



SYNTON-TECH CORPORATION
METAL OXIDE FILM RESISTORS
NON (NON-INDUCTIVE TYPE)

File No. :	NON-02-B-D
Version :	A
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Date :	2021.01.01

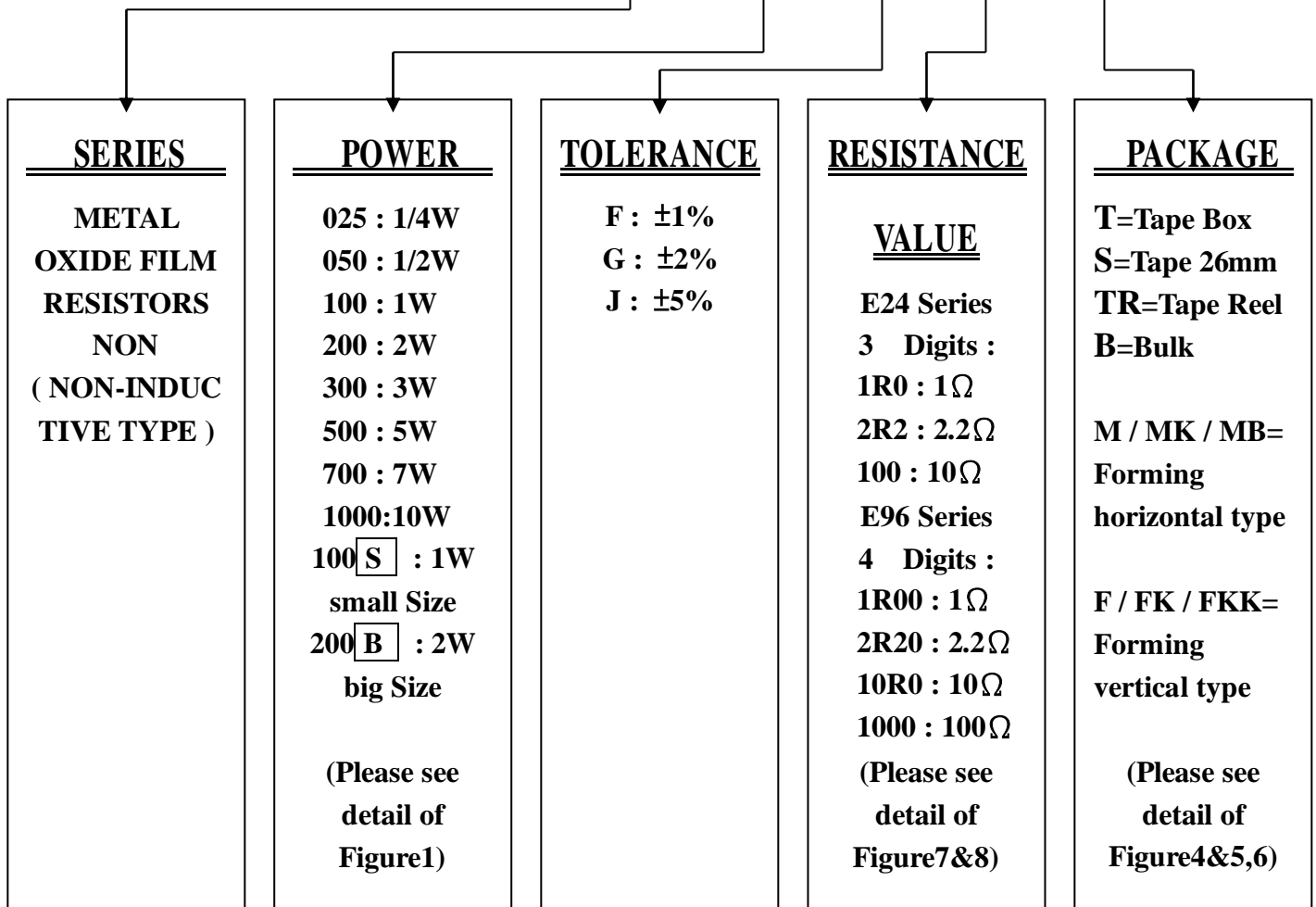
1. SUBJECT : This specification applies on the Metal Oxide Film Resistors

