Innovative Service Around the Globe YAGEO

DATA SHEET

MELF CARBON FILM RESISTORS

High Power

MCP Series

±2%, ±5%

1W AND 2W

RoHS compliant & Halogen Free

YAGEO

Product specification – September 5, 2024 V.2





APPLICATIONS

- All general purpose applications
- Power applications
- Energy meter

FEATURES

- MELF, SMD package
- Excellent pulse withstanding capability
- Ultra miniature size
- Higher power rating
- RoHS compliant & halogen-free

ORDERING INFORMATION

Part number of the power MELF carbon film resistor is identified by the series, power rating, tolerance, packing, temperature coefficient and resistance value.

PART NUMBER

MCP	100	J	R	-	100R
(1)	(2)	(3)	(4)	(5)	(6)

(1) SERIES

MCP Series

(2) POWER RATING

100 = 1W
200 = 2W

(3) TOLERANCE

G = ±2%
J = ±5%
- = Based on spec.

(4) PACKAGING

R = Reel Pack

(5) TEMPERATURE COEFFICIENT OF RESISTANCE

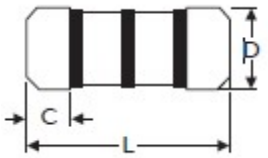
- = Based on spec.

(6) RESISTANCE VALUE

E24 Series value
Example:
1R = 1Ω, 10K = 10,000Ω, 1M = 1,000,000Ω

DIMENSIONS

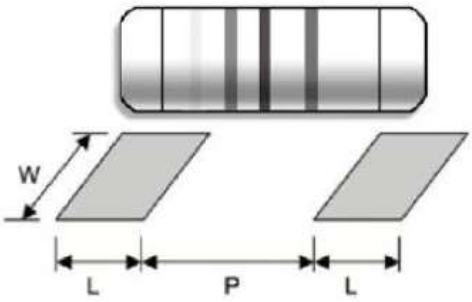
Unit: mm



Ultra Miniature	L	D	C Min.
MCP100	5.9 ± 0.2	2.2 ± 0.1	0.5
MCP200	8.5 ± 1.0	3.0± 0.2	0.5

SUGGESTED PAD LAYOUT

Unit: mm



Ultra Miniature	Soldering Mode	L Min.	P	W Min.
MCP100	Reflow	2.0	3.0 ± 0.1	3.0
	Wave	2.5	3.0 ± 0.1	3.0
MCP200	Reflow	2.3	5.5 ± 0.2	4.0
	Wave	2.8	5.5 ± 0.2	4.0

DERATING CURVE

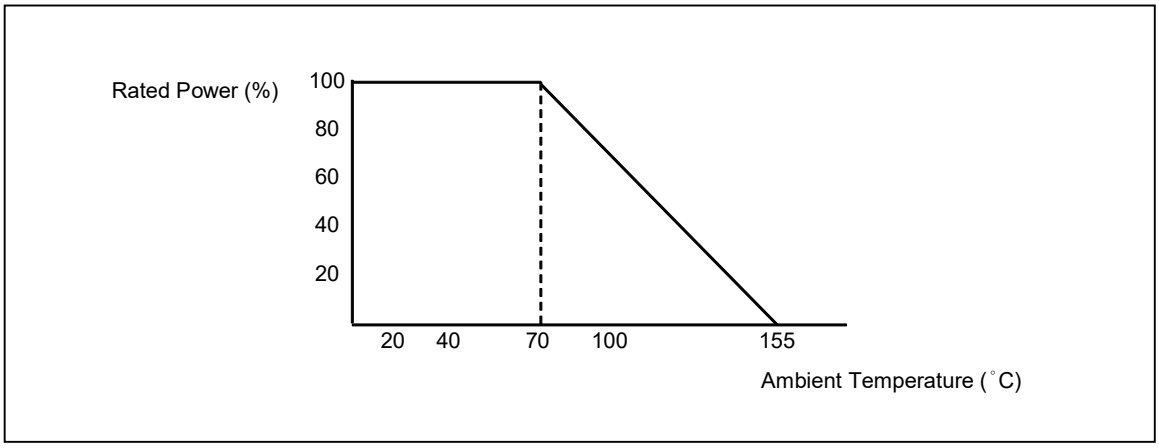


TABLE I TEMPERATURE COEFFICIENT

TYPE	MAX. VALUE OF TEMP. COEFFICIENT PPM/ °C		
	under 10KΩ	11KΩ – 150KΩ	160KΩ – 1MΩ
MCP100, MCP200	-350 ~0	-600 ~0	-1000 ~0

ELECTRICAL CHARACTERISTICS

CHARACTERISTICS	MCP100	MCP200
Power Rating at 70 °C	1W	2W
Maximum Working Voltage	300V	350V
Maximum Overload Voltage	600V	700V
Voltage Proof on Insulation	500V	500V
Resistance Range	1Ω ~ 1MΩ & 0Ω for E24 series value	
Operating Temp. Range	- 55°C to +155°C	
Temperature Coefficient	see Table I	

Note: For resistance value out of above range is by request.

