炬鹿科技有限公司
RIDEE TECH COMPANY LIMITED

Revision Date : 2023 / 07 / 03

APPROVAL SHEET

Product Name : Metal Film MELF Resistor

Part No. : MMR Series

Description : Size 0204 / 0207

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For more contact information, please refer to our website: www.rideetech.com

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Metal Film MELF Resistor - MMR Series

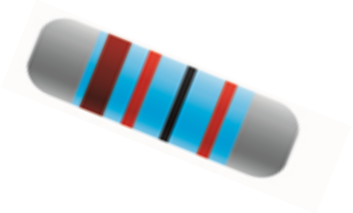
■ Applications

— Medical Equipment

— Telecommunication Equipment

— Industrial Process Control Systems.

— Electronic Energy Meter



■ Features

— Excellent heat dissipation

— Low noise characteristics

— Free direction for mounting due to cylindrical design

— Tight tolerance down to ±0.1%

— Extremely low TCR down to ±5 PPM/°C

■ Part Number Explanation

MMR	0207	F	100K	T	C	S
Product	**Size (Inch)**	**Tolerance**	**Resistance**	**Packaging**	**TCR (PPM/℃)**	**Functional**
Metal Film MELF Resistors	0204 0207	B=±0.1% C=±0.25% D=±0.5% F=±1%	100R=100 10K=10,000 1M=1,000,000	T=Taped & Reeled	S=±5 B=±10 N=±15 C= ± 25 D= ± 50 E= ±100	S=Standard P=High Power

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■ Standard Electrical Specifications

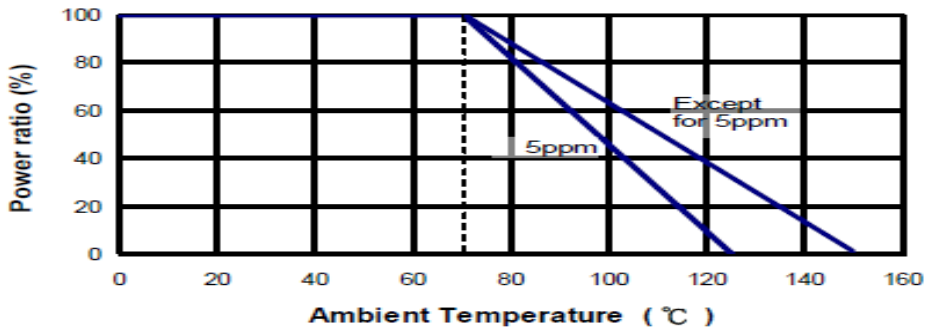
Item / Type	Power Rating at 70°C	Operating Temp. Range	Max. Operating Voltage	Max. Overload Voltage	Resistance Range				TCR (PPM/°C)
					±0.1%	±0.25%	±0.5%	±1%	
0204	0.25W	-55~+125℃	200V	400V	10Ω-332KΩ		-		±5
		-55~+155℃			10Ω-20KΩ				±10
					10Ω-300KΩ				±15
					10Ω-1MΩ			1Ω-4.7MΩ	±25
					10Ω-1MΩ	1Ω-1MΩ		0.2Ω-10MΩ	±50
					-			0.1Ω-10MΩ	±100
0207	0.5W	-55~+125℃	300V	600V	10Ω-332KΩ		-		±5
		-55~+155℃			10Ω-20KΩ				±10
					10Ω-300KΩ				±15
					10Ω-1MΩ			1Ω-4.7MΩ	±25
					10Ω-1MΩ	1Ω-1MΩ		0.2Ω-10MΩ	±50
					-			0.1Ω-10MΩ	±100

