Vishay Dale



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: <u>www.vishay.com/doc?30283</u>

 Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

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 °C} W	RESISTANCE RANGE ⁽¹⁾ Ω	TOLERANCE ± %	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	°C	-65 to +175	-65 to +275		
Dielectric Withstanding Voltage	V _{AC}	1000	1000	1000	1000
Insulation Resistance	Ω	10 000 MΩ minimum dry			
Short Time Overload	-	5 x rated power for 5 s 10 x rated pow			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.vishav.net Vishay Dale parts numbering manual for all options) ν R 0 5 5 L 0 0 0 F S 7 3 GLOBAL MODEL VALUE TOI FRANCE PACKAGING SPECIAL LVR01 $D = \pm 0.5 \%$ E12 = lead (Pb)-free bulk (dash number) **R** = decimal LVR03 **F** = ± 1.0 % E03 = lead (Pb)-free lacer pack (LVR10) (up to 3 digits) $L = m\Omega$ From 1 to 999 LVR05 (values < 0.010 Ω) $G = \pm 2.0 \%$ E70 = lead (Pb)-free, tape / reel 1000 pieces (LVR01, 03) as applicable **LVR10 R1500** = 0.15 Ω $H = \pm 3.0 \%$ E73 = lead (Pb)-free, tape / reel 500 pieces **7L000** = 0.007Ω $J = \pm 5.0 \%$ B12 = tin / lead bulk **K** = ± 10.0 % L03 = tin / lead lacer pack (LVR10) **S70** = tin / lead, tape / reel 1000 pieces (LVR01, 03) S73 = tin / lead, tape/reel 500 pieces

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HALOGEN

FREE

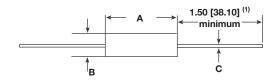
GREEN

<u>(5-2008)</u>



LVR Vishay Dale

DIMENSIONS in inches [millimeters]



	DIMENSIONS in inches [millimeters]			
MODEL	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)

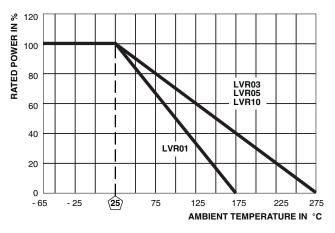
Encapsulation: High temperature mold compound

Terminals: Tinned copper

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

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

DERATING



TEMPERATURE COEFFICIENT (ppm/°C)					
LVR01	LVR03	LVR05	LVR10		
$\begin{array}{c} \pm \ 1000 \ \text{for} \ 0.01 \ \Omega \ \text{to} \ 0.0249 \ \Omega \\ \pm \ 400 \ \text{for} \ 0.025 \ \Omega \ \text{to} \ 0.0499 \ \Omega \\ \pm \ 300 \ \text{for} \ 0.05 \ \Omega \ \text{to} \ 0.0749 \ \Omega \\ \pm \ 250 \ \text{for} \ 0.075 \ \Omega \ \text{to} \ 0.099 \ \Omega \\ \pm \ 150 \ \text{for} \ 0.1 \ \Omega \ \text{to} \ 0.1 \ \Omega \end{array}$	$\begin{array}{c} \pm 850 \text{ for } 0.005 \ \Omega \text{ to } 0.0099 \ \Omega \\ \pm 350 \text{ for } 0.01 \ \Omega \text{ to } 0.0249 \ \Omega \\ \pm 200 \text{ for } 0.025 \ \Omega \text{ to } 0.0499 \ \Omega \\ \pm 125 \text{ for } 0.05 \ \Omega \text{ to } 0.0749 \ \Omega \\ \pm 75 \text{ for } 0.075 \ \Omega \text{ to } 0.099 \ \Omega \\ \pm 50 \text{ for } 0.1 \ \Omega \text{ to } 0.2 \ \Omega \end{array}$	$\begin{array}{c} \pm\ 650\ for\ 0.005\ \Omega\ to\ 0.0099\ \Omega\\ \pm\ 250\ for\ 0.01\ \Omega\ to\ 0.0249\ \Omega\\ \pm\ 150\ for\ 0.025\ \Omega\ to\ 0.0499\ \Omega\\ \pm\ 100\ for\ 0.05\ \Omega\ to\ 0.0749\ \Omega\\ \pm\ 75\ for\ 0.075\ \Omega\ to\ 0.099\ \Omega\\ \pm\ 50\ for\ 0.1\ \Omega\ to\ 0.3\ \Omega\end{array}$	$\begin{array}{c} \pm \; 300 \; \text{for} \; 0.01 \; \Omega \; \text{to} \; 0.0249 \; \Omega \\ \pm \; 150 \; \text{for} \; 0.025 \; \Omega \; \text{to} \; 0.0499 \; \Omega \\ \pm \; 125 \; \text{for} \; 0.05 \; \Omega \; \text{to} \; 0.0749 \; \Omega \\ \pm \; 100 \; \text{for} \; 0.075 \; \Omega \; \text{to} \; 0.099 \; \Omega \\ \pm \; 50 \; \text{for} \; 0.1 \; \Omega \; \text{to} \; 0.8 \; \Omega \end{array}$		

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



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