



Bevenbi

METAL FILM RESISTORS

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DATE: 2021/3/20

(DATA SHEET)

客戶名稱 Client	
品 名 Description	METAL FILM RESISTORS
規 格 Specification	
料 號 Part No	
備 注 Remark	

(Supplier recognize)			(Customers recognize)		
Draft by	Checked by	Approved by	Tested by	Checked by	Approved by
Engineer Li	Chief QC Lan	Chief Engineer Shen			

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1. GENERAL INSTRUCTION:

1-1 SCOPE

This specification applies to the Metal Film Resistor made by C.C.OHM ENTERPRISE CO.,LTD.

1-2 CLASSIFICATION

Type number is described as follows:

MF	1W	T81	150K	F
CLASS	POWER RATING	SHAPE	NOMINAL RESISTANCE VALUE	TOLERANCE

2.NOMINAL RESISTANCE:

The nominal resistance shall be the resistance marked on the resistor body and identified, as a Rule, in units , Ω K Ω ,M Ω .

3.NOMINAL RESISTANCE TOLERANCE.

The nominal resistance tolerance is represented in one capital letter selected from F($\pm 1\%$), D($\pm 0.5\%$), C($\pm 0.25\%$), B($\pm 0.1\%$).

4 .RATING:

MF (METAL FILM FIXED RESISTORS)

STYLE	MAX WORKING	MAX OVERLOAD	RESISTANCE VALUE RANGE
MF1/6W.1/8W. 1/16W	200V	400V	10E——1M
MF1/4W / I/4WS	250V	500V	
MF1/2W / 1/2WS	350V	700V	
MF1W / 1WS	500V	1000V	
MF2W / 2WS	500V	1000V	
MF3W / 3WS	500V	1000V	
MF5W/5WS	500V	1000V	

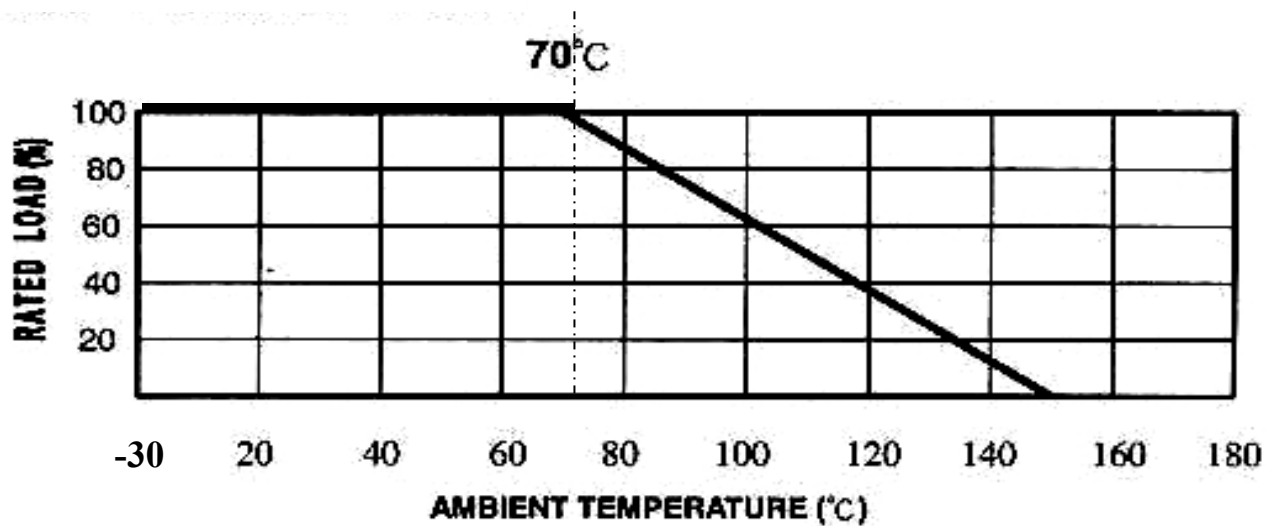
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4 – 1.POWER RATING

Power rating is defined as maximum power rating continuously applied under ambient

temperature at 70°C .when the ambient temperature exceeds 70°C ,use chart 1.



