

# 规格承认书

SPECIFICATION FOR APPROVAL

客户 CUSTOMER : 适用所有

品名 PRODUCT : 金属膜固定电阻器系列

规格 TYPE : MF1/8W-7WS

客户承认印  
CUSTOMER APPROVED

 **东莞市粤翔电子科技有限公司**  
Dong Guan City FlyWin Electronic SCI-TECH Co.,Ltd.

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一式二份      粤翔一份      客户一份

| 出图                                                                                  | 业务                                                                                  | 审核                                                                                  | 核准                                                                                   |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| DRAWING                                                                             | SALES                                                                               | AUDITING                                                                            | APPROVED                                                                             |
|  |  |  |  |



粤翔电子技术品质部

编号：MFS-020A

品保部 2019年12月1日



**无卤**  
(F,Cl,Br,I)

# MF SERIES

METAL FILM FIXED RESISTORS 金属膜固定电阻器

FLYWIN

## △ FEATURES 特点

- 1 HIGH QUALITY  
高品质.
- 2 WITHSTAND VOITAGE, SHOCK RESISTANCE  
耐电压, 耐冲击
- 3 STANDARD TOLERANCE : ±1%, (±0.5%、±0.1%).  
±1%, (±0.5%、±0.1%) 的标准误差
- 4 VARIETY OF PACKAGING-BULK 26mm、52mm、63mm、73mm  
、93mm TAPE, CUT AND FORMED  
可供散装、编带26mm、52mm、63mm、73mm、93mm、成型、剪脚
- 5 HIGH RESISTANCE RANGE (0Ω-10MΩ).  
阻抗范围高 (0Ω-10MΩ).



本体



小型化

## △ CONSTRUCTION 结构图

- 1 CERAMIC CORE (HIGH CONDUCTIVITY)  
陶瓷棒心 (高热传导)
- 2 HIGH STABILITY FILM  
高稳定性皮膜
- 3 END CAP (HIGH RELIABILITY FITTING BY ORIGINAL  
CAP-PRESSING METHOD)  
端帽 (卯和度信赖性高)
- 4 HIGH INSULATION AND SOLVENT RESISTANCE OF EPOXY  
RESIN COATING (BULK POWER TO BLUE, MINIATURE  
GREEN)  
高绝缘及耐溶剂之环氧树脂涂料 (本体功率为蓝色, 小型  
化为绿色)
- 5 COLOR CODE (PER MIL & EIA STANDARDS)  
色码 (符合MIL & EIA规定之标准色码带)
- 6 LEAD WIRE (TINNED COPPER, CP)  
引线 (镀锡铜线、CP线)
- 7 WELDING (LONG RELIABILITY GUARANTEE)  
焊接 (长期可靠性高)



## △ SPECIFICATION: 规格描述

EXAMPLE 例: MF1/4W-470Ω ±5%-ST52

| MF            | 1/4W                | 470Ω                                         | ±5%              | S                   | T52                        |
|---------------|---------------------|----------------------------------------------|------------------|---------------------|----------------------------|
| 品名<br>PRODUCT | 额定功率<br>RATED POWER | 阻值范围<br>RESISTANCE RANGE                     | 误差值<br>TOLERANCE | 线径<br>WIRE DIAMETER | 形状<br>SHAPE                |
| CR 碳膜电阻器      | 1/8W 1/4WS          | 0Ω-22MΩ                                      | ±10% K           | 0: 0.40CU S: 0.40CP | T26 编带26MM                 |
| MF 金膜电阻器      | 1/4W 1/2WS          | 阻值表示方法<br>RESISTANCE VALUE<br>REPRESENTATION | ±5% J            | 2: 0.50CU X: 0.50CP | T52 编带52MM                 |
| MO 氧化膜电阻器     | 1/2W 1WS            | 阻值单位按 Ω, K, M                                | ±2% G            | 6: 0.60CU T: 0.60CP | T63 编带63MM                 |
| MGR 高压玻璃釉电阻器  | 1W 2WS              | 1000Ω=1K 1000K=1M                            | ±1% F            | 9: 0.70CU Q: 0.70CP | T73 编带73MM                 |
| KNP 绕线电阻器     | 2W 3WS              | 例: 9Ω 1/5K6/4M7                              | ±0.5% D          | A: 0.75CU D: 0.80CP | T93 编带93MM                 |
| NKNP 无感绕线电阻器  | 3W 5WS              |                                              |                  | C: 0.80CU           | P 散装                       |
| FR 保险电阻器      | 5W 7WS              |                                              |                  |                     | M、MB、MK 卧式成型散装             |
| FRKNP 绕线保险电阻器 |                     |                                              |                  |                     | FY、FKY、<br>FYL、FKYL 立式成型散装 |
| SCF 高压脉冲电阻器   |                     |                                              |                  |                     | FT 立式成型编带                  |

NOTE1注解: RATED VOLTAGE 额定电压 =  $\sqrt{\text{POWER RATING 额定功率} \times \text{RESISTANCE VALUE 公称阻值}}$

