

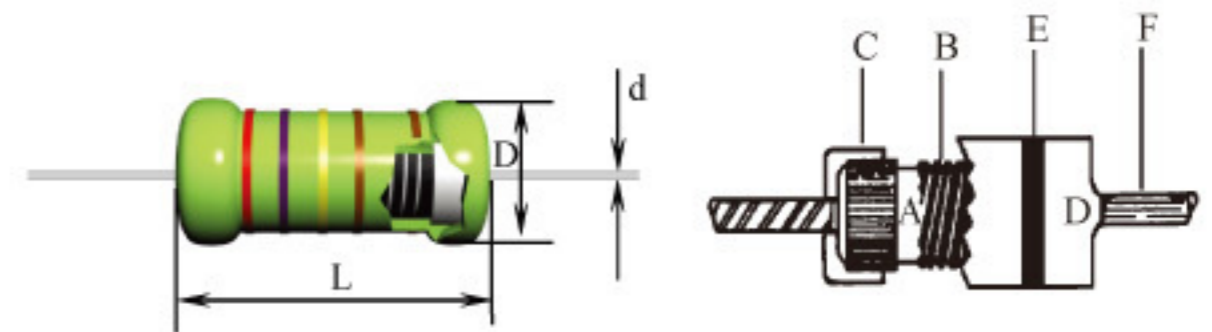
金属膜固定电阻器 Metal Film Fixed Resistor (MFR/CMF)



●特点 Features:

- 1、低温度系数、精度高、高频性能好。Low temperature coefficient, high precision, and good high frequency performance.
- 2、使用环境温度 Operating ambient temperature: $-55^{\circ}\text{C}\sim +155^{\circ}\text{C}$ 。
- 3、真空溅射金属皮膜，涂层为湖绿色环氧树脂，防水性好。Film the metal in Vacuum, the surface coating is Green resin with the good waterproof.
- 4、阻值误差 Resistance Tolerance: $\pm 5\%$ 、 $\pm 1\%$ 。

●产品结构图 Construction Drawing:



- A、高热传导瓷芯 High heat exchanged Ceramic core
- B、高稳定性导电膜 High stability Electric conduction film
- C、铁帽 Iron Cap
- D、环氧树脂涂料 Epoxy resin coating
- E、色环 Color Ring
- F、镀锡铜线或镀锡铜包钢线 Tinned copper lead wire or CP lead wire

●规格尺寸及耐压性能 Dimensions and Voltage Performance:

