RXM SERIES

PRECISION WIREWOUND MELF RESISTORS

Feature

· Advanced alloy technology
· Exceptionally low TCR: up to ±10ppm/℃.
· Tolerance up to ±0.05%
· Excellent overall stability: Class 0.5%
· Very low noise and voltage coefficient
· Non-inductance winding available under request
· Perfect pulse loading capability
· Compliant to RoHS directive 2011/65/EU
· Compliant to REACH (EC No. 1907/2006)) (last updated: 27/06/2018)

Application

· Current sensor for test and measuring instruments
· Power supply with high reliability
· Components burn-in devices
· Pulse load and in rush current protectors
· Medical equipment
· Military electronics

1. PRODUCT: WIRE WOUND MELF RESISTORS

2. PART NUMBER: Part number is identified by the series name, power rating and size code, tolerance, temperature coefficient, packing type and resistance value. Example：

RXM	16M	0207	B	6	T	5101
Series Name	Power rating	Size code	Tolerance	Temperature Coefficient	Packing Type	Resistance Value

(1) Series name: RXM SERIES PRECISION WIRE WOUND MELF RESISTORS

(2) Power Rating: 73P=0.4W; 74P=0.6W; 16M=1.0W; 17M=2.0W; 18M=3.0W

(3) Size code: DIN: 0204; DIN: 0207; DIN0411; DIN0617

(4) Tolerance: W=±0.05%; B=±0.1%; C=±0.25%; D=±0.5%; F=±1.0%; J=5.0%

(5) T.C.R.: 6= 10ppm/℃; 5= 15ppm/℃; 3= 25ppm/℃; 2= 50ppm/℃;
1= 100ppm/℃; 0= >100 ppm/℃ and <250ppm/℃

(6) Packaging Type: B=Bulk/Box; T=Tape/Box (Reel is available upon request)

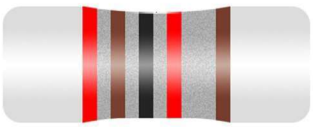
3. Resistance Value: 22K5(2252),2K15(2151),120R(1200),10R(10R0),1.5R(1R50)

4. Construction of the resistors:

Alloy wire with exceptionally low temperature coefficient gently wounded on the high-grade ceramic cores or highgrade glass fiber rods.
Double cap structure is also used for better welding process and quality.

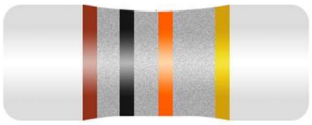
5. COLOR BAND-CODE:

Five color band cods for tight tolerances



颜色	1st	2nd	3rd	倍率	精度
黑色	0	0	0	1	
棕色	1	1	1	10	F(±1.0%)
红色	2	2	2	10^2	G(±2.0%)
橙色	3	3	3	10^3	
黄色	4	4	4	10^4	
绿色	5	5	5	10^5	D(±0.50%)
蓝色	6	6	6	10^6	C(±0.25%)
紫色	7	7	7		B(±0.10%)
灰色	8	8	8		
白色	9	9	9		
金色				10^{-1}	J(±5.0%)
银色				10^{-2}	K(±10%)

Four color band cods for normal tolerances



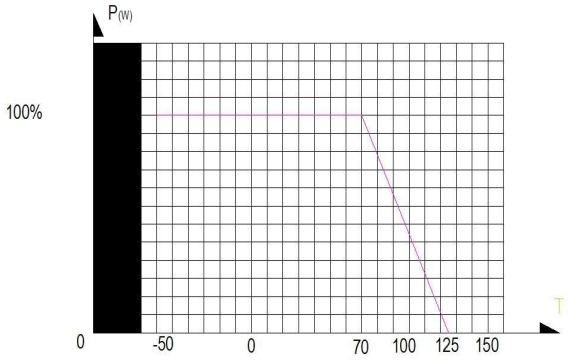
COLOR	1st	2nd	Multiple	tolerance
black	0	0	1	
brown	1	1	10	
red	2	2	10^2	G(±2.0%)
orange	3	3	10^3	
yellow	4	4	10^4	
green	5	5	10^5	
blue	6	6	10^6	
purple	7	7		
gray	8	8		
white	9	9		
golden			10^{-1}	J(±5.0%)
silver			10^{-2}	K(±10%)

Digital marking is available upon request.

