



# 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 9001:2008 CERTIFIED MANUFACTURER

AN OHSAS 18001:2007 MANUFACTURER

AN ISO 14001 : 2004 MANUFACTURER

10A Cheong Yick Industrial Building, 12 On Yip St., Chai Wan, Hong Kong

Tel.: (852) 2896 2782 Fax.: (852)2896 5291

國內工廠一: 東莞溢輝電子有限公司

地址: 東莞市虎門鎮懷德社區蔗寮工業區4號

Tel.: (86 769) 8331 5373 Fax.: (86 769) 8331 1603

國內工廠二: 恆輝電阻(益陽)有限公司

地址: 湖南省益陽市資陽區長春工業園五福路

Tel.: (86 737) 3800 399 Fax.: (86 737) 3800 199

## DATA SHEET

Name of Product : METAL FILM FIXED RESISTOR – TAPING

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

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

製造 Prepared by	檢驗 Inspected by	審核 Audited by	核准 Authorized by
客戶 customer approval	客戶 customer approval	客戶 customer approval	客戶 customer approval

Spec. No. MFTB 2015

Rev. No.: 2015 May.(1)

**PRODUCT : METAL FILM FIXED RESISTOR**

**TYPE : MF 125/25/50/100/200/300**

## 1. APPLICABLE SCOPE :

- 1.1 This specification is for use in METAL FILM 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	1	0	0	0	R	2	7	F	T	B										
Product Code		Power Rating		Nominal Resistance Value			Tolerance		Packaging		Lead Wire diameter		Taping width								
M	Metal	Code	Wattage				Code	Tol.	TB	in	box	Code	Size	Code	Size						
F	Film	125	0.125(1/8W)				F	1%							125: 0.40mm		52mm				
		25	0.25(1/4W)				J	5%					043	125: 0.43mm	26	26mm					
		50	0.50(1/2W)											25: 0.40mm	62	62mm					
		60	0.60(1/2W)										048	25: 0.48mm	73	73mm					
		100	1.0(1W)											50: 0.48mm							
		200	2.0(2W)											50: 0.60mm							
		300	3.0(3W)											100: 0.55mm							
														070	100: 0.70mm						
															200: 0.70mm						
														075	200: 0.75mm						
															300: 0.70mm						
														075	300: 0.75mm						

### 2.2 Explanation :

Part Number

Description

MF100 0R27 F TB

Metal Film Fixed Resistor , 1W , 0.27Ω , +/-1% , tape in box,

Lead Wire diameter: d=0.55mm, Taping width=52mm.

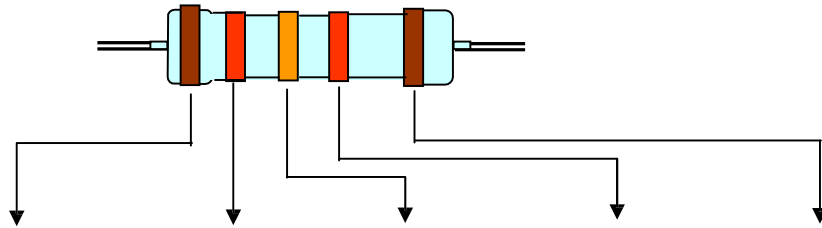
\*Remarks : The power rating of 1/8W is coded as 125