4 – 2 RATED VOLTAGE

Rated voltage is defined as the DC or AC (effective

Value at commercial frequency example 50 C/S,60 C/S)

Voltage when rated power is applied and can be calculated

By the following EQUATION $E = \sqrt{PR}$

E=RATED VOLTAGE

P=RATED POWER (WATTS)

R=NOMINAL RESISTANCE VALUE (OHM)

When the calculated rated voltage exceeds the

Maximum usable voltage flue shown in CHART 1,the

Maximum usable voltage is defined as the voltage

According to the power-decreasing curve shown in CHART1.

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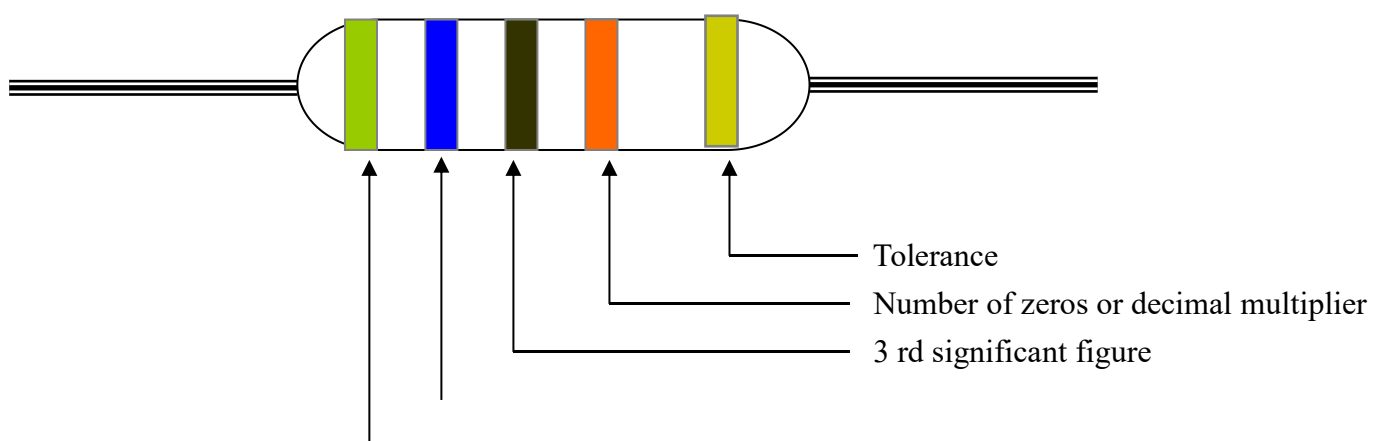
ITEM (STANDARD)	PERFORMANCE AND/OR QUALIITY ACCEPTANCE	TEST METHOD
Resistance value Vs Temperature Characteristics	$\pm 100\text{PPM}/^{\circ}\text{C}$	JIS-C-5202 5.2 Measure resistance (R_o ohm) at room Temperature(T_o $^{\circ}\text{C}$) Measure again the same at 100°C Higher then room temperature $\text{PPM} = \frac{R - R_o}{R_o} * \frac{10^6}{(T_o+100) - T_o}$
ITEM (STANDARD)	PERFORMANCE AND/OR QUALIITY ACCEPTANCE	TEST ME THOD
Short time overload	The resistance variation shall be within $\pm(0.5\% + 0.05\text{ohm})$ and there Shall be no mechanical breakage	JIS-C-5202 5.5 Apply DC voltage 2.5times the rated Voltage for 5 seconds The leave at room temperature for 30 Minutes then measure MAX overload Voltage 0.50W – 700V (DC)
Insulation resistance	10,000M ohm or more	JIS-C-5202 5.6 in V-BLOCK Lay the resistor on 90° angle metal V Block apply 500VDC between resistor Lead and V block for one Minute And Measure
Voltage endurance	The resistance variation shall be within $\pm(0.5\% + 0.05\text{ohm})$ and there shall Be no mechanical breakage	JIS-C-5202 5.7 Icy the resistor on the 90° angle metal V Block and apply reamed AC voltage for One Minute. Test voltage 0.25W – 500V (AC) 0.50W –700V(AC)
Intermittent overload	Resistance variation shall be Within $\pm(0.50\% + 0.05\text{ohm})$	JIS-C-5202 5.8 Apply AC voltage 4 times the rated voltage for 1 second and rest for 25 seconds and Repeat this cycle for 10000$\pm$200times leave resistor 30 minutes at room temperature after test and measure Maximum voltage for intermittent Overload.0.50W – 700V(AC)

