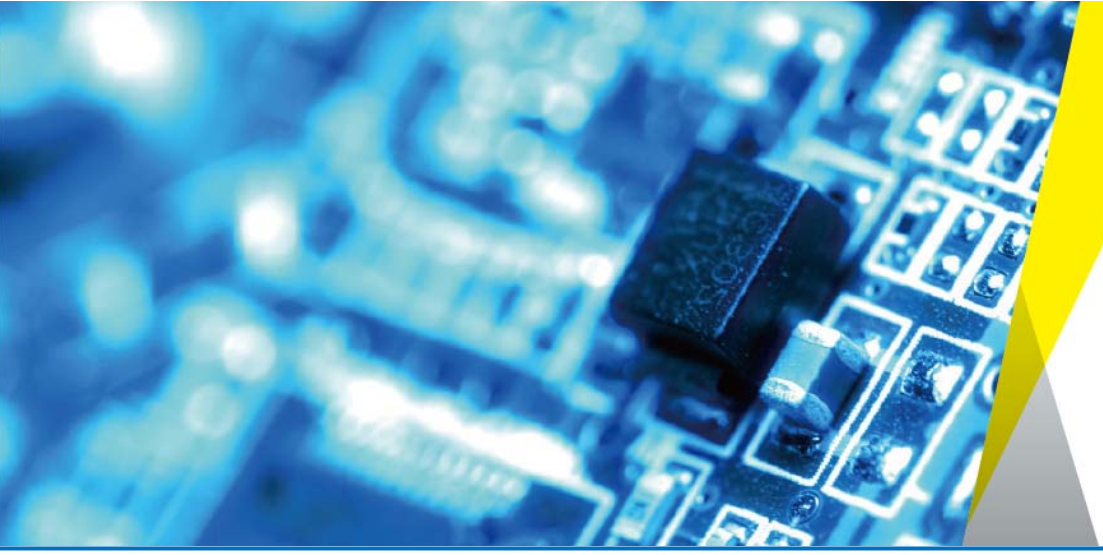

DATASHEET

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 1^{th} ~4^{th} digits

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

2.2 5^{th}~6^{th} indicate material size.

Example: 01=1.3x2.7；20=4×28；15=7x51

2.3 The 7^{th} 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 8^{th} to 11^{th} 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 9^{th} & 10^{th} digits are to denote the significant figures of the resistance and the 11^{th} 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 11^{th} 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 11^{th} digit:0=10^0 1=10^1 2=10^2 3=10^3 4=10^4 5=10^5 6=10^6 J=10^{-1} K=10^{-2} L=10^{-3} M=10^{-4}

