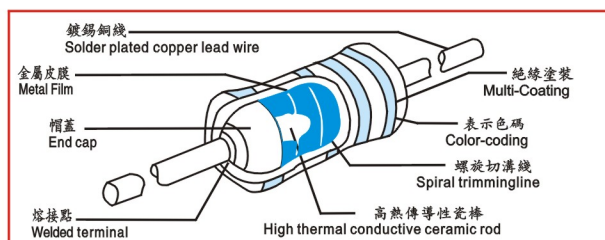


製品介紹 INTRODUCTION

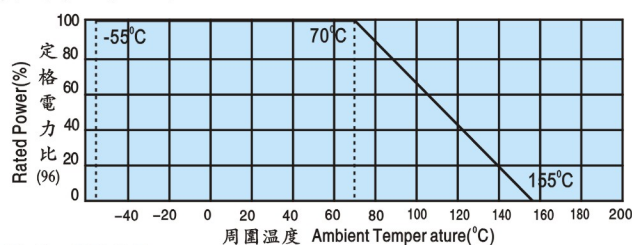
MF 金屬皮膜電阻器屬於高性能之精密電阻器，適用於精密電子回路。

MF, Metal film resistor, is a precise and functional resistor. it is suitable for applications on precise electronic circuits.

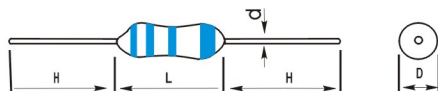
構造 CONSTRUCTION



負荷輕減曲線 DERATING CURVE



形狀 STYLE



尺寸 DIMENSIONS

| 形名 | | 尺 寸 Dimensions (mm) | | | | 額定功率 Power Rating | 最高工作電壓 Max Working Voltage | 最高過負荷電壓 Max Overload Voltage | 耐電壓 Dielectric Withstanding Voltage | 電阻值範圍 Resistance Range |
|-------------------------|------------|---------------------|----------|-----------|------|----------------------|-------------------------------|---------------------------------|--|---------------------------|
| TYPE | | L | D | d | H | | | | | |
| 普通型 Normal size | MF1/6W | 3.2±0.2 | 1.8±0.2 | 0.40±0.02 | 25±3 | 0.16W | 200V | 300V | 300V | 0.1Ω~22M |
| | MF1/4W | 6.5±0.5 | 2.3±0.3 | 0.43±0.02 | 25±3 | 0.25W | 250V | 500V | 500V | 0.1Ω~22M |
| | MF1/2W | 9.0±1.0 | 3.2±0.5 | 0.50±0.02 | 25±3 | 0.5W | 350V | 700V | 500V | 0.1Ω~22M |
| | MF1W | 12.0±1.0 | 4.5±0.5 | 0.65±0.02 | 25±3 | 1W | 500V | 1000V | 500V | 0.1Ω~22M |
| | MF2W | 15.5±1.0 | 5.0±1.0 | 0.72±0.02 | 27±3 | 2W | 500V | 1000V | 500V | 0.1Ω~22M |
| | MF3W | 17.5±1.0 | 6.0±1.0 | 0.72±0.02 | 27±3 | 3W | 500V | 1000V | 600V | 0.1Ω~22M |
| | MF5W | 24.5±1.0 | 8.5±1.0 | 0.75±0.02 | 27±3 | 5W | 700V | 1000V | 750V | 0.1Ω~22M |
| 小型化 Small size | MF1/4WS | 3.2±0.2 | 1.8±0.2 | 0.40±0.02 | 25±3 | 0.25W | 200V | 400V | 300V | 0.1Ω~22M |
| | MF1/2WS | 6.5±0.5 | 2.3±0.3 | 0.43±0.02 | 25±3 | 0.5W | 250V | 500V | 500V | 0.1Ω~22M |
| | MF1WS | 9.0±1.0 | 3.2±0.5 | 0.50±0.02 | 25±3 | 1W | 350V | 700V | 500V | 0.1Ω~22M |
| | MF2WS | 12.0±1.0 | 4.5±0.5 | 0.65±0.02 | 25±3 | 2W | 500V | 1000V | 700V | 0.1Ω~22M |
| | MF3WS | 15.5±1.0 | 5.0±1.0 | 0.72±0.02 | 25±3 | 3W | 500V | 1000V | 700V | 0.1Ω~22M |
| | MF5WS | 17.0±1.0 | 6.0±1.0 | 0.72±0.02 | 27±3 | 5W | 500V | 1000V | 700V | 0.1Ω~22M |
| 超小型化 Super Mini-Size | MF1/2W(SS) | 3.2±0.2 | 1.8±0.2 | 0.40±0.02 | 25±3 | 0.5W | 250V | 500V | 500V | 0.1Ω~1M |
| | MF1W(SS) | 6.5±0.5 | 2.3±0.32 | 0.43±0.02 | 25±3 | 1W | 350V | 700V | 500V | 0.1Ω~1M |
| | MF2W(SS) | 9.0±1.0 | 3.2±0.5 | 0.50±0.02 | 25±3 | 2W | 500V | 1000V | 500V | 0.1Ω~1M |
| | MF3W(SS) | 12.0±1.0 | 4.5±0.5 | 0.65±0.02 | 25±3 | 3W | 500V | 1000V | 500V | 0.1Ω~1M |
| | MF5W(SS) | 15.5±1.0 | 5.0±1.0 | 0.72±0.02 | 27±3 | 5W | 500V | 1000V | 600V | 0.1Ω~1M |