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Terminal strength	Resistance variation shall be within $\pm(0.5\% + 0.05\text{ohm})$ also there shall be on mechanical breakage	Pull test apply 2.5kg force to the lead in the direction of lead axis for 30 ± 5 seconds.
Heat resistively Against soldering	Resistance variation shall be within $\pm(0.25\% + 0.05\text{ohm})$ also there shall be on mechanical breakage	JIS-C-5202 7.10 Dip the lead in to a solder bath having a Temperature of $350^{\circ}\text{C} \pm 10^{\circ}\text{C}$ up to $4\pm 0.8\text{mm}$ from the body of the resistor and hold it for 3 ± 0.5 seconds leave the resistor at room temperature 3 hours after ,then Measure
Load life test	The variation of the resistance Shall be within $\pm(1.5\% + 0.05\text{ohm})$ Also there shall be no mechanical Breakage	JIS-C-5202 7.10 In the constant temperature chamber having Temperature $70^{\circ}\text{C} \pm 2^{\circ}\text{C}$, apply rated Dc voltage for 1.5hour and shut voltage for 0.5 hour and repeat this cycle for 1000 hours, leave in room temperature hour after test, then measure
EM (STANDARD)	PERFORMANCE AND/OR QUALITY ACCEPTANCE	TEST METHOD
Solder ability	More than 95% of the surface of the lead shall be covered by new solder after the leads are dipped in the Solder	JIS-C-5202 6.5 Dip the lead in to a solder bath having a Temperature of $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$ up to $4\pm 0.8\text{mm}$ from the body of the resistor and hold it for 5 ± 0.5 seconds then inspect
Humidity load test	Resistance variation be Within $\pm(1.5\% + 0.05\text{ohm})$ Also there shall be no mechanical breakage	JIS-C-5202 7.9 In temperature chamber having temperature $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$, relative humidity 90 – 95%, Apply rated voltage 1.5hour and shut voltage 0.5 hour repeat this cycle for 1000 hours, leave in room temperature for hour after test, then measure

5. Marking



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_____ 2 nd significant figure
 _____ 1 st significant figure

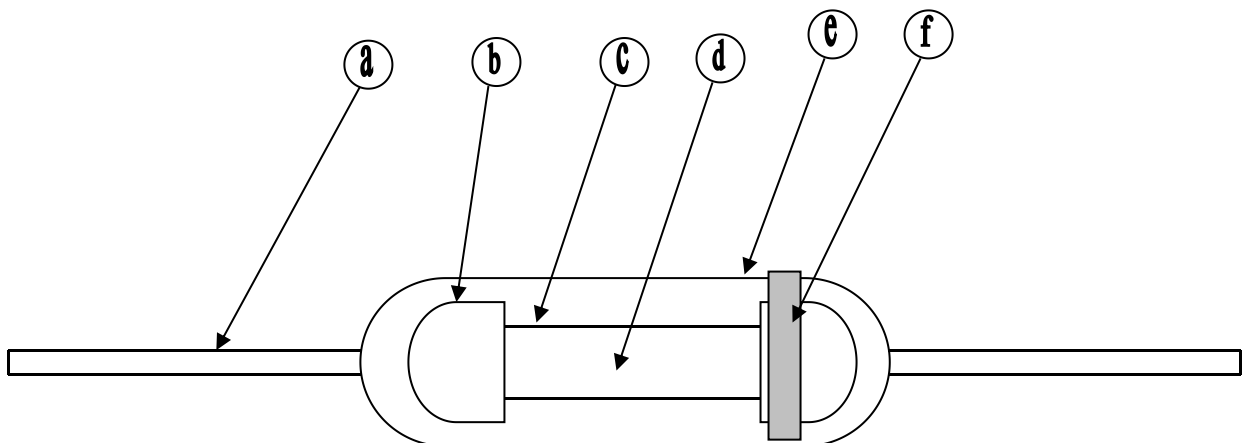
Color refer

Color	1 st Band	2 nd Band	3 rd Band	4 th Band	Tolerance
Black	0	0	0	10^0	
Brown	1	1	1	10^1	$\pm 1.00\%$
Red	2	2	2	10^2	
Orange	3	3	3	10^3	
Yellow	4	4	4	10^4	
Green	5	5	5	10^5	$\pm 0.50\%$
Blue	6	6	6	10^6	$\pm 0.25\%$
Violet	7	7	7	10^7	$\pm 0.10\%$
Grey	8	8	8	10^8	
White	9	9	9	10^9	
Gold				10^{-1}	
Silver				10^{-2}	