# MF SERIES

METAL FILM FIXED RESISTORS 金属膜固定电阻器

FLYWIN

## △ PERFORMANCE 性能

| CHARACTERISTICS<br>特性项目                                                                                           | SPECIFICATIONS<br>规格值                                                                                                                                                                                                                                                                                                                                                                                                                                             | TEST METHODS JIS C 5202<br>测试方法 JIS C 5202标准                                                                                                                                                                                                                                                                                   |                |                                                                                               |      |       |      |     |    |     |    |     |    |     |    |     |                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------------------------------------------------------------------------------|------|-------|------|-----|----|-----|----|-----|----|-----|----|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DC RESISTANCE<br>直流阻抗值                                                                                            | F (±1%)                                                                                                                                                                                                                                                                                                                                                                                                                                                           | RESISTANCE VALUE TEST AT ROOM TEMPERATURE 25°C<br>阻值测试在室温25°C                                                                                                                                                                                                                                                                  |                |                                                                                               |      |       |      |     |    |     |    |     |    |     |    |     |                                                                                                                                                                                                      |
| T. C. R温度系数                                                                                                       | <table border="1"> <tr> <td>1/8W</td> <td>1/4WS</td> <td rowspan="7"> <math>&lt;10\Omega \pm 300\text{PPM}</math><br/> <math>10\Omega - 1M \pm 100\text{PPM}</math><br/> <math>&gt;1M \pm 100\text{PPM}</math> </td> </tr> <tr> <td>1/4W</td> <td>1/2WS</td> </tr> <tr> <td>1/2W</td> <td>1WS</td> </tr> <tr> <td>1W</td> <td>2WS</td> </tr> <tr> <td>2W</td> <td>3WS</td> </tr> <tr> <td>3W</td> <td>5WS</td> </tr> <tr> <td>5W</td> <td>7WS</td> </tr> </table> | 1/8W                                                                                                                                                                                                                                                                                                                           | 1/4WS          | $<10\Omega \pm 300\text{PPM}$<br>$10\Omega - 1M \pm 100\text{PPM}$<br>$>1M \pm 100\text{PPM}$ | 1/4W | 1/2WS | 1/2W | 1WS | 1W | 2WS | 2W | 3WS | 3W | 5WS | 5W | 7WS | $\frac{R2-R1}{R1(T2-T1)} \times 10^6 \text{PPM}/^\circ\text{C}$ R1: RESISTANCE VALUE AT ROOM TEMPERATURE (T1)<br>常温 (T1) 阻抗值<br>R2: RESISTANCE VALUE AT ROOM TEMPERATURE +100°C (T2)<br>常温+100°C 阻抗值 |
| 1/8W                                                                                                              | 1/4WS                                                                                                                                                                                                                                                                                                                                                                                                                                                             | $<10\Omega \pm 300\text{PPM}$<br>$10\Omega - 1M \pm 100\text{PPM}$<br>$>1M \pm 100\text{PPM}$                                                                                                                                                                                                                                  |                |                                                                                               |      |       |      |     |    |     |    |     |    |     |    |     |                                                                                                                                                                                                      |
| 1/4W                                                                                                              | 1/2WS                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                |                |                                                                                               |      |       |      |     |    |     |    |     |    |     |    |     |                                                                                                                                                                                                      |
| 1/2W                                                                                                              | 1WS                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                |                |                                                                                               |      |       |      |     |    |     |    |     |    |     |    |     |                                                                                                                                                                                                      |
| 1W                                                                                                                | 2WS                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                |                |                                                                                               |      |       |      |     |    |     |    |     |    |     |    |     |                                                                                                                                                                                                      |
| 2W                                                                                                                | 3WS                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                |                |                                                                                               |      |       |      |     |    |     |    |     |    |     |    |     |                                                                                                                                                                                                      |
| 3W                                                                                                                | 5WS                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                |                |                                                                                               |      |       |      |     |    |     |    |     |    |     |    |     |                                                                                                                                                                                                      |
| 5W                                                                                                                | 7WS                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                |                |                                                                                               |      |       |      |     |    |     |    |     |    |     |    |     |                                                                                                                                                                                                      |
| LOAD LIFE IN HUMIDITY<br>湿度寿命                                                                                     | RESISTANCE CHANGE RATE $\pm(1.5\%+0.05\Omega)$<br>WITH NO EVIDENCE OF RESISTOR DAMAGE.<br>阻抗值变化率 (1.5%±0.05Ω), 电阻器不可有损伤                                                                                                                                                                                                                                                                                                                                           | RESISTANCE CHANGE AFTER 1000H (1.5H ON, 0.5H OFF) AT RATED VOLTAGE IN A HUMIDITY CHAMBER CONTROLLED AT 40+/-2°C AND 90-95% RELATIVE HUMIDITY. (when the test voltage exceeds the working voltage, considering the working voltage)<br>温度40+/-2°C, 相对湿度90-95%于恒温恒湿箱中, 加额定直流电压测试1.5小时停止0.5小时, 连续1000小时。(当实验电压超过最高使用电压, 采用最高使用电压) |                |                                                                                               |      |       |      |     |    |     |    |     |    |     |    |     |                                                                                                                                                                                                      |
