THUNDER PRECISION RESISTORS

BS EN ISO9001:2000 FM51927

HIGH PRECISION RESISTORS
COATED TYPE

RJM73, RJM74
RJM16, RJM17, RJM18

FEATURES

- Advanced thin film technology
- **Low TCR: lower than ±5ppm/℃.**
- **Tolerance up to ±0.05%**
- Power dissipation rating up to 3W
- Excellent overall stability: **Class 0.10**
- Wide resistance range: **0.1Ω to 22MΩ**
- **very high ratio of performance to price**

APPLICATIONS

- Test and measuring instruments
- Sensors
- Industrial electronics
- Medical equipments.
- Military electronics

DESCRIPTION

RJM series professional metal film high precision MELF type resistors are the perfect choice for most fields of modern professional electronics where high precision, low temperature coefficient and high stability is of major concern as well as very high ratio of performance to price. It also used in a lot of power supply to meet the requirement of high reliability.

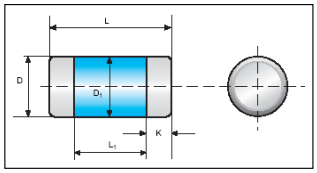
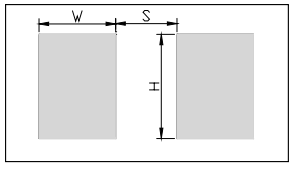
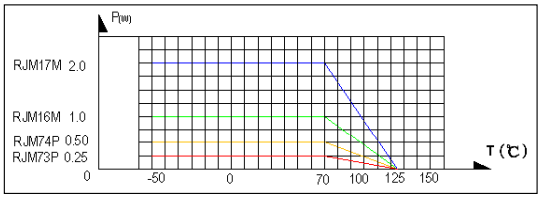
PRODUCTION

Production production is strictly controlled and and follows and extensive set of instructions established in production procedure for reproducibility. A homogeneous film of metal alloy is deposited on a high grade ceramic rods **(80%~96% AL_2O_3)** and conditioned to achieve the desired temperature coefficient and stability. A professional laser is used for high resistance to not only achieve the target value but also perfect electronics performance by smoothly cutting a helical groove in the resistance layer on the ceramic rods. The resistor elements are covered by a protective coating designed for electrical, mechanical and climatic protection.The leads are covered with a final pure tin plating for keeping perfect solderability and wonderful outlooking. Four or five color code rings designate the resistance value and tolerance in accordance with IEC 60062.

TEST

The resistors are tested in accordance with **SJ/T51929** which is equivalent to **MIL-R-10509F** which refers to **MIL-STD-202** or **CECC 40401-803** which refers to **EN 140000 (IEC60115) or DIN44061.**

QUICK REFERENCE DATA

Type		RJM73P	RJM74S	RJM74P	RJM16M	RJM17M	RJM18M
Metric type		DIN: 0204	DIN: 0207			DIN: 0411	
Resistance range		0.1Ω to 10MΩ	0.1Ω to 22MΩ			0.1Ω to 22MΩ	
Resistance tolerance	(%)	A5(±0.05); B(±0.10); C(±0.25); D(±0.5); F(±1); J(±5%)					
Temperature coefficient	(ppm/℃)	C7(±5); C6(±10); C5(±15); C3(±25); C2(±50)					
Climatic category	(LCT/UCT/days)	55/125/56					
Rated dissipation, P_{70}		0.25W	0.25W	0.50W	1.0W	2.0W	3.0W
Operating voltage U_{max}		250V	250V	300V	350V	400V	450V
Temperature range		-55℃ to 125℃					
Insulation voltage		300V	500V	600V	700V	800V	900V
Insulation resistance		1G					
Dimension	±0.2mm	L=3.5;L1=1.6; D=1.3	L=5.7; L1=3.5; D=2.1		L=6.0; L1=3.9; D=2.1	L=8.7; L1=6.2; D=3.1	L=11.8; L1=8.8; D=3.6
		K_{min}=0.8; D1=D+0/D-0.25	Kmin=1.0; D1=D+0 / D-0.5		Kmin=1.2;D1=D+0/D-0.5	D1=D+0/D-0.5; Kmin=1.5	D1=D+0/D-0.5; Kmin=1.6
Soldering bath (recomanded)	(mm)	S=1.6; W=2.5; H=2.5	S=2.6; W=2.5; H=2.5		S=2.8; W=2.8; H=2.8	S=5.6; W=3.2; H=3.8	S=8.2; W=4; H=4.5
Outlines							
Derating curve							

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TEST PROCEDURE AND REQUIREMENTS