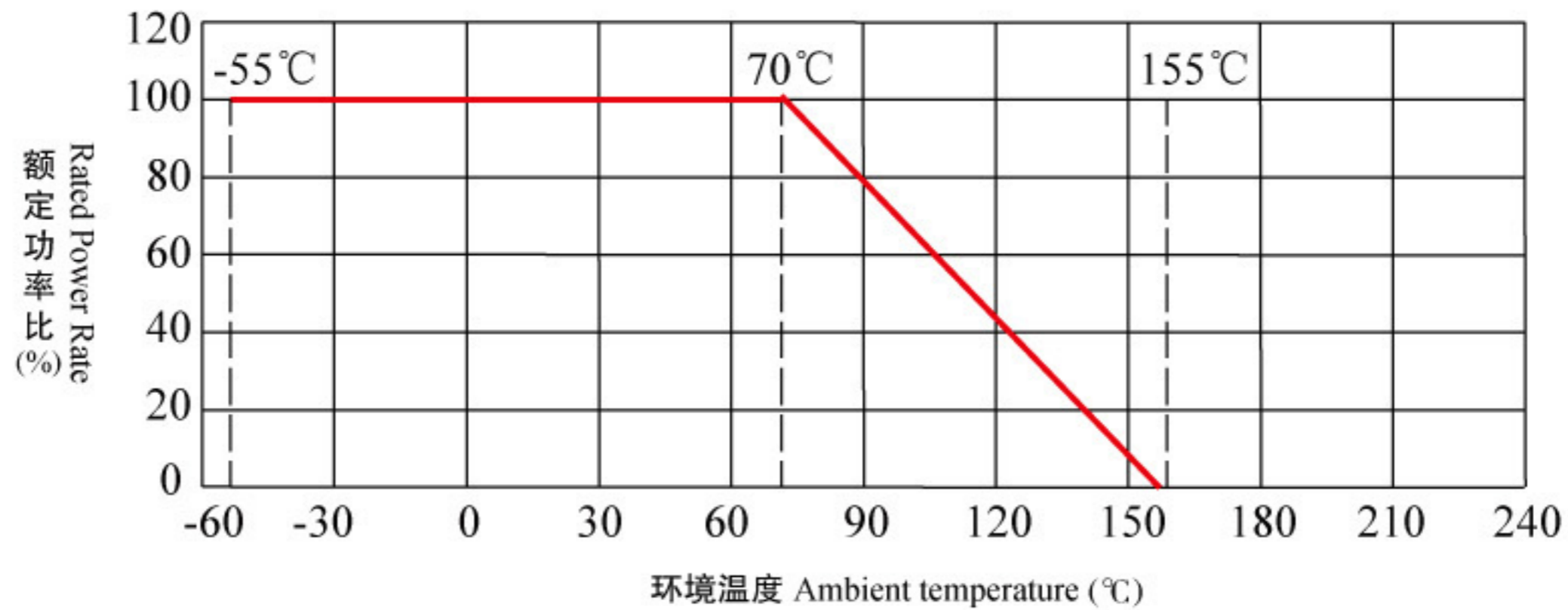
| 料号 Part No. | 功率 Power | 阻值范围 Resistance range | 尺寸 Dimensions(mm) | | | 最大工作电压 Max. working voltage | 最大负荷电压 Max. overload voltage | 最高脉冲电压 Max. Pulse voltage | 最高绝缘电压 Max. insulation voltage |
|------------------|--------------|--------------------------|-------------------|-------------|--------------|--------------------------------|---------------------------------|------------------------------|-----------------------------------|
| | | | L ± 1 | D ± 0.5 | d ± 0.05 | | | | |
| CMF016 MFR016 | 1/8W 1/6W | 0R~22M | 3.5 | 1.7 | 0.41 | 150V | 300V | 500V | 300V |
| CMF14S MFR14S | 1/4WS | 0R~22M | 3.5 | 1.7 | 0.41 | 150V | 300V | 500V | 300V |
| CMF014 MFR014 | 1/4W | 0R~22M | 6.0 | 2.3 | 0.45 0.52 | 250V | 500V | 750V | 500V |
| CMF12S MFR12S | 1/2WS | 0R~22M | 6.0 | 2.3 | 0.45 0.52 | 250V | 500V | 750V | 500V |
| MFR012 | 1/2W | 0R1~22M | 9.0 | 3.2 | 0.58 | 350V | 700V | 1000V | 700V |
| MFR01S | 1WS | 0R1~22M | 9.0 | 3.2 | 0.58 | 350V | 700V | 1000V | 700V |
| MFR01B | 1W | 0R1~22M | 11.0 | 4.5 | 0.75 | 500V | 1000V | 1000V | 1000V |
| MFR02S | 2WS | 0R1~22M | 11.0 | 4.5 | 0.75 | 500V | 1000V | 1000V | 1000V |
| MFR02B | 2W | 0R1~22M | 15.0 | 5.0 | 0.75 | 500V | 1000V | 1000V | 1000V |
| MFR03S | 3WS | 0R1~22M | 15.0 | 5.0 | 0.75 | 500V | 1000V | 1000V | 1000V |
| MFR03B | 3W | 0R1~22M | 24.0 | 8.0 | 0.75 | 700V | 1200V | 1200V | 1000V |
| MFR05S | 3WS | 0R1~22M | 24.0 | 8.0 | 0.75 | 700V | 1200V | 1200V | 1000V |

备注Note:

- a、功率后面的“S”表示小型化。“S”means small size.
- b、额定电压 Rated voltage = $\sqrt{\text{功率Power} \times \text{阻值Resistance Value}}$
- c、当计算得出的额定电压大于最大工作电压电压，使用时取二者较小值。If the calculated rated voltage is higher than max. working voltage, it will be got the lower value.