(non-inductive type) was made by SYNTON-TECH Corporation ◦

2. EXPLANATIONS OF ORDERING CODE

DESCRIPTION : NON 1W 5% 10Ω

SYNTON CODE : NON 100 J 100 T



APPROVED	CHECKED	DESIGNED	REMARK	DOCUMENT NO.
Carol	May	Chen		0201010039



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3. ELECTRICAL CHARACTERISTICS

TYPE	NON-25	NON-50S	NON-50	NON-100S	NON-100	NON-200S	NON-200	NON-300S	NON-300	NON-500S	NON-500	NON-700S
Power Rating at 70°C	1/4W	1/2W	1/2W	1W	1W	2W	2W	3W	3W	5W	5W	7W
Operating Temp. Range	-55°C ~ +155°C											
Maximum Working Volt.	200V	200V	200V	250V	300V	300V	300V	350V	450V	450V	500V	500V
Maximum Overload Volt.	300V	300V	350V	400V	500V	500V	500V	600V	700V	700V	800V	800V
Dielectric withstanding Volt.	250V	250V	300V	350V	400V	400V	400V	500V	600V	600V	700V	700V
Value Range	10Ω ~15KΩ											
Temp. Coefficient	±350 ppm / °C											

Figure 1

4. POWER RATING

(1) Power Derating : The rated power at the temperature in excess of 70°C shall be derated in accordance with figure2

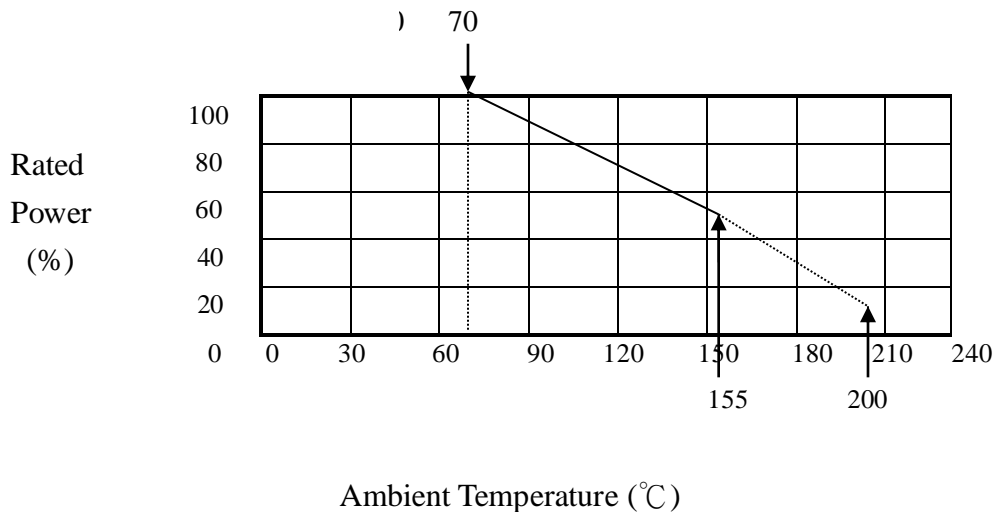


Figure2



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

$$E = \sqrt{R \times P}$$

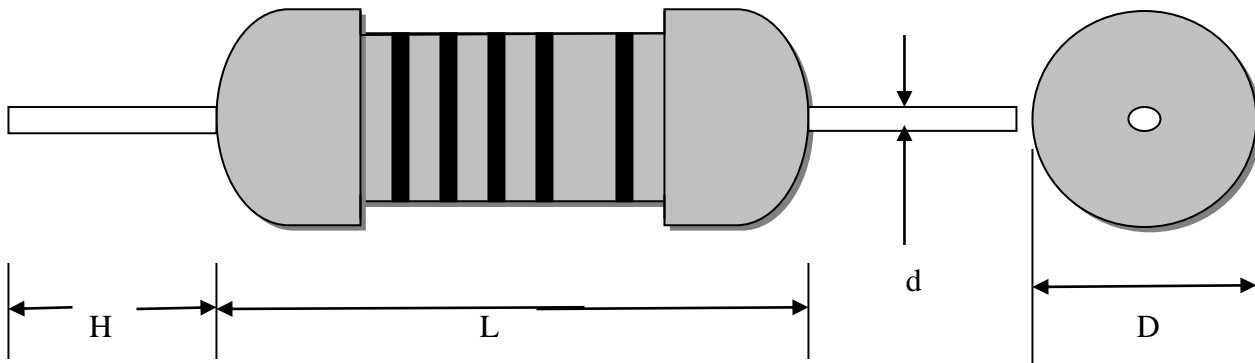
Where E : Continuous rated DC or AC (rms) working voltage (v)
P : Rated power (w)
R : Resistance value (Ω)



