

## Wirewound Resistors, Commercial Power, Silicone Coated, Axial Lead


**FEATURES**

- High temperature coating (> 350 °C)
- All welded construction
- Available with “vitreous like appearance” coating as ALVR
- Available in non-inductive styles with Ayrton-Perry winding for lowest reactive components, special “NI”
- Compliant to RoHS Directive 2011/65/EU


**Note**

\*\* Please see document “Vishay Material Category Policy”: [www.vishay.com/doc?99902](http://www.vishay.com/doc?99902)

| STANDARD ELECTRICAL SPECIFICATIONS |                  |  |  |                              |                               |                       |
|------------------------------------|------------------|--|--|------------------------------|-------------------------------|-----------------------|
| GLOBAL MODEL                       | HISTORICAL MODEL | POWER RATING <sup>(1)</sup><br>$P_{25\text{ }^\circ\text{C}} \text{ W}$<br>CHARACTERISTIC U + 250 °C | POWER RATING <sup>(1)</sup><br>$P_{25\text{ }^\circ\text{C}} \text{ W}$<br>CHARACTERISTIC V + 350 °C | RESISTANCE RANGE<br>$\Omega$ | TOLERANCE <sup>(2)</sup><br>% | WEIGHT (typical)<br>g |
| ALSR01                             | ALSR-1           | 1  | -  | 0.10 to 6.37K                | 1, 3, 5, 10                   | 0.27                  |
| ALVR01                             | ALVR-1           | 1  | -  | 0.10 to 6.37K                | 1, 3, 5, 10                   | 0.27                  |
| ALSR03                             | ALSR-3           | 3  | -  | 0.10 to 12K                  | 1, 3, 5, 10                   | 0.68                  |
| ALVR03                             | ALVR-3           | 3  | -  | 0.10 to 12K                  | 1, 3, 5, 10                   | 0.68                  |
| ALSR5A                             | ALSR-5A          | 4  | 5  | 0.10 to 40.3K                | 1, 3, 5, 10                   | 2.1                   |
| ALVR5A                             | ALVR-5A          | 4  | 5  | 0.10 to 40.3K                | 1, 3, 5, 10                   | 2.1                   |
| ALSR05                             | ALSR-5           | 5  | 7  | 0.10 to 58.5K                | 1, 3, 5, 10                   | 3.2                   |
| ALVR05                             | ALVR-5           | 5  | 7  | 0.10 to 58.5K                | 1, 3, 5, 10                   | 3.2                   |
| ALSR10                             | ALSR-10          | 7  | 10   | 0.10 to 92K                  | 1, 3, 5, 10                   | 4.9                   |
| ALVR10                             | ALVR-10          | 7  | 10   | 0.10 to 92K                  | 1, 3, 5, 10                   | 4.9                   |

**Notes**

- (1) Vishay Huntington ALSR/ALVR models have two power ratings depending on operation temperature and stability requirements. Models not available for characteristic V are: ALSR01, ALVR01, ALSR03, and ALVR03
- (2) Other tolerances may be available, contact factory

| GLOBAL PART NUMBER INFORMATION  |  |   |   |  |
|---|--|---|---|--|
| Global Part Numbering example: <b>ALSR0325R00FE12NI</b>   |  |   |   |  |
| A   | L  | S   | R   | 0 3 2 5 R 0 0 F E 1 2 N I  |
| GLOBAL MODEL<br>(6 digits)<br><small>(See Standard Electrical Specifications Global Model column for options)</small> | VALUE<br>(5 digits)<br><b>R</b> = Decimal<br><b>K</b> = Thousand<br><b>1R500</b> = 1.5 $\Omega$<br><b>1K500</b> = 1.5 k $\Omega$ | TOLERANCE<br>(1 digit)<br><b>F</b> = $\pm 1.0\%$<br><b>H</b> = $\pm 3.0\%$<br><b>J</b> = $\pm 5.0\%$<br><b>K</b> = $\pm 10.0\%$ | PACKAGING<br>(3 digits)<br><b>E07</b> = Tape/reel (ALSR5A/ALVR5A, ALSR05/ALVR05)<br><b>E08</b> = Tape/reel (ALSR01/ALVR01)<br><b>E29</b> = Tape/reel (ALSR10/ALVR10)<br><b>E48</b> = Tape/reel (ALSR03/ALVR03)<br><b>E12</b> = Bulk, 100 pc boxes | SPECIAL<br>(up to 2 digits)<br>(Dash Number)<br>From <b>1</b> to <b>99</b><br>as applicable<br><b>NI</b> = Non inductive |
| Historical Part Number example: <b>ALSR-3-25-1 %-NI</b>   |  |   |   |  |
| ALSR-3  | 25 $\Omega$  | 1 %   | NI  |  |
| HISTORICAL MODEL  | RESISTANCE VALUE   | TOLERANCE   | SPECIAL   |  |

