

Wirewound Resistors, Precision Power, Low Value, Commercial, Axial Lead


DESIGN SUPPORT TOOLS
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FEATURES

- Ideal for all types of current sensing applications including switching and linear power supplies, instruments and power amplifiers
- Excellent load life stability
- Low temperature coefficient
- Low inductance
- MIL-PRF-49465 qualified, type RLV resistors can be found at: www.vishay.com/doc?30283
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS*
Available

HALOGEN FREE
Available

GREEN (5-2008)
Available

Note

* This datasheet provides information about parts that are RoHS-compliant and / or parts that are non RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details

STANDARD ELECTRICAL SPECIFICATIONS

| GLOBAL MODEL | HISTORICAL MODEL | POWER RATING $P_{25\text{ }^\circ\text{C}}$ W | RESISTANCE RANGE ⁽¹⁾ Ω | TOLERANCE \pm % | TECHNOLOGY | WEIGHT (typical) g |
|--------------|------------------|--|---|----------------------|-----------------|-----------------------|
| LVR01 | LVR-1 | 1 | 0.01 to 0.1 ⁽²⁾ | 1, 3, 5, 10 | Metal strip | 0.5 |
| LVR03 | LVR-3 | 3 | 0.005 to 0.2 | 1, 3, 5, 10 | Metal strip | 2 |
| LVR05 | LVR-5 | 5 | 0.005 to 0.3 | 1, 3, 5, 10 | Metal strip | 5 |
| LVR10 | LVR-10 | 10 | 0.01 to 0.8 | 1, 3, 5, 10 | Coil spacewound | 11 |

Notes

- ⁽¹⁾ Resistance is measured 3/8" [9.52 mm] from the body of the resistor, or at 1.183" [30.05 mm], 1.315" [33.40 mm], 1.675" [42.545 mm] or 2.575" [65.405 mm] spacing for the LVR01, LVR03, LVR05 and LVR10 respectively
- ⁽²⁾ LVR01: Standard resistance values are 0.01 Ω , 0.015 Ω , 0.02 Ω , 0.025 Ω , 0.03 Ω , 0.033 Ω , 0.04 Ω , 0.05 Ω , 0.051 Ω , 0.06 Ω , 0.068 Ω , 0.07 Ω , 0.08 Ω , 0.09 Ω and 0.1 Ω with 1 % tolerance. Other resistance values may be available upon request

TECHNICAL SPECIFICATIONS

| PARAMETER | UNIT | LVR01 | LVR03 | LVR05 | LVR10 |
|---------------------------------|------------------|-------------------------------|-------------|-------|--------------------------|
| Operating Temperature Range | $^\circ\text{C}$ | -65 to +175 | -65 to +275 | | |
| Dielectric Withstanding Voltage | V_{AC} | 1000 | 1000 | 1000 | 1000 |
| Insulation Resistance | Ω | 10 000 M Ω minimum dry | | | |
| Short Time Overload | - | 5 x rated power for 5 s | | | 10 x rated power for 5 s |
| Terminal Strength (minimum) | lb | 5 | 10 | 10 | 10 |
| Maximum Working Voltage | V | $(P \times R)^{1/2}$ | | | |

GLOBAL PART NUMBER INFORMATION

 Global Part Numbering example: LVR055L000FS73 (visit www.vishay.net Vishay Dale parts numbering manual for all options)

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|
| L | V | R | 0 | 5 | 5 | L | 0 | 0 | 0 | F | S | 7 | 3 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|

| GLOBAL MODEL | VALUE | TOLERANCE | PACKAGING | SPECIAL |
|----------------------------------|--|---|--|---|
| LVR01 LVR03 LVR05 LVR10 | R = decimal L = m Ω (values < 0.010 Ω) R1500 = 0.15 Ω 7L000 = 0.007 Ω | D = \pm 0.5 % F = \pm 1.0 % G = \pm 2.0 % H = \pm 3.0 % J = \pm 5.0 % K = \pm 10.0 % | E12 = lead (Pb)-free bulk E03 = lead (Pb)-free lacer pack (LVR10) E70 = lead (Pb)-free, tape / reel 1000 pieces (LVR01, 03) E73 = lead (Pb)-free, tape / reel 500 pieces B12 = tin / lead bulk L03 = tin / lead lacer pack (LVR10) S70 = tin / lead, tape / reel 1000 pieces (LVR01, 03) S73 = tin / lead, tape/reel 500 pieces | (dash number) (up to 3 digits) From 1 to 999 as applicable |

DIMENSIONS in inches [millimeters]


| MODEL | DIMENSIONS in inches [millimeters] | | |
|-------|------------------------------------|----------------------|----------------------|
| | A ± 0.010 [0.254] | B ± 0.010 [0.254] | C ± 0.002 [0.051] |
| LVR01 | 0.427 [10.85] | 0.115 [2.92] | 0.020 [0.508] |
| LVR03 | 0.560 [14.22] | 0.205 [5.21] | 0.032 [0.813] |
| LVR05 | 0.925 [23.50] | 0.330 [8.38] | 0.040 [1.02] |
| LVR10 | 1.828 [46.43] | 0.392 [9.96] | 0.040 [1.02] |