| LOAD LIFE<br>温度寿命                                                                                                 | RESISTANCE CHANGE RATE $\pm(1.5\%+0.05\Omega)$ MAX<br>WITH NO EVIDENCE OF RESISTOR DAMAGE.<br>阻抗值变化率 (1.5%±0.05Ω), 电阻器不可有损伤                                                                                                                                                                                                                                                                                                                                       | RESISTANCE CHANGE AFTER 1000H OPERATING AT RATED VOLTAGE WITH DUTY CYCLE OF 1.5H ON 0.5H OFF AT 70°C±2°C (when the test voltage exceeds the working voltage, considering the working voltage)<br>温度70+/-2°C, 加额定直流电压测试1.5小时停止0.5小时, 连续1000小时 (当实验电压超过最高使用电压时, 采用最高使用电压)                                                        |                |                                                                                               |      |       |      |     |    |     |    |     |    |     |    |     |                                                                                                                                                                                                      |
| SHORT TIME OVER LOAD<br>短时间过负荷                                                                                    | $\pm(0.5\%+0.05\Omega)$                                                                                                                                                                                                                                                                                                                                                                                                                                           | RESISTANCE CHANGE AFTER THE APPLICATION OF A POTENTIAL OF 2.5T RATED VOLTAGE FOR 5 SE (when the test voltage exceeds the maximum overload, consider using the maximum overload voltage)<br>额定电压X2.5倍, 测试5秒 (当实验电压超过最高过负载时, 采用最高过负载电压)                                                                                          |                |                                                                                               |      |       |      |     |    |     |    |     |    |     |    |     |                                                                                                                                                                                                      |
| PULSE OVER LOAD<br>断续过负荷                                                                                          | 1/8W, 1/4W, 1/2W, 1W, 2W, 3W, 5W                                                                                                                                                                                                                                                                                                                                                                                                                                  | $\pm(1\%+0.05\Omega)$                                                                                                                                                                                                                                                                                                          |                |                                                                                               |      |       |      |     |    |     |    |     |    |     |    |     |                                                                                                                                                                                                      |
|                                                                                                                   | 1/4WS, 1/2WS, 1WS, 2WS, 3WS, 5WS, 7WS                                                                                                                                                                                                                                                                                                                                                                                                                             | $\pm(2\%+0.05\Omega)$                                                                                                                                                                                                                                                                                                          |                |                                                                                               |      |       |      |     |    |     |    |     |    |     |    |     |                                                                                                                                                                                                      |
| RESISTANCE TO SOLVENT<br>耐溶剂性                                                                                     | NO VISIBLE DAMAGES TO PROTECTIVE COATING AND MARKING (外观无异常, 标识能够清楚易辨)                                                                                                                                                                                                                                                                                                                                                                                            | SOAK 3MIN IN THE MELTING AGENT TO AGAIN AND AGAIN WIPE 10 TIMES (三氯乙稀浸泡3分钟, 再用湿布反复擦拭10次)                                                                                                                                                                                                                                       |                |                                                                                               |      |       |      |     |    |     |    |     |    |     |    |     |                                                                                                                                                                                                      |
| INSULATION RESISTANCE<br>绝缘阻抗                                                                                     | >100MΩ                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                |                |                                                                                               |      |       |      |     |    |     |    |     |    |     |    |     |                                                                                                                                                                                                      |
| ELECTRIC WITHSTANDING VOLTAGE<br>绝缘耐电压                                                                            | RESISTANCE CHANGE RATE $\pm(1\%+0.05\Omega)$ WITH NO EVIDENCE OR RESISTOR DAMAGE.<br>阻抗值变化率 $\pm(1\%+0.05\Omega)$ , 电阻器不可有损伤                                                                                                                                                                                                                                                                                                                                      | ELECTRIC RESISTANCE BOTH ENDS THE CONJUNCTION LINE PUT ON THE METALS V TYPE THE SLOT, ACCORDING TO THE ELECTRIC VOLTAGE PROVISION OF THE CHARACTERISTIC WATCH 60 SECONDS INFLECTION<br>电阻两端导线置于金属V型槽上, 依特性表之电压规定施加60秒                                                                                                          |                |                                                                                               |      |       |      |     |    |     |    |     |    |     |    |     |                                                                                                                                                                                                      |
| TEMPERATURE CYCLING<br>温度循环                                                                                       | RESISTANCE CHANGE RATE IS $\pm(1\%+0.05\Omega)$ MAX, WITH NO EVIDENCE OF RESISTOR DAMAGE.<br>阻抗值变化率 $\pm(1\%+0.05\Omega)$ 以内, 电阻器不可有损伤                                                                                                                                                                                                                                                                                                                            | STEP 步骤、                                                                                                                                                                                                                                                                                                                       | TEMPERATURE 温度 | TIME (MIN) 放置时间                                                                               |      |       |      |     |    |     |    |     |    |     |    |     |                                                                                                                                                                                                      |
