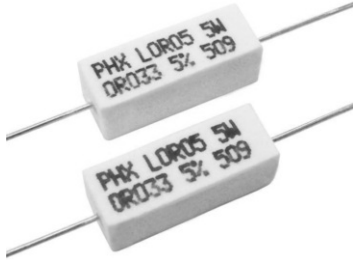


Wirewound Resistors, Commercial Power, Axial/Radial Leads, Low Ohmic Value



FEATURES

- High power dissipation in small volume
- Low ohmic values (down to 0.01 Ω)
- Ideal for pulsing applications
- Low inductance
- Axial or radial leads
- Non-flammable



RoHS
COMPLIANT

For closest Vishay Dale equivalent, please contact: ww2aresistors@vishay.com

Note:

- There may be slight differences between the Vishay Phoenix and the Vishay Dale crosses

TECHNOLOGY

The resistor element is a strip of resistive material shaped in such format to assure maximum power distribution and ohmic stability. Tinned copper leads are welded to the resistive element to assure a good electrical contact. This assembly is housed within a rectangular ceramic case with inorganic potting compound, which is non-flammable. The LOR is resistant to most commonly used cleaning solvents in accordance with MIL-STD-202 method 215, and IEC 68-2-5.

STANDARD ELECTRICAL SPECIFICATIONS

MODEL	POWER RATING $P_{40^\circ\text{C}}$ W	RESISTANCE RANGE ⁽¹⁾ Ω	TOLERANCE ⁽²⁾ %	E-SERIES Decade Values
LOR05	5	0.01 - 0.10	± 5	24

Notes:

⁽¹⁾ Special resistance values available upon request

⁽²⁾ Other tolerances available upon request

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	LOR RESISTOR CHARACTERISTICS
Limiting Voltage	V	$\sqrt{P \times R}$
Insulation Voltage	V	> 2000
Temperature Coefficient ⁽³⁾	ppm/ $^\circ\text{C}$	± 200
Operating Temperature	$^\circ\text{C}$	- 55 to + 155
Short Time Overload	-	10 x rated power for 5 s

Note:

⁽³⁾ Temperature coefficient ± 50 ppm/ $^\circ\text{C}$ available on request



ORDERING INFORMATION					
LEAD Ø in millimeters (inches)	TOLERANCE	QUANTITY (pieces)	PACKAGING	RESISTANCE VALUE	ORDERING CODE
1.0 (0.04)	± 5 %	250	BOX	0.01 Ω	2306 288 50001
				0.011 Ω	2306 288 50002
				0.012 Ω	2306 288 50003
				0.013 Ω	2306 288 50004
				0.015 Ω	2306 288 50005
				0.016 Ω	2306 288 50006
				0.018 Ω	2306 288 50007
				0.020 Ω	2306 288 50008
				0.022 Ω	2306 288 50009
				0.024 Ω	2306 288 50011
				0.027 Ω	2306 288 50012
				0.030 Ω	2306 288 50013
				0.033 Ω	2306 288 50014
				0.036 Ω	2306 288 50015
				0.039 Ω	2306 288 50016
				0.043 Ω	2306 288 50017
				0.047 Ω	2306 288 50018
				0.051 Ω	2306 288 50019
				0.056 Ω	2306 288 50021
				0.062 Ω	2306 288 50022
0.068 Ω	2306 288 50023				
0.075 Ω	2306 288 50024				
0.082 Ω	2306 288 50025				
0.091 Ω	2306 288 50026				
0.100 Ω	2306 288 50027				

Example:

LOR05, 0.01 Ω, ± 5 %, box of 250 pieces is **230628850001**

For LOR05 radial leads the part number will be 23062889xxxx. Contact factory for information.

NAFTA ORDERING INFORMATION																																									
The resistor have on ordering code with 12 digits, first 5 digits for product type and the subsequent digits indicate the resistance value and tolerance.																																									
<table style="margin: auto; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 2px 5px;">L</td> <td style="border: 1px solid black; padding: 2px 5px;">O</td> <td style="border: 1px solid black; padding: 2px 5px;">R</td> <td style="border: 1px solid black; padding: 2px 5px;">0</td> <td style="border: 1px solid black; padding: 2px 5px;">5</td> <td style="border: 1px solid black; padding: 2px 5px;">W</td> <td style="border: 1px solid black; padding: 2px 5px;">0</td> <td style="border: 1px solid black; padding: 2px 5px;">R</td> <td style="border: 1px solid black; padding: 2px 5px;">1</td> <td style="border: 1px solid black; padding: 2px 5px;">0</td> <td style="border: 1px solid black; padding: 2px 5px;">0</td> <td style="border: 1px solid black; padding: 2px 5px;">J</td> </tr> <tr> <td colspan="3" style="text-align: center; border: none;">└──────────┘</td> <td colspan="3" style="text-align: center; border: none;">└──────────┘</td> <td colspan="3" style="text-align: center; border: none;">└──────────┘</td> <td colspan="3" style="text-align: center; border: none;">└──────────┘</td> </tr> <tr> <td colspan="3" style="text-align: center; border: 1px solid black;">PRODUCT TYPE</td> <td colspan="3" style="text-align: center; border: 1px solid black;">OHMIC VALUE</td> <td colspan="3" style="text-align: center; border: 1px solid black;">TOLERANCE 5 %</td> <td colspan="3" style="border: none;"></td> </tr> </table>						L	O	R	0	5	W	0	R	1	0	0	J	└──────────┘			└──────────┘			└──────────┘			└──────────┘			PRODUCT TYPE			OHMIC VALUE			TOLERANCE 5 %					
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PRODUCT	TOLERANCE	NAFTA ORDERING CODE	LEAD Ø in millimeters (inches)	PACKAGING	QUANTITY (pieces)																																				
LOR	± 5 %	LOR05WxxxxxJ	1.0 (0.04)	Box	250																																				

Example:

LOR05, 0.10 Ω, ± 5 %, box of 250 pieces is **LOR05W0R100J**

DIMENSIONS in millimeters (inches)						
AXIAL LEADS				RADIAL LEADS		
TYPE	L and L2 ± 1.5 (0.06)	W and H ± 1.0 (0.04)	Ø d ± 0.05 (0.002)	C ± 1.0 (0.04)	D (1) ± 0.4 (0.016)	E (1) ± 0.5 (0.02)
LOR05	22.0 (0.87)	8.0 (0.31)	1.0 (0.04)	41.0 (1.61)	28.0 (1.10)	3.5 (0.14)

Notes:

- (1) The dimensions D and E can be changed, depending on the design application
- Resistance is measured 9.52 mm (3/8") from resistor body

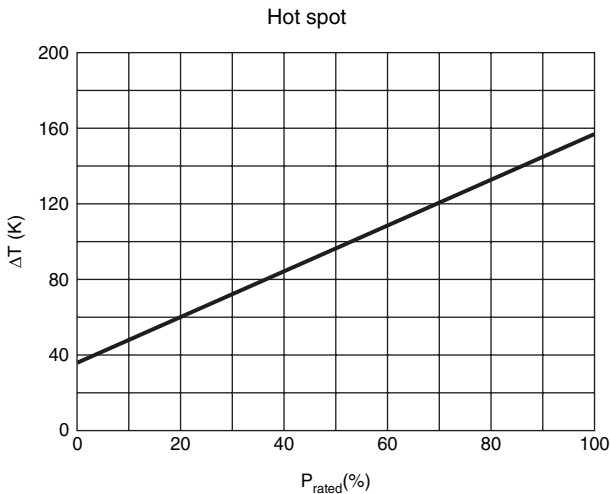
MARKING

The nominal resistance, the resistance tolerance, the rated dissipation at $T_{amb} = 40\text{ }^{\circ}\text{C}$ and the production date (year and week), are printed on the resistor body. An R is used as the decimal point.

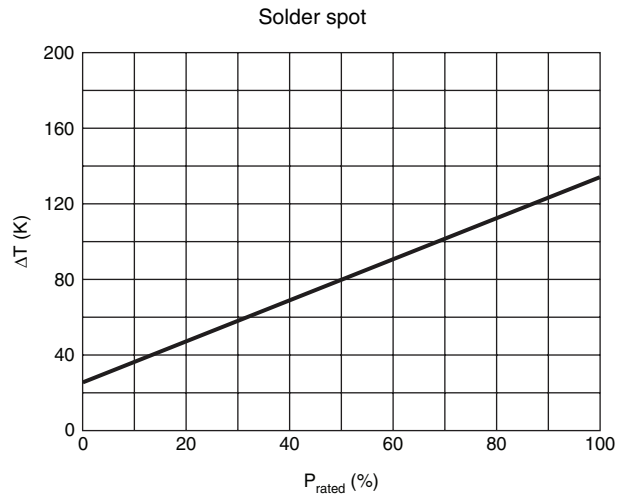
Example:

PHX	LOR05	5 W
0R047	5 %	542

APPLICATION INFORMATION



Temperature rise of the resistor body (hot spot) as a function of dissipated power



Temperature rise (ΔT) at the lead end (solder spot) as a function of dissipated power

