

# 规格承认书

SPECIFICATION FOR APPROVAL

客户 CUSTOMER : 适用所有

品名 PRODUCT : 碳膜固定电阻器系列

规格 TYPE : CR1/8W-7WS

客户承认印  
CUSTOMER APPROVED

 **东莞市粤翔电子科技有限公司**  
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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：CRS-020A

品保部 2019年12月1日



**无卤**  
(F,Cl,Br,I)

# CR SERIES

CARBON FILM FIXED RESISTORS 碳膜固定电阻器

FLYWIN

## △ FEATURES 特点

- 1 HIGH QUALITY  
高品质.
- 2 WITHSTAND VOITAGE, SHOCK RESISTANCE  
耐电压, 耐冲击
- 3 STANDARD TOLERANCE : ±5%, (±2%).  
±5%, (±2%) 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-22MΩ).  
阻抗范围高 (0Ω-22MΩ).



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 KHAKI, MINIATURE  
PINK)  
高绝缘及耐溶剂之环氧树脂涂料 (本体功率为土黄色, 小型化为粉红色)
- 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: CR1/4W-470Ω ±5%-ST52

| CR            | 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 =  $\sqrt{\text{POWER RATING 额定功率} \times \text{RESISTANCE VALUE 公称阻值}}$

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CARBON FILM FIXED RESISTORS 碳膜固定电阻器

