

# DATA SHEET

**Product Name** Metal Oxide Film Capped Ceramic Rod

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**Part Name** MOC/MOD Series

**File No.** DIP-SP-077

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## 1. Scope

- 1.1 This specification for approve relates to the Metal Oxide Film Capped Ceramic Rod manufactured by UNI-ROYAL.
- 1.2 Conductive Film Layer produced under High Temperature.
- 1.3 Good Performance under High Temperature environment .
- 1.4 First Choice for Power type resistor materials.

## 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: MO= Metal Oxide 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.

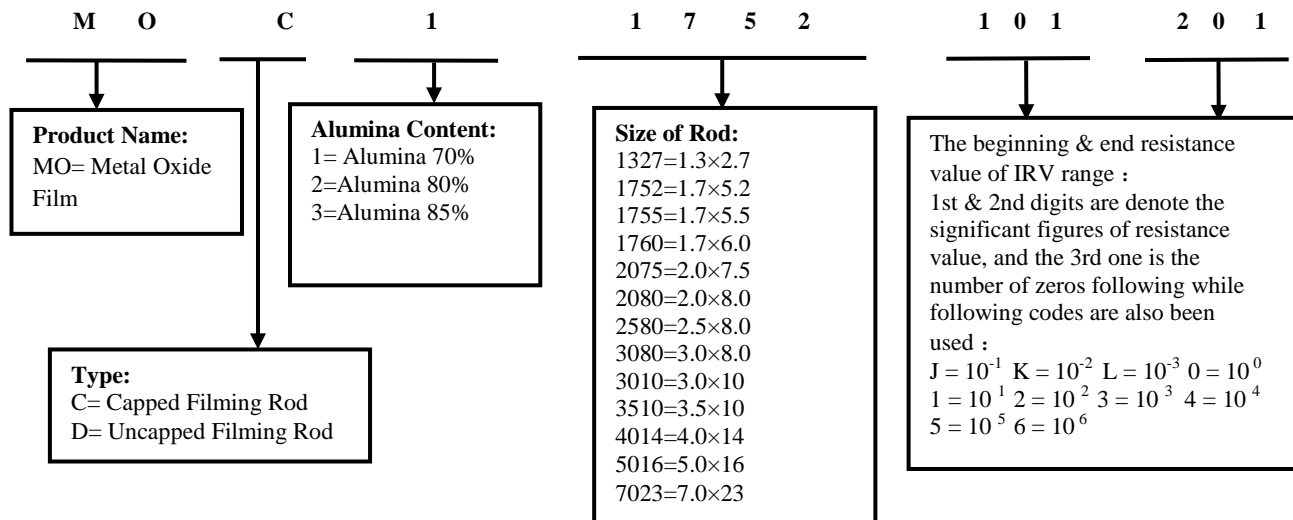
Example: 1327=1.3×2.7 ; 1752=1.7×5.2 ; 1755=1.7×5.5 ; 1760=1.7×6.0 ; 2075=2.0×7.5 ; 2080=2.0×8.0 ; 2580=2.5×8.0 ; 3080=3.0×8.0 ; 3010=3.0×10 ; 3510=3.5×10 ; 4014=4.0×14 ; 5016=5.0×16 ; 7023=7.0×23

- 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:

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

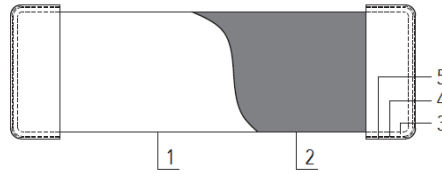
## 3. Ordering Procedure: (Example: MO 70% 1.7×5.2 100-200 Ω)



## 4. Material:

- (1) Ceramic rod's main ingredient: AL<sub>2</sub>O<sub>3</sub> 72%、AL<sub>2</sub>O<sub>3</sub> 80%、 AL<sub>2</sub>O<sub>3</sub>85% tolerance: ±3 % ( mark alumina content 70%、 80%、 85%) or customer requirement.
- (2) Iron cap main material: Iron  
Plating of iron cap main ingredient: pure Cu and pure Sn

## 5. Dimension



1. Ceramic
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 <sup>+0.1</sup> <sub>-0.2</sub>	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 <sup>+0.04</sup> <sub>-0.03</sub>	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 <sup>+0.04</sup> <sub>-0.05</sub>	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	2Ω-3.5Ω	R07	10Ω-20Ω	R13	60Ω-100Ω
R02	3Ω-5Ω	R08	15Ω-25Ω	R14	80Ω-130Ω
R03	4Ω-7Ω	R09	20Ω-30Ω	R15	100Ω-200Ω
R04	5Ω-8Ω	R10	30Ω-50Ω	R16	150Ω-250Ω
R05	6Ω-10Ω	R11	40Ω-60Ω	R17	200Ω-400Ω
R06	8Ω-13Ω	R12	50Ω-80Ω	R18	300Ω-500Ω

## 7. Standard for testing:

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

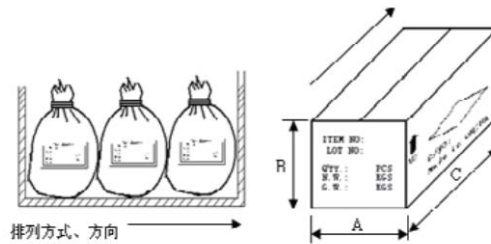
① Film layer without film bubble、rods pitted、uneven film distribution、protective film spots、protective film too thin、uneven film color etc

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°C~35°C, 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:

- Storage in high Electrostatic
- Storage in direct sunshine、rain and snow or condensation
- Where the products are exposed to sea winds or corrosive gases, including Cl<sub>2</sub>, H<sub>2</sub>S<sub>3</sub>, NH<sub>3</sub>, SO<sub>2</sub>, NO<sub>2</sub>.

## 12. Record

Version	Description of amendment	Page	Date	Amended by	Checked by
1	First issue of this specification	1~7	Jun.12,2018	Chen Haiyan	Chen Nana

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