6. Construction and Dimension

6-1. Construction

- Lead Wire .
- End Cap.
- Metal Film
- Ceramic Rod
- Epoxy Resin.
- Color Code



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6-2 Dimensions

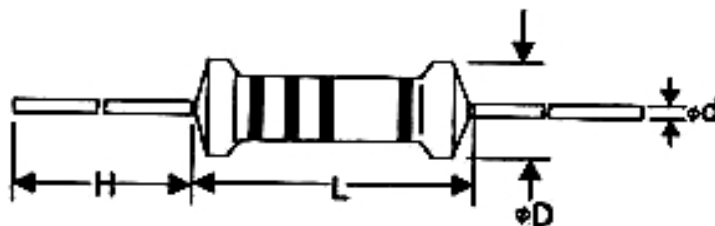
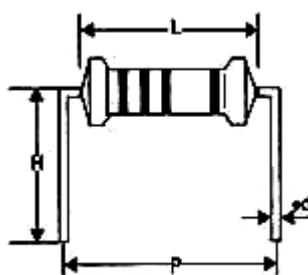


TABLE:

WATTS	L	D	H	d ± 0.05mm
1/6W 1/8W 1/16W	3.2 ± 0.3	1.8 ± 0.3	28 ± 2.0	0.4
1/4WS				
1/4W				
1/2WS	6.0 ± 0.5	2.3 ± 0.3	28.0 ± 2.0	0.45
1/2W				
1WS	9.0 ± 0.5	3.2 ± 0.3	26.0 ± 2.0	0.52
1W				
2WS				
1W	11.0 ± 1.0	3.7 ± 0.5	25.0 ± 2.0	0.65
2WS				
1W	11.0 ± 1.0	4.2 ± 0.5	35.0 ± 3.0	0.65
2WS				
2W				
3WS	15.0 ± 1.0	5.0 ± 0.5	33.0 ± 3.0	0.72
3W				
5WS	17.0 ± 1.0	6.0 ± 0.5	36.0 ± 3.0	0.72
5W				
5W	24.0 ± 1.0	8.0 ± 1.0	33.0 ± 3.0	0.72

7. FORMED DIMENSIONS

7-1. M – TYPE



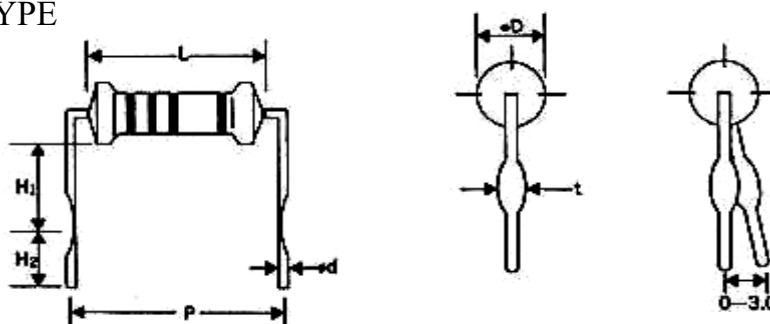
WATTS	DIMENSIONS (mm)				
	L	P ± 1.0	D	d ± 0.05	H ± 1.0
1/6W/1/8W/1/16W /1/4WS	3.2 ± 0.3	6	1.8 ± 0.3	0.40	8.0
1/4W/1/2WS	6.0 ± 0.5	10	2.3 ± 0.3	0.45	8.0
1/2W/1WS	9.0 ± 0.5	12.5/15	3.2 ± 0.3	0.52	8.0
1W/2WS	11.0 ± 1.0	15	4.2 ± 0.5	0.65	10
2W/3WS	15.0 ± 1.0	20	5.0 ± 0.5	0.72	10
3W/5WS	17.0 ± 1.0	25	6.0 ± 0.5	0.72	10

