



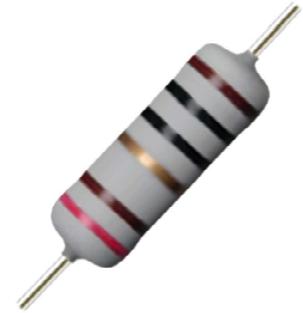
RXP SERIES

Flameproof Wire wound Resistors

Non-burning and Non-emitting type

FEATURES

- Advanced alloy technology
- Very low TCR: up to $\pm 25\text{ppm/K}$
- Excellent overall stability: Class 1.0
- Very low noise and voltage coefficient
- **Non-burning and emitting under any condition**
- Non-inductance winding available upon request
- Perfect pulse loading capability
- Compliant to RoHS directive 2011/65/EU
- Compliant to REACH (EC No. 1907/2006)) (last updated: 27/06/2018)



APPLICATIONS

- Safety priority request environment
- Current sensor for test and measuring instruments
- Power supply with high reliability
- Components burn-in devices
- Pulse load and in rush current protector
- Medical equipment
- Military electronics



1. PART NUMBER:

Part number of the wire wound resistor is identified by the series name, power rating, size code, tolerance, temperature coefficient, packing type and resistance value.

Example:

RXP	17	S	F	2	T	1R80
Series Name	Power Rating	Size Code	Resistance Tolerance	Temperature Coefficient	Packing type	Resistance Value

(1) Style: RXP SERIES

(2) Power Rating: 15=1/2W; 16=1.0W; 17=2.0W; 18=3.0W; 19=5.0W;

Size code: S: small size; M = tiny size

(3) Tolerance: D=±0.50%; F=±1.0%; J=±5.0%

(4) T.C.R.: 3 = ±25ppm/°C; 2 = ±50ppm/°C; 1 = ±100ppm/°C; 0=±250ppm/°C

(5) Packaging Type: B = BULK/BOX T = Tape on Box Packing
M = M type deforming; F = Vertical deforming

(6) Resistance Value for J tolerance: R47、1R0、100、101、102、

(7) Resistance Value for tighten tolerance: R470、1R00、10R0、1000、1001



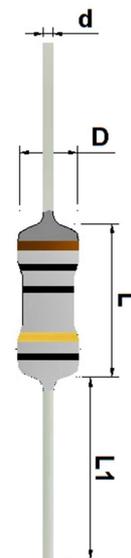
2. COLOR-CODE MARKING:

G($\pm 2.0\%$), J($\pm 5.0\%$) and K($\pm 10.0\%$) tolerance resistors may have 2 bands for significant figures. Tight tolerance resistors may have three bands for significant figures. One identification color code behind the tolerance ring is to distinguish it from the normal wire wound resistors.

Digital marking is available upon request.

The standard color code per EN 60062:2005 is as follows

COLOR	1st	2nd	Multiple	tolerance	TCR
black	0	0	1		
brown	1	1	10		100ppm/°C
red	2	2	10 ²	G($\pm 2.0\%$)	50ppm/°C
orange	3	3	10 ³		15ppm/°C
yellow	4	4	10 ⁴		25ppm/°C
green	5	5	10 ⁵		15ppm/°C
blue	6	6	10 ⁶		10ppm/°C
purple	7	7			5ppm/°C
gray	8	8			
white	9	9			
golden			10 ⁻¹	J($\pm 5.0\%$)	
silver			10 ⁻²	K($\pm 10\%$)	





