

# 香港電阻製造廠

香港柴灣安業街十二號長益工業大廈10字樓A座

## HONG KONG RESISTORS MANUFACTORY

(wholly owned by Hong Kong Resistors Manufactory International Ltd.)

AN ISO 9001:2015 CERTIFIED MANUFACTURER

AN ISO 45001: 2018 MANUFACTURER

AN ISO 14001: 2015 MANUFACTURER

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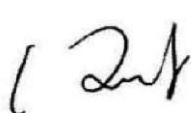



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## DATASHEET

Name of Product: METAL FILM FIXED RESISTOR – TAPING

Sales Executive: \_\_\_\_\_

Date: \_\_\_\_\_

製造 Prepared by	品質 Quality by	業務 Sales by	核准 Authorized by
			
<b>JSC PROMELECTRONICS</b>			
客戶 customer approval	客戶 customer approval	客戶 customer approval	客戶 customer approval

Spec. No. MFTB 2023

Rev. No.: 2023 Aug

**PRODUCT : METAL FILM FIXED RESISTOR**

**TYPE : MF 166/25/50/100/200**

## 1. APPLICABLE SCOPE :

- 1.1 This specification is for use in METALFILM FIXED RESISTORS
- 1.2 Characteristics and specifications are according to those of :  
JIS C 5202
- 1.3 RoHS and REACH compliant product

## 2. PART NUMBER

It is composed of description , rated wattage , nominal resistance value , tolerance and packaging.

### 2.1 Make Up :

M	F	2	5	2	0	R	F	T	B	0	5	0		
Product Code		Power Rating		Nominal Resistance Value		Tolerance		Packaging		Lead Wire diameter		Tapingwidth		
M	Metal	Code	Wattage			Code	Tol.	TB	in box	Code	Size	Code	Size	
F	Film	166	0.166 (1/6W)			F	1%				166 : 0.40mm		52mm	
		25	0.25 (1/4W)			J	5%			050	25 : 0.50mm	73	73mm	
		50	0.50 (1/2W)					055	50 : 0.55mm					
		100	1.0 (1W)					075	100 : 0.75mm					
		200	2.0 (2W)					075	200 : 0.75mm					

### 2.2 Explanation :

Part Number

Description

MF25 20RF TB 050

Metal Film Fixed Resistor , 1/4W , 20Ω , +/-1% , tape in box,

Lead Wire diameter: d=0.50mm, Taping width=52mm.

\*Remarks : The power rating of 1/6W is coded as 166.

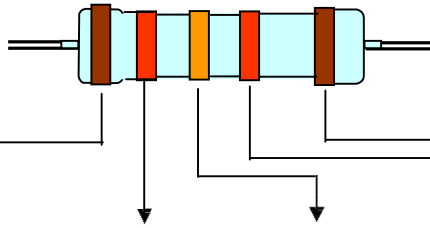
**PRODUCT : METAL FILM FIXED RESISTOR**

**TYPE : MF 166/25/50/100/200**

### 2.3 Color code indication

Fixed resistors of which the nominal resistance value and tolerance are indicated by color codes as per Table 1 :

TABLE - 1



COLOR	1 <sup>ST</sup> DIGIT	2 <sup>ND</sup> DIGIT	3 <sup>RD</sup> DIGIT	MULTIPLIER	TOLERANCE
BLACK	0	0	0	1	
BROWN	1	1	1	10	F(±1%)
RED	2	2	2	100	
ORANGE	3	3	3	1,000	
YELLOW	4	4	4	10,000	
GREEN	5	5	5	100,000	
BLUE	6	6	6	1000,000	
VIOLET	7	7	7	10,000,00	
GREY	8	8	8		
WHITE	9	9	9		
GOLD				0.1	J(±5%)
SILVER				0.01	

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### 3. DIMENSIONS :