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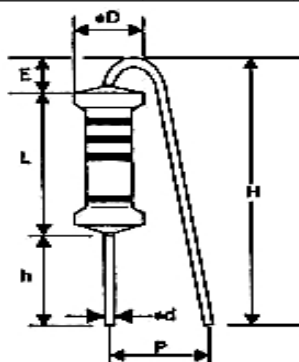
5W	24.0±1.0	33	8.0±1.0	0.72	10
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7-2 . MB – TYPE



WATTS	DIMENSIONS (mm)						
	L	P±1.0	D	d±0.05	H1±1.0	H2±1.0	t±0.2
1/2W/1WS	9.0±0.5	12.5	3.2±0.3	0.52	10.5	5.0	1.20
1W/2WS	11.0±1.0	15	4.2±0.5	0.65	10.5	5.0	1.25
2W/3WS	15.0±1.0	20	5.0±0.5	0.72	10.5	5.0	1.25
3W/5WS	17.0±1.0	25	6.0±0.5	0.72	10.5	5.0	1.25
5W	24.0±1.0	30	8.0±1.0	0.72	10.5	5.0	1.25

7 – 3. F – TYPE

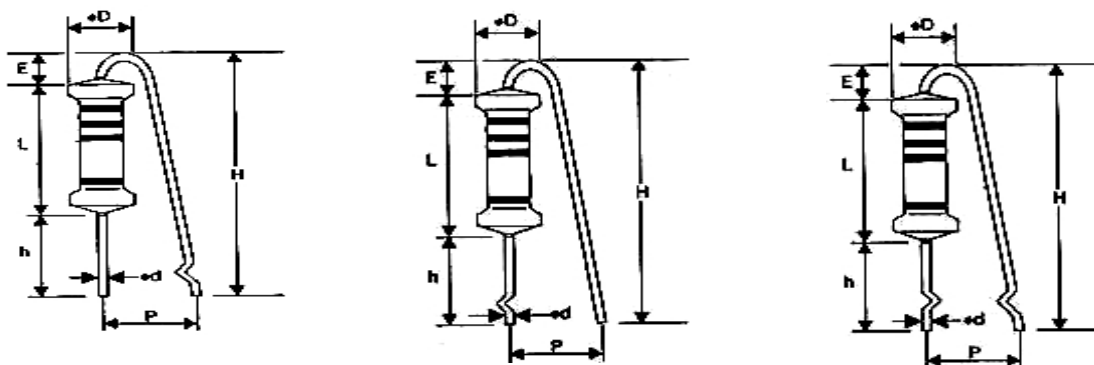


WATTS	DIMENSIONS (mm)						
	L	P±1.0	D	d±0.05	h±1.0	H±1.0	E _{max}
1/4W/1/2WS	6.0±0.5	6-8	2.3±0.3	0.45	8.0	14	3
1/2W/1WS	9.0±0.5	6-8	3.2±0.3	0.52	8.0	18	3.5
1W/2WS	11.0±1.0	6-8	4.2±0.5	0.65	8.0	20	3.5
2W/3WS	15.0±1.0	6-8	5.0±0.5	0.72	8.0	25	3.5
3W/5WS	17.0±1.0	6-8	6.0±0.5	0.72	8.0	30	3.5

