



SYNTON-TECH CORPORATION

WIRE WOUND RESISTORS NKNP (NON-INDUCTIVE)

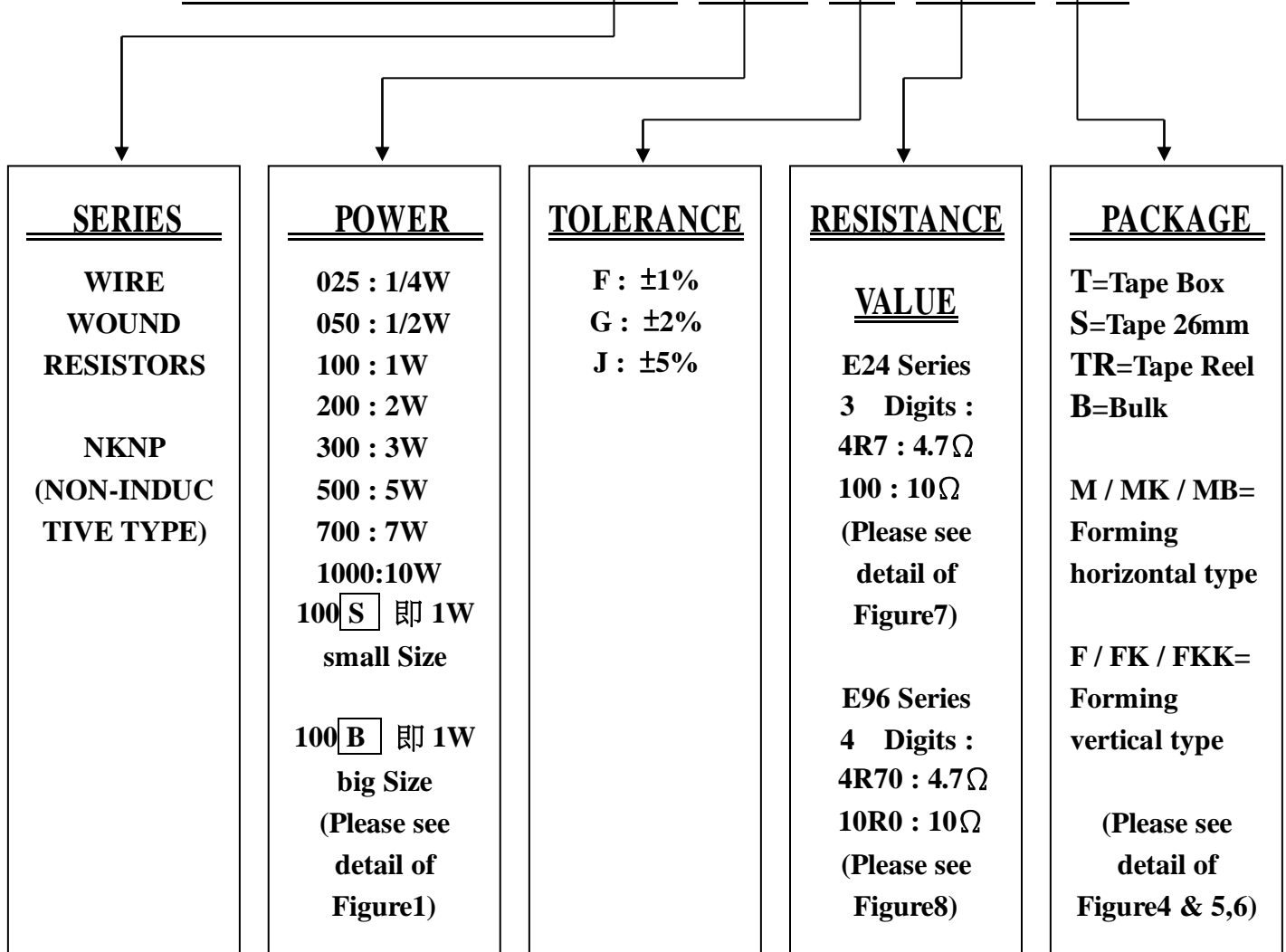
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1. **SUBJECT:** This specification applies on the Wire Wound Resistors
(non-inductive type) was made by SYNTON-TECH Corporation ◦

