 990 | 980                                      | 0.1ohms - 0.37ohms | 0.38ohms & up |



### DERATING CURVE AND ORDERING PROCEDURE EXAMPLE



**ULV120 N FL XXXX 5ohms J**

|                |                          |                         |                     |                    |
|----------------|--------------------------|-------------------------|---------------------|--------------------|
| <b>Model #</b> | <b>For Non-Inductive</b> | <b>Flying Lead [mm]</b> | <b>Resis- tance</b> | <b>Toler- ance</b> |
|----------------|--------------------------|-------------------------|---------------------|--------------------|

**If you require flying leads please add 'FL' + length in mm next to the model number. Also include an "N" if non-inductive is required.**