|                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1                                                                                                                                                                                                                                                                                                                              | -55°C±2°C      | 30                                                                                            |      |       |      |     |    |     |    |     |    |     |    |     |                                                                                                                                                                                                      |
|                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2                                                                                                                                                                                                                                                                                                                              | ROOM TEMP 室温   | 10-15                                                                                         |      |       |      |     |    |     |    |     |    |     |    |     |                                                                                                                                                                                                      |
|                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 3                                                                                                                                                                                                                                                                                                                              | 85°C±2°C       | 30                                                                                            |      |       |      |     |    |     |    |     |    |     |    |     |                                                                                                                                                                                                      |
|                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 4                                                                                                                                                                                                                                                                                                                              | ROOM TEMP 室温   | 10-15                                                                                         |      |       |      |     |    |     |    |     |    |     |    |     |                                                                                                                                                                                                      |
| RESISTANCE TO SOLDERING HEAT<br>耐热性                                                                               | RESISTANCE CHANGE RATE IS $\pm(1\%+0.05\Omega)$ MAX, WITH NO EVIDENCE OF RESISTOR DAMAGE.<br>阻抗值变化率 $\pm(0.5\%+0.05\Omega)$ 以内, 电阻器不可有损伤                                                                                                                                                                                                                                                                                                                          | PUT THE LEAD LINE OF RESISTANCE INTO THE SOLDERING ABOUT 3.2 TO 4.8MM PLEASE TAKE IMPLEMENTATION ON THE BASIS OF THE TABLE BELOW<br>将电阻两端导线浸入锡炉约3.2至4.8mm依下表规定实施                                                                                                                                                               |                |                                                                                               |      |       |      |     |    |     |    |     |    |     |    |     |                                                                                                                                                                                                      |
| SOLDERABILITY<br>焊锡性                                                                                              | 95% COVERAGE MINIMUM<br>95%覆盖于导线上                                                                                                                                                                                                                                                                                                                                                                                                                                 | TEMPERATURE 温度                                                                                                                                                                                                                                                                                                                 | DIP TIME 放置时间  |                                                                                               |      |       |      |     |    |     |    |     |    |     |    |     |                                                                                                                                                                                                      |
|                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 350°C±10°C                                                                                                                                                                                                                                                                                                                     | 3±0.5 SEC      |                                                                                               |      |       |      |     |    |     |    |     |    |     |    |     |                                                                                                                                                                                                      |
|                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 260°C±5°C                                                                                                                                                                                                                                                                                                                      | 10±1.0 SEC     |                                                                                               |      |       |      |     |    |     |    |     |    |     |    |     |                                                                                                                                                                                                      |
| SOLDER JOINT PULL<br>焊点拉力                                                                                         | PULLING TEST FOR 1/8W≥1.8KG, 1/4W≥3.8KG, 1/2W BIGGER THAN ≥5KG<br>拉力强度 1/8W≥1.8KG, 1/4W≥3.8KG, 1/2W 含以上≥5KG                                                                                                                                                                                                                                                                                                                                                       | TEST TEMPERATURE OF SOLDER: 230°C±5°C<br>DWELL TIME IN SOLDER: 3±0.5 SEC<br>锡炉温度: 230°C±5°C 浸锡时间: 3±0.5 秒                                                                                                                                                                                                                      |                |                                                                                               |      |       |      |     |    |     |    |     |    |     |    |     |                                                                                                                                                                                                      |
| SECURE BOTH LEAD WIRE ON EACH SIDE OF PULLING MACHING AND THEN PULL IT<br>将成品电阻铜线一端夹在拉力器的一端, 铜线另一端也夹在拉力器上, 再摇动拉力器 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                |                |                                                                                               |      |       |      |     |    |     |    |     |    |     |    |     |                                                                                                                                                                                                      |
| Life & failure rate<br>寿命失效率                                                                                      | Under the rated condition Use Life ≥ 10000H<br>额定条件下使用寿命 ≥ 10000小时                                                                                                                                                                                                                                                                                                                                                                                                | failure rate ≤ 10PPM<br>失效率 ≤ 10PPM                                                                                                                                                                                                                                                                                            |                |                                                                                               |      |       |      |     |    |     |    |     |    |     |    |     |                                                                                                                                                                                                      |