2. EXPLANATIONS OF ORDERING CODE

DESCRIPTION : NKNP 1W 5% 4Ω7

SYNTON CODE : NKNP 100 J 4R7 T



APPROVED	CHECKED	DESIGNED	REMARK	DOCUMENT NO.
Carol	May	Chen		0201010040



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3. ELECTRICAL CHARACTERISTICS

TYPE	NKNP -50	NKNP -100S	NKNP -100	NKNP -200S	NKNP -200	NKNP -300S	NKNP -300	NKNP -500	NKNP -500B	NKNP 700S	NKNP -700	NKNP -1000
Power Rating at 70°C	1/2W	1W	1W	2W	2W	3W	3W	5W	5W	7W	7W	10W
Operating Temp. Range	-55°C ~ +155°C											
Maximum Working Volt.	250V	250V	300V	300V	300V	300V	300V	300V	300V	300V	300V	350V
Maximum Overload Volt.	350V	350V	450V	450V	450V	450V	450V	450V	450V	450V	450V	450V
Dielectric withstanding Volt.	300V	300V	400V	400V	400V	400V	400V	400V	400V	400V	400V	400V
Value Range	Standard 0.1Ω~10Ω Special 0.02Ω~0.099Ω											
Temp. Coefficient	±300PPM /°C , special low to ±25PPM high to ±1500PPM											

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

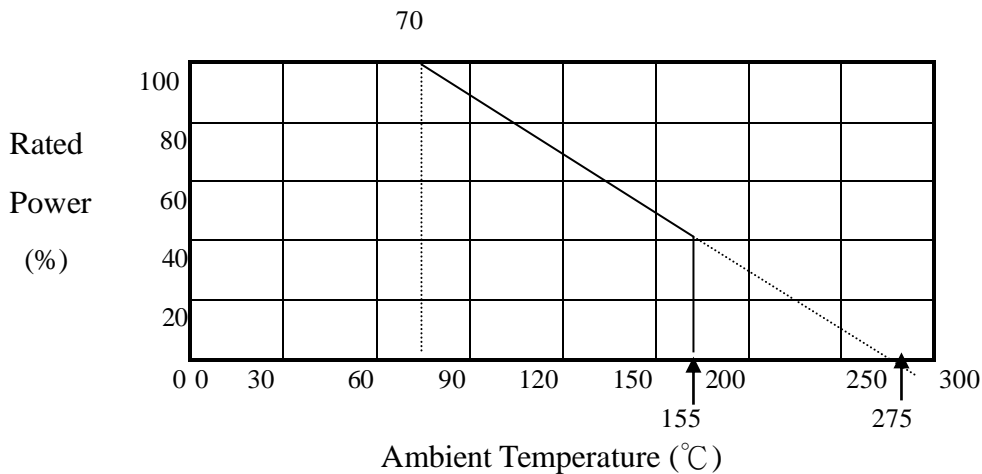


Figure2



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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)