3. ELECTRICAL CHARACTERISTICS

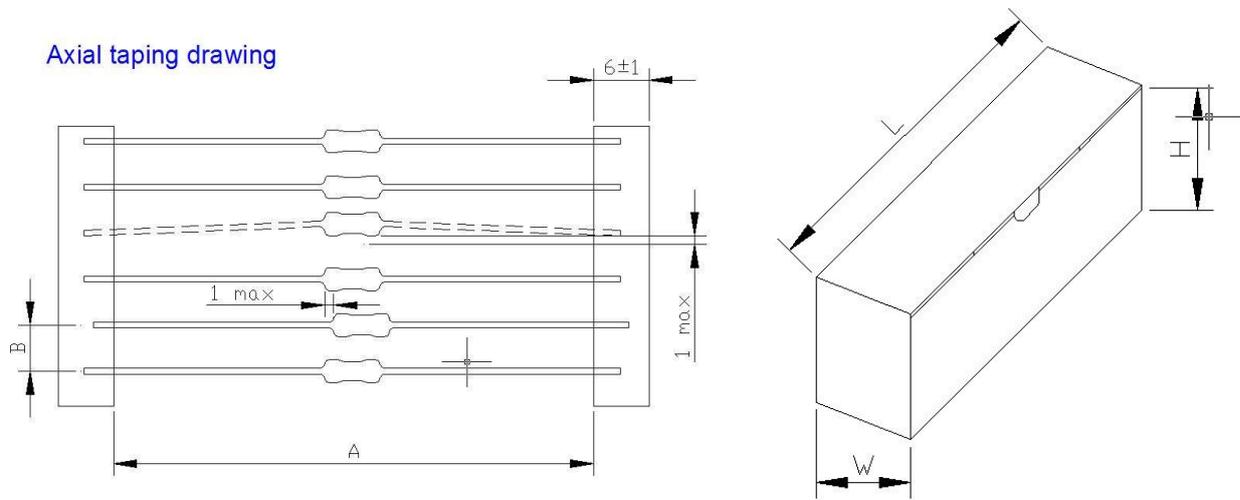
Type	Rated dissipation at 70°C	Resistance range		Dielectric withstanding voltage
		D(±0.5%); F(±1.0%);	F(±1.0%); J(±5.0%);	
Resistance tolerance				
Temperature coefficient		±25 ppm/°C; ±50 ppm/°C	±100 ppm/°C; ±250 ppm/°C;	
RXP15S	0.50W	1Ω to 100Ω	0.1Ω to 400Ω	300V
RXP16M	1.00W	1Ω to 100Ω	0.1Ω to 400Ω	300V
RXP16S	1.00W	1Ω to 100Ω	0.1Ω to 1kΩ	500V
RXP17M	2.00W	1Ω to 100Ω	0.1Ω to 1kΩ	500V
RXP17S	2.00W	1Ω to 200kΩ	0.1Ω to 1kΩ	700V
RXP18M	3.00W	1Ω to 200kΩ	0.1Ω to 1kΩ	700V
RXP18S	3.00W	1Ω to 470Ω	0.5Ω to 2.7kΩ	700V
RXP19M	5.00W	1Ω to 470Ω	0.5Ω to 4.7kΩ	700V
RXP19S	5.00W	1Ω to 470Ω	0.5Ω to 6.8kΩ	700V

- * Unless otherwise specified, all values are tested at the following condition:
Temperature: 21°C to 25°C; Relative humidity: 45% to 70%;
- * Rated Continuous Working Voltage (RCWV) = $\sqrt{\text{Power Rating} \times \text{Resistance Value}}$
- * Resistance out of range is available upon request.
- * Non-inductance wound is available on request.
- * Digital marking is available upon request.
- * Fusible function is available upon request.



4. Dimension and packing information

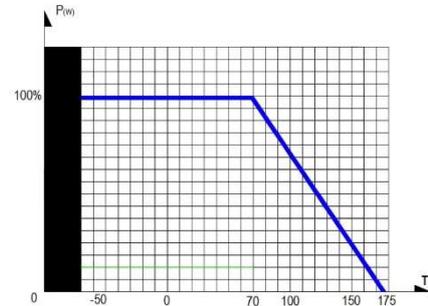
Type	L (mm)	D (mm)	d (mm)	Weight (mg)	TAPING		BOX (±10mm)			MPQ
					B (mm)	A (mm)	W (mm)	H (mm)	L (mm)	
RXP15S	5.9±0.5	2.5±0.5	0.60±0.5	250	5.0±0.3	52±1.0	75	100	255	5000
RXP16M	5.9±0.5	2.5±0.5	0.60±0.5	280	5.0±0.3	52±1.0	75	100	255	5000
RXP16S	9.0±1.0	3.3±0.5	0.60±0.5	490	5.0±0.3	52±1.0	75	100	255	2500
RXP17M	9.0±1.0	3.3±0.5	0.60±0.5	530	5.0±0.3	52±1.0	75	100	255	2500
RXP17S	11±1.0	4.5±0.8	0.75±0.5	790	5.0±0.5	52±1.0	75	75	255	1000
RXP18M	11±1.0	4.5±0.8	0.75±0.5	850	5.0±0.5	52±1.0	75	75	255	1000
RXP18S	15±1.0	5.5±1.0	0.75±0.5	1380	10±0.5	62±1.0	75	100	255	1000
RXP19M	15±1.0	5.5±1.0	0.75±0.5	1450	10±0.5	62±1.0	75	100	255	1000
RXP19S	18±1.0	7.0±1.0	0.75±0.5	2300	10±0.5	72±3.0	95	1000	255	500