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5. DIMENSIONS



Unit: m/m

TYPE	L	D	H	d
NON-25	6.0 ± 0.5	2.3 ± 0.3	25 ± 3	0.45 ± 0.05
NON-50S				
NON-50	9.0 ± 0.5	3.2 ± 0.5	25 ± 3	0.5 ± 0.1
NON-100S				
NON-100	11 ± 1.0	4.5 ± 0.5	35 ± 3	0.65 ± 0.1
NON-200S				
NON-200	15 ± 1.0	5.0 ± 0.5	35 ± 3	0.7 ± 0.1
NON-300S				
NON-300	17 ± 1.0	6.0 ± 0.5	35 ± 3	0.7 ± 0.1
NON-500S				
NON-500	24 ± 1.0	8.0 ± 1.0	35 ± 3	0.7 ± 0.1
NON-700S				

Figure3

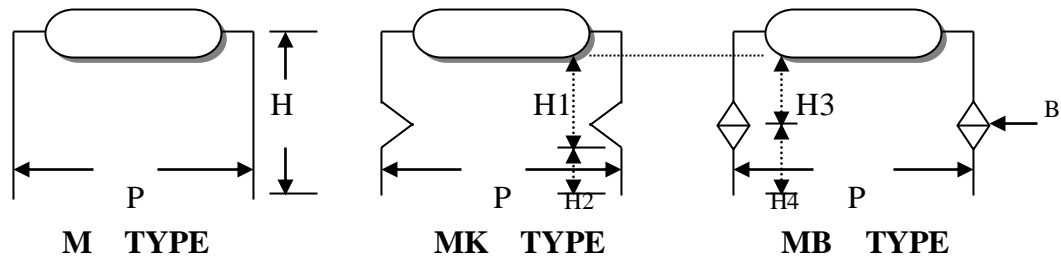


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(1) FORMING PACKING

M / MK / MB= Forming horizontal type



Unit : m/m

TYPE	POWER	Forming Type	P ± 1	H ±2.5	H1 ± 1	H2 ± 1	H3 ± 1	H4 ± 1
NON-25	1/4W	M	10~	5~	—	—	—	—
NON-50S	1/2W	MK		—	5 8	3~	—	—
NON-50	1/2W	M	12.5~	10~	—	—	—	—
NON-100S	1W	MK.MB		—	5 8	3~	5 8	5~
NON-100	1W	M	15~	10~	—	—	—	—
NON-200S	2W	MK.MB		—	5 8	3~	5 8	5~
NON-200	2W	M	20~	10~	—	—	—	—
NON-300S	3W	MK MB		—	5 8	3~	5 8	5~
NON-300	3W	M	25~	10~	—	—	—	—
NON-500S	5W	MK MB		—	8	3~	8	5~

Remark : 1. B = 1.15 ~,

2. ALTERNATE MARKING METHOD ALSO AVAILABLE ON REQUEST.

Figure4

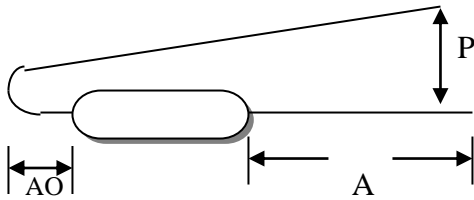


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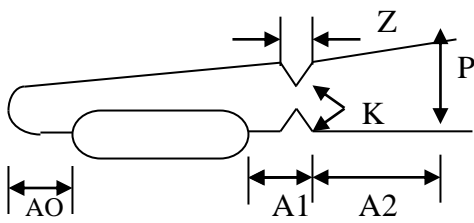
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(2) FORMING PACKING