■ High Power Rating Electrical Specifications

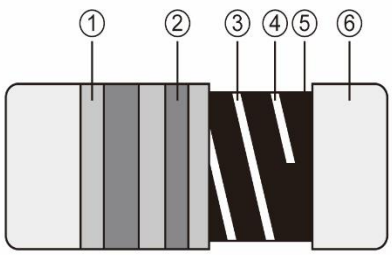
Itam / Type	Power Rating at 70°C	Operating Temp. Range	Max. Operating Voltage	Max. Overload Voltage	Resistance Range				TCR (PPM/°C)
					±0.1%	±0.25%	±0.5%	±1%	
0204	0.4W	-55~+125℃	200V	400V	10Ω-332KΩ		-		±5
		-55~+155℃			10Ω-10KΩ				±15
					10Ω-1MΩ			1Ω-3.4MΩ	±25
					10Ω-1MΩ	1Ω-1MΩ		0.2Ω-1MΩ	±50
					-			0.1Ω-1MΩ	±100
0207	1W	-55~+125℃	350V	700V	10Ω-332KΩ		-		±5
		-55~+155℃			10Ω-100KΩ				±15
					10Ω-1MΩ			1Ω-3.4MΩ	±25
					10Ω-1MΩ	1Ω-1MΩ		0.2Ω-10MΩ	±50
					-			0.1Ω-10MΩ	±100

Note : Below or over this resistance on request.

■ Derating Curve

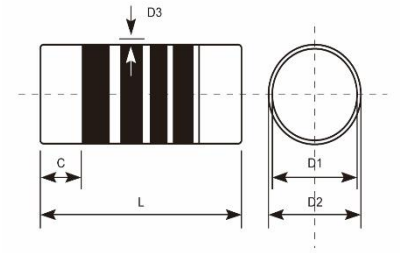


■ Construction



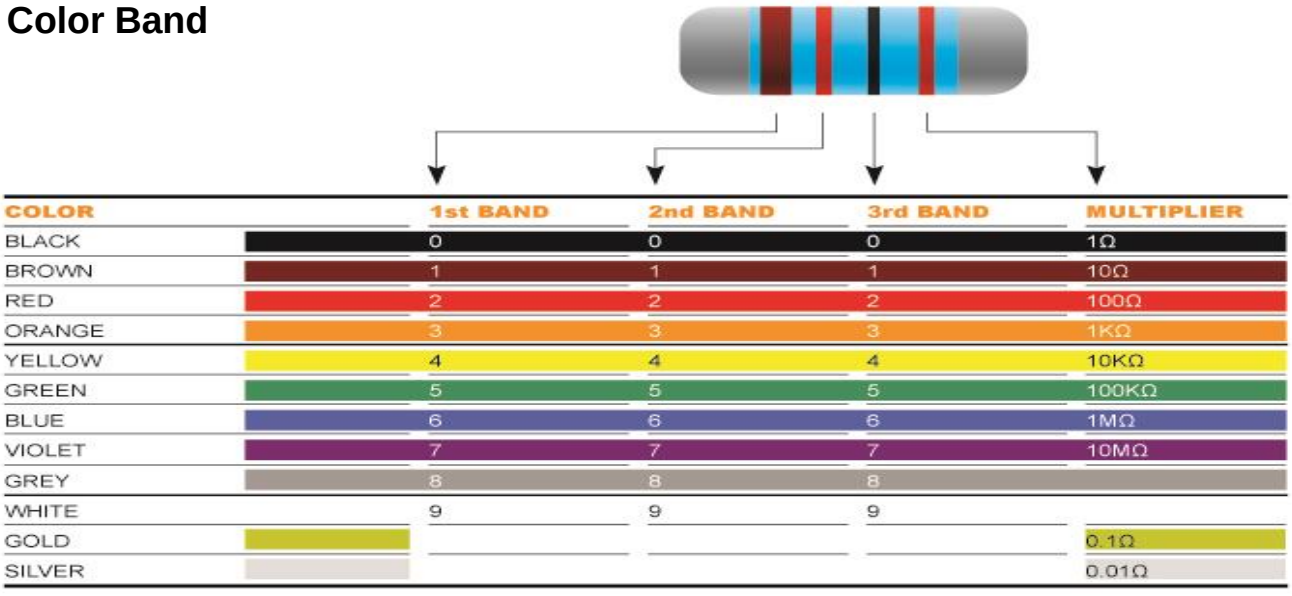
Item		Material
①	Insulation Coating	Epoxy Insulation (Color: Blue&Tan)
②	Marking	Epoxy Resin
③	Cutting Line	-
④	Ceramic Core	Aluminum Material
⑤	Resistive Film	Metal Film
⑥	Terminal	Terminal Material : Fe/Cu/Sn