<b>PRODUCT : METAL FILM FIXED RESISTOR</b>	<b>TYPE : MF 125/25/50/100/200/300</b>
--	--

### 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	

PRODUCT : METAL FILM FIXED RESISTOR

TYPE : MF 125/25/50/100/200/300

### 3. DIMENSIONS :

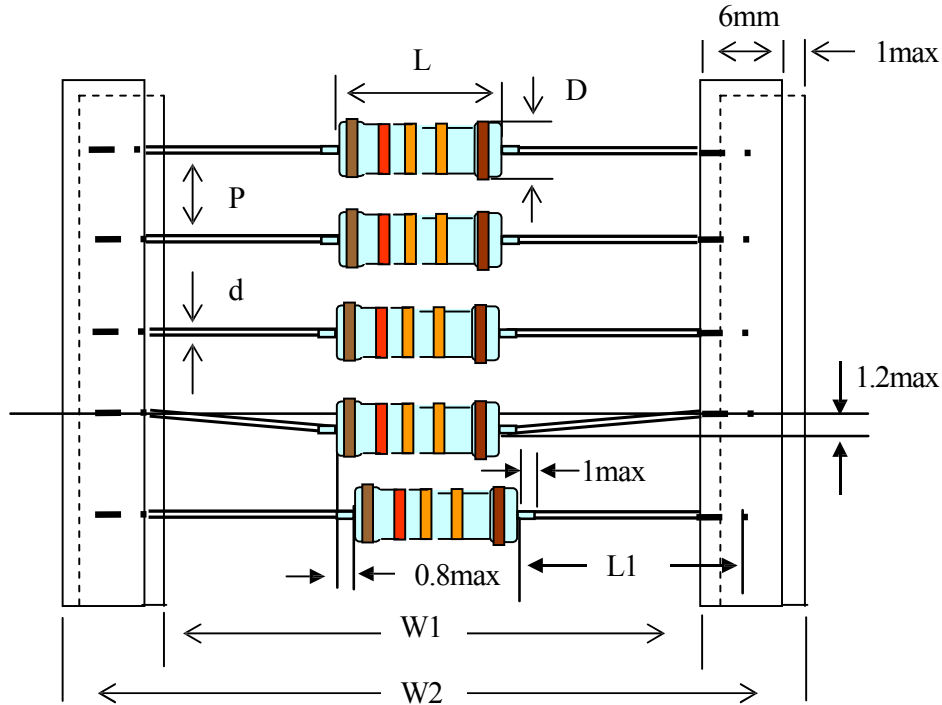


TABLE - 2

Unit : mm

TYPE	L	D	d	P	W1	W2	L1
MF125	3.5±0.5	1.7±0.5	0.40 (0.43)±0.05	5±0.3	26±1	38±1	15±1
					52±1	64±1	27±1
MF25	6.0±1.0	2.3±0.5	0.40 (0.48)±0.05	5±0.3	26±1	38±1	14±1
					52±1	64±1	26±1
MF50	9.0±1.0	3.0±0.5	0.48 (0.60)±0.05	5±0.3	26±1	38±1	13±1
					52±1	64±1	26±1
MF100	11.0±1.5	4.0±0.5	0.55(0.70)±0.05	5±0.3	52±1	64±1	25±1
					62±1.5	74±1.5	30±1
MF200	15.0±1.5	5.0±0.5	0.70(0.75)±0.05	10±0.3	52±1	64±1	23±1
					73±1.5	85±1.5	34±1
MF300	17.0±1.5	6.0±0.5	0.70(0.75)±0.05	10±0.3	73±1.5	85±1.5	33±1

<b>PRODUCT : METAL FILM FIXED RESISTOR</b>	<b>TYPE : MF 125/25/50/100/200/300</b>
--	--

## 4. SPECIFICATIONS

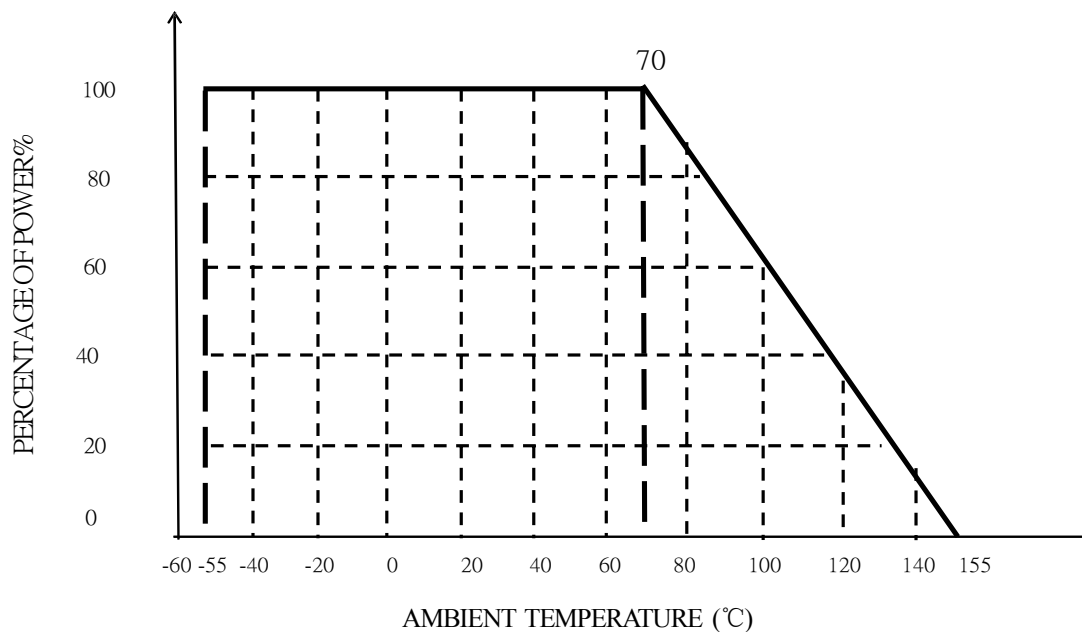
TABLE - 3

DESCRIPTION	MF-125	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

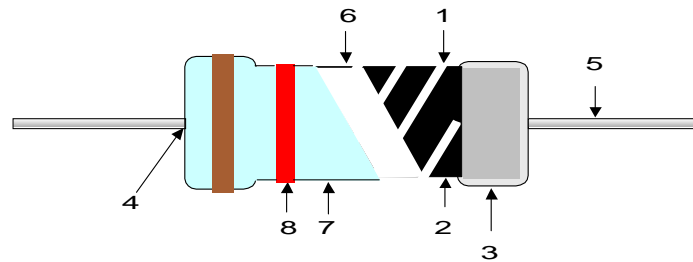
\* The overload voltage is calculated based on the resistance value following the formula of  $V= 2.5 \cdot \sqrt{P \cdot R}$  or to its maximum extent as indicated above

