Insulated Precision Wirewound Resistors Axial Leads

In wirewound precision resistors, the RLP series holds a leading position in professional applications whenever an excellent stability of the ohmic value and a correspondingly low temperature coefficient are required at the same time.

The RLP model resistors comply with the most stringent requirements of the CECC 40-201-006 specification. The series consists of 5 models covering the power range from 1 W to 10 W.

Non-inductive versions can be supplied on request by specifying RLP-NI. For higher power dissipations, the use of RH series resistors is recommended.

FEATURES

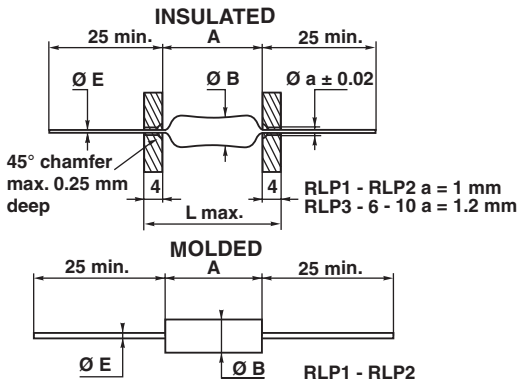
- 1 W to 10 W at 25 °C
- Approved according to CECC 40-201-006
- According to MIL-R-26/5C and MIL-R-26/6C
- Excellent stability < ± 0.3 % after 1000 h
- High power up to 10 W at 25 °C
- Low ohmic values 10 mΩ available
- Low temperature coefficient ≤ ± 50 ppm/°C
- Electrical insulation
- Climatic protection
- Termination = Pure matte tin or Sn/Ag/Cu according to the ohmic value
- Compliant to RoHS directive 2002/95/EC

Pb-free

e1

RoHS COMPLIANT

DIMENSIONS in millimeters



SERIES AND STYLE	A max.	Ø B max.		E ± 0.1	WEIGHT g
		R > 0.15 Ω	R ≤ 0.15 Ω		
RLP1	7	2.5	-	0.6	0.27
RLP2	10.2	4.0	6	0.6	0.48
RLP3	14	5.54	9	0.8	1.3
RLP6	23.82	8.71	11	0.8	3.4
RLP10	46.78	10.32	180K	0.8	8.6

TECHNICAL SPECIFICATIONS

VISHAY SFERNICE SERIES AND STYLE			RLP1	RLP2	RLP3	RLP6	RLP10
Reference CECC 40-201-006			A	B	C	D	E
Cross-Reference NF C 93-210			RP8	RP7	RP4	RP5	RP6
Cross-Reference MIL-R-26/5C and MIL-R-26/6C			RW80	RW81	RW79	RW74	RW78
Power Rating, P_r	CECC 40-201-006 Power	At 25 °C, P_{25} At 70 °C, P_{70}	1 W 0.8 W	1.5 W 1.25 W	2.5 W 2 W	-	-
	Extended Sfernice Power	At 25 °C, P_{25} At 70 °C, P_{70}	1 W 0.8 W	2 W 1.65 W	3 W 2.5 W	6 W 5 W	10 W 8.2 W
Ohmic Range in Relation to Tolerance		± 5 % E24	0.05 Ω to 2 kΩ	0.025 Ω to 6.8 kΩ	0.01 Ω to 15 kΩ	0.02 Ω to 59 kΩ	0.06 Ω to 150 kΩ
		± 2 % E48	0.05 Ω to 2 kΩ	0.025 Ω to 6.8 kΩ	0.03 Ω to 15 kΩ	0.02 Ω to 59 kΩ	0.06 Ω to 150 kΩ
		± 1 % E96	0.05 Ω to 2 kΩ	0.025 Ω to 6.8 kΩ	0.03 Ω to 15 kΩ	0.02 Ω to 59 kΩ	0.06 Ω to 150 kΩ
		± 0.5 % E96	0.4 Ω to 2 kΩ	0.4 Ω to 6.8 kΩ	0.0499 Ω to 15 kΩ	0.3 Ω to 59 kΩ	0.3 Ω to 150 kΩ
		± 0.1 % E96	Please consult Vishay Sfernice				
Qualified Ohmic Value Range CECC 40-201-006			1 Ω to 470 Ω	0.2 Ω to 1.78 kΩ	0.1 Ω to 3.57 kΩ	0.1 Ω to 12.1 kΩ	0.1 Ω to 40.2 kΩ
Limiting Element Voltage, $U_{max.}$ AC/DC			50 V	120 V	200 V	300 V	720 V
Critical Resistance			Out of nominal ohmic range			17 800 Ω	51 100 Ω