■ Dimension



Size code	Dimension (mm)				
	L	D1	D2 Max	D3 Max	C Min
0204	3.5±0.2	1.40	1.55	0.10	0.50
0207	5.9±0.2	2.20	2.40	0.15	0.50

■ Color Band



The tolerance 0.1%, 0.25% & 0.5% with 4 bands for E-192 series.
1% with 4 bands for E96 & E24 series.

■ Environmental characteristics

No.	Test Item	Performance Requirements	Test Methods (JIS-C-5201-1)
1	T.C.R	Within specified T.C.R	+25℃/-55℃ and +25℃/+125℃
2	Solderability	More than 95% of the total area of the electrode part shall be covered with new solder	Temperature of solder: 235±5℃ Dipping time: 3±0.5 sec
3	Resistance to solvent	Epoxy Insulation coating can not be peeled	There are 3 circles, each circle takes 1 min.
4.	Resistance to soldering heat	Based on the Iron cap loose standard, the change of the resistance value shall be within ±(0.5%+0.05Ω) ±(0.2%+0.05Ω)tol.0.1%~0.5%	Temperature: 260±5℃ Dipping time:10±1 sec
5.	Short time overload	The change of the resistance value shall be within ±(0.5%+0.05Ω) ±(0.25%+0.05Ω) tol.0.1%~0.5%	V=√R×P×2.5 , 5 sec. V= Rated Voltage R=Resistance Value P=Power Rating
6.	Humidity resistance	The change of the resistance value shall be within ±(1%+0.05Ω)	40℃±2℃ , 90%~95% RH , 1.5hr ON / 0.5hr OFF cycle , total test 1000hr.
7.	Load Life test	The change of the resistance value shall be within ±(0.5%+0.05Ω)	Constant temperature chamber of 70℃±2℃, DC 1.5hr ON / 0.5hr OFF cycle, applied continuously for 1,000±48hrs

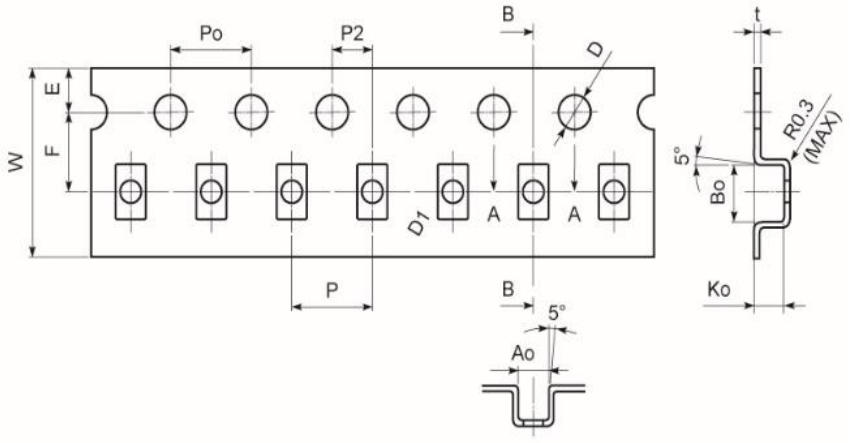
■ Standard Packing Quantity

Size code	Tape/Reel Q'ty (pcs)			Bulk Q'ty (pcs)	Weight (g)	
	Reel	Case	Carton	Bag	Reel/pc	Net/Kpcs
0204	3,000	15,000	180,000	5,000	390.5	18
0207	2,000	8,000	96,000	5,000	383.5	155