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METAL FILM FIXED RESISTORS 金属膜固定电阻器

FLYWIN

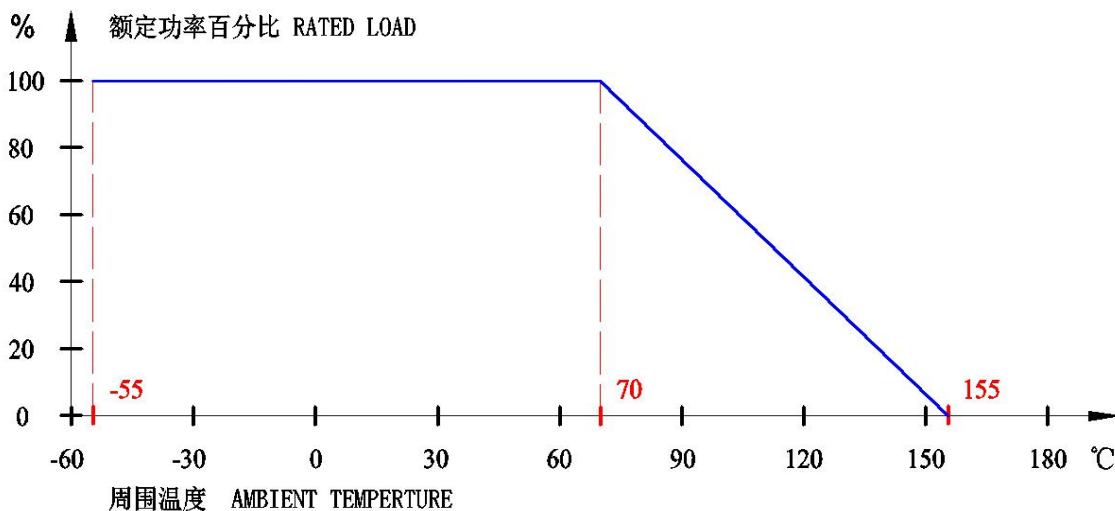
## △ POWER CHARACTERISTIC 电力特性

| POWER PATED<br>额定功率                            | 1/8W            | 1/4WS | 1/4W | 1/2WS | 1/2W | 1WS   | 1W    | 2WS   | 2W    | 3WS   | 3W    | 5WS   | 5W    | 7WS   |
|------------------------------------------------|-----------------|-------|------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| MAX WORKING VOLTAGE<br>最高使用电压                  | 200V            | 250V  | 250V | 350V  | 350V | 500V  | 500V  | 500V  | 500V  | 500V  | 500V  | 500V  | 750V  | 750V  |
| MAX OVERLOAD VOLTAGE<br>最高过负荷电压                | 400V            | 500V  | 500V | 700V  | 700V | 1000V | 1000V | 1000V | 1000V | 1000V | 1000V | 1000V | 1000V | 1000V |
| MAX INTERMITTENCE OVER LOAD VOLTAGE<br>最高断续过负荷 | 400V            | 500V  | 500V | 700V  | 700V | 1000V | 1000V | 1000V | 1000V | 1000V | 1000V | 1000V | 1000V | 1000V |
| ELECTRIC WITHSTANDING VOLTAGE<br>绝缘耐电压         | 300V            | 300V  | 400V | 400V  | 500V | 500V  | 700V  | 700V  | 700V  | 700V  | 700V  | 700V  | 700V  | 700V  |
| RESISTANCE TOLERANCE<br>阻抗误差值                  | J (±5%) G (±2%) |       |      |       |      |       |       |       |       |       |       |       |       |       |
| RANGE (OHM)<br>阻抗值范围                           | MIN             | 0.1Ω  | 0.1Ω | 0.1Ω  | 0.1Ω | 0.1Ω  | 0.1Ω  | 0.1Ω  | 0.1Ω  | 0.1Ω  | 0.1Ω  | 0.1Ω  | 0.1Ω  | 0.1Ω  |
|                                                | MAX             | 10MΩ  | 10MΩ | 10MΩ  | 10MΩ | 10MΩ  | 10MΩ  | 10MΩ  | 10MΩ  | 10MΩ  | 10MΩ  | 10MΩ  | 10MΩ  | 10MΩ  |

NOTE注解: 1M ohm is high risk resistance for thin film resistors.

薄膜电阻1M以上阻值为高风险阻值

## △ POWER DERATING CURVE 负载衰减曲线



NOTE注解:

- 1 RATED AMBIENT TEMPERATURE :70℃  
额定周围温度: 70℃
- 2 OPERATING TEMPERATURE RANGE:-55℃~+155℃  
使用温度范围: -55℃~+155℃
- 3 FOR RESISTORS IPERATED IN AMBIENT TEMPERATURE OVER 70℃,POWER RATING SHALL BE DERATED IN ACCORDANCE WITH THE FIGURE  
周围温度70℃以上使用时, 根据降功率曲线将减轻额定功率

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METAL FILM FIXED RESISTORS 金属膜固定电阻器

FLYWIN

## △ TYPE DIMENSION 型号尺寸

### ◆ BULK TYPE 散装



| POWER<br>功率   | DIMENSION 尺寸 (mm) |        |         |       |
|---------------|-------------------|--------|---------|-------|
|               | L±1.0             | ØD±1.0 | Ød±0.05 | H±3.0 |
| 1/8W<br>1/4WS | 3.7               | 2.3    | 0.40    | 27    |
| 1/4W<br>1/2WS | 6.2               | 2.7    | 0.40    | 26    |
| 1/2W<br>1WS   | 9                 | 3.5    | 0.50    | 25    |
| 1W<br>2WS     | 11                | 4.5    | 0.60    | 30    |
| 2W<br>3WS     | 15                | 5      | 0.70    | 32    |
| 3W<br>5WS     | 17                | 6      | 0.70    | 31    |
| 5W<br>7WS     | 25                | 8      | 0.80    | 39    |

