



APPROVAL SHEET

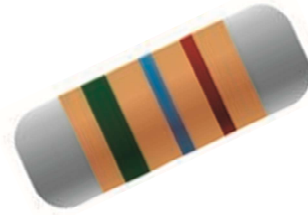
Product Name : Carbon Film MELF Resistor
Part No. : MCR
Description : Size 0204 / 0207 / 0309

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

Carbon Film MELF Resistors - MCR Series

■ Applications

- Telecommunication
- Industrial Electronics
- Consumer Product



■ Features

- Excellent heat dissipation
- Free direction for mounting due to cylindrical design
- Electrodes strength is higher than flat chip resistors
- Low noise characteristics
- Suitable for reflow, flow and iron soldering
- (Pb) Lead (Pb)-free and RoHS complian

■ Part Number Explanation

MCR	0207	U	G	1003	T	S
Product	Size (Inch)	Rated Power	Tolerance	Resistance	Packaging	Functional
Carbon Film MELF Resistors	0204 0207 0309	S= 2W T= 1W U= 0.5W V= 0.25W	G= $\pm 2\%$ J = $\pm 5\%$	100 Ω =100R 10K Ω =1002 1M Ω =1004	B=Bulk T=Taped&Reeled	S= Standard P= High Power

■ Standard Electrical Specifications

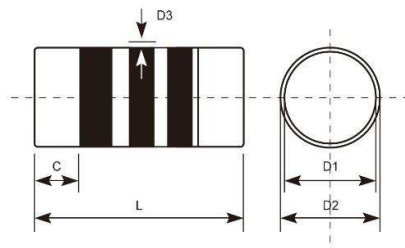
Type	Power Rating at 70°C	Max. RCWV	Max. Overload Voltage	Tolerance	Resistance Range
MCR0204	0.25W	200V	400V	±2、±5	0.22Ω – 0.99Ω
					1Ω – 10MΩ
MCR0207	0.25W	250V	500V		0.22Ω – 0.99Ω
					1Ω – 10MΩ
	0.5W				0.22Ω – 0.99Ω
					1Ω – 10MΩ
MCR0309	0.5W	350V	700V		0.22Ω – 0.99Ω
					1Ω – 10MΩ

■ High Power Rating Electrical Specification

Type	Power Rating at 70°C	Max. RCWV	Max. Overload Voltage	Tolerance	Resistance Range
MCR0207	1W	350V	700V	±2、±5	0.22Ω – 0.99Ω
					1Ω – 10MΩ
MCR0309	1W				0.22Ω – 0.99Ω
					1Ω – 10MΩ
	2W				0.22Ω – 0.99Ω
					1Ω – 10MΩ

Note : customized resistance is available upon request.

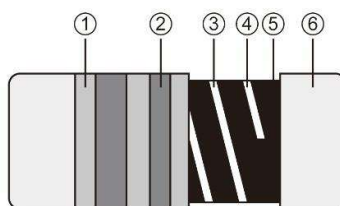
■ Dimensions



Unit : mm

Type	L	D1	D2 Max	D3 Max	C Min
RTL0204	3.5±0.2	1.12	1.50	0.10	0.5
RTL0207	5.9±0.2	1.72	2.40	0.15	1.00
RTL0309	8.5±0.2	2.55	3.40	0.30	1.50

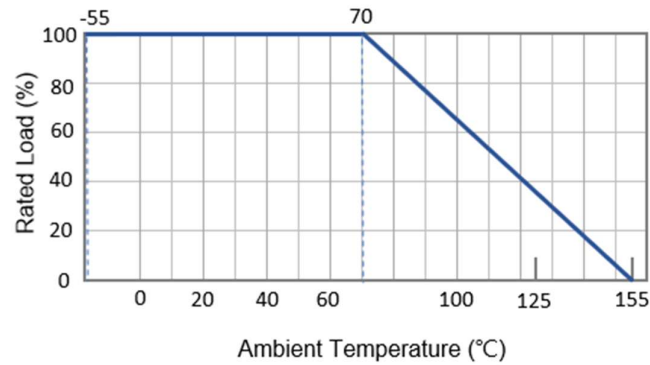
■ Construction



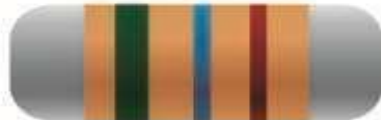
Item	Material
① Insulation Coating	Epoxy Insulation (Color: Tan)
② Marking	Epoxy Resin
③ Cutting Line	-
④ Ceramic Core	Aluminum Material
⑤ Resistive Film	Carbon Film
⑥ Terminal	Terminal Material : Fe/Cu/Sn

Derating Curve

Operating Temperature Range: -55°C to +155°C



Color Band



COLOR	1st BAND	2nd BAND	MULTIPLIER
BLACK	0	0	1Ω
BROWN	1	1	10Ω
RED	2	2	100Ω
ORANGE	3	3	1KΩ
YELLOW	4	4	10KΩ
GREEN	5	5	100KΩ
BLUE	6	6	1MΩ
VIOLET	7	7	10MΩ
GREY	8	8	
WHITE	9	9	
GOLD			0.1Ω
SILVER			0.01Ω

Note: the tolerance 5% with 3 bands for E24 series.