## 5. POWER DERATING CURVE



<b>PRODUCT : METAL FILM FIXED RESISTOR</b>	<b>TYPE : MF 125/25/50/100/200/300</b>
--	--

## 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	
	0.125W / 0.25W	0.5W / 1W / 2W / 3W
$0.1\Omega \leq R < 10\Omega$	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 125/25/50/100/200/300**

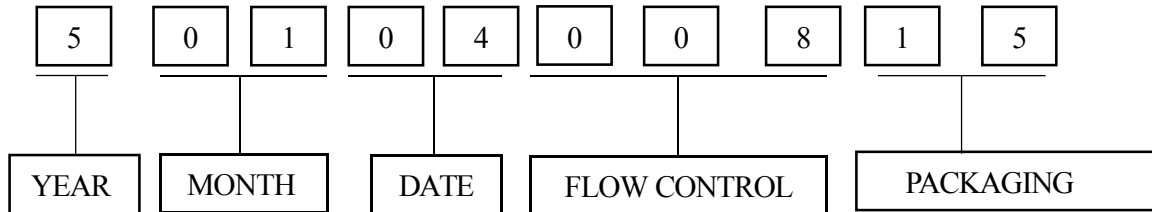
**7. CHARACTERISTICS**

TABLE – 5

DC RESISTANCE VALUE	TEST METHOD MIL-STD-202 ITEM 303	VOLTAGE AS TABLE -4. TEMPERATURE 25 ±2°C. AQL 0.25%.
VOLTAGE WITHSTAND	TEST METHOD MIL-STD-202 ITEM 301	V-BLOCK METHOD. VOLTAGE AS TABLE -3 ×1.42 , 1 MIN. AQL 1%.
SHORT TIME OVERLOAD	TEST METHOD JIS C 5202 ITEM 5.5	RATED VOLTAGE × 2.5 TIMES OR MAX.WORKINGVOLTAGE × 2 TIMES. ABOVE TEST 5 SEC. THE RESISTANCE VALUE CHANGE RATE SHALL BE WITHIN ±(0.5%R+0.05 Ω).
INTERMITTENT OVERLOAD	TEST METHOD JIS C 5202 ITEM 5.8	RATED VOLTAGE×4 TIMES, (1 SEC ON, 25 SEC OFF). ABOVE TEST 10,000 CYCLES. THE RESISTANCE VALUE CHANGE RATE SHALL BE WITHIN ±(0.5%R+0.05 Ω).
TERMINAL STRENGTH	TEST METHOD MIL-STD-202 ITEM 211	TENSILE STRENGTH : 1KG TENSIONAL STRENGTH : 180°, 2 CYCLES. BENDING STRENGTH : 0.5KG 2 TIMES. THE RESISTANCE VALUE CHANGE RATE SHALL BE WITHIN ±(0.5%R+0.05 Ω).
SOLDERABILITY OF TERMINAL	TEST METHOD MIL-STD-202 ITEM 210	260±5°C 10±1SEC. AFTER TESTING, LEAVE FOR 3 HOURS. THE RESISTANCE VALUE CHANGE RATE SHALL BE WITHIN ±(0.5%R+0.05 Ω).
TEMPERATURE CYCLE	TEST METHOD MIL-STD-202 ITEM 107	LOW SIDE TEMPERATURE : -55°C±3°C 30MIN. ROOM TEMPERATURE : 10-15MIN. HIGH SIDE TEMPERATURE : +125°C±3°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 ±(0.5%R+0.05 Ω).
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 ±(0.5%R+0.05 Ω).
LOAD LIFE	TEST METHOD MIL-STD-202 ITEM 108	70±2°C. 1000 HOURS RATED VOLTAGE (1.5 HOURS ON, 0.5 HOUR OFF). THE RESISTANCE VALUE CHANGE RATE SHALL BE WITHIN ±(2%R+0.05 Ω).
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 ±(1.5%R+0.05 Ω).

<b>PRODUCT : METAL FILM FIXED RESISTOR</b>	<b>TYPE : MF 125/25/50/100/200/300</b>
--	--

**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
MF125	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
MF300	500PCS	5,000PCS	255mm	100mm	90mm	515mm	267mm	203mm

