

DATASHEET

Product Name **Metal Film Capped Ceramic Rod**

Part Name **MFC/MFD Series**

File No. **DIP-SP-076**

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1. Scope

- 1.1 This specification for approve relates to the Metal Film Capped Ceramic Rod manufactured by UNI-ROYAL.
- 1.2 Filming in PCD technology.
- 1.3 Excellent Temperature coefficient, very low current noise.
- 1.4 Wide IRV range, suitable to produce high precision product.

2. Explanation of Part No. System

The standard Part No. includes 14 digits with the following explanation:

- 2.1 The 1st to 2rd digits are to indicate the product type .

Example: MF= Metal Film

- 2.2 The 3th digit is the type.

Example: C= Capped Filming Rod ; D= Uncapped Filming Rod

- 2.3 The 4th digit is the Alumina Content.

Example: 1= Alumina 70% ; 2= Alumina 80% ; 3= Alumina 85%

- 2.4 The 8th to 11th digits is to denote the Size of Rod.

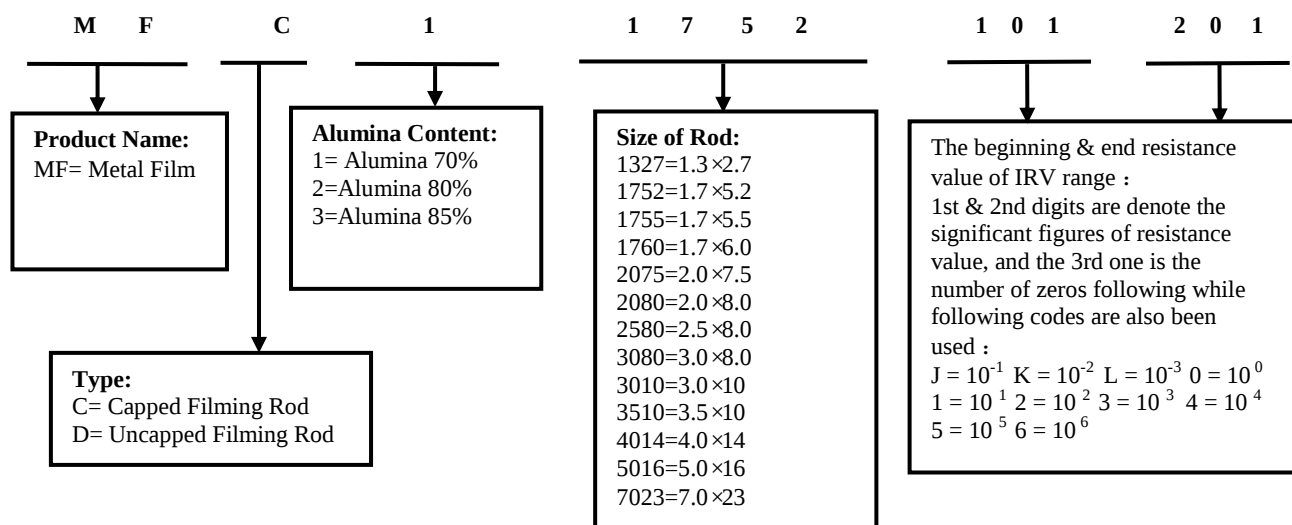
Example: 1327=1.3×2.7 ; 1752=1.7×5.2 ; 1755=1.7×5.5 ; 1760=1.7×6.0 ; 2075=2.0×7.5 ; 2080=2.0×8.0 ; 2580=2.5×8.0 ; 3080=3.0×8.0 ; 3010=3.0×10 ; 3510=3.5×10 ; 4014=4.0×14 ; 5016=5.0×16 ; 7023=7.0×23

- 2.5 The 9th to 14th digits is to denote the beginning & end resistance value of IRV range

1st & 2nd digits are denote the significant figures of resistance value, and the 3rd one is the number of zeros following while following codes are also been used:

$J = 10^{-1}$ $K = 10^{-2}$ $L = 10^{-3}$ $0 = 10^0$ $1 = 10^1$ $2 = 10^2$ $3 = 10^3$ $4 = 10^4$ $5 = 10^5$ $6 = 10^6$

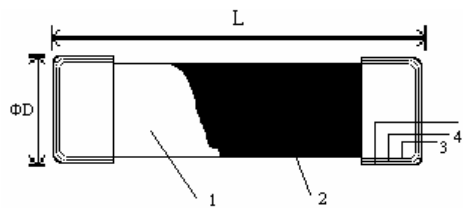
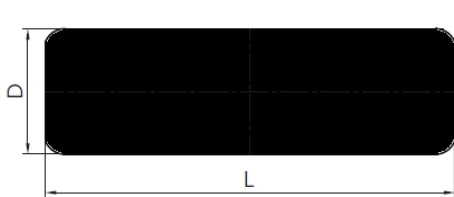
3. Ordering Procedure: (Example: MF 70% 1.7×5.2 100-200 Ω)



4. Material:

- (1) Ceramic rod main ingredient : AL₂O₃ 72% , tolerance: ±3% (mark alumina content 70%)
Remarks: 1.3*2.7 content AL₂O₃ 80% , tolerance: ±2%(mark alumina content 80%)
- (2) Iron cap main material: iron
Iron cap main ingredient: pure Cu pure Sn