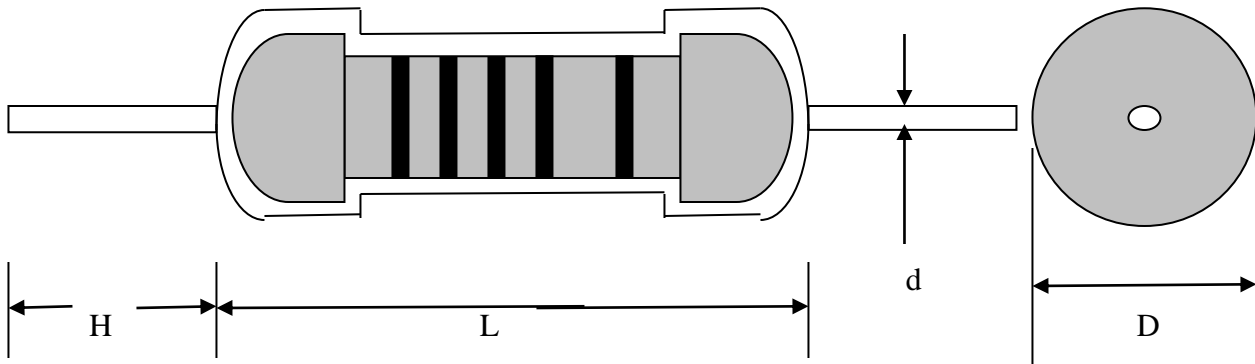
R : Resistance value (Ω)



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5. DIMENSIONS



Unit:m/m

TYPE	L	D	H	d
NKNP-50	9.0 ± 1.5	3.2 ± 1.5	25 ± 3	0.5 ± 0.1
NKNP-100S				
NKNP-100	11 ± 1.5	4.5 ± 1.5	35 ± 3	0.65 ± 0.1
NKNP-200S				
NKNP-200	15 ± 1.5	5.0 ± 1.5	35 ± 3	0.7 ± 0.1
NKNP-300S				
NKNP-300	17 ± 1.5	6.0 ± 1.5	35 ± 3	0.7 ± 0.1
NKNP-500				
NKNP-500B	24 ± 1.5	8.0 ± 1.5	35 ± 3	0.7 ± 0.1
NKNP-700S				
NKNP-700	39 ± 2.0	8.0 ± 1.5	28 ± 3	0.7 ± 0.1
NKNP-1000	52 ± 3.0	8.0 ± 1.5	35 ± 3	0.7 ± 0.1

Figure3



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WIRE WOUND RESISTORS NKNP (NON-INDUCTIVE)

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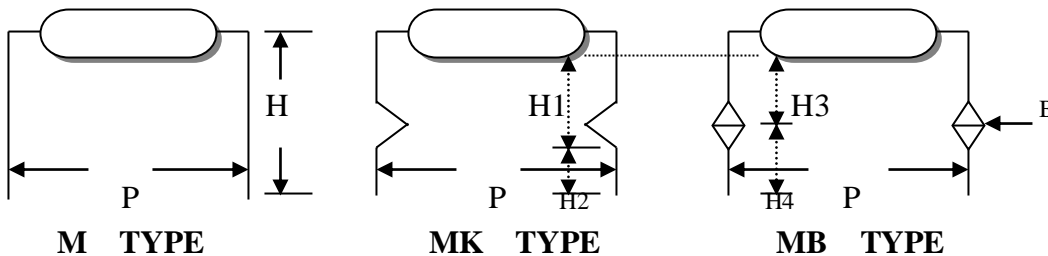
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(1) FORMING PACKING

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
NKNP-50 NKNP-100S	1/2W	M	12.5~	10~	—	—	—	—
	1W	MK.MB		—	5 8	3~	5 8	5~
NKNP-100 NKNP-200S	1W	M	15~	10~	—	—	—	—
	2W	MK.MB		—	5 8	3~	5 8	5~
NKNP-200 NKNP-300S	2W	M	20~	10~	—	—	—	—
	3W	MK MB		—	5 8	3~	5 8	5~
NKNP-300 NKNP-500	3W	M	25~	10~	—	—	—	—
	5W	MK MB		—	8	3~	8	5~

Remark: 1. B = 1.15 ~

ALTERNATE MARKING METHOD ALSO AVAILABLE ON REQUEST.