6. Derating curves

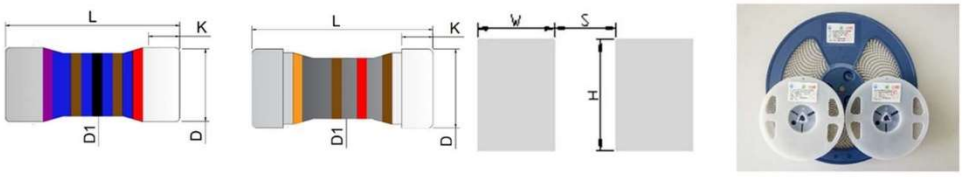
The power dissipation on the resistor generates a temperature rise against the local ambient, depending on the heat flow support of the printed-circuit board (thermal resistance). The rated dissipation applies only if the permitted film temperature is not exceeded. These resistors do not feature a limited 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 MELF resistors working at an ambiance temperature of 70℃ or above, the power rating shall be derated in accordance with the above curves.



7. ELECTRICAL CHARACTERISTICS

Type		RXM74P	RXM16M	RXM17M	RXM18M	RXM19M		型号
Metric type		DIN: 0207	DIN: 0207	DIN: 0411	DIN: 0617	DIN: 0723		德国工业标准型号
Standard applied		Q\SLC024-2014						技术标准
Power rating		0.5W	1W	2W	3W	5W		额定功率
Resistance range	from	0.1Ω	0.1Ω	0.1Ω	0.1Ω	0.1Ω	从	阻值范围
	to	1kΩ	1kΩ	6.8kΩ	6.8kΩ	10kΩ	到	
Resistance tolerance		C(±0.25%); D(±0.5%) F(±1%); G(±2%); J(±5%)						精度
Temperature coefficient	ppm/°C	C6(±10); C5(±15); C3(±25); C2(±50); C1(±100); C0(±250);					ppm/°C	温度系数
Dimension(normal)	±0.3mm	L=5.9;D=2.2		L=8.6;D=3.0	L=10.7;D=4.2	L=14.7;D=4.6	±0.3mm	（单帽）外型尺寸
Dimension(Double cap)	±0.3mm	L=6.3;D=2.5		L=9.1;D=3.6			±0.3mm	（双帽）外型尺寸
	(mm)	K≥0.8;D_1≥D-0.2		K≥1.0;D_1≥D-0.2	K≥1.2;D_1≥D-0.2	K≥1.2;D_1≥D-0.2	(mm)	
Soldering pad(recommended)	(mm)	S=2.8;W=3;H=3		S=5.6;W=4;H=4	S=7.2;W=4;H=5	S=10;W=4;H=5.5	(mm)	建议焊盘尺寸
Outlooks								外观尺寸



* Unless otherwise specified, all values are tested at the following condition:
Temperature: 21℃ to 25℃; Relative humidity: 45% to 70%

* Rated Continuous Working Voltage (RCWV)= $\sqrt{\text{Power Rating} \quad \text{Resistance Value}}$

* Resistance value out of range is available on request.

* The post high temperature treatment after final tin plating is strictly controlled by our production procedure to minimize the tin whisker phenomenon

8. ENVIRONMENTAL CHARACTERISTICS

(1) Temperature Coefficient Test

IEC 60115-1, 4.8: Test of resistors at room temperature and 60°C (or 100°C upon 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.

$$\text{Resistor Temperature Coefficient} \quad \frac{R \quad R^0}{R_0} \quad \frac{1}{t \quad t_0} \quad 10^{6}$$

R = Resistance value under the testing temperature

R_0 = Resistance value at the room temperature

t = the 2nd testing temperature t_0 = Room temperature

(2) Short Time over Load Test

IEC60115-1 4.13: At 2.5 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 ±(0.25%+0.05Ω) as compared with the value before the test.

(3) Solderability

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

(4) Resistance to soldering heat:

IEC 60115-1, 4.18: 260±3°C for 10±1 Seconds, immersed the terminals of resistor one by one into the solder pot. The change of the resistance value should be within ±(0.15%+0.1Ω) as compared with the value before the test.

(5) Damp heat, steady state

IEC 60115-1, 4.24: 40±2°C, 90-95% RH for 1000±48 hours. loaded with 0.1 times RCWV or the maximum working voltage whichever is lower. The change of the resistance value should be within ± (0.5%+0.05Ω) for tight tolerance and ±(5.0%+0.05 Ω) for normal tolerance as compared with the value before the test.as compared with the value before the load.