NOTE: Specification can be constructed on request.

特長 FEATURES

- 高安定性 High stability
- 低雜音・低溫度係數 Low noise. Low temp. coefficient
- 精密特性 Precision characteristics



特性 CHARACTERISTICS

| 試驗項目 Test Items | 規格值 Specified Value |
|---|---------------------------------|
| 溫度係數 Temp. coefficient of resistance | ±50, ±100 PPM/°C |
| 短時間過負荷 Short time overload | ±(0.5%+0.05Ω) |
| 耐電壓 Dielectric withstanding voltage | 無損壞的異狀 No evidence of damage |
| 絕緣抵抗 Insulation resistance | Over 10 ¹⁰ MΩ |
| 端子強度 Terminal strength | 無損壞的異狀 No evidence of damage |
| 耐久性(耐濕負荷) Moisture load life | ±(1.5%+0.05Ω) |
| 耐久性(定格負荷)70°C Load life at 70°C | ±(2%+0.05Ω) |
| 溫度循環 Temperature cycling | ±(1%+0.05Ω) |
| 焊錫耐熱性 Resistance to soldering heat | ±(0.5%+0.05Ω) |
| 焊錫附著性 Resistance to soldering heat | Over 95% |
| 耐溶劑性 Resistance to solvent | 無損壞的異狀 No evidence of damage |

TOL : $\pm 0.02\%$ 、 $\pm 0.05\%$ 、 $\pm 0.1\%$ 、 0.25% 、 $\pm 1\%$

TC : $\pm 5\text{PPM}$ 、 $\pm 10\text{PPM}$ 、 $\pm 15\text{PPM}$ 、 $\pm 25\text{PPM}$ 、 $\pm 50\text{PPM}$

| TYPE | | MF1/8 | MF1/4 | MF1/2 | MF1W | MF2W | 型 號 |
|------------------------|-------|-------|-------|-------|---------|-------|-------------------|
| MIL-R-10509F | | RN50 | RN55 | RN60 | RN65071 | RN70 | 美國標準 MIL-R-10509F |
| DIN-44061 | | 0204 | 0207 | 0411 | 0617 | 0719 | 西德工業標準 DIN-44061 |
| POWER | 70°C | 0.125 | 0.250 | 0.500 | 0.75 | 1.00 | 70°C |
| RATING | 100°C | 0.067 | 0.110 | 0.173 | 0.350 | 0.610 | 100°C |
| (W) | 125°C | 0.050 | 0.100 | 0.125 | 0.250 | 0.500 | 1250C |
| MAX.WORKING VOLTAGE(V) | | 200 | 250 | 300 | 350 | 400 | 最大工作電壓 (V) |

STANDARD RESISTANCE RANGE (Ω)

标准组值范围

| TYPE | | MF1/8 | MF1/4 | MF1/2 | MF1W | MF2W | 型 號 |
|---|------|-------|-------|-------|------|------|-----|
| P($\pm 0.02\%$) | from | | 5 | 5 | 10 | 10 | 由 |
| | to | | 1M21 | 1M21 | 2M | 2M | 到 |
| W($\pm 0.05\%$) | from | 100 | 5 | 5 | 10 | 10 | 由 |
| | to | 100k | 1M21 | 1M5 | 2M | 2M | 到 |
| B($\pm 0.010\%$) | from | 10 | 1 | 1 | 1 | 1 | 由 |
| | to | 500k | 1M5 | 2M5 | 5M | 10M | 到 |
| C($\pm 0.25\%$) | from | 10 | 1 | 1 | 1 | 1 | 由 |
| | to | 600k | 2M5 | 5M | 10M | 10M | 到 |
| D($\pm 0.50\%$) | from | 10 | 1 | 1 | 1 | 1 | 由 |
| | to | 800k | 5M | 10M | 10M | 10M | 到 |
| F($\pm 1.00\%$) | from | 10 | 1 | 1 | 1 | 1 | 由 |
| | to | 1M | 10M | 10M | 10M | 10M | 到 |
| C7($\pm 5\text{ppm}/^\circ\text{C}$) | from | 10 | 10 | 10 | 10 | 10 | 由 |
| | to | 1M | 1M | 1M | 1M | 1M | 到 |
| C6($\pm 10\text{ppm}/^\circ\text{C}$) | from | 100 | 10 | 10 | 10 | 10 | 由 |
| | to | 100k | 1M5 | 1M5 | 1M5 | 1M5 | 到 |
| C5($\pm 15\text{ppm}/^\circ\text{C}$) | from | 100 | 5 | 5 | 5 | 5 | 由 |
| | to | 200k | 1M5 | 1M5 | 1M5 | 1M5 | 到 |
| C3($\pm 25\text{ppm}/^\circ\text{C}$) | from | 10 | 5 | 5 | 5 | 5 | 由 |
| | to | 600k | 2M5 | 2M5 | 2M5 | 2M5 | 到 |
| C2($\pm 50\text{ppm}/^\circ\text{C}$) | from | 10 | 5 | 5 | 5 | 5 | 由 |
| | to | 1M | 10M | 10M | 10M | 10M | 到 |