Note

- Undergoes European Quality Insurance System (CECC)

MECHANICAL SPECIFICATIONS		
Series and Style	RLP1, RLP2	RLP3, RLP6, RLP10
Encapsulant	High temperature mold compound	High temperature silicone coating
Resistive Element	CuNi or NiCr	
Ceramic Substrate	Alumina or steatite	
Termination	Pure matte tin or Sn/Ag/Cu	

ENVIRONMENTAL SPECIFICATIONS	
Temperature Range	- 55 °C to 275 °C
Climatic Category (LCT/UCT/days)	55/200/56

PERFORMANCE		
TESTS	**CONDITIONS**	**REQUIREMENTS (ΔR/R OR INDICATED PARAMETER) CECC 40-201-006**
Short Time Overload	IEC 60115-1 6.25 $P_{r\ \text{Extended Sfernice Power}}$ or $U = 2\ U_{max.}/5$ s for RLP1, RLP2, RLP3 12 $P_{r\ \text{Extended Sfernice Power}}$ or $U = 2\ U_{max.}/5$ s for RLP6, RLP10	± (0.25 % + 0.05 Ω)
Load Life	IEC 60115-1 90'/30' CYCLES 1000 h $P_{r\ \text{Extended Sfernice Power}}$ + 25 °C	± (0.5 % + 0.05 Ω) Insulation R ≥ 1 GΩ
Dielectric w/s Voltage	IEC 60115-1 U_{RMS} = 500 V/60 s for RLP1, RLP2, RLP3 U_{RMS} = 1000 V/60 s for RLP6, RLP10	No flashover or breakdown Leakage current < 10 µA
Rapid Change of Temperature	IEC 60115-1 IEC 60068-2-14 Test Na 5 cycles (30' at LCT/30' at UCT) - 55 °C/+ 200 °C	± (0.25 % + 0.05 Ω)
Climatic Sequence	IEC 60115-1 - 55 °C/+ 200 °C/56 days	± (0.5 % + 0.05 Ω)
Humidity (Steady State)	IEC 60115-1 IEC 60068-2-3 Test Ca 95 % HR/40 °C 56 days	± (0.5 % + 0.05 Ω) Insulation R ≥ 100 MΩ
Shock	IEC 60115-1 IEC 60068-2-27 Test Ea 50 *g*'s/half sine/ 3 times by direction (i.e. 18 shocks)	± (0.25 % + 0.05 Ω)
Vibration	IEC 60115-1 IEC 60068-2-6 Test Fc 10 Hz/55 Hz	± (0.25 % + 0.05 Ω)
Load Life at Upper Category Temperature	IEC 60115-1 90'/30' cycles 1000 h $P_{r\ \text{Extended Sfernice Power}}$ + 200 °C	± (0.5 % + 0.05 Ω) Insulation R ≥ 1 GΩ

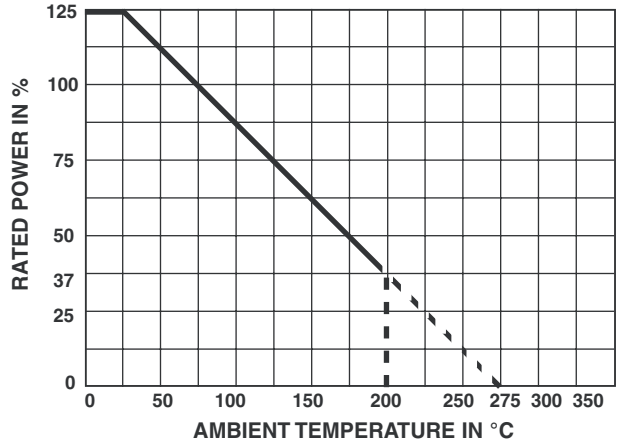
TEMPERATURE COEFFICIENT IN THE RANGE - 55 °C TO + 200 °C	
OHMIC RANGE	**REQUIREMENT CECC 40-201-006**
< 1 Ω	± 100 ppm/°C
1 Ω to < 10 Ω	± 50 ppm/°C
≥ 10 Ω	± 25 ppm/°C

STABILITY AND POWER RATING

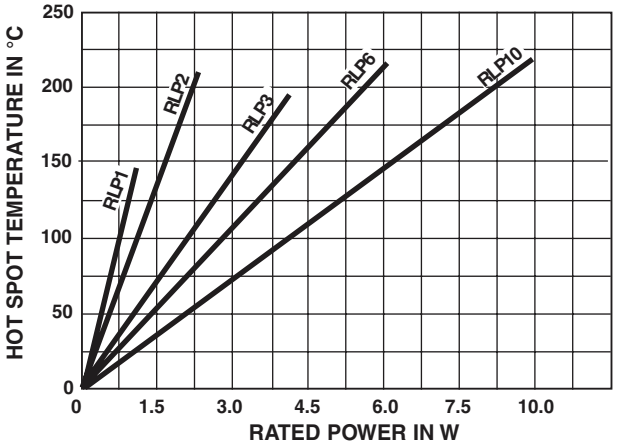
Stability changes slightly according to power rating and ambient temperature. This fact is especially important for users needing a life drift lower than the initial resistance tolerance. Typical drifts, after 2000 h life test made under the 90'/30' conditions and at an ambient temperature of 25 °C, are:

OHMIC RANGE	RLP1	RLP2	RLP3	RLP6	RLP10	ΔR %/R %
P_n	1 W	2 W	3 W	5 W	10 W	0.3
0.5 P_n	0.5 W	1 W	1.5 W	2.5 W	5 W	0.15

POWER RATING



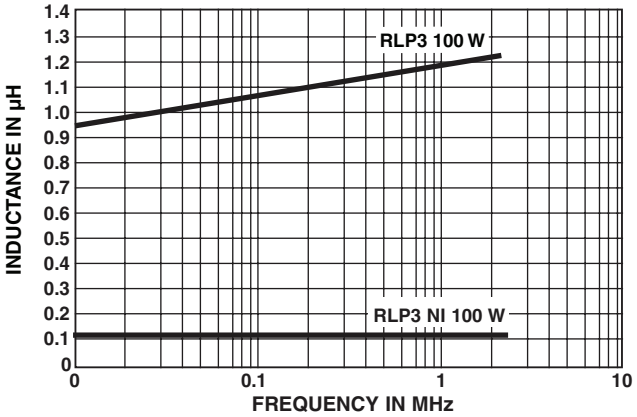
TEMPERATURE RISE



NON INDUCTIVE WINDING (NI)

Non inductive (Ayrton Perry) winding available.
Please consult Vishay Sfernice.

INDUCTANCE (Example)



PACKAGING (see datasheet 50032 and 50033)

Reel of 1000 units for RLP1, RLP2, RLP3
Ammopack of 500 units for RLP1, RLP2, RLP3
Bag of 100 units for RLP1, RLP2
Blister of 20 units for RLP3
Box of 50 units for RLP6, RLP10

MARKING

Vishay Sfernice trademark, series, style, CECC style (if applicable) nominal resistance (in Ω, kΩ), tolerance (in %), manufacturing date.

ORDERING INFORMATION

RLP	01	5R500	J	R15
MODEL	STYLE	OHMIC VALUE	TOLERANCE	PACKAGING

GLOBAL PART NUMBER INFORMATION

R	L	P	0	6	1	5	0	R	0	J	B	0	0

GLOBAL MODEL	SIZE	OPTION	OHMIC VALUE	TOLERANCE	PACKAGING	SPECIAL
RLP	**01** **02** **03** **06** **10**	**N** = Non inductive winding	The first four digits are significant figures and the last digit specifies the number of zeros to follow. R designates decimal point. **680R0** = 680 Ω **20301** = 20.3 kΩ **88R88** = 88.88 Ω ...	**B** = 0.1 % **c** = 0.2 % **D** = 0.5 % **F** = 1 % **G** = 2 % **J** = 5 %	**Standard Packaging:** Size 01 and 02: S14 = Bag, 100 pieces Size 03: B15 = Bulk, 20 pieces Size 06 and 10: B25 = Box, 50 pieces	As applicable **Ex** = MEX

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All product specifications and data are subject to change without notice.

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