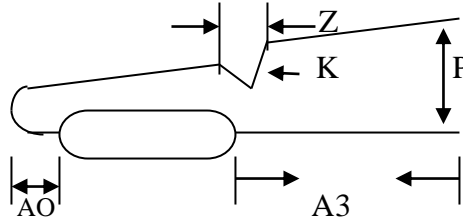
F / FK / FKK=Forming vertical type



F TYPE



FKK TYPE



FK TYPE

Unit : m/m

TYPE	POWER	Forming Type	P ± 1	A ± 1	A1 ± 1	A2 ± 1	A3 ± 1	A0 Max
NON-25 NON-50S	1/4W 1/2W	F	5~10	25±3	—	—	—	4.0
		FK	5~10	—	—	—	25±3	4.0
		FK FKK	5~10	—	4	3~	5~	4.0
NON-50 NON-100S	1/2W 1W	F	5~10	5~	—	—	—	4.0
		FK	5~10	—	—	—	25±3	4.0
		FK FKK	5~10	—	4	3~	5~	4.0
NON-100 NON-200S	1W 2W	F	5~10	5~	—	—	—	4.0
		FK FKK	5~10	—	4	3~	5~	4.0
NON-200 NON-300S	2W 3W	F	5~10	5~	—	—	—	4.0
		FK FKK	5~10	—	4	3~	5~	4.0
NON-300 NON-500S	3W 5W	F	5~10	5~	—	—	—	4.0
		FK FKK	5~10	5~	4	3~	5~	4.0

Remark : 1. Z = 3 ± 1. K = 2 ± 0.5,

2. ALTERNATE MARKING METHOD ALSO AVAILABLE ON REQUEST.

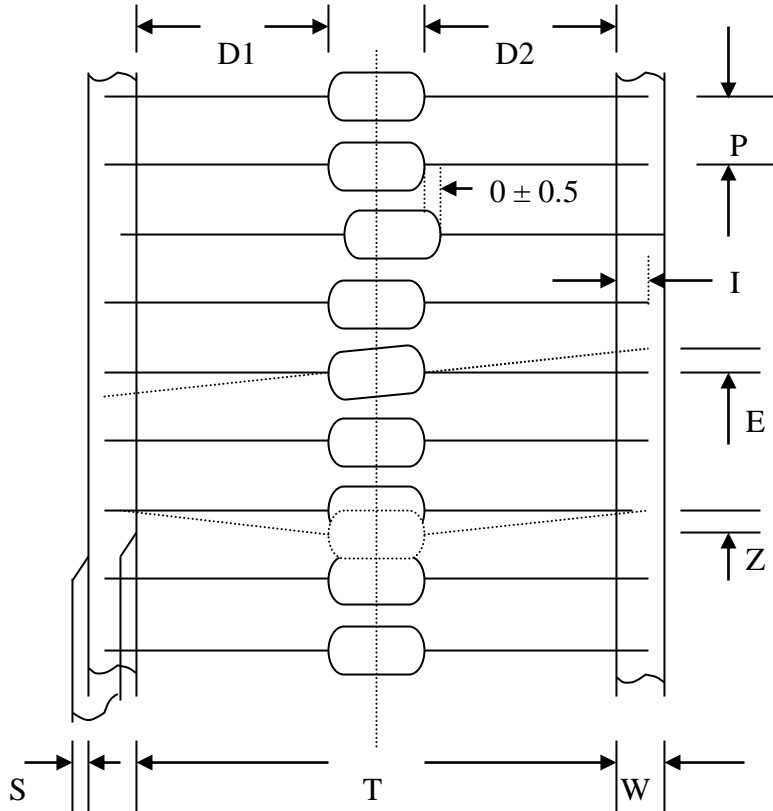
Figure5



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(3) TAPE PACKING (T-TYPE)



Unit:m/m

TYPE	SIZE	T	P ±0.5	W ±0.5	D1—D2 Max.	E Max.	Z Max.	S Max.	I Min.
NON-25 NON-50S	T-26	26±1.0	5	6	1.0	1	1.2	1	3
	T-52	52±2.0	5	6	1.0	1	1.2	1	3
NON-50 NON-100S	T-52	52±2.0	5	6	1.2	1	1.2	1	3
NON-100 NON-200S	T-52	52±2.0	5	6	1.2	1	1.2	1	3
	T-63	63±2.0	5	6	1.4	1	1.2	1	3
	T-74	74±2.0	5	6	1.4	1	1.2	1	3
NON-200 NON-300S	T-52	52±2.0	10	6	1.2	1	1.2	1	3
	T-63	63±2.0	10	6	1.4	1	1.2	1	3
	T-74	74±2.0	10	6	1.4	1	1.2	1	3
NON-300 NON-500S	T-63	63±2.0	10	6	1.4	1	1.2	1	3
	T-74	74±2.0	10	6	1.4	1	1.2	1	3
NON-500 NON-700S	T-86	86±2.0	10	6	1.4	1	1.2	1	3

