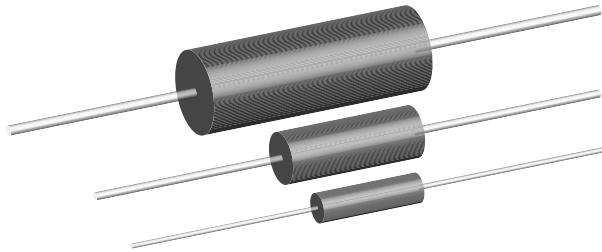


# Wirewound Resistors, Precision Power, Low Value, Commercial, Axial Lead



## FEATURES

- Ideal for all types of current sensing applications including switching and linear power supplies, instruments and power amplifiers
- Proprietary processing technique produces extremely low resistance values
- Excellent load life stability
- Low temperature coefficient
- Low inductance
- Cooler operation for high power to size ratio
- MIL-PRF-49465 qualified, type RLV resistors can be found at: [www.vishay.com/doc?30283](http://www.vishay.com/doc?30283)
- Compliant to RoHS Directive 2002/95/EC



## STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	HISTORICAL MODEL	POWER RATING $P_{25\text{ }^\circ\text{C}}$ W	RESISTANCE RANGE <sup>(1)</sup> $\Omega$	TOLERANCE $\pm$ %	TECHNOLOGY
LVR01	LVR-1	1	0.01 to 0.1 <sup>(2)</sup>	1, 3, 5, 10	Metal strip
LVR03	LVR-3	3	0.005 to 0.2	1, 3, 5, 10	Metal strip
LVR05	LVR-5	5	0.005 to 0.3	1, 3, 5, 10	Metal strip
LVR10	LVR-10	10	0.01 to 0.8	1, 3, 5, 10	Coil spacewound

### 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  $\Omega$ , 0.015  $\Omega$ , 0.02  $\Omega$ , 0.025  $\Omega$ , 0.03  $\Omega$ , 0.033  $\Omega$ , 0.04  $\Omega$ , 0.05  $\Omega$ , 0.051  $\Omega$ , 0.06  $\Omega$ , 0.068  $\Omega$ , 0.07  $\Omega$ , 0.08  $\Omega$ , 0.09  $\Omega$  and 0.1  $\Omega$  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	$V_{\text{RMS}}$	1000	1000	1000	1000
Insulation Resistance	$\Omega$	10 000 M $\Omega$ 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
Temperature Coefficient	ppm/ $^\circ\text{C}$	See TCR vs. Resistance Value chart			
Maximum Working Voltage	V	$(P \times R)^{1/2}$			
Weight (maximum)	g	0.5	2	5	11

## GLOBAL PART NUMBER INFORMATION

Global Part Numbering example: LVR055L000FS73

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 $\Omega$ (values < 0.010 $\Omega$ ) R1500 = 0.15 $\Omega$ 7L000 = 0.007 $\Omega$	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

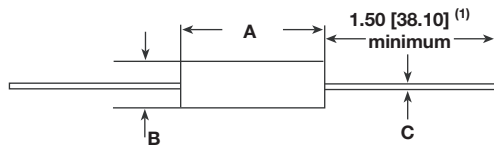
Historical Part Numbering example: LVR-5 0.005  $\Omega$  1 % S73

LVR-5	0.005 $\Omega$	1 %	S73
HISTORICAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING

\* Pb containing terminations are not RoHS compliant, exemptions may apply

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

## 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

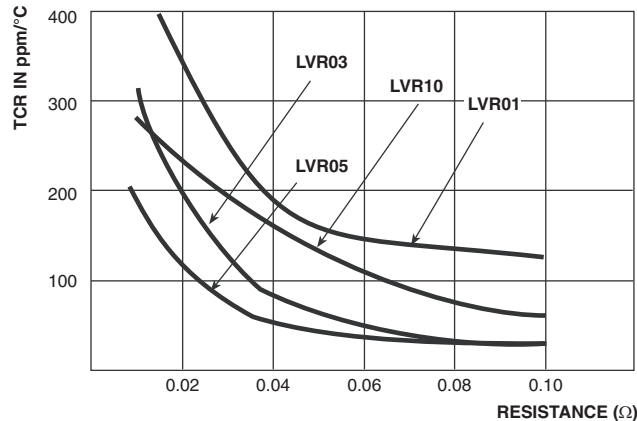
**Terminals:** Tinned copper

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

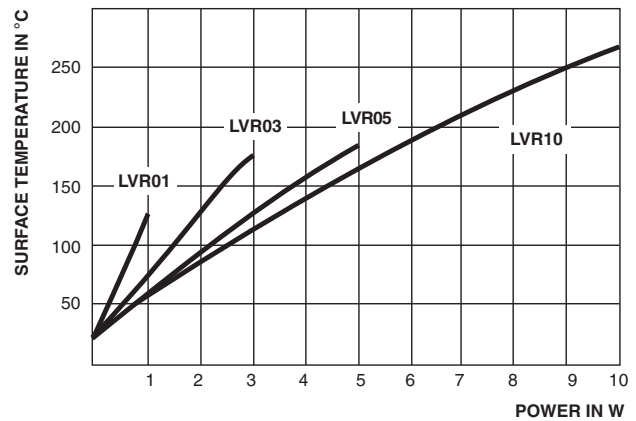
**Packaging:** Reference "Wirewound Through Hole Resistor Packaging" ([www.vishay.com/doc?21028](http://www.vishay.com/doc?21028))

The improved TCR characteristics of these LVR models from - 55 °C to + 125 °C (reference to + 25 °C) are as follows:

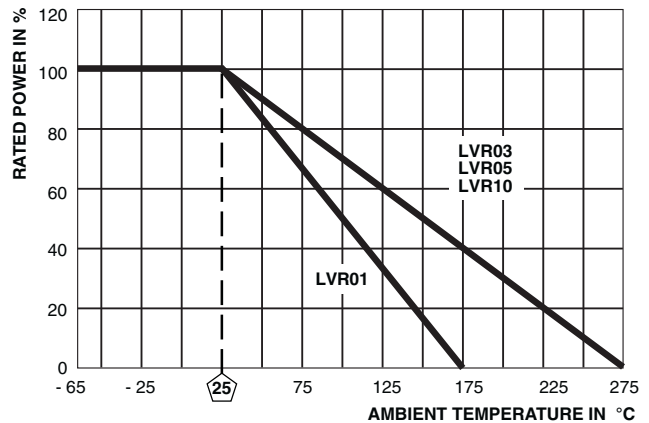
## TCR vs. RESISTANCE VALUE



## SURFACE TEMPERATURE vs. POWER



## DERATING



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	5 x 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 <sub>RMS</sub> , 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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