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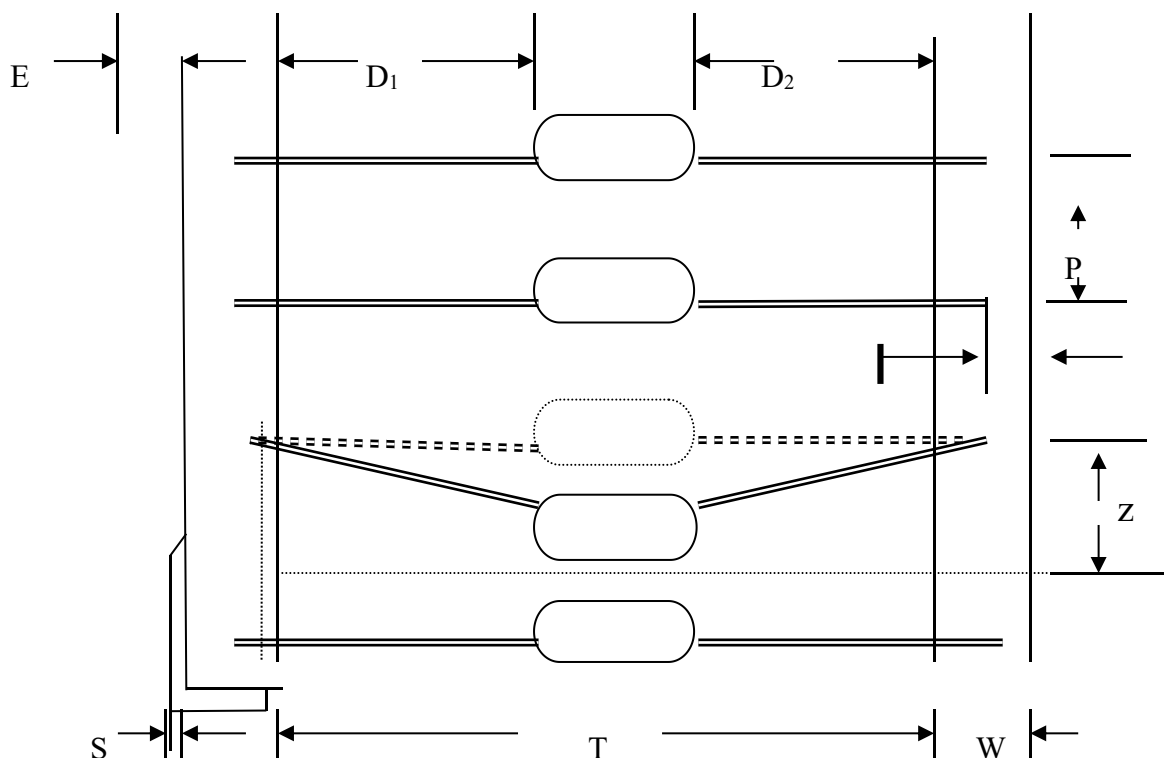
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7- 4. FK2-TYPE,FK1 — TYPE AND FKK-TYPE



WATTS	DIMENSIONS(mm)						
	L	P±1.0	D	d±0.05	h+1/-0	H±1.0	E _{max}
1/2W/1WS	9.0±0.5	5-7	3.2±0.3	0.52	8	18	3.5
1W/2WS	11.0±1.0	5-9	4.2±0.5	0.65	8	20	3.5
2W/3WS	15.0±1.0	5-9	5.0±0.5	0.72	8	25	3.5
3W5WS	17.0±1.0	5-10	6.0±0.5	0.72	8	30	3.5