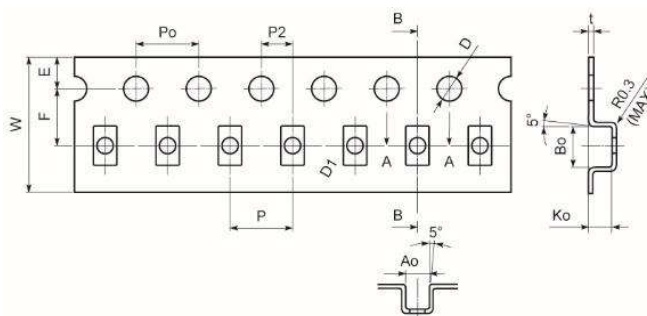
■ Reliability Test and Requirement (Standard)

Test Item	Test Method	Procedure	Requirements
Temperature Coefficient of Resistance (T.C.R)	JIS-C-5201-1	+25°C/-55°C and +25°C/+125°C	As Spec
Solderability	JIS-C-5201-1	Temperature of solder: 245±5°C Dipping time: 3±0.5 sec	More than 95% of the total area of the electrode part shall be covered with new solder.
Resistance to solvent	JIS-C-5201-1	There are 3 circles, each circle takes 1 min.	Epoxy Insulation coating can not be peeled.
Resistance to soldering heat	JIS-C-5201-1	Temperature: 260°C±5°C Dipping time: 10±1 sec	Based on the Iron cap loose standard, the change of the resistance value shall be within ±(1%+0.05Ω)
Short time overload	JIS-C-5201-1	$V = \sqrt{R \times P \times 2.5}$, 5 sec. V= Rated Voltage R=Resistance Value P=Power Rating	The change of the resistance values shall be within ±(0.5%+0.05Ω)
Overload	JIS-C-5201-1	$V = \sqrt{R \times P \times 3}$, 2.5 sec. V= Rated Voltage R=Resistance Value P=Power Rating	Within specified tolerance
Humidity resistance	JIS-C-5201-1	Standard: Room temperature + 100°C, 90%~95% RH, Dipping time: 0.5hr High Power: 40±2°C, 90~95% R.H., for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"	The change of the resistance value shall be within ±(5%+0.05Ω)
Load Life test	JIS-C-5201-1	Constant temperature chamber of 70°C±2°C, DC 1.5hr ON/0.5hr OFF cycle, applied continuously for 1000 ±48hr.	The change of the resistance value shall be within ±(2%+0.05Ω)

Standard Packing Quantity

Size	Tape/Reel Q'ty (pcs)			Bulk Q'ty (pcs)	Weight (g)	
	Reel	Case	Carton	Bag	Reel	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
0309	2,500	2,500	15,000	5,000	2,505	160

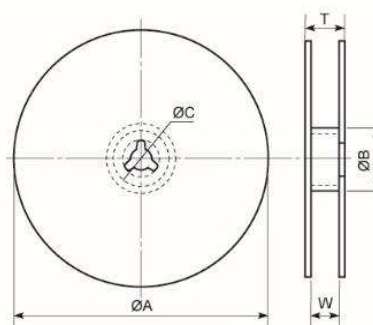
Embossed taping dimension



Unit:mm

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
0309	16±0.1	8±0.1	1.75±0.1	7.5±0.10	1.5±0.1	1.5±0.1	4±0.1	2±0.1	3.5±0.1	8.85±0.1	3.50±0.1	0.35±0.05

Tape/Reel dimension



Unit:mm

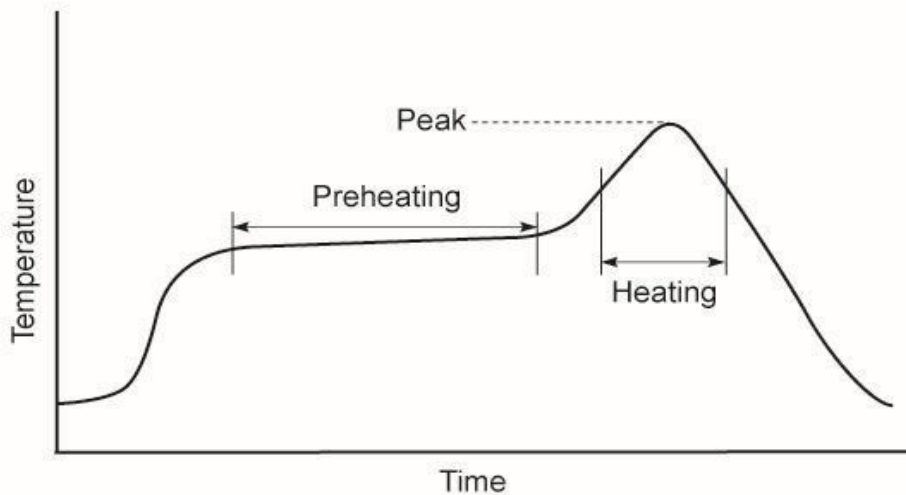
Type	ØA	ØB	ØC	W	T
0204	178±1	60.0±0.5	13.0±0.2	9.0±0.5	12.0±0.15
0207	178±1	60.0±0.5	13.0±0.5	13.2±0.5	16.0±0.20
0309	330±1	100±1.0	13.0±0.5	17.0±0.5	21.5±0.20

■ Caution

1. Storage and usage method
2. Humidity gives damage to cap solderability, therefore, please keep environment.
Temperature : +5°C~+40°C
Humidity : 55%~75%RH
Storage limited : 12 months
3. Please follow the instruction to keep the material when it is unpacked.
4. When ambient temperature exceeds a rated ambient applied on the derating curve by derating the load power.
5. Please avoid join many resistors in series or parallel when current.
6. Molding products by using resin might bring out resistance from Molding.
7. This products meet the RoHS Compliant.

■ Soldering :

We recommend the following condition to keep products performance.



Reflow soldering (lead-free)

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