IEC 60115-1 CLAUSE	IEC 60068-2 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS PERMISSIBLE CHANGE (Δ R/R)		
4.5	—	resistance	(%)	±0.05;±0.10;±0.25;±0.5;±1.0; ±5.0		
4.8	—	temperature coefficient	at 25/ 85/ 25℃ or under request at 25/ -55/ 25℃ or at 25 / 125 /25℃	±5ppm/℃; ±10ppm/℃; ±15ppm/℃; ±25ppm/℃; ±50ppm/℃; ±100ppm/℃		
4.13	—	short time overload;	room temperature; $U=\sqrt{2.5\times P_{70}\times R}$ ⩽ $2U_{max}$; 5s	±0.10%+0.05Ω for normal tol. ±0.05%+0.05Ω for high precision ±0.025%+0.05Ω for ultra high precision	±0.25%+0.05Ω for normal tol. ±0.10%+0.05Ω for high precision ±0.05%+0.05Ω for ultra high precision	±0.25%+0.05Ω for normal tol. ±0.10%+0.05Ω for high precision ±0.05%+0.05Ω for ultra high precision
4.17.2	58 (Td)	solderability	solder bath method; 215℃; 3s	good tinning ⩾95% covered; no visible damage		
4.18.2	58 (Td)	resistance to soldering heat	solder bath method; 260 ±5℃; 5 ± 1s	±0.25%+0.05Ω for normal tol. ±0.10%+0.05Ω for high precision ±0.025%+0.05Ω for ultra high precision	±0.50%+0.05Ω for normal tol. ±0.25%+0.05Ω for high precision ±0.05%+0.05Ω for ultra high precision	±0.50%+0.05Ω for normal tol. ±0.25%+0.05Ω for high precision ±0.05%+0.05Ω for ultra high precision
4.19	14 (Na)	rapid change of temperature	30 minutes at -55℃; 30 minutes at +155℃; 5 cycles	±0.25%+0.05Ω for normal tol. ±0.10%+0.05Ω for high precision ±0.025%+0.05Ω for ultra high precision	±0.50%+0.05Ω for normal tol. ±0.25%+0.05Ω for high precision ±0.05%+0.05Ω for ultra high precision	±0.50%+0.05Ω for normal tol. ±0.25%+0.05Ω for high precision ±0.05%+0.05Ω for ultra high precision
4.22	6(B4)	vibration	6h 10 to 2000Hz 1.5mm or 196 m/s	±0.25%+0.05Ω for normal tol. ±0.10%+0.05Ω for high precision ±0.025%+0.05Ω for ultra high precision	±0.50%+0.05Ω for normal tol. ±0.25%+0.05Ω for high precision ±0.05%+0.05Ω for ultra high precision	±0.50%+0.05Ω for normal tol. ±0.25%+0.05Ω for high precision ±0.05%+0.05Ω for ultra high precision
4.23		climatic sequence;				
4.23.2	2(Ba)	dry heat	UCT; 16 h			
4.23.3	30(Db)	damp heat,	55℃;24h; ⩾90% RH			
		cyclic	1 cycle;			
4.23.4	1 (Aa)	cold	LCT; 2 h			
4.23.5	13 (M)	low air pressure	8.5 kPa			
			25±10℃ 2h;	±0.25%+0.05Ω for normal tol. ±0.10%+0.05Ω for high precision ±0.05%+0.05Ω for ultra high precision	±0.50%+0.05Ω for normal tol. ±0.25%+0.05Ω for high precision ±0.1%+0.05Ω for ultra high precision	±0.50%+0.05Ω for normal tol. ±0.25%+0.05Ω for high precision ±0.1%+0.05Ω for ultra high precision
4.23.6	30(Db)	damp heat	55℃;24h; ⩾90% RH ;			
		cyclic	5 cycles			
			LCT=-55℃;			
			UCT=125℃			
4.24	3(Ca)	damp heat, steady state	40±2℃;56 days 93 +2/-3% RH	±0.25%+0.05Ω for normal tol. ±0.10%+0.05Ω for high precision ±0.05%+0.05Ω for ultra high precision	±0.50%+0.05Ω for normal tol. ±0.25%+0.05Ω for high precision ±0.1%+0.05Ω for ultra high precision	±0.50%+0.05Ω for normal tol. ±0.25%+0.05Ω for high precision ±0.1%+0.05Ω for ultra high precision
4.25.1	—	endurance;	$U=\sqrt{P_{70}\times R}$	±0.25%+0.05Ω for normal tol. ±0.10%+0.05Ω for high precision ±0.05%+0.05Ω for ultra high precision	±0.50%+0.05Ω for normal tol. ±0.25%+0.05Ω for high precision ±0.1%+0.05Ω for ultra high precision	±0.50%+0.05Ω for normal tol. ±0.25%+0.05Ω for high precision ±0.1%+0.05Ω for ultra high precision
	—	standard operation mode	⩽ U_{max}; 1.5 h on; 0.5h off; 70℃; 1000 h			
4.29	45 (XA)	component solvent resistance	isopropyl alcohol; +23℃; toothbrush method	marking legible; no visible damage		