### ◆ TAPING TYPE 编带



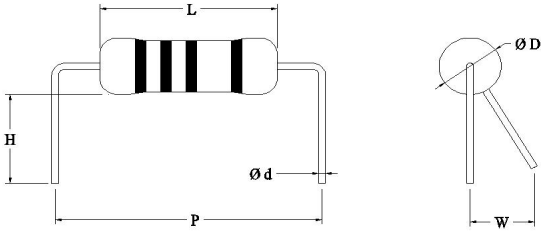
| POWER<br>功率   | DIMENSION 尺寸 (mm) |        |         |       |       |                   |
|---------------|-------------------|--------|---------|-------|-------|-------------------|
|               | T<br>+1.5<br>-0.0 | ØD±1.0 | Ød±0.05 | P±0.5 | L±1.0 | W<br>+2.0<br>-0.0 |
| 1/8W<br>1/4WS | 26                | 2.3    | 0.40    | 5     | 3.7   | 38                |
|               | 52                |        |         |       |       | 64                |
| 1/4W<br>1/2WS | 26                | 2.7    | 0.40    | 5     | 6.2   | 38                |
|               | 52                |        |         |       |       | 64                |
| 1/2W<br>1WS   | 52                | 3.5    | 0.50    | 5     | 9     | 64                |
| 1W<br>2WS     | 63                | 4.5    | 0.60    | 5     | 11    | 75                |
| 2W<br>3WS     | 73                | 5      | 0.70    | 10    | 15    | 85                |
| 3W<br>5WS     | 73                | 6      | 0.70    | 10    | 17    | 85                |
| 5W<br>7WS     | 93                | 8      | 0.80    | 10    | 25    | 105               |

# MF SERIES

METAL FILM FIXED RESISTORS 金属膜固定电阻器

FLYWIN

◆ "M" TYPE M型



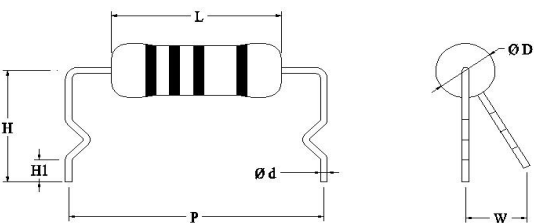
| POWER<br>功率   | DIMENSION 尺寸 (mm) |        |         |        |       |       |
|---------------|-------------------|--------|---------|--------|-------|-------|
|               | L±1.0             | ØD±1.0 | Ød±0.05 | H±1.0  | P±1.0 | W Max |
| 1/8W<br>1/4WS | 3.7               | 2.3    | 0.40    | 3.5-10 | 6     | 3     |
| 1/4W<br>1/2WS | 6.2               | 2.7    | 0.40    | 3.5-10 | 10    | 3     |
| 1/2W<br>1WS   | 9                 | 3.5    | 0.50    | 3.5-10 | 12.5  | 3     |
| 1W<br>2WS     | 11                | 4.5    | 0.60    | 3.5-10 | 15    | 3     |
| 2W<br>3WS     | 15                | 5      | 0.70    | 3.5-10 | 20    | 3     |
| 3W<br>5WS     | 17                | 6      | 0.70    | 3.5-10 | 25    | 3     |

◆ "MB" TYPE MB型



| POWER<br>功率 | DIMENSION 尺寸 (mm) |        |         |           |        |       |       |
|-------------|-------------------|--------|---------|-----------|--------|-------|-------|
|             | L±1.0             | ØD±1.0 | Ød±0.05 | H±1.0     | H1±0.5 | P±1.0 | W Max |
| 1W<br>2WS   | 11                | 4.5    | 0.60    | 10.0-15.0 | 3.5    | 18    | 3     |
| 2W<br>3WS   | 15                | 5      | 0.70    | 10.0-15.0 | 3.5    | 20    | 3     |
| 3W<br>5WS   | 17                | 6      | 0.70    | 10.0-15.0 | 3.5    | 24    | 3     |

◆ "MK" TYPE MK型



| POWER<br>功率 | DIMENSION 尺寸 (mm) |        |         |       |        |       |       |
|-------------|-------------------|--------|---------|-------|--------|-------|-------|
|             | L±1.0             | ØD±1.0 | Ød±0.05 | H±1.0 | H1±0.5 | P±1.0 | W Max |
| 1W<br>2WS   | 11                | 4.5    | 0.60    | 10.00 | 3.5    | 15    | 3     |
| 2W<br>3WS   | 15                | 5      | 0.70    | 10.00 | 3.5    | 20    | 3     |
| 3W<br>5WS   | 17                | 6      | 0.70    | 12.00 | 3.5    | 25    | 3     |

# MF SERIES

METAL FILM FIXED RESISTORS 金属膜固定电阻器

FLYWIN

◆ "FY" TYPE FY型



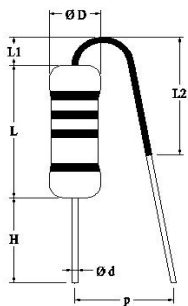
| POWER<br>功率   | DIMENSION 尺寸 (mm) |        |         |        |       |       |
|---------------|-------------------|--------|---------|--------|-------|-------|
|               | L±1.0             | ØD±1.0 | Ød±0.05 | L1 Max | H±1.0 | P±1.0 |
| 1/4W<br>1/2WS | 6.2               | 2.7    | 0.40    | 3.5    | 4.00  | 6     |
| 1/2W<br>1WS   | 9                 | 3.5    | 0.50    | 3.5    | 4.00  | 7     |
| 1W<br>2WS     | 11                | 4.5    | 0.60    | 3.5    | 4.00  | 9     |
| 2W<br>3WS     | 15.5              | 5      | 0.70    | 3.5    | 4.00  | 9     |
| 3W<br>5WS     | 17.5              | 6      | 0.70    | 3.5    | 4.00  | 9     |