Figure4



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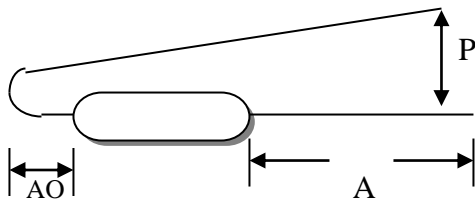
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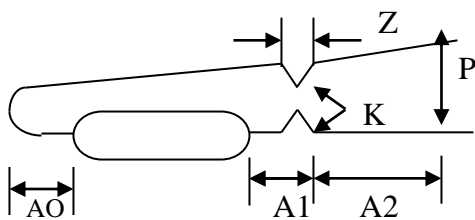
Date : 2021.01.01

(2) FORMING PACKING

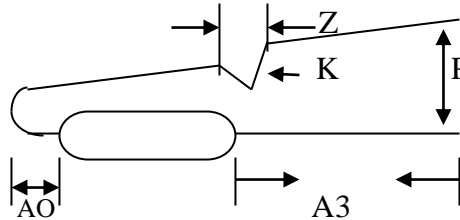
F / FK / FKK=Forming vertical type



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
NKNP-50 NKNP-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
NKNP-100 NKNP-200S	1W 2W	F	5~10	5~	—	—	—	4.0
		FK FKK	5~10	—	4	3~	5~	4.0
NKNP-200 NKNP-300S	2W 3W	F	5~10	5~	—	—	—	4.0
		FK FKK	5~10	—	4	3~	5~	4.0
NKNP-300 NKNP-500	3W 5W	F	5~10	5~	—	—	—	4.0
		FK FKK	5~10	5~	4	3~	5~	4.0

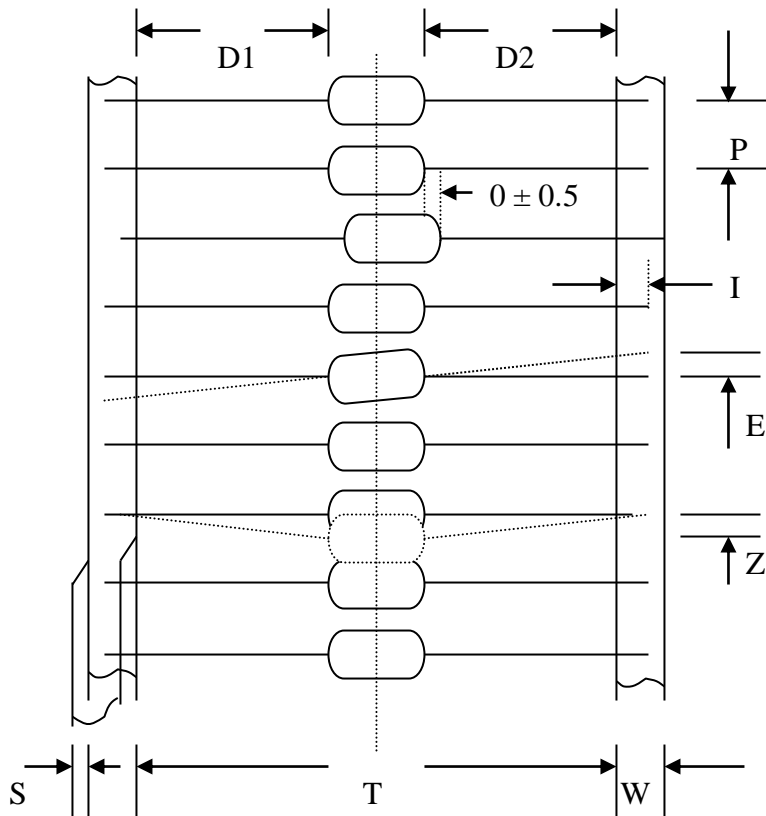
Remark: 1.Z = 3 ± 1. K = 2 ± 0.5,

ALTERNATE MARKING METHOD ALSO AVAILABLE ON REQUEST.