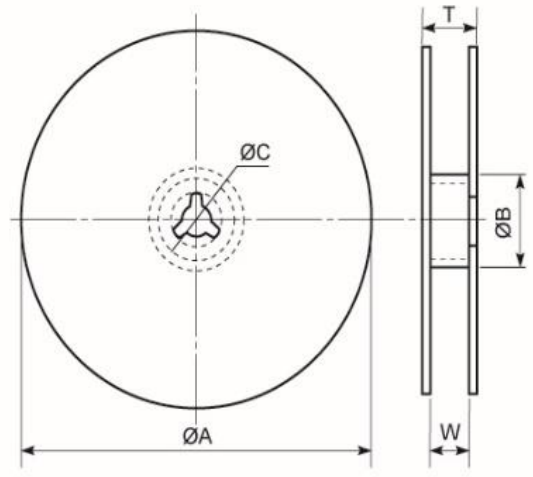
■ Embossed Taping & Tape/Reel dimension

Type	W	P	E	F	D	D_1	P_0	P_2	A_0	B_0	K_0	t
0204	8±0.1	4±0.1	1.75±0.1	3.5±0.05	1.5±0.1	1.0±0.1	4±0.1	2±0.1	1.6±0.1	3.70±0.1	1.65±0.1	0.22±0.05
0207	12±0.1	4±0.1	1.75±0.1	5.5±0.05	1.5±0.1	1.5±0.1	4±0.1	2±0.1	2.4±0.1	6.05±0.1	2.50±0.1	0.30±0.05

Type	ØA	ØB	ØC	W	T
0204	178±1	60.0±0.5	13.0±0.2	9.0±0.5	12.0±0.15
0207	178±1	60.0±0.5	13.0±0.5	13.2±0.5	16.0±0.20



▲ Embossed taping dimension



▲ Tape/Reel dimension

■ Caution

1 Storage and usage metho

2 Humidity gives damage to cap solderability, therefore, please keep environment.
Temperature : +5℃~+40℃ / Humidity : 55%~75%RH

3 Please follow the instruction to keep the material when it is unpacked.

4 When ambient temperature exceeds a rated ambient temperature, the resistance shall be applied on the derating curve by derating the load power

5 Please avoid join many resistors in series or parallel when apply high voltage or high electric current.

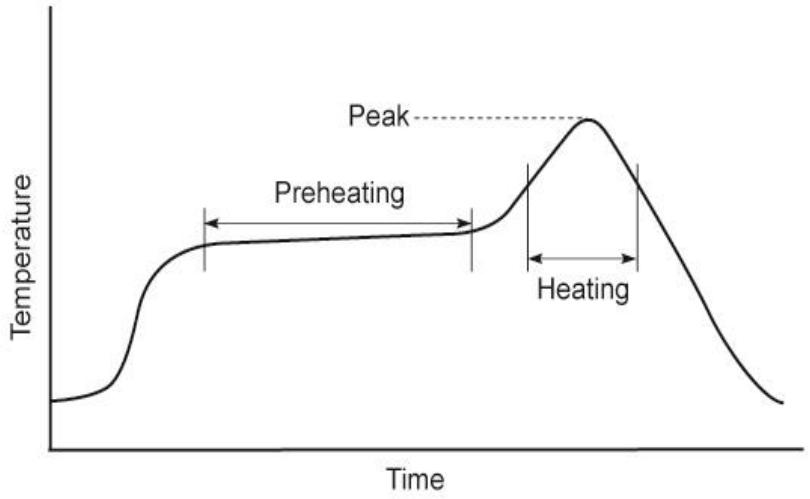
6 Molding products by using regin might bring out resistance value change. Please keep away from Molding.

7 This products meet the RoHS Compliant.

■ Soldering :

We recommend the following condition to keep products performance.

Conditions for reflow



Reflow soldering (lead-free)

Status	Temperature	Time
Preheating	180℃ Max	120 sec. Max
Heating	220℃ Max	60 sec. Max
Peak	260℃ Max	3 sec. Max

Flow soldering (lead-free)
Temperature : 260℃ Max
Time : 10 sec. Max