◆ "FKY" TYPE FKY型



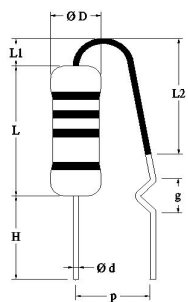
| POWER<br>功率   | DIMENSION 尺寸 (mm) |        |         |        |       |       |       |
|---------------|-------------------|--------|---------|--------|-------|-------|-------|
|               | L±1.0             | ØD±1.0 | Ød±0.05 | L1 Max | H±1.0 | P±1.0 | g±1.0 |
| 1/4W<br>1/2WS | 6.2               | 2.7    | 0.40    | 3.5    | 4.00  | 6     | 3     |
| 1/2W<br>1WS   | 9                 | 3.5    | 0.50    | 3.5    | 4.00  | 7     | 3     |
| 1W<br>2WS     | 11                | 4.5    | 0.60    | 3.5    | 4.00  | 9     | 3     |
| 2W<br>3WS     | 15.5              | 5      | 0.70    | 3.5    | 4.00  | 9     | 3     |
| 3W<br>5WS     | 17.5              | 6      | 0.70    | 3.5    | 4.00  | 9     | 3     |

◆ "FYL" TYPE FYL型



| POWER<br>功率   | DIMENSION 尺寸 (mm) |        |         |       |        |       |        |
|---------------|-------------------|--------|---------|-------|--------|-------|--------|
|               | L±1.0             | ØD±1.0 | Ød±0.05 | H±1.0 | H1±1.0 | P±1.0 | L2±1.5 |
| 1/4W<br>1/2WS | 6.2               | 2.7    | 0.40    | 3.5   | 4.00   | 6     | 7      |
| 1/2W<br>1WS   | 9                 | 3.5    | 0.50    | 3.5   | 4.00   | 7     | 6      |
| 1W<br>2WS     | 11                | 4.5    | 0.60    | 3.5   | 4.00   | 9     | 9      |
| 2W<br>3WS     | 15.5              | 5      | 0.70    | 3.5   | 4.00   | 9     | 12     |
| 3W<br>5WS     | 17.5              | 6      | 0.70    | 3.5   | 4.00   | 9     | 12     |

◆ "FKYL" TYPE FKYL型



| POWER<br>功率   | DIMENSION 尺寸 (mm) |        |         |        |       |       |       |        |
|---------------|-------------------|--------|---------|--------|-------|-------|-------|--------|
|               | L±1.0             | ØD±1.0 | Ød±0.05 | L1 Max | H±1.0 | P±1.0 | g±1.0 | L2±1.5 |
| 1/4W<br>1/2WS | 6.2               | 2.7    | 0.40    | 3.5    | 4.00  | 6     | 3     | 7      |
| 1/2W<br>1WS   | 9                 | 3.5    | 0.50    | 3.5    | 4.00  | 7     | 3     | 6      |
| 1W<br>2WS     | 11                | 4.5    | 0.60    | 3.5    | 4.00  | 9     | 3     | 9      |
| 2W<br>3WS     | 15.5              | 5      | 0.70    | 3.5    | 4.00  | 9     | 3     | 12     |
| 3W<br>5WS     | 17.5              | 6      | 0.70    | 3.5    | 4.00  | 9     | 3     | 12     |

# MF SERIES

METAL FILM FIXED RESISTORS 金属膜固定电阻器

FLYWIN

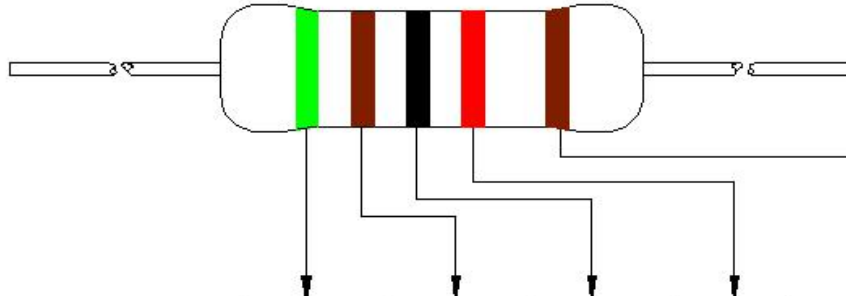
◆ "FT" TYPE FT型



| POWER<br>功率 | DIMENSION 尺寸 (mm) |        |         |       |        |       |
|-------------|-------------------|--------|---------|-------|--------|-------|
|             | L±1.0             | ØD±1.0 | Ød±0.05 | H Max | HI Max | P±0.5 |
| 1/2W<br>1WS | 9                 | 3.5    | 0.50    | 15.0  | 16.5   | 5     |
| 1W<br>2WS   | 11                | 4.5    | 0.60    | 18.0  | 16.5   | 5     |
| 2W<br>3WS   | 15.5              | 5      | 0.70    | 22.0  | 16.5   | 5     |
| 3W<br>5WS   | 17.5              | 6      | 0.70    | 22.0  | 16.5   | 5     |

注：以上所有成型尺寸可按照客户要求特殊定制。  
All the above forming dimensions can be customized according to the customer's requirements.