Figure5



(3) TAPE PACKING (T-TYPE)



Unit:m/m

TYPE	SIZE	T	P ±0.5	W ±0.5	D ₁ -D ₂ Max.	E Max.	Z Max.	S Max.	I Min.
NKNP-50 NKNP-100S	T-52	52±2.0	5	6	1.2	1	1.2	1	3
NKNP-100 NKNP-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
NKNP-200 NKNP-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
NKNP-300 NKNP-500	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
NKNP-500B NKNP-700S	T-86	86±2.0	10	6	1.4	1	1.2	1	3

Figure6



6. CHARACTERISTICS

(1) Resistance to Soldering Heat

Test Method : Immerse each terminal wire of a resistor up to 4 ± 0.8 mm away from the resistor body in the solder tank at $350\pm 10^{\circ}\text{C}$ for 3 ± 0.5 seconds.

Measure resistance in 3 hours.

Acceptance Standard : Resistance shall not change more than $\pm 1\%$.

No evidence of mechanical damage.

(2) Vibration

Test Method : Total amplitude of 1.5mm. The frequency shall vary from 10 HZ to 55 HZ, for approximate 1 second. Make this test in the direction parallel to the resistor axis, and up/down for 2 hours respectively. (altogether 6 hours.)

Acceptance Standard : Resistance shall not change more than $\pm 1\%$.

No evidence of mechanical damage.

(3) Moisture Resistance

Test Method : At temperature of $40\pm 2^{\circ}\text{C}$ and a relative humidity of 90-95% for 1000 ± 12 hours, under a rating DC voltage for hours on and 1/2 hour off.

Acceptance Standard : Resistance shall not change more than $\pm 3\%$.

No evidence of mechanical damage.



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(4) Load Life

Test Method : Thermostatic chamber at a temperature of $70\pm 5^{\circ}\text{C}$ under a rated DC voltage for 1.5 hours on and 1/2 hour off repeat this cycle for 1000 ± 12 hours.

Acceptance Standard : Resistance shall not change more than $\pm 3\%$.

No evidence of mechanical damage.

(5) Dielectric Withstanding Voltage

Test Method : Resistors shall be clamped in the trough of a 90 degree metallic V-block, apply AC between this electrode and another lead wire for 1 minute.

Acceptance Standard : Resistance shall not change more than $\pm 1\%$.

No evidence of mechanical damage.

(6) Insulation Resistance

Test Method : Resistors shall be clamped in the trough of a 90 degree metallic V-block, apply DC 100V between this electrode and another lead wire for 1 minute.

Acceptance Standard : 1,000M ohm above

(7) Short-Time Overload

Test Method : Resistors shall be tested 2.5 times rated voltage for 5 seconds at ambient room temperature.

Acceptance Standard : Resistance shall not change more than $\pm 2\%$.

No evidence of mechanical damage.



