



# 香 港 電 阻 製 造 廠

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## HONG KONG RESISTORS MANUFACTORY

(wholly owned by Hong Kong Resistors Intl. Ltd.)

AN ISO 9001:2008 CERTIFIED MANUFACTURER

AN OHSAS 18001 : 2007 MANUFACTURER

AN ISO 14001 : 2004 MANUFACTURER

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## DATA SHEET

**Name of Product :** METAL FILM FIXED RESISTOR –TAPING (SMALL SIZE)

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. MFTBS2014**

**Rev. No.: 2014 Mar.(3)**

<b>PRODUCT : METAL FILM FIXED RESISTOR</b>	<b>TYPE : MF25S/ 50S/100S/200S/300S/ 500S</b>
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## 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 :

MIL-STD-105

MIL-STD-202

JIS C 5202

GB 5731-85

IEC 115-2-1-1982

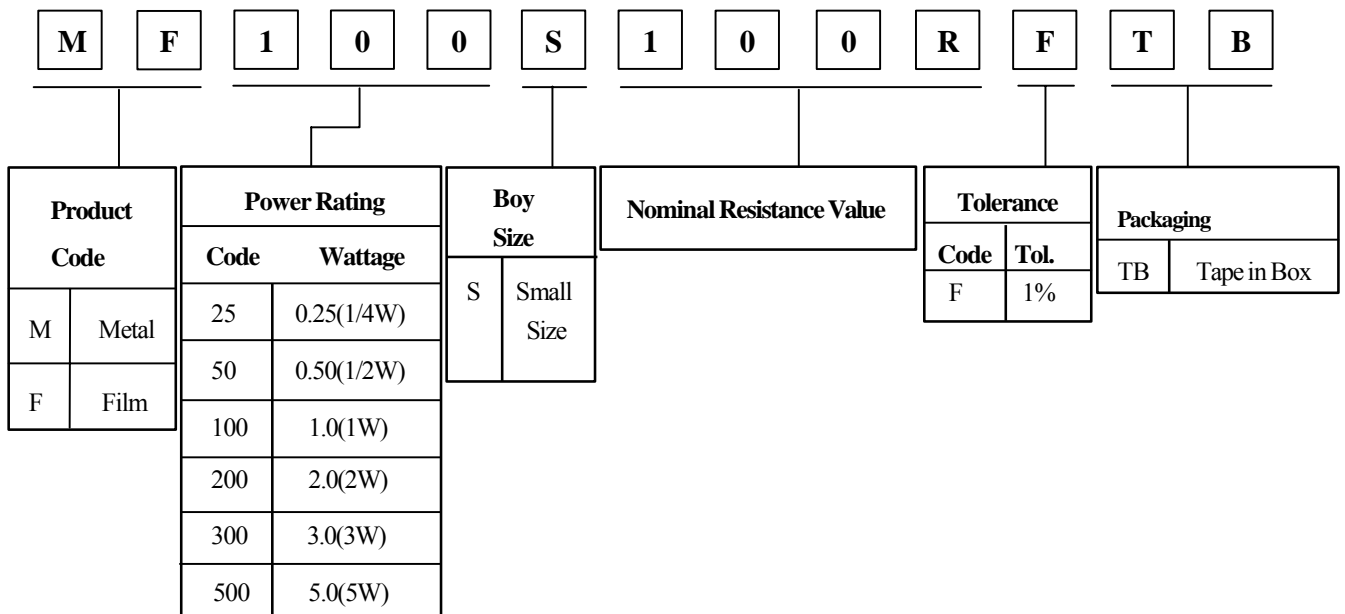
QC 400101

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:



2.2 Explanation :

Part Number

Description

MF 100S 100R F TB

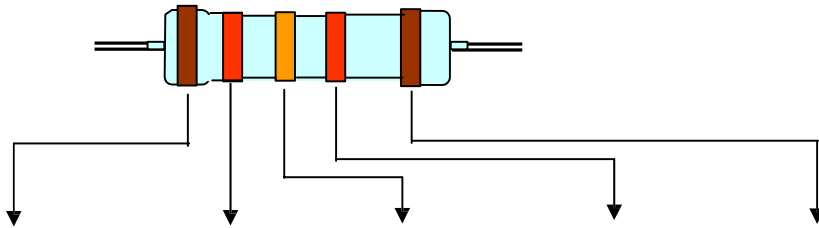
Metal Film Fixed Resistor , 1W, small size , 100Ω, +/-1%, tape in box.

<b>PRODUCT : METAL FILM FIXED RESISTOR</b>	<b>TYPE : MF25S/ 50S/100S/200S/300S/ 500S</b>
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### 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	
SILVER				0.01	

<b>PRODUCT : METAL FILM FIXED RESISTOR</b>	<b>TYPE : MF25S/ 50S/100S/200S/300S/ 500S</b>
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### 3. DIMENSIONS :

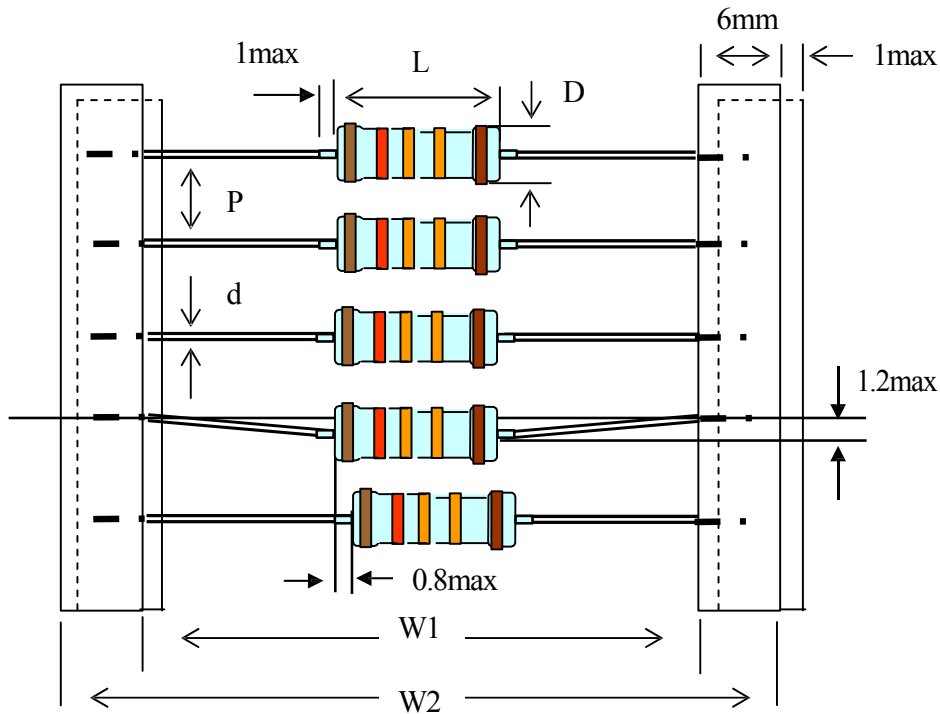


TABLE - 2

Unit : mm

TYPE	L	D	d	P	W1	W2
MF25S	3.5±0.5	1.7±0.5	0.40 ± 0.05	5±0.3	52±1	64±1
MF50S	6.0±1.0	2.3±0.5	0.40 ± 0.05	5±0.3	52±1	64±1
MF100S	9.0±1.0	3.0±0.5	0.48 ± 0.05	5±0.3	52±1	64±1
MF200S	11.0±1.5	4.0±0.5	0.55 ± 0.05	5±0.3	52±1	64±1
MF300S	15.0±1.5	5.0±0.5	0.70 ± 0.05	10±0.3	52±1	64±1
MF500S	17.0±1.5	6.0±0.5	0.70 ± 0.05	10±0.3	52±1	64±1

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## 4. SPECIFICATIONS

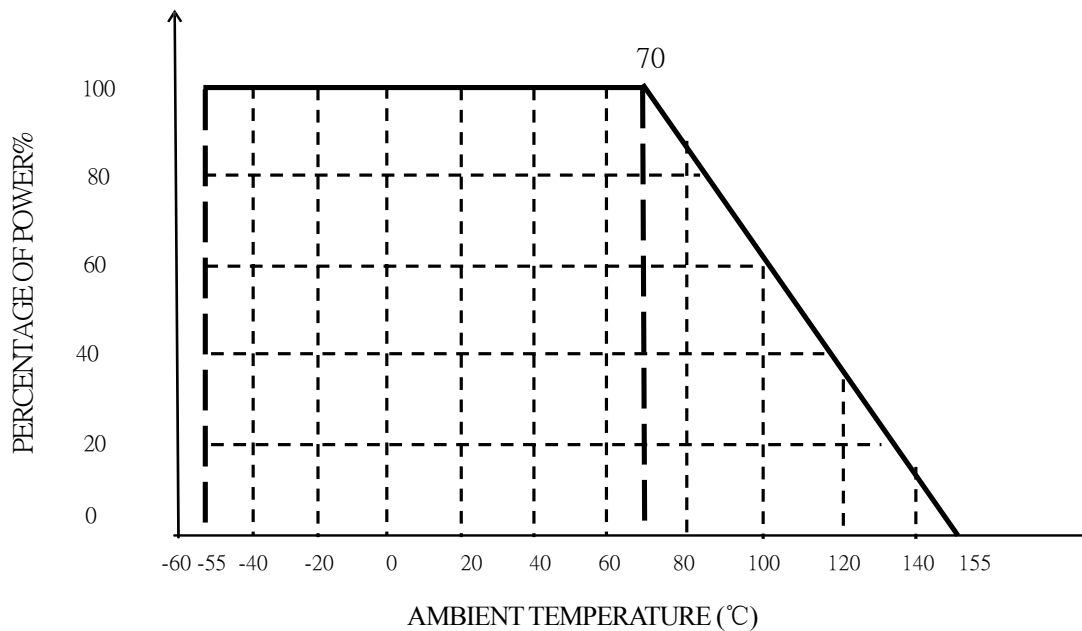
TABLE – 3

DESCRIPTION	MF-25S	MF-50S	MF-100S	MF-200S	MF-300S	MF-500S
STANDARD RESISTANCE VALUE RANGE	10Ω- 1MΩ	10Ω- 1MΩ	10Ω- 1MΩ	10Ω- 1MΩ	10Ω- 1MΩ	10Ω- 1MΩ
POWER RATING AT 70°C	1/4W	1/2W	1W	2W	3W	5W
*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.1,000MΩ	MIN.1,000MΩ	MIN.1,000MΩ	MIN.1,000MΩ	MIN.1,000MΩ	MIN.1,000MΩ
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

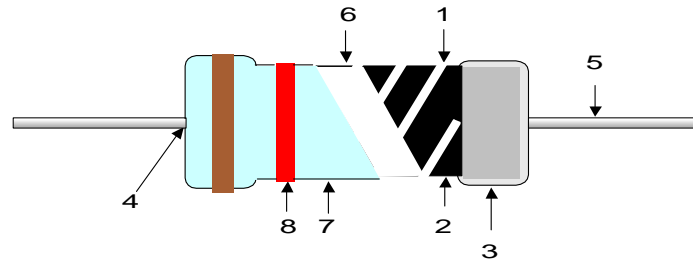
\* The overload voltage is calculated based on the resistance value following the formula of  $V = 2.5 \cdot \sqrt{P \cdot R}$  or to its maximum extent as indicated above

## 5. POWER DERATING CURVE



<b>PRODUCT : METAL FILM FIXED RESISTOR</b>	<b>TYPE : MF25S/ 50S/100S/200S/300S/ 500S</b>
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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	
	0.25W	0.5W / 1W / 2W / 3W / 5W
$1\Omega \leq R < 10\Omega$	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

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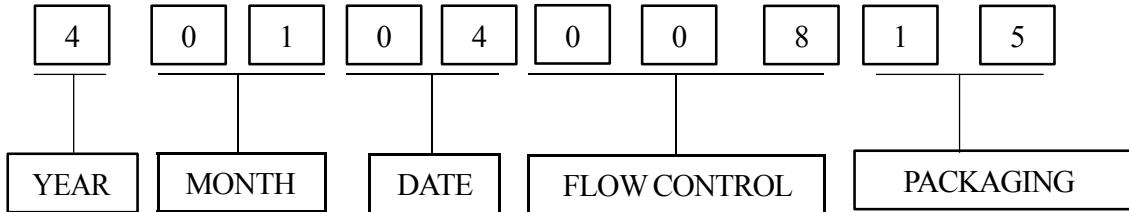
## 7. CHARACTERISTICS

TABLE – 5

DC RESISTANCE VALUE	TEST METHOD MIL-STD-202 ITEM 303	VOLTAGE AS TABLE -4. TEMPERATURE 25 $\pm$ 2°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 5202 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 $\pm(0.5\%R+0.05 \Omega)$ .
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 $\pm(0.5\%R+0.05 \Omega)$ .
SOLDERABILITY OF TERMINAL	TEST METHOD MIL-STD-202 ITEM 210	260 $\pm$ 5°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°C $\pm$ 3°C 30MIN. ROOM TEMPERATURE : 10-15MIN. HIGH SIDE TEMPERATURE : +125°C $\pm$ 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 $\pm(0.5\%R+0.05 \Omega)$ .
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°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
MF25S	5,000PCS	50,000PCS	255mm	81mm	72mm	419mm	264mm	170mm
MF50S	5,000PCS	50,000PCS	260mm	75mm	105mm	410mm	270mm	238mm
MF100S	2,000PCS	20,000PCS	260mm	75mm	105mm	410mm	270mm	238mm
MF200S	1,000PCS	10,000PCS	255mm	81mm	72mm	419mm	264mm	170mm
MF300S	1,000PCS	10,000PCS	260mm	78mm	87mm	422mm	270mm	200mm
MF500S	500PCS	5,000PCS	255mm	81mm	72mm	419mm	264mm	170mm