Figure6



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6. CHARACTERISTICS

(1) Short Time Overload

Test Method : 2.5 times RCWV for 5 seconds

Acceptance Standard : $\pm(1\%+0.05\ \Omega)$

(2) Insulation Resistance

Test Method : in V-Block

Acceptance Standard : $>1,000M\Omega$

(3) Solderability

Test Method : 260°C for 5 ± 0.5 seconds

Acceptance Standard : 95% min. coverage

(4) Resistance to Solvent

Test Method : Trichroethane for 1 min. with ultrasonic

Acceptance Standard : no deterioration of coatings and marking

(5) Terminal Strength

Test Method : Direct load for 10 sec. in the direction of the
terminal leads

Acceptance Standard : $\geq 2.5\text{kg}$ (24.5N)

(6) Pulse Overload

Test Method : 4 times RCWV 10000 cycles (1 sec. on , 25 sec. off)

Acceptance Standard : $\pm (5\%+0.05\ \Omega)$

(7) Load Life in Humidity

Test Method : $40\pm 2^{\circ}\text{C}$ 90~95% RH at RCWV for 1000 hours.

(1.5 hrs. on , 0.5 hrs. off)

Acceptance Standard : $\pm (5\%+0.05\ \Omega)$



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(8) Load Life

Test Method : 70°C at RCWV for 1000 hours.

(1.5 hrs. on , 0.5 hrs. off)

Acceptance Standard : $\pm (5\%+0.05 \Omega)$

(9) Temperature Cycling

Test Method : $-65^{\circ}\text{C} \rightarrow \text{room temp.} \rightarrow 150^{\circ}\text{C} \rightarrow \text{room temp.}$ for 5 cycles

Acceptance Standard : $\pm (1\%+0.05 \Omega)$

(10) Resistance to Soldering Heat

Test Method : $350^{\circ}\text{C} \pm 10^{\circ}\text{C}$ for 3 ± 0.5 seconds

Acceptance Standard : $\pm (1\%+0.05 \Omega)$

(11) Inductance

Test Method : inductance less than 1uH

Test Instruments: 1. HP 4342A Q METER

2. YEW 2755 WHEATSTONE BRIDGE

3. DELICA GRID-DIP METER

(12) Soldering Recommendation

Test Method : The Standard Length of epoxy on the terminal of our product is less than 1.5mm. Also, the Standard Welding Point must be over than 1.6mm from Resistor body.

● **Rated continuous Working Voltage (RCWV)**

$$= \sqrt{\text{power rating} \times \text{resistance value}}$$



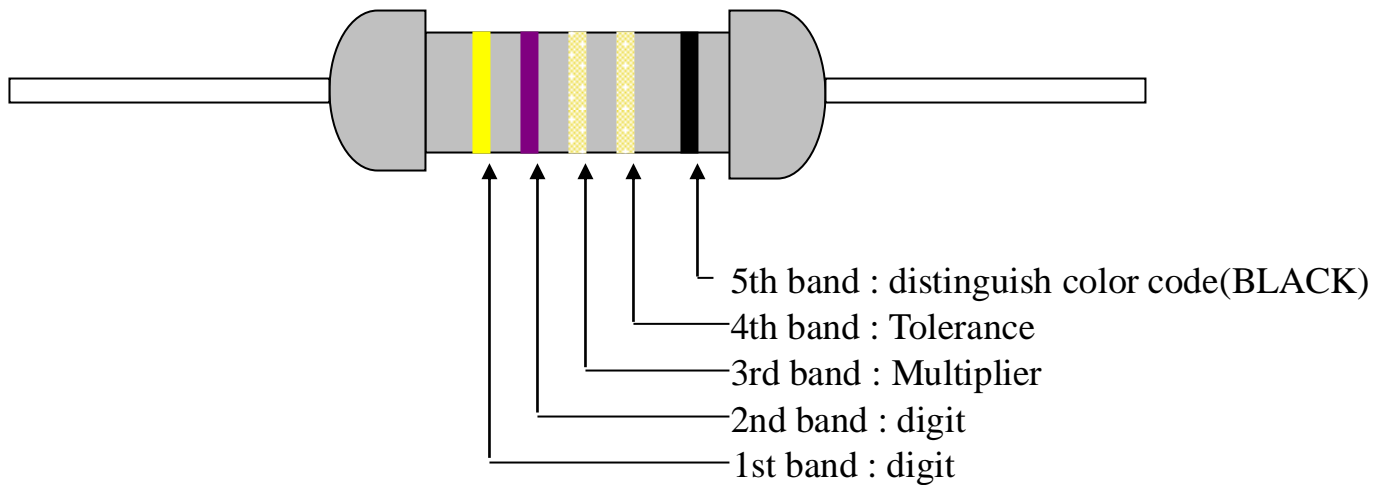
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7. COLOR CODING