Note

(1) On some standard reel pack methods, the leads may be trimmed to a shorter length than shown

MATERIAL SPECIFICATIONS

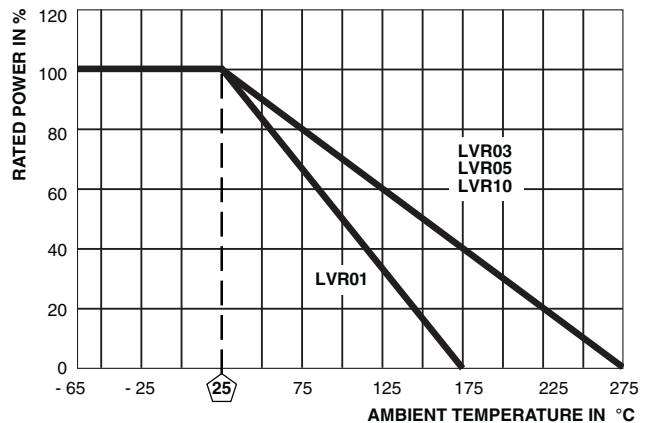
Element: Self-supporting nickel-chrome alloy (LVR10 also utilizes manganin)

Encapsulation: High temperature mold compound

Terminals: Tinned copper

Part Marking: Dale, model, wattage, value, tolerance, date code

Packaging: Reference "Wirewound Through Hole Resistor Packaging" (www.vishay.com/doc?21028)

DERATING


| TEMPERATURE COEFFICIENT (ppm/°C) | | | |
|--|--|--|--|
| LVR01 | LVR03 | LVR05 | LVR10 |
| ± 1000 for 0.01 Ω to 0.0249 Ω ± 400 for 0.025 Ω to 0.0499 Ω ± 300 for 0.05 Ω to 0.0749 Ω ± 250 for 0.075 Ω to 0.099 Ω ± 150 for 0.1 Ω to 0.1 Ω | ± 850 for 0.005 Ω to 0.0099 Ω ± 350 for 0.01 Ω to 0.0249 Ω ± 200 for 0.025 Ω to 0.0499 Ω ± 125 for 0.05 Ω to 0.0749 Ω ± 75 for 0.075 Ω to 0.099 Ω ± 50 for 0.1 Ω to 0.2 Ω | ± 650 for 0.005 Ω to 0.0099 Ω ± 250 for 0.01 Ω to 0.0249 Ω ± 150 for 0.025 Ω to 0.0499 Ω ± 100 for 0.05 Ω to 0.0749 Ω ± 75 for 0.075 Ω to 0.099 Ω ± 50 for 0.1 Ω to 0.3 Ω | ± 300 for 0.01 Ω to 0.0249 Ω ± 150 for 0.025 Ω to 0.0499 Ω ± 125 for 0.05 Ω to 0.0749 Ω ± 100 for 0.075 Ω to 0.099 Ω ± 50 for 0.1 Ω to 0.8 Ω |

| PERFORMANCE | | |
|---------------------------------|---|-------------------------|
| TEST | CONDITIONS OF TEST | TEST LIMITS |
| Thermal Shock | -65 °C to +125 °C, 5 cycles, 15 min at each extreme | ± (0.2 % + 0.0005 Ω) ΔR |
| Short Time Overload | 5x rated power (LVR01, 03, 05), 10 x rated power (LVR10) for 5 s | ± (0.5 % + 0.0005 Ω) ΔR |
| Low Temperature Storage | -65 °C for 24 h | ± (0.2 % + 0.0005 Ω) ΔR |
| High Temperature Exposure | 250 h at +275 °C (+175 °C for LVR01) | ± (2.0 % + 0.0005 Ω) ΔR |
| Dielectric Withstanding Voltage | 1000 V _{RMS} , 1 min | ± (0.1 % + 0.0005 Ω) ΔR |
| Insulation Resistance | MIL-STD-202 Method 302, 100 V | 1000 MΩ minimum |
| Moisture Resistance | MIL-STD-202 Method 106, 7b not applicable | ± (0.2 % + 0.0005 Ω) ΔR |
| Shock, Specified Pulse | MIL-STD-202 Method 213, 100 g's for 6 ms, 10 shocks | ± (0.1 % + 0.0005 Ω) ΔR |
| Vibration, High Frequency | Frequency varied 10 Hz to 2000 Hz, 20 g peak, 2 directions 6 h each | ± (0.1 % + 0.0005 Ω) ΔR |
| Load Life | 2000 h at rated power, +25 °C, 1.5 h "ON", 0.5 h "OFF" | ± (2.0 % + 0.0005 Ω) ΔR |
| Bias Humidity | +85 °C, 85 % RH, 10 % bias, 1000 h | ± (1.0 % + 0.0005 Ω) ΔR |



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