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                   | J (±5%)  | 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="6"> <math>&lt;10\Omega \pm 400\text{PPM}</math><br/> <math>10\Omega - 1M \pm 350\text{PPM}</math><br/> <math>&gt;1M \pm 1000\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> </table> | 1/8W   | 1/4WS          | $<10\Omega \pm 400\text{PPM}$<br>$10\Omega - 1M \pm 350\text{PPM}$<br>$>1M \pm 1000\text{PPM}$ | 1/4W                                     | 1/2WS                   | 1/2W                                    | 1WS                      | 1W | 2WS          | 2W    | 3WS | 3W                                     | 5WS | $\frac{R2-R1}{R1(T2-T1)} \times 10^6 \text{PPM}/^\circ\text{C}$ 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  | $<10\Omega \pm 400\text{PPM}$<br>$10\Omega - 1M \pm 350\text{PPM}$<br>$>1M \pm 1000\text{PPM}$   |                |  |  |                         |   |                          |    |              |       |     |  |     |  |              |       |
| 1/4W                                     | 1/2WS  |  |                |  |  |                         |   |                          |    |              |       |     |  |     |  |              |       |
| 1/2W                                     | 1WS  |  |                |  |  |                         |   |                          |    |              |       |     |  |     |  |              |       |
| 1W                                       | 2WS  |  |                |  |  |                         |   |                          |    |              |       |     |  |     |  |              |       |
| 2W                                       | 3WS  |  |                |  |  |                         |   |                          |    |              |       |     |  |     |  |              |       |
| 3W                                       | 5WS  |  |                |  |  |                         |   |                          |    |              |       |     |  |     |  |              |       |
| LOAD LIFE IN HUMIDITY<br>湿度寿命            | RESISTANCE CHANGE RATE $\pm(5\%+0.05\Omega)$<br>WITH NO EVIDENCE OF RESISTOR DAMAGE.<br>阻坑值变化率 ( $5\% \pm 0.05\Omega$ )，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 $40\% \pm 2^\circ\text{C}$ AND 90-95% RELATIVE HUMIDITY. (when the test voltage exceeds the working voltage, considering the working voltage)<br>温度 $40\% \pm 2^\circ\text{C}$ ，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 $\pm(5\%+0.05\Omega)$ MAX WITH NO EVIDENCE OF RESISTOR DAMAGE.<br>阻坑值变化率 ( $5\% \pm 0.05\Omega$ )，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 $70^\circ\text{C} \pm 2^\circ\text{C}$ (when the test voltage exceeds the working voltage, considering the working voltage)<br>温度 $70\% \pm 2^\circ\text{C}$ ，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           | $\pm(1\%+0.05\Omega)$  | 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 X 2.5 倍，测试 5 秒（当实验电压超过最高过负荷电压，采用最高过负荷电压）   |                |  |  |                         |   |                          |    |              |       |     |  |     |  |              |       |
| 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 (三氯乙烯浸泡 3 分钟，再用湿布反复擦拭 10 次)  |                |  |  |                         |   |                          |    |              |       |     |  |     |  |              |       |
| INSULATION RESISTANCE<br>绝缘阻抗            | $>1000M\Omega$   |  |                |  |  |                         |   |                          |    |              |       |     |  |     |  |              |       |
| ELECTRIC WITHSTANDING VOLTAGE<br>绝缘耐电压   | RESISTANCE CHANGE RATE $\pm(1\%+0.05\Omega)$ WITH NO EVIDENCE OF RESISTOR DAMAGE.<br>阻坑值变化率 ( $1\% \pm 0.05\Omega$ )，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 INFLICTION<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>阻坑值变化率 ( $1\% \pm 0.05\Omega$ ) 以内，电阻器不可有损伤   | <table border="1"> <thead> <tr> <th>STEP 步骤</th> <th>TEMPERATURE 温度</th> <th>TIME (MIN) 放置时间</th> </tr> </thead> <tbody> <tr> <td>1</td> <td><math>-55^\circ\text{C} \pm 2^\circ\text{C}</math></td> <td>30</td> </tr> <tr> <td>2</td> <td>ROOM TEMP 室温</td> <td>10-15</td> </tr> <tr> <td>3</td> <td><math>85^\circ\text{C} \pm 2^\circ\text{C}</math></td> <td>30</td> </tr> <tr> <td>4</td> <td>ROOM TEMP 室温</td> <td>10-15</td> </tr> </tbody> </table>  | STEP 步骤        | TEMPERATURE 温度   | TIME (MIN) 放置时间                          | 1                       | $-55^\circ\text{C} \pm 2^\circ\text{C}$ | 30                       | 2  | ROOM TEMP 室温 | 10-15 | 3   | $85^\circ\text{C} \pm 2^\circ\text{C}$ | 30  | 4  | ROOM TEMP 室温 | 10-15 |
| STEP 步骤                                  | TEMPERATURE 温度   | TIME (MIN) 放置时间  |                |  |  |                         |   |                          |    |              |       |     |  |     |  |              |       |
| 1  | $-55^\circ\text{C} \pm 2^\circ\text{C}$  | 30   |                |  |  |                         |   |                          |    |              |       |     |  |     |  |              |       |
| 2  | ROOM TEMP 室温   | 10-15  |                |  |  |                         |   |                          |    |              |       |     |  |     |  |              |       |
| 3  | $85^\circ\text{C} \pm 2^\circ\text{C}$   | 30   |                |  |  |                         |   |                          |    |              |       |     |  |     |  |              |       |
| 4  | ROOM TEMP 室温   | 10-15  |                |  |  |                         |   |                          |    |              |       |     |  |     |  |              |       |
| RESISTANCE TO SOLDERING HEAT<br>耐热性      | RESISTANCE CHANGE RATE IS $\pm(2\%+0.05\Omega)$ MAX, WITH NO EVIDENCE OF RESISTOR DAMAGE.<br>阻坑值变化率 ( $2\% \pm 0.05\Omega$ ) 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 <table border="1"> <thead> <tr> <th>TEMPERATURE 温度</th> <th>DIP TIME 放置时间</th> </tr> </thead> <tbody> <tr> <td><math>350^\circ\text{C} \pm 10^\circ\text{C}</math></td> <td><math>3 \pm 0.5 \text{ SEC}</math></td> </tr> <tr> <td><math>260^\circ\text{C} \pm 5^\circ\text{C}</math></td> <td><math>10 \pm 1.0 \text{ SEC}</math></td> </tr> </tbody> </table> | TEMPERATURE 温度 | DIP TIME 放置时间  | $350^\circ\text{C} \pm 10^\circ\text{C}$ | $3 \pm 0.5 \text{ SEC}$ | $260^\circ\text{C} \pm 5^\circ\text{C}$ | $10 \pm 1.0 \text{ SEC}$ |    |              |       |     |  |     |  |              |       |
| TEMPERATURE 温度                           | DIP TIME 放置时间  |  |                |  |  |                         |   |                          |    |              |       |     |  |     |  |              |       |
| $350^\circ\text{C} \pm 10^\circ\text{C}$ | $3 \pm 0.5 \text{ SEC}$  |  |                |  |  |                         |   |                          |    |              |       |     |  |     |  |              |       |
| $260^\circ\text{C} \pm 5^\circ\text{C}$  | $10 \pm 1.0 \text{ SEC}$   |  |                |  |  |                         |   |                          |    |              |       |     |  |     |  |              |       |
| SOLDERABILITY<br>焊锡性                     | 95% COVERAGE MINIMUM<br>95% 覆盖于导线上   | TEST TEMPERATURE OF SOLDER: $230^\circ\text{C} \pm 5^\circ\text{C}$<br>DWELL TIME IN SOLDER: $3 \pm 0.5 \text{ SEC}$<br>锡炉温度: $230^\circ\text{C} \pm 5^\circ\text{C}$ 浸锡时间: $3 \pm 0.5 \text{ 秒}$  |                |  |  |                         |   |                          |    |              |       |     |  |     |  |              |       |
| SOLDER JOINT PULL<br>焊点拉力                | PULLING TEST FOR 1/8W $\geq 1.8\text{KG}$ , 1/4W $\geq 3.8\text{KG}$ , 1/2W BIGGER THAN $\geq 5\text{KG}$<br>拉力强度 1/8W $\geq 1.8\text{KG}$ , 1/4W $\geq 3.8\text{KG}$ , 1/2W 含以上 $\geq 5\text{KG}$   | 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 $\geq 10000\text{H}$<br>额定条件下使用寿命 $\geq 10000$ 小时   | failure rate $\leq 10\text{PPM}$<br>失效率 $\leq 10\text{PPM}$  |                |  |  |                         |   |                          |    |              |       |     |  |     |  |              |       |