8. Taping Dimensions



WATTS	Type	T	p±0.5	W±0.5	D1—D2 MAX	E MAX	Z MAX	S MAX	I MAX
1/6W/1/8W	T— 26	26±1.5	5	6	0.8	0	1.2	0.8	3.2

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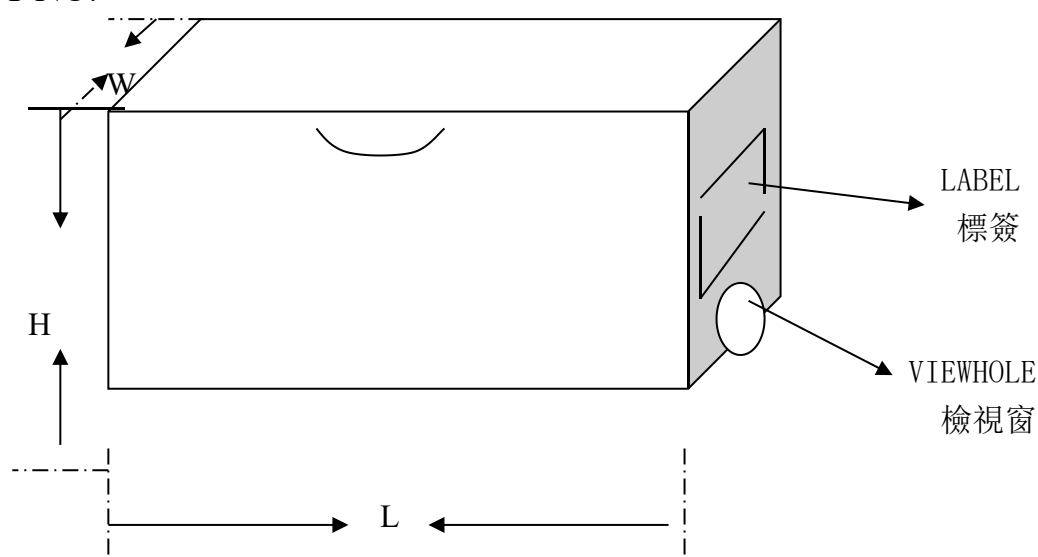
1/16W/1/4WS	T- 52	52±1.5	5	6	0.8	0	1.2	0.8	3.2
1/4W 1/2WS	T- 26	26±1.5	5	6	0.8	0	1.2	0.8	3.2
	T- 52	52±1.5	5	6	0.8	0	1.2	0.8	3.2
1/2W/1WS	T- 52	52±1.5	5	6	0.8	0	1.2	0.8	3.2
1W/2WS	T- 73	73±1.5	5	6	0.8	0	1.4	0.8	3.2
2W/3WS	T- 73	73±1.5	10	6	0.8	0	1.4	0.8	3.2
3W/5WS	T- 73	73±1.5	10	6	0.8	0	1.4	0.8	3.2

9 . PACKING

9 - 1. TAPING TYPE

LABEL SPECIFICATION

1. TYPE
2. WATTS TOLERANCE
3. RESISTANT QUANTITY
4. P/N
5. LOT NO.



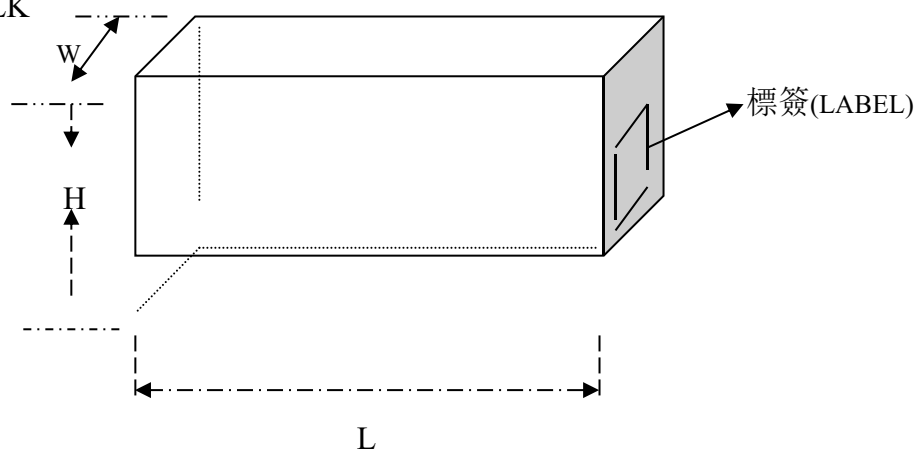
TYPE	WATTS	W(mm)	H(mm)	L(mm)	Q-TY(pcs)
T-26	1/6W 1/8W 1/16W 1/4WS	50	67	260	5000
	1/4W/ 1/2WS	50	100	260	5000
T-52(60)	1/6W / 1/8W 1/16W 1/4WS	80	72	260	5000
	1/4W/ 1/2WS	80	100	260	5000
	1/2W/ 1WS	80	85	260	2000

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T-73(81)	1W/ 2WS	90	77	260	1000
	2W/ 3WS	90	95	260	1000
	3W/5WS	90	77	260	500
T-84(94)	5W	110	92	260	250

9-2. BULK



WATTS		TYPE	L(mm)	W(mm)	H(mm)	POLY BOG	BOX(pcs)
1/6W 1/8W	1/16W 1/4WS	P	240	140	76	1000	20000
1/4W	1/2WS	P	240	140	76	500	10000
1/2W	1WS	P	240	140	76	500	5000
1W	2WS	P	240	140	76	200	2000
2W	3WS	P	240	140	76	100	1500
3W/5WS		P	240	140	76	100	1000