● 额定功率递减图 Rated Power Derating Curve:



● 性能测试 Performance Test:

| 测试项目 Test Item | 测试条件 Test Condition | 性能 Performance |
|--------------------------------------|--|--|
| 温度系数 Temperature coefficient | 在常温及常温+100°C时分别测量电阻值并计算每度的阻值变化率。Test the resistance value at normal temperature and normal temperature added 100°C, calculate per °C resistance value change rate. | ±100ppm/°C |
| 短时间过负荷 Short time overload | 施加2.5倍额定电压或最高负荷电压(取较小者)5秒。 2.5 × rated voltage or Max. overload voltage (get the lower) for 5 seconds. | $\Delta R \leq \pm (0.5\%R_0 + 0.05\Omega)$ |
| 断续过负荷 Pulse overload | 4倍额定电压或最高断续负荷电压(取较小者)测试1秒,停止25秒,循环10000 ± 200次。At 4× rated voltage or Max. pulse overload voltage (get the Lower) cycle 10000±200 times (1 second on, 25 seconds off)。 | $\Delta R \leq \pm (1\%R_0 + 0.05\Omega)$ |
| 耐焊接热 Resistance to soldering heat | 在350 ± 10°C的锡炉中浸入2 ~ 3秒。 Immerge into the 350±10°C tin stove for 2~3 seconds. | $\Delta R \leq \pm (0.5\%R_0 + 0.05\Omega)$ |
| 可焊性 Solderability | 在245 ± 3°C锡炉中浸入2 ~ 3秒。 Immerge into the 245±3°C tin stove for 2~3 seconds. | 焊锡面积覆盖率95%以上 The soldering area is over 95% |
| 温度循环 Temperature cycling | 在-55°C时放置30分钟,然后在+25°C时放置10~15分钟,然后再在+155°C时放置30分钟,然后再在+25°C时放置10~15分钟,共循环5次。At -55°C for 30 min, then at +25°C for 10~15 min, then at +155°C for 30 min, then at +25°C for 10~15 min, total 5 cycles. | $\Delta R \leq \pm (0.5\%R_0 + 0.05\Omega)$ |
| 耐湿负荷寿命 Load life in humidity | 在温度为40 ± 2°C,相对湿度为90 ~ 95%的恒温恒湿箱中,施加额定电压或最大工作电压(取较小者)共1000小时(通1.5小时,断0.5小时)。Overload rated voltage or Max. working voltage (get the lower) for 1000 hours (1.5 hours on and half-hour off) at the 40±2°C and 90~95% relative humidity. | $\Delta R \leq \pm (2\%R_0 + 0.05\Omega)$ |
| 耐温负荷寿命 Load life in heat | 在70 ± 2°C恒温恒湿箱中施加额定电压或最大工作电压(取较小者)1000小时(通1.5小时,断0.5小时)。Overload rated voltage or Max. working voltage (get the lower) for 1000 hours (1.5 hours on and half-hour off) at the 70±2°C. | $\Delta R \leq \pm (2\%R_0 + 0.05\Omega)$ |

● 料号规则 Part No. Regulation:

| MFR | 01B | F | 0 | T520 | 100K0 |
|---|---|--------------------|------------------|--|--|
| 产品名称 Product Name | 功率 Power | 精度 Tol. | 特殊码 Special Code | 成型 Forming | 阻值 Ohm |
| 金属膜固定电阻器 Metal Film Fixed Resistors | 016 = 1/6W 016 = 1/8W 014 = 1/4W 14S = 1/4WS 012 = 1/2W 12S = 1/2WS 01B = 1W 01S = 1WS | F = ±1% J = ±5% | | T260 = T26 T520 = T52 T710 = T71 M001 = M | 0R100 = 0.1Ω 0R220 = 0.22Ω 10R00 = 10Ω 10K00 = 10KΩ |
| MFR: 铜引线 Copper Lead Wire CMF: CP引线 CP Lead Wire | 02B = 2W 02S = 2WS 03S = 3WS 05S = 5WS | | | F001 = F B001 = B | 1M000 = 1MΩ |

薄膜类
FILM RESISTORS