# CR SERIES

CARBON FILM FIXED RESISTORS 碳膜固定电阻器

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             | 0.1 Ω | 0.1 Ω | 0.1 Ω | 0.1 Ω | 0.1 Ω | 0.1 Ω | 0.1 Ω | 0.1 Ω | 0.1 Ω | 0.1 Ω | 0.1 Ω | 0.1 Ω | 0.1 Ω |
|  | MAX             | 22M Ω | 22M Ω | 22M Ω | 22M Ω | 22M Ω | 22M Ω | 22M Ω | 22M Ω | 22M Ω | 22M Ω | 22M Ω | 22M Ω | 22M Ω |

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

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CARBON FILM FIXED RESISTORS 碳膜固定电阻器

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               |

# CR SERIES

CARBON FILM FIXED RESISTORS 碳膜固定电阻器

FLYWIN

◆ "M" TYPE M型



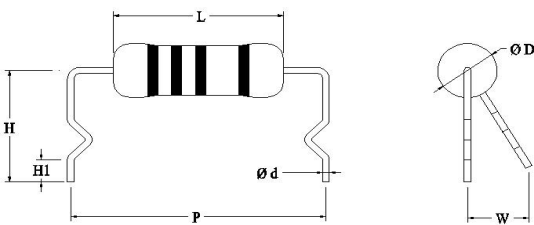
| POWER<br>功率   | DIMENSION 尺寸 (mm) |        |         |        |       |       |
|---------------|-------------------|--------|---------|--------|-------|-------|
|               | L±1.0             | ØD±1.0 | Ød±0.05 | H±1.0  | P±1.0 | W Max |
| 1/8W<br>1/4WS | 3.7               | 2.3    | 0.40    | 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     |

# CR SERIES

CARBON FILM FIXED RESISTORS 碳膜固定电阻器

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     |

# CR SERIES

CARBON FILM FIXED RESISTORS 碳膜固定电阻器

FLYWIN

• "FT" TYPE FT型



| POWER<br>功率 | DIMENSION 尺寸 (mm) |        |         |       |        |       |
|-------------|-------------------|--------|---------|-------|--------|-------|
|             | L±1.0             | OD±1.0 | Ød±0.05 | H Max | HI Max | P±0.5 |
| 1/2W<br>1WS | 9                 | 3.5    | 0.60    | 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客户要求特殊定制。  
All the above forming dimensions can be customized according to the customer's requirements.



| CR-Size<br>Type | H     | d<br>±0.06 | P±1  | P0<br>±0.3 | P1<br>±0.7 | P2<br>±1.3 | F±1 | △h  | W<br>±0.5 | W1<br>±1 | W2    | H0      | D0<br>±0.3 |
|-----------------|-------|------------|------|------------|------------|------------|-----|-----|-----------|----------|-------|---------|------------|
| 1/4W<br>1/2WS   | 12Max | 0.56       | 12.7 | 12.7       | 3.85       | 6.35       | 5   | 0±1 | 9         | 18       | 100±1 | 16.5Max | 4          |
| 1/2W<br>1WS     | 19Max | 0.56       | 12.7 | 12.7       | 3.85       | 6.35       | 5   | 0±1 | 9         | 18       | 100±1 | 16.5Max | 4          |
| 1W<br>2WS       | 22Max | 0.65       | 12.7 | 12.7       | 3.85       | 6.35       | 5   | 0±2 | 9         | 18       | 100±1 | 16.5Max | 4          |
| 2W<br>3WS       | 25Max | 0.75       | 12.7 | 12.7       | 3.85       | 6.35       | 5   | 0±2 | 9         | 18       | 100±1 | 16.5Max | 4          |

## △ 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>倍率      | NO. 4<br>允许误差 |
|-------------|---------------|---------------|------------------|---------------|
| BLACK (黑)   | 0             | 0             | 10 <sup>0</sup>  |               |
| BROWN (棕)   | 1             | 1             | 10 <sup>1</sup>  | ±1%(F)        |
| RED (红)     | 2             | 2             | 10 <sup>2</sup>  | ±2%(G)        |
| ORANGE (橙)  | 3             | 3             | 10 <sup>3</sup>  |               |
| YELLOW (黄)  | 4             | 4             | 10 <sup>4</sup>  |               |
| GREEN (绿)   | 5             | 5             | 10 <sup>5</sup>  |               |
| BLUE (蓝)    | 6             | 6             | 10 <sup>6</sup>  |               |
| VIOLET (紫)  | 7             | 7             | 10 <sup>7</sup>  |               |
| GRAY (灰)    | 8             | 8             | 10 <sup>8</sup>  |               |
| WHITE (白)   | 9             | 9             | 10 <sup>9</sup>  |               |
| GOLD (金)    |               |               | 10 <sup>-1</sup> | ±5%(J)        |
| SILVER (银)  |               |               | 10 <sup>-2</sup> | ±10%(I)       |



# CR SERIES

CARBON FILM FIXED RESISTORS 碳膜固定电阻器

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）都需要避免避免接触。

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