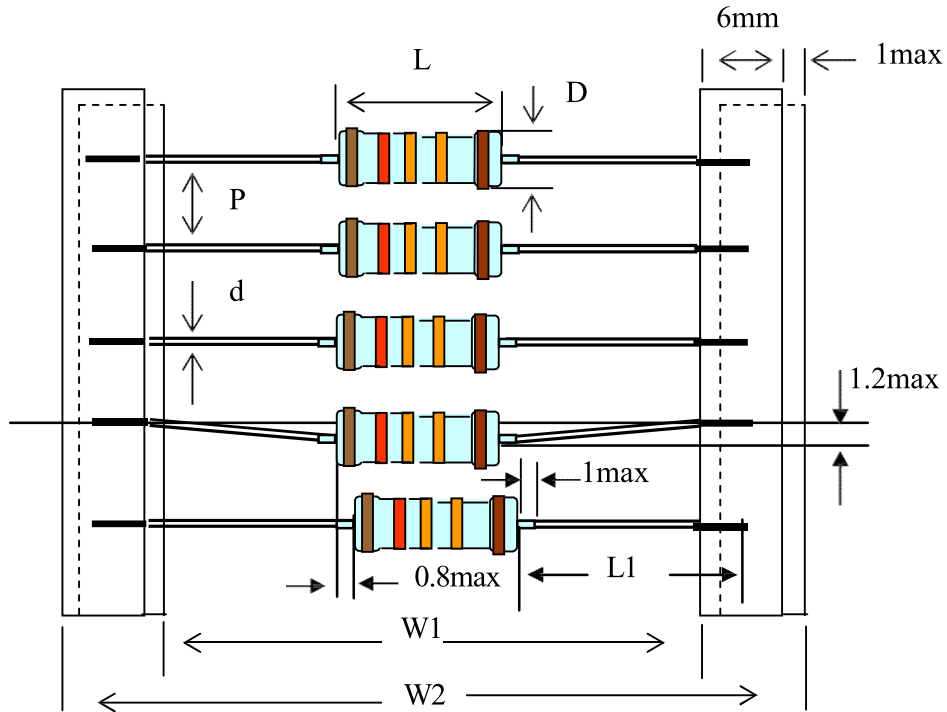


TABLE - 2

Unit : mm

TYPE	L	D	d	P	W1	W2	L1
MF166	3.5±0.5	1.7±0.5	0.40±0.05	5±0.3	52±1	64±1	27±1
MF25	6.0±1.0	2.3±0.5	0.50±0.05	5±0.3	52±1	64±1	26±1
MF50	9.0±1.0	3.0±0.5	0.55±0.05	5±0.3	52±1	64±1	26±1
MF100	11.0±1.5	4.0±0.5	0.75±0.05	5±0.3	73±1.5	85±1.5	34±1
MF200	15.0±1.5	5.0±0.5	0.75±0.05	10±0.3	73±1.5	85±1.5	34±1