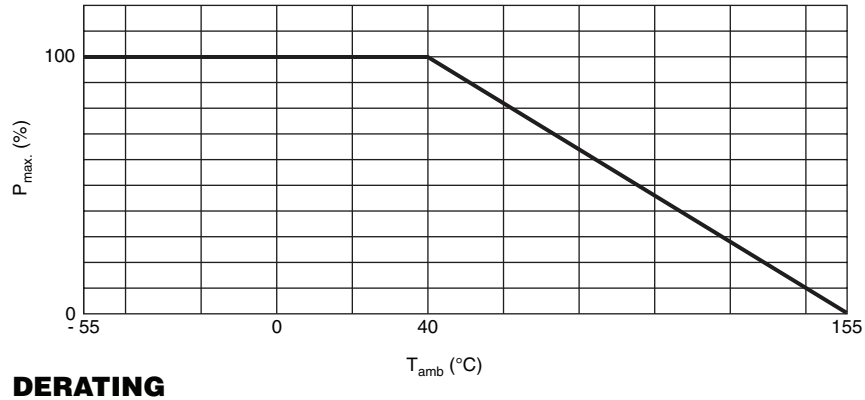
Notes:

- Application information available on request:
- Typical temperature coefficient as a function of ohmic value
- Pulse load behavior



ELECTRICAL CHARACTERISTICS

The power that the resistor can dissipate depends on the operating temperature.



DERATING

Maximum dissipation (P_{max}) in percentage of rated power as a function of ambient temperature (T_{amb})

PACKAGING in millimeters (inches)				
LOOSE IN BOX				
PRODUCT	M	N	P	QUANTITY (pieces)
Axial leads	91 (3.9)	96 (3.8)	224 (8.9)	250
Radial leads	125 (5.0)	68 (2.7)	139 (5.5)	250 loose in box
Special radial leads	118 (4.7)	82 (3.3)	256 (10.1)	250 pieces in a tray



TESTS AND REQUIREMENTS

Essentially all tests are carried out in accordance with the schedule of IEC publications 60115-1, category 55/155/56 (rated temperature range - 55 °C to + 155 °C; damp heat, long term, 56 days and along the lines of IEC publications 60068-2); “Recommended basic climatic and mechanical robustness testing procedure for electronic components” and under standard atmosphere conditions according to IEC 60068-1 subclause 5.3, unless otherwise specified. In some instances deviations from IEC applications were necessary for our specified method.

PERFORMANCE				
IEC 60115-1 CLAUSE	IEC 60068-2 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
4.8		Temperature coefficient	Between - 55 °C and + 155 °C	± 200 ppm/°C
4.13	-	Short time overload	Room temperature P = 10 x Pn, 5 s	$\Delta R/R_{max.} \pm 2 \%$
4.16	21(U)	Robustness of Terminations		
4.16.2	21(Ua1)	Tensile all samples:	Load 10 N; 10 s	No damage $\Delta R/R_{max.} \pm 0.5 \%$
4.16.3	21(Ub)	Bending half number of samples	Load 5 N; 4 x 90°	
4.16.4	21(Uc)	Torsion other half of samples	2 x 180° in opposite directions	
4.17	20(Ta)	Solderability (after aging)	16 h at 155 °C; immersed in flux 600, lead immersed 2 mm for 2 ± 0.5 s in a solder bath at 235 °C ± 5 °C	Good tinning (≥ 95 % covered) No damage
4.18	20(Tb)	Resistance to soldering heat	Thermal shock: 3 s, 350 °C ± 10 °C; 6 mm from body	$\Delta R/R_{max.} \pm 1 \%$
4.19	14(Na)	Rapid change of temperature	30 min at - 55 °C and 30 min + 155 °C 5 cycles	No visual damage $\Delta R/R_{max.} \pm 1 \%$
4.22	6(Fc)	Vibration	Frequency 10 to 55 Hz, displacement 0.75 mm or acceleration 10 g three directions; total 6 h (3 x 2 h)	No damage $\Delta R/R_{max.} \pm 1 \%$
4.23		Climatic sequence:		
4.23.2	2(Ba)	Dry heat	16 h, 155 °C	$\Delta R/R_{max.} \pm 3 \%$
4.23.3	30(Db)	Damp heat (accelerated) 1st cycle	24 h, 25 °C to + 55 °C 90 % to 100 % RH	
4.23.4	1(Aa)	Cold	2 h, - 55 °C	
4.23.6	30 (Db)	Damp heat (accelerated) remaining cycles	5 days; 25 °C to 55 °C; 90 % to 100 % RH	
4.24	3 (Ca)	Damp heat (steady state)	56 days; 40 °C; 90 % to 95 % RH; loaded with 0.01 Pn	$\Delta R/R_{max.} \pm 3 \%$
4.25.1	-	Endurance (at 40 °C)	1000 h load with Pn or V _{max.} ; 1.5 h ON and 0.5 h OFF	No visual damage $\Delta R/R_{max.} \pm 5 \%$



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