TEST AND REQUIRMENTS

TEST	TEST METHOD	PROCEDURE	APPRAISE
Short Time Overload	IEC 60115-1 4.13	2.5 times RCWV for 5 sec.(Not more than maximum overload voltage)	±1.0%+0.05Ω
Voltage Proof on Insulation	IEC 60115-1 4.7	In V-Block for 60 sec. test voltage as above table	No Breakdown
Temperature Coefficient	IEC 60115-1 4.8	Between -55°C to +155°C	By Type
Insulation Resistance	IEC 60115-1 4.6	In V-Block for 60 sec.	>10,000MΩ
Solderability	IEC 60115-1 4.17	245±5°C for 3±0.5 Sec.	95% Min. coverage
Solvent Resistance of Marking	IEC 60115-1 4.30	IPA for 5±0.5 Min. with ultrasonic	No deterioration of coatings and markings
Periodic-pulse Overload	IEC 60115-1 4.39	4 times RCWV 10,000 cycles (1 Sec. on, 25 Sec.off)	±1.0%+0.05Ω
Damp Heat Steady State	IEC 60115-1 4.24	40±2°C,90-95% RH for 56 days, loaded with 0.1 times RCWV	±5.0%+0.05Ω
Endurance at 70°C	IEC 60115-1 4.25	70±2°C at RCWV(or Umax., whichever less) for 1,000 Hr.(1.5 Hr.on,0.5 Hr. off)	±3.0%+0.05Ω
Temperature Cycling	IEC 60115-1 4.19	➔ -55°C ➔ Room Temp. ➔ +155°C Room Temp.(5 cycles)	±0.75%+0.05Ω
Resistance to Soldering Heat	IEC 60115-1 4.18	260±3°C for 10±1 Sec., immersed to a point 3±0.5mm from the body	±1.0%+0.05Ω

Note:

RCWV (Rated Continuous Working Voltage):

The DC or AC (rms) continuous working voltage corresponding to the rated power is determined by the following formula:

V=√(P X R)
or max. working voltage whichever is less

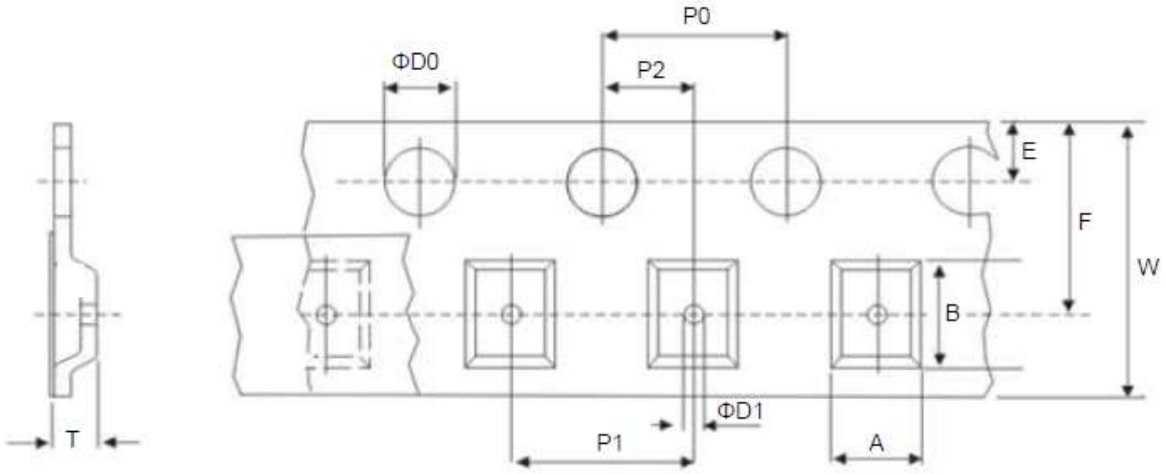
Where

V=Continuous rated DC or
AC (rms) working voltage (V)

P=Rated power (W)

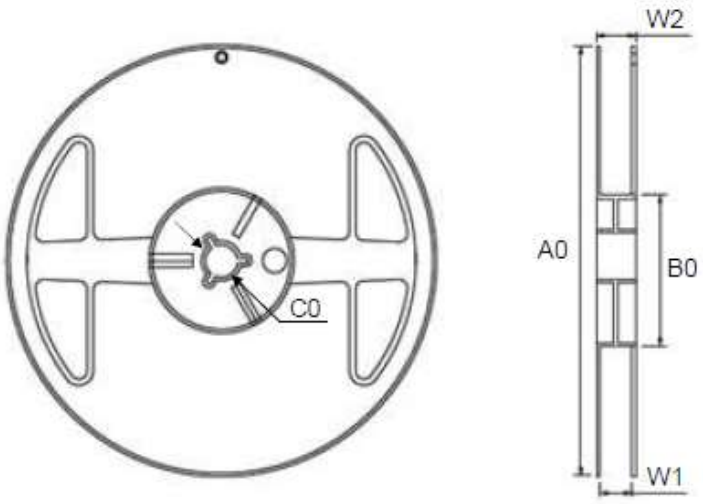
R=Resistance value (Ω)

PACKING METHODS



DIMENSIONS Unit: mm

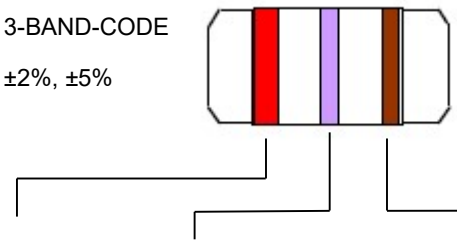
TYPE	A	B	W	E	F	P0	P1	P2	ΨD0	ΨD1	T
MCP100	2.4±0.1	6.3±0.1	12.0±0.2	1.75±0.1	7.5±0.05	4.0±0.1	4.0±0.1	2.0±0.05	1.5±0.1	1.4 Min.	2.50±0.1
MCP200	3.3±0.1	9.0±0.1	16.0±0.3	1.75±0.1	9.5±0.1	4.0±0.1	8.0±0.1	2.0±0.05	1.5±0.1	1.4 Min.	3.30±0.1



DIMENSIONS Unit: mm/piece

TYPE	A0	B0	C0	W1	W2	Packaging	Quantity
MCP100	178.5±1.5	60.0±1.0	13.0±0.5	13.0±0.5	15.5±0.5	7”	2,000
MCP200	330.0±1.5	100.0±1.0	13.0±0.5	17.0±0.5	19.0±0.5	13”	2,500

MARKING



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	100K
BLUE	6	6	1MΩ
VIOLET	7	7	10MΩ
GREY	8	8	0.001Ω
WHITE	9	9	0.0001Ω
GOLD			0.1Ω
SILVER			0.01Ω

REVISION HISTORY

REVISION	DATE	CHANGE NOTIFICATION	DESCRIPTION
Version 2	Sep. 05, 2024	-	- Updated packing methods
Version 1	Aug. 31, 2023	-	- Revised LEGAL DISCLAIMER
Version 0	Aug. 2, 2021	-	- First issue of this specification

" Yageo reserves all the rights for revising the content of this datasheet without further notification, as long as the products itse lf are unchanged. Any product change will be announced by PCN."

LEGAL DISCLAIMER

YAGEO, its distributors and agents (collectively, “YAGEO”), hereby disclaims any and all liabilities for any errors, inaccuracies or incompleteness contained in any product related information, including but not limited to product specifications, datasheets, pictures and/or graphics. YAGEO may make changes, modifications and/or improvements to product related information at any time and without notice.

YAGEO makes no representation, warranty, and/or guarantee about the fitness of its products for any particular purpose or the continuing production of any of its products. To the maximum extent permitted by law, YAGEO disclaims (i) any and all liability arising out of the application or use of any YAGEO product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for a particular purpose, non -infringement and merchantability.

YAGEO products are designed for general purpose applications under normal operation and usage conditions. Please contact YAGEO for the applications listed below which require especially high reliability for the prevention of defects which might directly cause damage to the third party's life, body or property: Aerospace equipment (artificial satellite, rocket, etc.), Atomic energy-related equipment, Aviation equipment, Disaster prevention equipment, crime prevention equipment, Electric heating apparatus, burning equipment, Highly public information network equipment, data-processing equipment , Medical devices, Military equipment, Power generation control equipment, Safety equipment, Traffic signal equipment, Transportation equipment and Undersea equipment, or for any other application or use in which the failure of YAGEO products could result in personal injury or death, or serious property damage. Particularly **YAGEO Corporation and its affiliates do not recommend the use of commercial or automotive grade products for high reliability applications or manned space flight.**

Information provided here is intended to indicate product specifications only. YAGEO reserves all the rights for revising this content without further notification, as long as products are unchanged. Any product change will be announced by PCN.

Unikeyic Electronics

Global Electronic Components Distributor

Click to view pricing, inventory, delivery, and lifecycle information:

YAGEO:

CQ0402FRNPO9BN100 RT1206BRE071ML AC1206FR-0751RL CQ0201JRNPO8BN100 RC0603JR-07 3RL
RC1206FR072R4L AC0402FR-13100KL RC0402FR-07255RL AC1206FR-0724R3L RC0402JR-072ML
RC1206JR-0751RL CC0603JRNPO9BN240 RC0402FR-101ML RC0805FR-07150RP
CC0402BRNPO9BN2R2 CC0805KRX7R9BB561 RC0402BR-071KL RL1210FR-070R01L
RT1206FRE07200RL 511KD14 AC1206JRNPO0BN221 AC1206KKX7RCBB102 RC0201JR-073K3L
AC0402FR-071RL AC0603DR-0710KL CC0402JPNPO9BN150 RC0402FR-07105RL RC0603FR-07178KL
RC0805FR-7W1KL AC0603FR-0768K1L