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## 4. SPECIFICATIONS

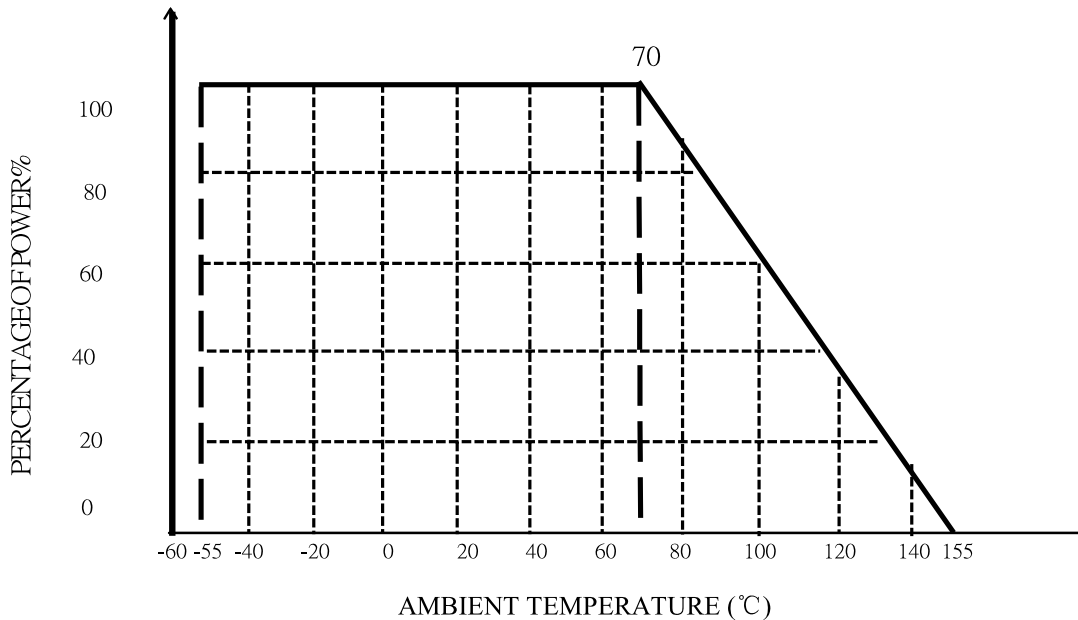
TABLE - 3

DESCRIPTION	MF-166	MF-25	MF-50	MF-100	MF-200	MF-300
STANDARD RESISTANCE VALUE RANGE	10Ω - 1MΩ	10Ω - 1MΩ	10Ω - 1MΩ	10Ω - 1MΩ	10Ω - 1MΩ	10Ω - 1MΩ
POWER RATING AT 70°C	1/8W	1/4W	1/2W	1W	2W	3W
*MAX WORKING VOLTAGE	200V	250V	350V	500V	500V	500V
*MAX OVERLOAD VOLTAGE	400V	500V	700V	1,000V	1,000V	1,000V
OPERATING TEMPERATURE RANGE	-55°C ~ +135°C	-55°C ~ +135°C	-55°C ~ +135°C	-55°C ~ +155°C	-55°C ~ +155°C	-55°C ~ +155°C
TEMPERATURE COEFFICIENT	±100PPM	±100PPM	±100PPM	±100PPM	±100PPM	±100PPM
TEMPERATURE CYCLING	±(0.5%R+0.05Ω)	±(0.5%R+0.05Ω)	±(0.5%R+0.05Ω)	±(0.5%R+0.05Ω)	±(0.5%R+0.05Ω)	±(0.5%R+0.05Ω)
INSULATION RESISTANCE	MIN.1,000 MΩ	MIN.1,000 MΩ	MIN.1,000 MΩ	MIN.1,000 MΩ	MIN.1,000 MΩ	MIN.1,000 MΩ
HUMIDITY	±(1.5%R+0.05Ω)	±(1.5%R+0.05Ω)	±(1.5%R+0.05Ω)	±(1.5%R+0.05Ω)	±(1.5%R+0.05Ω)	±(1.5%R+0.05Ω)
SHORT-TIME OVERLOAD	±(0.5%R+0.05Ω)	±(0.5%R+0.05Ω)	±(0.5%R+0.05Ω)	±(0.5%R+0.05Ω)	±(0.5%R+0.05Ω)	±(0.5%R+0.05Ω)
SOLDERABILITY	MIN.95% COVERED	MIN.95% COVERED	MIN.95% COVERED	MIN.95% COVERED	MIN.95% COVERED	MIN.95% COVERED
VIBRATION	±(0.5%R+0.05Ω)	±(0.5%R+0.05Ω)	±(0.5%R+0.05Ω)	±(0.5%R+0.05Ω)	±(0.5%R+0.05Ω)	±(0.5%R+0.05Ω)
LOAD LIFE	±(2%R+0.05Ω)	±(2%R+0.05Ω)	±(2%R+0.05Ω)	±(2%R+0.05Ω)	±(2%R+0.05Ω)	±(2%R+0.05Ω)

\* The working voltage is calculated based on the resistance value following the formula of  $V = \sqrt{P \cdot R}$  or to its maximum extent as indicated above