2.4.3 The 12^{th}, 13^{th} & 14^{th} digits.

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

B=Bulk/Box

2.4.4 The 13^{th} 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:

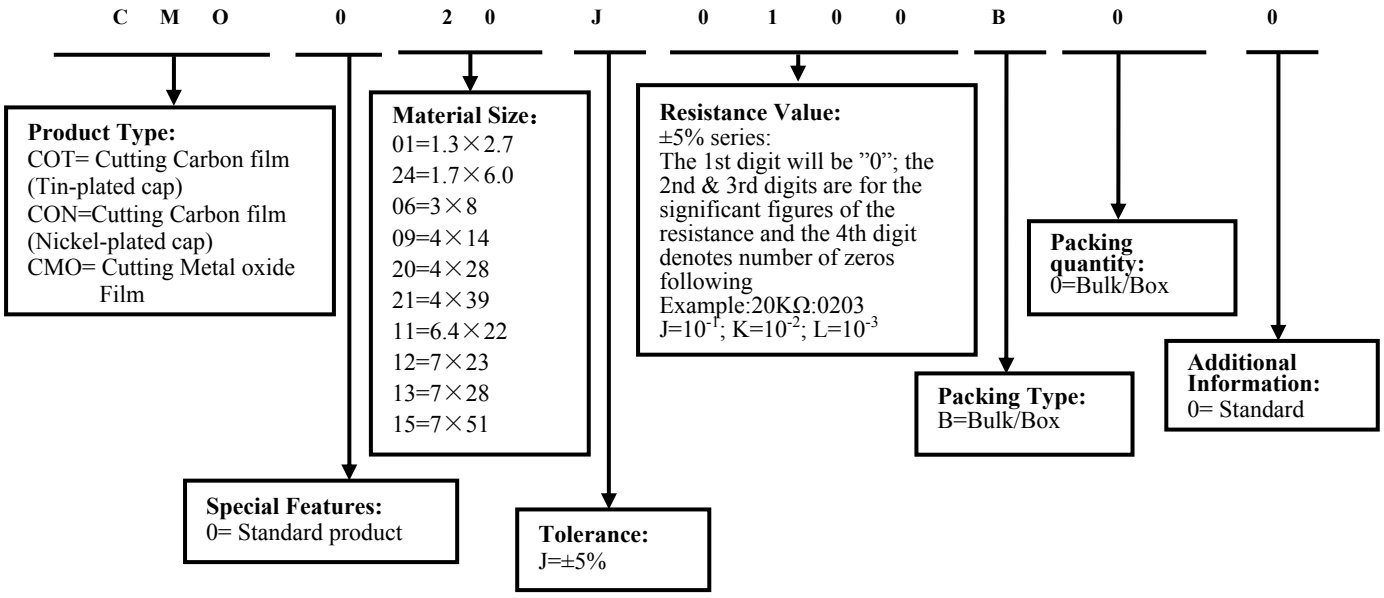
0=Bulk/Box

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

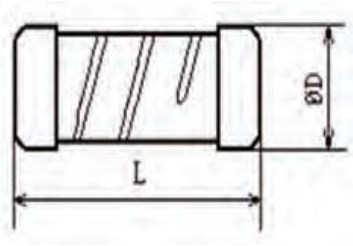
0=Standard

3. Ordering Procedure

(Example: CMO 4×28 ±5% 100Ω B/B)



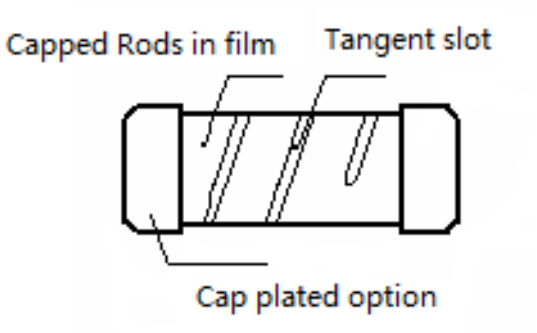
4. Dimension



Unit：mm

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

5. Structure



6. Performance Specification

Characteristic	Limits	Test Methods (GB/T5729&JIS-C-5201&IEC60115-1)
Temperature Coefficient	**CO:** ≤10Ω：±300 PPM/℃ 11Ω~99KΩ：±450 PPM/℃ 100KΩ~1MΩ：0~-700 PPM/℃ 1.1MΩ~10MΩ：0~-1500 PPM/℃ **CMO:** **4×14；4×28；4×39；6.4×22：** ≦150KΩ: ±350PPM/℃ 150KΩ<R≦200KΩ 0~-700PPM/℃ **7×23；7×28；7×51：** ±350PPM/℃	4.8 Natural resistance changes per temp. Degree centigrade $\frac{R_2-R_1}{R_1(t_2-t_1)} \times 10^6$ (PPM/℃) 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℃or 125℃）
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℃± 3℃ Dwell time in solder2~3 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:

a. Stored in high electrostatic environment

b. Stored in direct sunshine, rain, snow or condensation.

c. Exposed to sea wind or corrosive gases, such as Cl_2, H_2S, NH_3, SO_2, NO_2, 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