## DIMENSIONS in inches [millimeters]



| GLOBAL MODEL | DIMENSIONS in inches [millimeters] |                      |                       |
|--------------|------------------------------------|----------------------|-----------------------|
|              | L<br>± 0.032 [0.813]               | D<br>± 0.032 [0.813] | LD<br>± 0.002 [0.051] |
| ALSR01       | 0.385 [9.8]                        | 0.110 [2.8]          | 0.020 [0.5]           |
| ALVR01       | 0.437 [11.1]                       | 0.125 [3.2]          | 0.020 [0.5]           |
| ALSR03       | 0.530 [13.5]                       | 0.200 [5.1]          | 0.032 [0.8]           |
| ALVR03       | 0.563 [14.3]                       | 0.218 [5.5]          | 0.032 [0.8]           |
| ALSR5A       | 0.937 [23.8]                       | 0.200 [5.1]          | 0.032 [0.8]           |
| ALVR5A       | 1.031 [26.2]                       | 0.218 [5.5]          | 0.032 [0.8]           |
| ALSR05       | 0.937 [23.8]                       | 0.312 [7.9]          | 0.032 [0.8]           |
| ALVR05       | 1.031 [26.2]                       | 0.343 [8.7]          | 0.032 [0.8]           |
| ALSR10       | 1.800 [45.7]                       | 0.312 [7.9]          | 0.032 [0.8]           |
| ALVR10       | 1.843 [46.8]                       | 0.343 [8.7]          | 0.032 [0.8]           |

## MATERIAL SPECIFICATIONS

**Element:** Copper-nickel alloy or nickel-chrome alloy, depending on resistance value

**Core:** Ceramic: Steatite or alumina, depending on physical size

**End Caps:** Stainless steel

**Coating:** Special high temperature silicone or special formula of “vitreous like appearance” coating on ALVR

**Terminals:** Tinned Copper clad steel

**Part Marking:** HEI, model, value, tolerance, date code

## DERATING



## TECHNICAL SPECIFICATIONS

| PARAMETER                       | UNIT            | RESISTOR CHARACTERISTICS   |
|---------------------------------|-----------------|--|
| Temperature Coefficient         | ppm/°C          | ± 30 for 10 Ω and above; ± 50 for 1 Ω to 9.9 Ω; ± 90 for 0.5 Ω to 0.99 Ω |
| Terminal Strength               | lb              | 10 minimum   |
| Dielectric Withstanding Voltage | V <sub>AC</sub> | 500 for 1 W and 1000 for 3 W and above                                   |
| Operating Temperature Range     | °C              | Characteristic U = - 65 to + 250, characteristic V = - 65 to + 350       |
| Maximum Working Voltage         | V               | (P × R) <sup>1/2</sup>   |

## PERFORMANCE

| TEST                            | CONDITIONS OF TEST   | TEST LIMITS (CHARACTERISTIC V) |
|---------------------------------|--|--------------------------------|
| Thermal Shock                   | Rated power applied until thermally stable, then a minimum of 15 min at - 55 °C          | ± (2.0 % + 0.05 Ω) > ΔR        |
| Short Time Overload             | 5 x rated power (3 W and smaller), 10 x rated power (4 W and larger) for 5 s             | ± (2.0 % + 0.05 Ω) > ΔR        |
| Dielectric Withstanding Voltage | 500 V <sub>RMS</sub> , 1 min for 1 W and 1000 V <sub>RMS</sub> , 1 min for 3 W and above | ± (0.1 % + 0.05 Ω) > ΔR        |
| Low Temperature Storage         | - 65 °C for 24 h   | ± (2.0 % + 0.05 Ω) > ΔR        |
| High Temperature Exposure       | 250 h at U = + 250 °C, V = + 350 °C  | ± (4.0 % + 0.05 Ω) > ΔR        |
| Mechanical Shock                | MIL-STD-202 method 213, 100 g's for 6 ms, 10 shocks                                      | ± (0.2 % + 0.05 Ω) > ΔR        |
| Vibration                       | Frequency varied 10 Hz to 2000 Hz, 20 g peak, 2 directions 6 h each                      | ± (0.2 % + 0.05 Ω) > ΔR        |
| Load Life                       | 2000 h at rated power, + 25 °C, 1.5 h “ON”, 0.5 h “OFF”                                  | ± (3.0 % + 0.05 Ω) > ΔR        |
| Moisture Resistance             | MIL-STD-202 method 106, 7b not applicable  | ± (2.0 % + 0.05 Ω) > ΔR        |



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