\* The overload voltage is calculated based on the resistance value following the formula of  $V = 2.5 \cdot \sqrt{P \cdot R}$  or to its maximum extent as indicated above

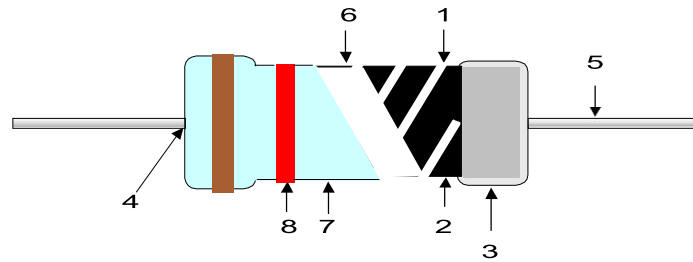
## 5. POWER DERATING CURVE



PRODUCT : METAL FILM FIXED RESISTOR

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## 6. STRUCTURAL DIAGRAM



- |                        |   |
|------------------------|---|
| (1) CORE               | CERAMIC ROD                             |
| (2) RESISTANCE FILM    | METAL FILM                              |
| (3) TERMINAL           | TINNED IRON CAP                         |
| (4) CONNECTION         | ELECTRIC WELDING                        |
| (5) LEAD WIRE          | SOLDERED OR TINNED ANNEALED COPPER WIRE |
| (6) UNDERCOAT          | ELECTRIC INSULATION VARNISH             |
| (7) FINISHING PAINTING | ELECTRIC INSULATION PAINT               |
| (8) INDICATION         | COLOR CODE INK                          |

TABLE - 4

RATED RESISTANCE VALUE	MAX. TESTING VOLTAGE	
	0.166W / 0.25W	0.5W / 1W / 2W
$0.1\Omega \leq R < 10\Omega$	0.3	0.3
$10\Omega \leq R < 100\Omega$	0.3	1
$100\Omega \leq R < 1K\Omega$	1	3
$1K\Omega \leq R < 10K\Omega$	3	10
$10K\Omega \leq R < 100K\Omega$	10	30
$100K\Omega \leq R < 1M\Omega$	30	50
$1M\Omega \leq R$	50	100

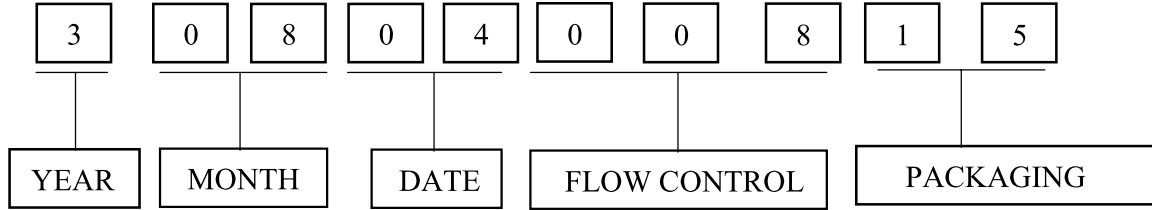
**PRODUCT : METAL FILM FIXED RESISTOR**
**TYPE : MF 166/25/50/100/200**
**7. CHARACTERISTICS**
**TABLE – 5**