(6) Climatic sequence

IEC 60115-1, 4.23: Cycling Conditions:

dry heat	UCT; 16 h
damp heat, cyclic	55℃;24h; ≥90% RH
	1 cycle;
cold	LCT; 2 h
low air pressure	8.5 kPa 25±10℃ 2h;
damp heat cyclic	55℃;24h; ≥90% RH ;
	5 cycles
	LCT=-55℃;
	UCT=125℃

Apply RCWV or the maximum working voltage whichever is lower for 1 min. The change of the resistance value should be within ±(0.5%+0.05Ω) as compared with the value before the load.

(7) Load Life Test 1000 hours

IEC 60115-1, 4.25: 70±2°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 ±(0.5%+0.05Ω) for tight tolerance and ±(5.0%+0.05 Ω) for normal tolerance as compared with the value before the load.

(8) Accidental Overload Test

IEC 60115-1, 4.26: 4 times RCWV or 2 times the maximum working voltage whichever is lower for 1 Minute. No evidence of flaming or arcing.

(9) Component solvent resistance

IEC 60115-1, 4.29: Isopropyl alcohol; 50 °C; method 2. No visible damage.

(10) Solvent resistance of marking

IEC 60115-1, 4.30: Isopropyl alcohol; 50 °C; method 1, toothbrush. Marking legible; no visible damage

(11) Flammability

IEC 60115-1, 4.35: IEC 60695-11-5 (1), needle flame test; 10 s. No burning after 30 seconds.

(12) Damp heat, steady state, accelerated

IEC 60115-1, 4.37: (85 ± 2)°C, (85 ± 5)% RH; U = 0.3 x RCWV or U = 0.3 x U_{max} or 100V whichever is lower for 1000 hours. The change of the resistance value should be within ±(0.5%+0.05Ω) for tight tolerance and ±(5.0%+0.05 Ω) for normal tolerance as compared with the value before the load.

(13) Electrostatic discharge (Human Body Model)

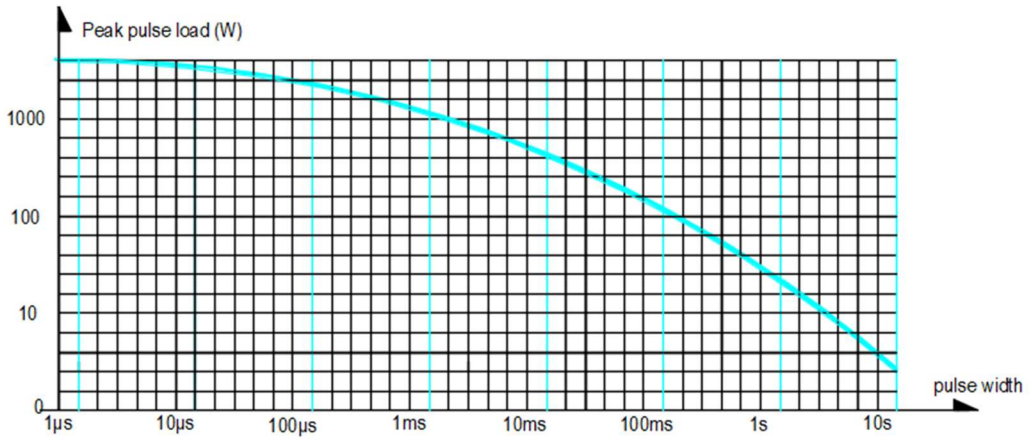
IEC 60115-1, 4.38: IEC 61340-3-1 (1); 3 pos. + 3 neg. discharges.
RXM74P0207 and RXM16M0207: 3kV; RXM17M0411: 5kV
The change of the resistance value should be within ±(0.50%+0.05Ω) as compared with the value before the load.

(14) Surge immunity

IEC 60115-1 4.27: 10 pulses of 10/700μs at 10x rated voltage (not over 2x max. working voltage) with interval of 60 sec, the change of the resistance value should be within ±(0.50%+0.05Ω) as compared with the value before the load.

IEC 60115-1 4.27: 5 pulses of 1.2/50μs at 80 times rated voltage, the maximum voltage applied should be less than 8000V, the change of the resistance value should be within ±(1.0%+0.05Ω) as compared with the value before the load.

(15) Single pulse load curve



Wire wound resistor is capable of quite high pulse loading with the peak pulse load power curve shown in the draft.

Disclaimer

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