7.1 J (±5%)

**** Non-inductive type distinguish color code(BLACK)**



Color	1st, 2nd (Significant Figure)	3rd (Multiplier)	4th (Tolerance)	(BLACK)
Black	0	0	10 ⁰	—
Brown	1	1	10 ¹	—
Red	2	2	10 ²	—
Orange	3	3	10 ³	—
Yellow	4	4	10 ⁴	—
Green	5	5	10 ⁵	—
Blue	6	6	10 ⁶	—
Violet	7	7	10 ⁷	—
Gray	8	8	10 ⁸	—
White	9	9	10 ⁹	—
Gold	—	—	10 ⁻¹	J (±5%)
Silver	—	—	10 ⁻²	—
Plain	—	—	10 ⁻³	—

**Non-inductive
Type distinguish
Color code**

Figure7

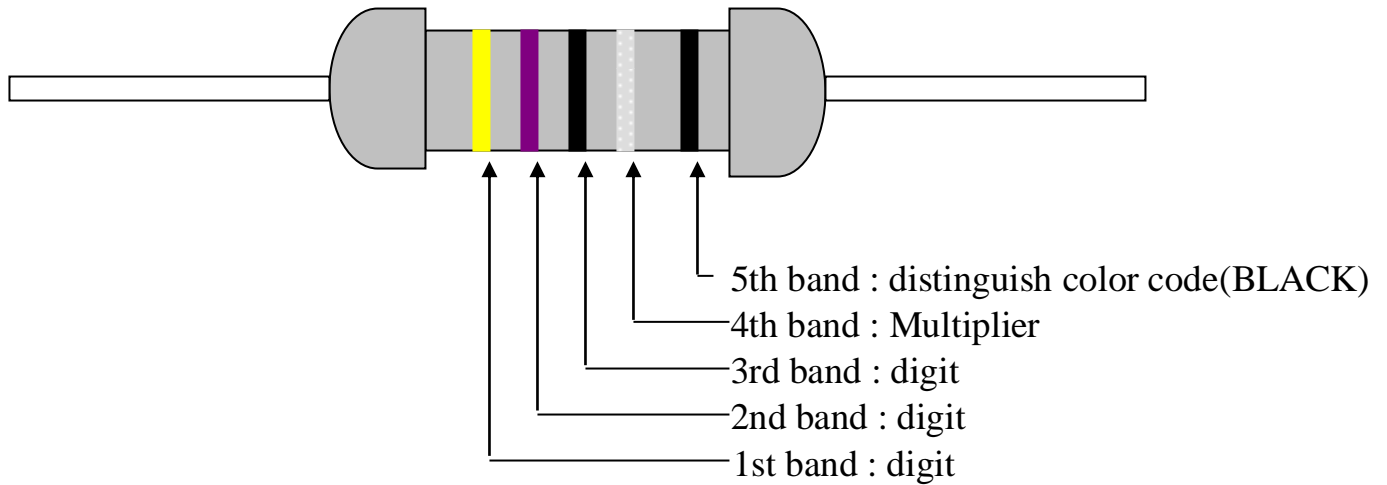


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7.2 F (±1%) & G (±2%)

- ** Non-inductive type distinguish color code(BLACK)
- ** Does not indicate the color code of tolerance



Color	1st, 2nd, 3rd (Significant Figure)			4th (Multiplier)	(BLACK)
Black	0	0	0	10 ⁰	Non-inductive Type distinguish Color code
Brown	1	1	1	10 ¹	
Red	2	2	2	10 ²	
Orange	3	3	3	10 ³	
Yellow	4	4	4	10 ⁴	
Green	5	5	5	10 ⁵	
Blue	6	6	6	10 ⁶	
Violet	7	7	7	10 ⁷	
Gray	8	8	8	10 ⁸	
White	9	9	9	10 ⁹	
Gold	—	—	—	10 ⁻¹	
Silver	—	—	—	10 ⁻²	
Plain	—	—	—	10 ⁻³	

Figure8