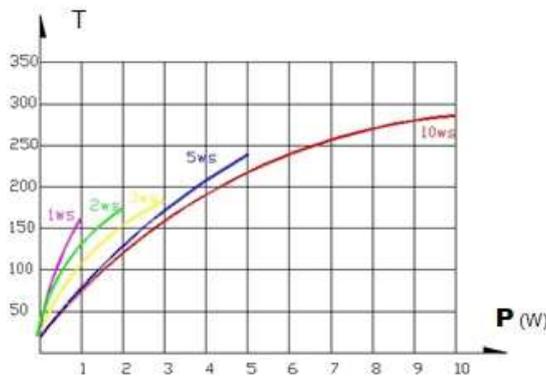
5. Derating curves

The power dissipation on the resistor generates a temperature rise against the local ambient, depending on the heat flow support of the printed-circuit board (thermal resistance). The rated dissipation applies only if the permitted film temperature is not exceeded. These resistors do not feature a limited lifetime when operated within the permissible limits. However, resistance value drift increasing over operating time may result in exceeding a limit acceptable to the specific application, thereby establishing a functional lifetime.



For resistors working at an ambience temperature of 70°C or above, the power rating shall be derated in accordance with the above curves.

6. Surface temperature of the resistors VS power





7. ENVIRONMENTAL CHARACTERISTICS

(1) Insulation Resistance

IEC 60115-1, 4.6: in V-block for 60 seconds, the test resistance should be high than 10,000 M Ohm.

(2) Dielectric Withstanding Voltage

IEC 60115-1 4.7: Place resistors in V-block for 60 Seconds, no breakdown or flashover.

(3) Temperature Coefficient Test

IEC 60115-1, 4.8: Test of resistors at room temperature and 60°C or 100°C on request above room temperature. Then measure the resistance. The Temperature Coefficient is calculated by the following equation and its value should be within the range requested.

$$\text{Resistor Temperature Coefficient} = \frac{R - R_0}{R_0} \times \frac{1}{t - t_0} \times 10^6$$

R = Resistance value under the testing temperature

R₀ = Resistance value at the room temperature

t = the 2nd testing temperature

t₀ = Room temperature

(4) Short Time Over Load Test

IEC60115-1 4.13: At 10 times rated voltage or 2 times the maximum working voltage whichever is lower for 5 seconds, the resistor should be free from defects. The change of the resistance value should be within $\pm(0.25\%+0.05 \Omega)$ as compared with the value before the test.

(5) Solderability

IEC 60115-1, 4.17: 235 \pm 5°C for 3 \pm 0.5 Seconds, there are at least 95% solder coverage on the termination.

(6) Resistance to soldering heat:

IEC 60115-1, 4.18: 260 \pm 3°C for 10 \pm 1 Seconds, immersed to a point 3 \pm 0.5mm from the body. The change of the resistance value should be within $\pm(0.25\%+0.05 \Omega)$ as compared with the value before the test.



(7) Climatic sequence

IEC 60115-1, 4.19: -55°C to Room Temp. to $+155^{\circ}\text{C}$ to Room Temp. (5 cycles). The change of the resistance value shall be within $\pm(5.0\%+0.05\ \Omega)$ as compared with the value before the test.

(8) Damp Heat Steady State

IEC 60115-1, 4.24: $40\pm 2^{\circ}\text{C}$, 90-95% RH for 56 days, loaded with 0.1 times RCWV or the maximum working voltage whichever is lower. The change of the resistance value should be within $\pm(5.0\%+0.05\ \Omega)$ for normal tolerance as compared with the value before the test.

(9) Load Life Test

IEC 60115-1, 4.25: $70\pm 2^{\circ}\text{C}$ at RCWV or the maximum working voltage whichever is lower for 1,000+48/-0 Hr. (1.5Hr. on, 0.5Hr. off). The resistors shall be arranged not much effected mutually by the temperature of others and the excessive ventilation shall not be performed. The change of the resistance value should be within $\pm(5.0\%+0.05\ \Omega)$ as compared with the value before the test.

(10) Accidental Overload Test

IEC 60115-1, 4.26: 4 times RCWV for 1 Minute. No evidence of flaming or arcing

(11) Resistance to Solvent

IEC 60115-1, 4.30: IPA for 5 ± 0.5 Min. with ultrasonic. No deterioration of coating and color code occurred.

(12) High voltage high pulse overload

Apply 10 pulses with 10 times rated voltage to the resistor, the pulses parameter is $10\ \mu\text{s}/700\ \mu\text{s}$. The change of the resistance shall be within $\pm(5.0\%+0.05\ \Omega)$ for normal tolerance as compared with the value before the load.

(13) Accidental shortage voltage overload

The resistor coating will not burn or emit incandescent particles under any condition of applied temperature or power overload



Disclaimer

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