

DATASHEET

Product Name **Cutting Semi-Finished Product Resistors**

Part Name **CO、CMO Series**

File No. **DIP-SP-084**

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1. Scope

This datasheet is the characteristics of Cutting Semi-Finished Product Resistors manufactured by UNI-ROYAL.

1.1 Compliant with RoHS directive.

1.2 Halogen free requirement.

2. Part No. System

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

2.1 1th~4th digits

This is to indicate the Chip Resistor. Example: CMO0= Cutting Metal oxide Film Resistors

2.2 5th~6th indicate material size.

Example: 01=1.3×2.7; 20=4×28; 15=7×51

2.3 The 7th digit is to denote the Resistance Tolerance. The following letter code is to be used for indicating the standard Resistance Tolerance.

J=±5%

2.4 The 8th to 11th digits is to denote the Resistance Value.

2.4.1 For the standard resistance values of 5%&10% series, the 8th digit is "0", the 9th & 10th digits are to denote the significant figures of the resistance and the 11th digit is the number of zeros following;

For the standard resistance values of ≤2% series in, the 8th digit to the 10th digits is to denote the significant figures of the resistance and the 11th digit is the zeros following.

2.4.2 The following number s and the letter codes are to be used to indicate the number of zeros in the 11th digit: 0=10⁰ 1=10¹ 2=10² 3=10³

4=10⁴ 5=10⁵ 6=10⁶ J=10⁻¹ K=10⁻² L=10⁻³ M=10⁻⁴

2.4.3 The 12th, 13th & 14th digits.

The 12th digit is to denote the Packaging Type with the following codes:

B=Bulk/Box

2.4.4 The 13th digit is normally to indicate the Packing Quantity of Tape/Reel packaging types. The following letter code is to be used for some packing quantities:

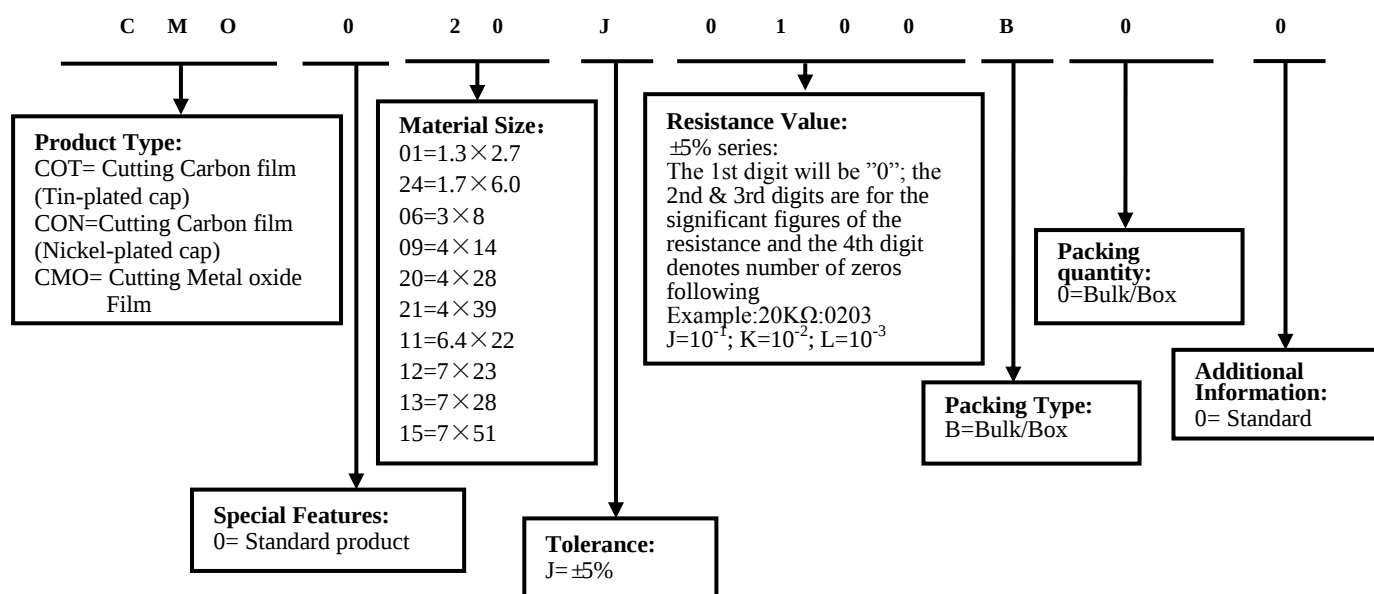
0=Bulk/Box

2.4.5 For some items, the 14th digit alone can use to denote special features of additional information with the following codes:

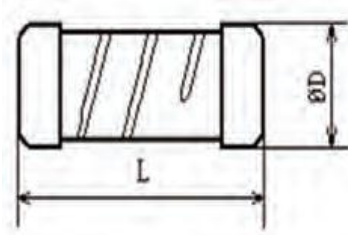
0=Standard

3. Ordering Procedure

(Example: CMO 4×28 ±5% 100Ω B/B)



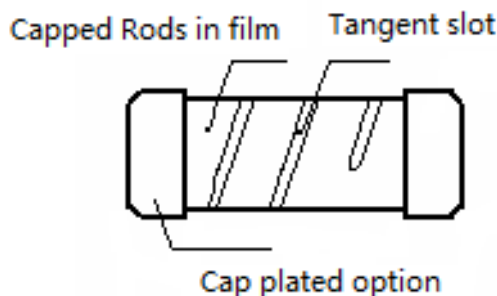
4. Dimension



Unit: mm

Type	Size	L	ΦD	Resistance Range
COT	1.3×2.7	2.86-3.16	1.54-1.66	1 Ω ~10M Ω
	1.7×6.0	6.16-6.66	2.03-2.17	1 Ω ~10M Ω
	3×8	8.16-8.77	3.32-3.58	1 Ω ~10M Ω
CMO	4×14	14.06-14.89	4.31-4.59	0.1 Ω ~560K Ω
	4×28	28.10-29.20	4.57-4.75	0.1 Ω ~560K Ω
	4×39	37.70-39.60	4.57-4.75	0.1 Ω ~560K Ω
	6.4×22	22.00-23.08	6.88-7.06	0.1 Ω ~560K Ω
	7×23	22.96-24.09	7.39-7.61	0.1 Ω ~680K Ω
	7×28	27.96-29.09	7.39-7.61	20 Ω ~150K Ω
	7×51	50.96-52.09	7.39-7.61	50 Ω ~200K Ω

5. Structure



6. Performance Specification

Characteristic	Limits	Test Methods (GB/T5729&JIS-C-5201&IEC60115-1)
Temperature Coefficient	CO: $\leq 10\Omega$: ± 300 PPM/°C $11\Omega \sim 99K\Omega$: ± 450 PPM/°C $100K\Omega \sim 1M\Omega$: $0 \sim -700$ PPM/°C $1.1M\Omega \sim 10M\Omega$: $0 \sim -1500$ PPM/°C CMO: 4×14; 4×28; 4×39; 6.4×22: $\leq 150K\Omega$: ± 350 PPM/°C $150K\Omega < R \leq 200K\Omega$: $0 \sim -700$ PPM/°C 7×23; 7×28; 7×51: ± 350 PPM/°C	4.8 Natural resistance changes per temp. Degree centigrade $\frac{R_2 - R_1}{R_1(t_2 - t_1)} \times 10^6 \text{ (PPM/°C)}$ R ₁ : Resistance Value at room temperature (t ₁) ; R ₂ : Resistance at test temperature (t ₂) t ₁ : +25 °C or specified room temperature t ₂ : Test temperature (-55 °C or 125 °C)
Solderability	95% coverage Min.	4.17 The area covered with a new, smooth, clean, shiny and continuous surface free from concentrated pinholes. Test temp. Of solder: 245 °C $\pm$ 3 °C Dwell time in solder 2~3 seconds.

7. Precaution for storage/Transportation

- 7.1. UNI-ROYAL recommend products store in warehouse with temperature between 15 to 35℃ under humidity between 25 to 75%RH.
Even under storage conditions recommended above, solder ability of products will be degraded stored over 1 year old.
- 7.2. Cartons must be placed in correct direction which indicated on carton, otherwise the reel or wire will be deformed.
- 7.3. Storage conditions as below are inappropriate:
- Stored in high electrostatic environment
 - Stored in direct sunshine, rain, snow or condensation.
 - Exposed to sea wind or corrosive gases, such as Cl₂, H₂S, NH₃, SO₂, NO₂, Br etc.

8. Record

Version	Description	Page	Date	Amended by	Checked by
1	First version	1~4	Mar.20, 2018	Haiyan Chen	Nana Chen
2	1. Modify the Ordering Procedure 2. Delete power	2 3	Mar.09, 2021	Haiyan Chen	Yuhua Xu
3	Modify the temperature coefficient test conditions	4	Nov.07, 2022	Haiyan Chen	Yuhua Xu
4	Modify the dimension and Performance Specification	3	Aug.07, 2023	Haiyan Chen	Nana Chen

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