5. Dimension



1. Ceramic rod;
2. Film;
3. Cap(iron);
4. Cap(copper)
5. Cap(tin)

Unit: mm

NO	Size	Uncapped Filming Rod		Capped Filming Rod		MIN PULLING FORCE (KG)
		D	L	D	L	
1	1.3x2.7	1.30±0.02	2.7±0.1	1.54~1.66	2.86~3.16	2
2	1.7x5.2	1.70±0.03	5.2 ^{+0.1} _{-0.2}	2.03~2.17	5.36~5.76	3
3	1.7x5.5	1.70±0.03	5.5±0.2	2.03~2.17	5.66~6.16	3
4	1.7x6.0	1.70±0.03	6.0±0.2	2.03~2.17	6.16~6.66	3
5	2.0x7.5	2.00 ^{+0.04} _{-0.03}	7.5±0.2	2.33~2.58	7.66~8.27	5
6	2.0x8.0	2.00±0.03	8.0±0.2	2.33~2.57	8.16~8.77	5
7	2.5x8.0	2.50±0.04	8.0±0.2	2.82~3.08	8.16~8.77	6
8	3.0x8.0	3.00±0.04	8.0±0.2	3.32~3.58	8.16~8.77	6
9	3.0x10	3.00±0.04	10.0±0.3	3.32~3.58	10.06~10.89	6
10	3.5x10	3.50 ^{+0.04} _{-0.05}	10.0±0.3	3.81~4.08	10.06~10.89	6
11	4.0x14	4.00±0.05	14.0±0.3	4.31~4.59	14.06~14.89	6
12	5.0x16	5.00±0.05	16.0±0.3	5.41~5.59	16.16~16.89	6
13	7.0x23	7.00±0.07	23.0±0.5	7.39~7.61	22.96~24.09	6

6. IRV (Initial Resistance Value) Range

Code	Initial value range	Code	Initial value range	Code	Initial value range
R01	0.5Ω-0.8Ω	R13	20Ω-30Ω	R25	600Ω-900Ω
R02	0.8Ω-1.3Ω	R14	30Ω-50Ω	R26	800Ω-1.3KΩ
R03	1Ω-2Ω	R15	40Ω-60Ω	R27	1KΩ-2KΩ
R04	1.5Ω-2.5Ω	R16	50Ω-80Ω	R28	1.5KΩ-2.5KΩ
R05	2Ω-3.5Ω	R17	60Ω-100Ω	R29	2KΩ-4KΩ
R06	3Ω-5Ω	R18	80Ω-130Ω	R30	3KΩ-5KΩ
R07	4Ω-7Ω	R19	100Ω-200Ω	R31	4KΩ-7KΩ
R08	5Ω-8Ω	R20	150Ω-250Ω	R32	5KΩ-10KΩ
R09	6Ω-10Ω	R21	200Ω-400Ω	R33	6KΩ-12KΩ
R10	8Ω-13Ω	R22	300Ω-500Ω	R34	8KΩ-16KΩ
R11	10Ω-20Ω	R23	400Ω-600Ω	R35	10KΩ-20KΩ
R12	15Ω-25Ω	R24	500Ω-800Ω		

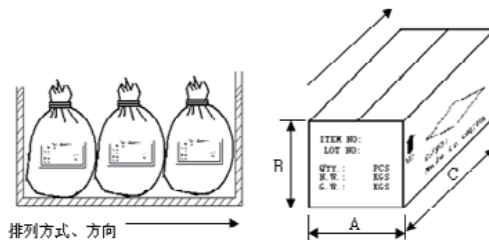
7. Standard for testing:

(1) Appearance: Inspect appearance with eyes and sense of touch

- ① Film layer without film bubble 、 rods pitted 、 uneven film distribution 、 protective film spots 、 protective film too thin 、 film oxide 、 uneven film color etc.
- ② May promise range of initial resistance value ： reference to initial resistance value specification list.
- ③ Temperature coefficient resistor ： according to customer order

(2) Size: Measure it with vernier caliper and micrometer

9. Packing



No.	Type	Size (mm)			Quantity (KPCS)	
		A	B	C	Pouch	Box
1	1.3x2.7	25	20	45	600	1800
2	1.7x5.2	25	20	45	200	600
3	1.7x5.5	25	20	45	200	600
4	1.7x6.0	25	20	45	200	600
5	2.0x7.5	25	20	45	100	300
6	2.0x8.0	25	20	45	100	300
7	2.5x8.0	25	20	45	60	180
8	3.0x8.0	25	20	45	40	120
9	3.0x10	25	20	45	40	120
10	3.5x10	25	20	45	25	75
11	4.0x14	25	20	45	12.5	37.5
12	5.0x16	25	20	45	7.5	22.5
13	7.0x23	25	20	45	2.5	7.5

11. Note

11.1 UNI-ROYAL recommend the storage condition temperature: 15℃~35℃, humidity :25%~75%

(Put condition for individual product)

Even under UNI-ROYAL recommended storage condition, solderability of products over 1 year old (Put condition for each product) may be degraded.

11.2 Store / transport cartons in the correct direction, which is indicated on a carton as a symbol.

Otherwise bent leads may occur due to excessive stress applied when dropping of a carton.

11.3 Product performance and soldered connections may deteriorate if the products are stored in the following places:

- a. Storage in high Electrostatic
- b. Storage in direct sunshine 、 rain and snow or condensation
- c. Where the products are exposed to sea winds or corrosive gases, including Cl₂, H₂S₃ NH₃, SO₂, NO₂.

12. Record

Version	Description of amendment	Page	Date	Amended by	Checked by
1	First issue of this specification	1~7	Apr.10,2018	Chen Haiyan	Chen Nana