△ COLOR CODE 色码



| COLOR<br>颜色 | NO. 1<br>第一数字 | NO. 2<br>第二数字 | NO. 3<br>第三数字 | NO. 4<br>倍率      | NO. 5<br>允许误差 |
|-------------|---------------|---------------|---------------|------------------|---------------|
| BLACK (黑)   | 0             | 0             | 0             | 10 <sup>0</sup>  |               |
| BROWN (棕)   | 1             | 1             | 1             | 10 <sup>1</sup>  | ±1% (F)       |
| RED (红)     | 2             | 2             | 2             | 10 <sup>2</sup>  | ±2% (G)       |
| ORANGE (橙)  | 3             | 3             | 3             | 10 <sup>3</sup>  |               |
| YELLOW (黄)  | 4             | 4             | 4             | 10 <sup>4</sup>  |               |
| GREEN (绿)   | 5             | 5             | 5             | 10 <sup>5</sup>  | ±0.5% (D)     |
| BLUE (蓝)    | 6             | 6             | 6             | 10 <sup>6</sup>  | ±0.25% (C)    |
| VIOLET (紫)  | 7             | 7             | 7             | 10 <sup>7</sup>  | ±0.1% (B)     |
| GRAY (灰)    | 8             | 8             | 8             | 10 <sup>8</sup>  |               |
| WHITE (白)   | 9             | 9             | 9             | 10 <sup>9</sup>  |               |
| GOLD (金)    |               |               |               | 10 <sup>-1</sup> | ±5% (J)       |
| SILVER (银)  |               |               |               | 10 <sup>-2</sup> | ±10% (I)      |



# MF SERIES

METAL FILM FIXED RESISTORS 金属膜固定电阻器

FLYWIN

## △ PACKAG 包装

### ◆ TAPING TYPE 编带

| POWER<br>功率   | SHAPE<br>形状 | MPQ (KPCS)<br>最小包装量 | QTY-BOX (KPCS)<br>单盒数量 | QTY-CARTON (KPCS)<br>单箱数量 |
|---------------|-------------|---------------------|------------------------|---------------------------|
| 1/8W<br>1/4WS | T26         | 5.00                | 5.00                   | 160.00                    |
|               | T52         | 5.00                | 5.00                   | 100.00                    |
| 1/4W<br>1/2WS | T26         | 5.00                | 5.00                   | 105.00                    |
|               | T52         | 5.00                | 5.00                   | 105.00                    |
| 1/2W<br>1WS   | T52         | 2.00                | 2.00                   | 30.00                     |
| 1W<br>2WS     | T63         | 1.00                | 1.00                   | 15.00                     |
| 2W<br>3WS     | T73         | 1.00                | 1.00                   | 12.00                     |
| 3W<br>5WS     | T73         | 0.50                | 0.50                   | 6.00                      |
| 5W<br>7WS     | T93         | 0.25                | 0.25                   | 2.50                      |

### ◆ VERTICAL TAPING TYPE 立式编带

| POWER<br>功率 | SHAPE<br>形状 | MPQ (KPCS)<br>最小包装量 | QTY-BOX (KPCS)<br>单盒数量 | QTY-CARTON (KPCS)<br>单箱数量 |
|-------------|-------------|---------------------|------------------------|---------------------------|
| 1/2W<br>1WS | FT          | 3.50                | 3.50                   | 35.00                     |
| 1W<br>2WS   | FT          | 2.50                | 2.50                   | 25.00                     |
| 2W<br>3WS   | FT          | 2.00                | 2.00                   | 20.00                     |
| 3W<br>5WS   | FT          | 1.80                | 1.80                   | 18.00                     |

### ◆ BULK TYPE 散装

| POWER<br>功率   | SHAPE<br>形状             | MPQ (KPCS)<br>最小包装量 | QTY-BOX (KPCS)<br>单盒数量 | QTY-CARTON (KPCS)<br>单箱数量 |
|---------------|-------------------------|---------------------|------------------------|---------------------------|
| 1/8W<br>1/4WS | M、P                     | 1.00                | 10.00                  | 60.00                     |
|               | P                       | 1.00                | 10.00                  | 60.00                     |
| 1/4W<br>1/2WS | FY、FKY、FYL、FKYL、M       | 2.00                | 20.00                  | 120.00                    |
|               | P                       | 0.50                | 5.00                   | 18.00                     |
| 1/2W<br>1WS   | FY、FKY、FYL、FKYL、M       | 1.00                | 5.00                   | 30.00                     |
|               | P                       | 0.20                | 2.00                   | 12.00                     |
| 1W<br>2WS     | FY、FKY、FYL、FKYL、M、MB、MK | 0.50                | 3.00                   | 18.00                     |
|               | P                       | 0.20                | 2.00                   | 12.00                     |
| 2W<br>3WS     | FY、FKY、FYL、FKYL、M、MB、MK | 0.20                | 2.00                   | 12.00                     |
|               | P                       | 0.10                | 1.00                   | 6.00                      |
| 3W<br>5WS     | FY、FKY、FYL、FKYL、M、MB、MK | 0.20                | 1.00                   | 6.00                      |
|               | P                       | 0.20                | 1.00                   | 6.00                      |

注：

建议储存环境：温度：0-30℃且相对湿度低于65%，高温、灰层和有害气体（如酸碱性气体）都需要避免接触。

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