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(8) Inductance

Test Method : inductance less than 1uH

Test Instruments : 1.HP 4342A Q METER

2.YEW 2755 WHEATSTONE BRIDGE

3. DELICA GRID-DIP METER

(9) Soldering Recommendation

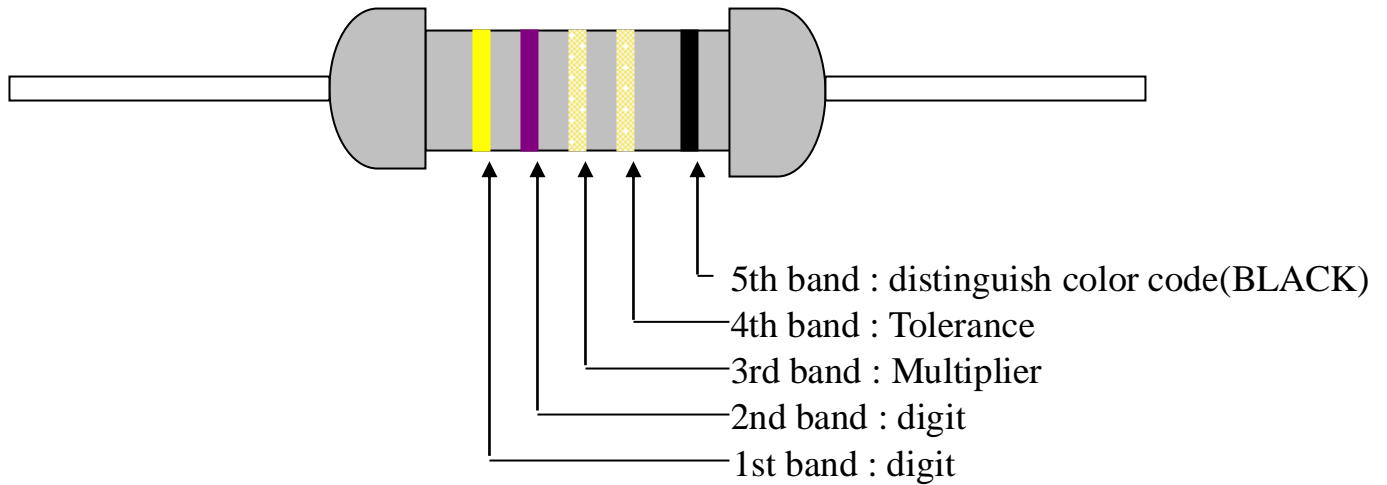
Test Method : The Standard Length of epoxy on the terminal of our product is less than 1.5mm. Also, the Standard Welding Point must be over than 1.6mm from Resistor body.



7. COLOR CODING

7.1 J (±5%)

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



Color	1st, 2nd (Significant Figure)		3rd (Multiplier)	4th (Tolerance)	5th (Distinguish color code)
Black	0	0	10 ⁰	—	Black
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	—	

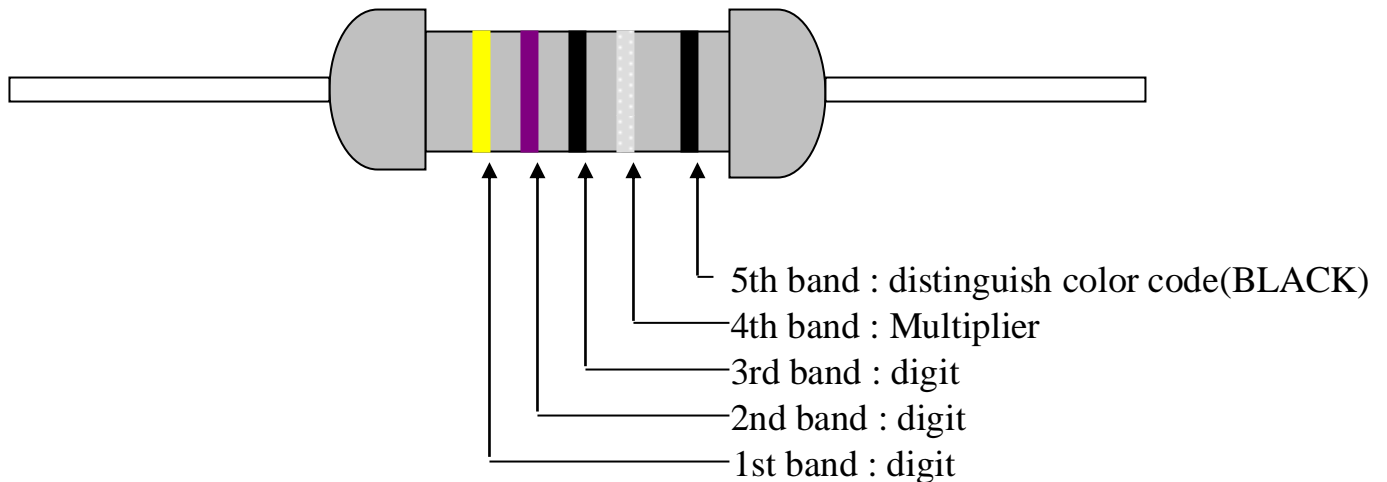
Figure7



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)	5th (Distinguish color code)
Black	0	0	0	10 ⁰	Black
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