DC RESISTANCE VALUE	TEST METHOD MIL-STD-202 ITEM 303	VOLTAGE AS TABLE -4. TEMPERATURE $25 \pm 2^{\circ}\text{C}$ . AQL 0.25%.
VOLTAGE WITHSTAND	TEST METHOD MIL-STD-202 ITEM 301	V-BLOCK METHOD. VOLTAGE AS TABLE -3 $\times 1.42$ , 1 MIN. AQL 1%.
SHORT TIME OVERLOAD	TEST METHOD JIS C 5201 ITEM 5.5	RATED VOLTAGE $\times 2.5$ TIMES OR MAX.WORKINGVOLTAGE $\times 2$ TIMES. ABOVE TEST 5 SEC. THE RESISTANCE VALUE CHANGE RATE SHALL BE WITHIN $\pm(0.5\%R+0.05 \Omega)$ .
INTERMITTENT OVERLOAD	TEST METHOD JIS C 5201 ITEM 5.8	RATED VOLTAGE $\times 4$ TIMES, (1 SEC ON, 25 SEC OFF). ABOVE TEST 10,000 CYCLES. THE RESISTANCE VALUE CHANGE RATE SHALL BE WITHIN $\pm(0.5\%R+0.05 \Omega)$ .
TERMINAL STRENGTH	TEST METHOD MIL-STD-202 ITEM 211	TENSILE STRENGTH : 1KG TENSIONAL STRENGTH : $180^{\circ}$ , 2 CYCLES. BENDING STRENGTH : 0.5KG, 2 TIMES. THE RESISTANCE VALUE CHANGE RATE SHALL BE WITHIN $\pm(0.5\%R+0.05 \Omega)$ .
SOLDERABILITY OF TERMINAL	TEST METHOD MIL-STD-202 ITEM 210	$260 \pm 5^{\circ}\text{C}$ 10 $\pm$ 1SEC. AFTER TESTING, LEAVE FOR 3 HOURS. THE RESISTANCE VALUE CHANGE RATE SHALL BE WITHIN $\pm(0.5\%R+0.05 \Omega)$ .
TEMPERATURE CYCLE	TEST METHOD MIL-STD-202 ITEM 107	LOW SIDE TEMPERATURE : $-55^{\circ}\text{C} \pm 3^{\circ}\text{C}$ 30MIN. ROOM TEMPERATURE : 10-15MIN. HIGH SIDE TEMPERATURE : $+125^{\circ}\text{C} \pm 3^{\circ}\text{C}$ 30MIN. ROOM TEMPERATURE : 10-15MIN. ABOVE TEST 5 CYCLES AFTER LAST CYCLE, LEAVE FOR 1-3 HOURS. THE RESISTANCE VALUE CHANGE RATE SHALL BE WITHIN $\pm(0.5\%R+0.05 \Omega)$ .
VIBRATION WITHSTAND	TEST METHOD MIL-STD-202 ITEM 204	X, Y, Z-EACH DIRECTION 2 HOURS. AMPLITUDE 0.75MM. RANGE : 10HZ ~ 500HZ. THE RESISTANCE VALUE CHANGE RATE SHALL BE WITHIN $\pm(0.5\%R+0.05 \Omega)$ .
LOAD LIFE	TEST METHOD MIL-STD-202 ITEM 108	$70 \pm 2^{\circ}\text{C}$ . 1000 HOURS RATED VOLTAGE (1.5 HOURS ON, 0.5 HOUR OFF). THE RESISTANCE VALUE CHANGE RATE SHALL BE WITHIN $\pm(2\%R+0.05 \Omega)$ .
RESISTANCE TEMPERATURE COEFFICIENT	TEST METHOD MIL-STD-202 ITEM 304	THE RESISTANCE VALUE CHANGE RATE SHALL BE AS TABLE – 3.
LOAD LIFE IN HUMIDITY	TEST METHOD MIL-STD-202 ITEM 103	THE RESISTANCE VALUE CHANGE RATE SHALL BE WITHIN $\pm(1.5\%R+0.05 \Omega)$ .

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**8. LOT NO. (Coding System)**



**9. PACKING DATA**

TABLE – 6

TYPE	PER BOX	PER CARTON	INNER BOX			EXPORT CARTON		
			L	W	H	L	W	H
MF166	5,000PCS	50,000PCS	255mm	81mm	72mm	419mm	264mm	170mm
MF25	5,000PCS	50,000PCS	260mm	75mm	105mm	410mm	270mm	238mm
MF50	2,000PCS	20,000PCS	258mm	78mm	80mm	423mm	270mm	355mm
MF100	1,000PCS	10,000PCS	255mm	81mm	72mm	419mm	264mm	170mm
MF200	1,000PCS	10,000PCS	260mm	78mm	87mm	422mm	270mm	200mm