訂貨方式 HOW TO ORDER

| MF | 1/4W | T52 | J | 10K | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------|--|-----------------------------|--------------------------------|-----------------------------|-------|------|-------|------|-----|----|-----|----|-----|--|-----|-----------------|---|--|---|--------------------------------------|-----|---------------------------------------|-----|----------------------|-----|---------------|---|---|-----|---|------|---|------|---|-----|---|-------|---|--------|---|-------|--|-------------------------|-------------------|-------------|-------------|-------------|------------|
| 種類 Type | 預定電力 Power Rating | 形狀/ 包裝方式 Form/ Packaging | 電阻值誤差率 Resistance Tolerance | 公稱電阻值 Nominal Resistance | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <table><tr><th>Nomal Size</th><th>Small Size</th></tr><tr><td>1/6W</td><td>1/4WS</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></table> | Nomal Size | Small Size | 1/6W | 1/4WS | 1/4W | 1/2WS | 1/2W | 1WS | 1W | 2WS | 2W | 3WS | <table><tr><th>S.P</th><th>Bulk (Straight)</th></tr><tr><td>M</td><td>Bulk, M-Form series (Horizontal Forming)</td></tr><tr><td>U</td><td>Buld,U-Form series(Vertical Forming)</td></tr><tr><td>Txx</td><td>Boxed (26.52.63.73.83mm width taping)</td></tr><tr><td>T/R</td><td>Tape on reel packing</td></tr><tr><td>U/T</td><td>Radial Taping</td></tr></table> | S.P | Bulk (Straight) | M | Bulk, M-Form series (Horizontal Forming) | U | Buld,U-Form series(Vertical Forming) | Txx | Boxed (26.52.63.73.83mm width taping) | T/R | Tape on reel packing | U/T | Radial Taping | <table><tr><th>J</th><th>±5%</th></tr><tr><td>K</td><td>±10%</td></tr><tr><td>M</td><td>±20%</td></tr><tr><td>F</td><td>±1%</td></tr><tr><td>D</td><td>±0.5%</td></tr><tr><td>C</td><td>±0.25%</td></tr><tr><td>B</td><td>±0.1%</td></tr></table> | J | ±5% | K | ±10% | M | ±20% | F | ±1% | D | ±0.5% | C | ±0.25% | B | ±0.1% | <table><tr><th>3-Digit:E-24, 12 Series</th></tr><tr><td>e.g. OR12 = 0.12Ω</td></tr><tr><td>120R = 120Ω</td></tr><tr><td>1K2 = 1.2KΩ</td></tr><tr><td>12K = 12 KΩ</td></tr><tr><td>12M = 12MΩ</td></tr></table> | 3-Digit:E-24, 12 Series | e.g. OR12 = 0.12Ω | 120R = 120Ω | 1K2 = 1.2KΩ | 12K = 12 KΩ | 12M = 12MΩ |
| Nomal Size | Small Size | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1/6W | 1/4WS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1/4W | 1/2WS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1/2W | 1WS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1W | 2WS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2W | 3WS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S.P | Bulk (Straight) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M | Bulk, M-Form series (Horizontal Forming) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| U | Buld,U-Form series(Vertical Forming) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Txx | Boxed (26.52.63.73.83mm width taping) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T/R | Tape on reel packing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| U/T | Radial Taping | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| J | ±5% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| K | ±10% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M | ±20% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F | ±1% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D | ±0.5% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | ±0.25% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B | ±0.1% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3-Digit:E-24, 12 Series | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| e.g. OR12 = 0.12Ω | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 120R = 120Ω | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1K2 = 1.2KΩ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12K = 12 KΩ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12M = 12MΩ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |