

# 规格承认书

SPECIFICATION FOR APPROVAL

客户 CUSTOMER : 适用所有

品名 PRODUCT : 绕线不燃性涂装电阻器系列





规格 TYPE : KNP1/4W-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：KNP92020A

品保部 2019年12月1日



**无卤**  
(F,Cl,Br,I)

# KNP SERIES

WIREWOUND NONFLAME RESISTORS 绕线不燃性涂漆装电阻器

FLYWIN

## △ FEATURES 特点

- 1 HIGH QUALITY  
高品质.
- 2 SHOCK RESISTANCE  
耐冲击
- 3 STANDARD TOLERANCE : ±1%、±2%、±5%、±10%  
±1%、±2%、±5%、±10%的标准误差
- 4 VARIETY OF PACKAGING-BULK 52mm、63mm、73mm、93mm  
TAPE, CUT AND FORMED  
可供散装、编带52mm、63mm、73mm、93mm、成型、剪脚
- 5 HIGH RESISTANCE RANGE (0Ω05-1KΩ).  
阻抗范围高 (0Ω05-1KΩ).



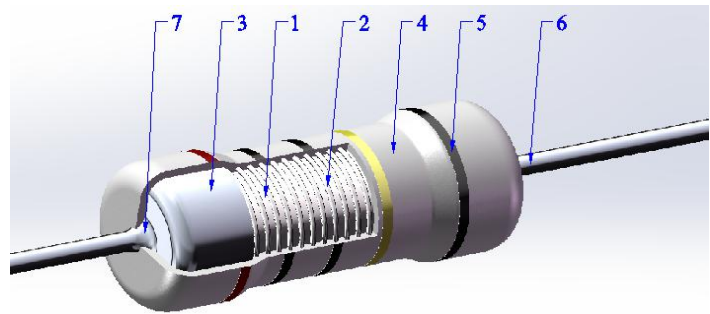
本体



小型化

## △ CONSTRUCTION 结构图

- 1 CERAMIC CORE (HIGH CONDUCTIVITY)  
陶瓷棒心 (高热传导)
- 2 RESISTANCE WIRE  
电阻线
- 3 END CAP (HIGH RELIABILITY FITTING BY ORIGINAL  
CAP-PRESSING METHOD)  
端帽 (卯和度信赖性高)
- 4 HIGH INSULATION AND NON-COMBUSTIBILITY OF FROG  
RESIN COATING (BULK POWER DIMMED, MINIATURIZED TO  
BRICK RED)  
高绝缘及不燃性之硅树脂涂料 (本体功率为灰色, 小型化  
为砖红色)
- 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: KNP2W-20Ω ±1%-9T73

| KNP           | 2W                  | 20Ω  | ±1%              | 9                   | T73                        |
|---------------|---------------------|--|------------------|---------------------|----------------------------|
| 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          | 0Ω1-22MΩ                                     | ±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: 9Ω1/5K6/4M7                               | ±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 =  $\sqrt{\text{POWER RATING 额定功率} \times \text{RESISTANCE VALUE 公称阻值}}$

# KNP SERIES

WIREWOUND NONFLAME RESISTORS 绕线不燃性涂漆装电阻器

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>1/4W</td> <td>1/2WS</td> <td rowspan="5">±350PPM</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> <td></td> </tr> </table> | 1/4W   | 1/2WS          | ±350PPM        | 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 |       |
| 1/4W                                   | 1/2WS  | ±350PPM  |                |                |                 |           |           |            |    |              |       |     |          |     |   |  |       |
| 1/2W                                   | 1WS  |  |                |                |                 |           |           |            |    |              |       |     |          |     |   |  |       |
| 1W                                     | 2WS  |  |                |                |                 |           |           |            |    |              |       |     |          |     |   |  |       |
| 2W                                     | 3WS  |  |                |                |                 |           |           |            |    |              |       |     |          |     |   |  |       |
| 3W                                     | 5WS  |  |                |                |                 |           |           |            |    |              |       |     |          |     |   |  |       |
| 5W                                     | 7WS  |  |                |                |                 |           |           |            |    |              |       |     |          |     |   |  |       |
| LOAD LIFE IN HUMIDITY<br>湿度寿命          | RESISTANCE CHANGE RATE ±(5%+0.05 Ω)<br>WITH NO EVIDENCE OF RESISTOR DAMAGE.<br>阻坑值变化率 (5%±0.05 Ω), 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 ±(5%+0.05 Ω) MAX WITH NO EVIDENCE OF RESISTOR DAMAGE.<br>阻坑值变化率 (5%±0.05 Ω), 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         | ±(1%+0.05 Ω)   | RESISTANCE CHANGE AFTER THE APPLICATION OF A POTENTIAL OF 10% RATED VOLTAGE FOR 5 SE (when the test voltage exceeds the maximum overload, consider using the maximum overload voltage)<br>额定电压X10倍, 测试5秒 (当实验电压超过最高过负荷电压时, 采用最高过负荷电压)  |                |                |                 |           |           |            |    |              |       |     |          |     |   |  |       |
| PULSE OVER LOAD<br>断续过负荷               | 1/4W, 1/2W, 1W, 2W, 3W, 5W   | RESISTANCE CHANGE AFTER 10000C(1SEC ON, 25SEC OFF) AT 4T RATED VOLTAGE (AC) when the test voltage exceeds the maximum overload, consider using the maximum overload voltage)<br>额定电压*4倍 (交流电压), 测试1秒停止25秒, 测试10000次。(当实验电压超过最高过负荷电压, 采用最高过负荷电压)  |                |                |                 |           |           |            |    |              |       |     |          |     |   |  |       |
|  | 1/2WS, 1WS, 2WS, 3WS, 5WS, 7WS   | RESISTANCE CHANGE AFTER 10000C(1SEC ON, 25SEC OFF) AT 4T RATED VOLTAGE (AC) when the test voltage exceeds the maximum overload, consider using the maximum overload voltage)<br>额定电压*4倍 (交流电压), 测试1秒停止25秒, 测试10000次。(当实验电压超过最高过负荷电压, 采用最高过负荷电压)  |                |                |                 |           |           |            |    |              |       |     |          |     |   |  |       |
| 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          | >100M Ω  |  |                |                |                 |           |           |            |    |              |       |     |          |     |   |  |       |
| ELECTRIC WITHSTANDING VOLTAGE<br>绝缘耐电压 | RESISTANCE CHANGE RATE ±(1%+0.05 Ω) WITH NO EVIDENCE OF RESISTOR DAMAGE.<br>阻坑值变化率±(1%+0.05 Ω), 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 ±(1%+0.05 Ω) MAX, WITH NO EVIDENCE OF RESISTOR DAMAGE.<br>阻坑值变化率±(1%+0.05 Ω) 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>-55°C±2°C</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>85°C±2°C</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°C±2°C | 30         | 2  | ROOM TEMP 室温 | 10-15 | 3   | 85°C±2°C | 30  | 4 | ROOM TEMP 室温   | 10-15 |
| 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 ±(1%+0.05 Ω) MAX, WITH NO EVIDENCE OF RESISTOR DAMAGE.<br>阻坑值变化率 (1%±0.05 Ω) 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>350°C±10°C</td> <td>3±0.5 SEC</td> </tr> <tr> <td>260°C±5°C</td> <td>10±1.0 SEC</td> </tr> </tbody> </table> | 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 |    |              |       |     |          |     |   |  |       |
| 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   |  |                |                |                 |           |           |            |    |              |       |     |          |     |   |  |       |
| SOLDERABILITY<br>焊锡性                   | 95% COVERAGE MINIMUM<br>95%覆盖于导线上  | 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  |                |                |                 |           |           |            |    |              |       |     |          |     |   |  |       |
| 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   | 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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WIREWOUND NONFLAME RESISTORS 绕线不燃性涂漆装电阻器

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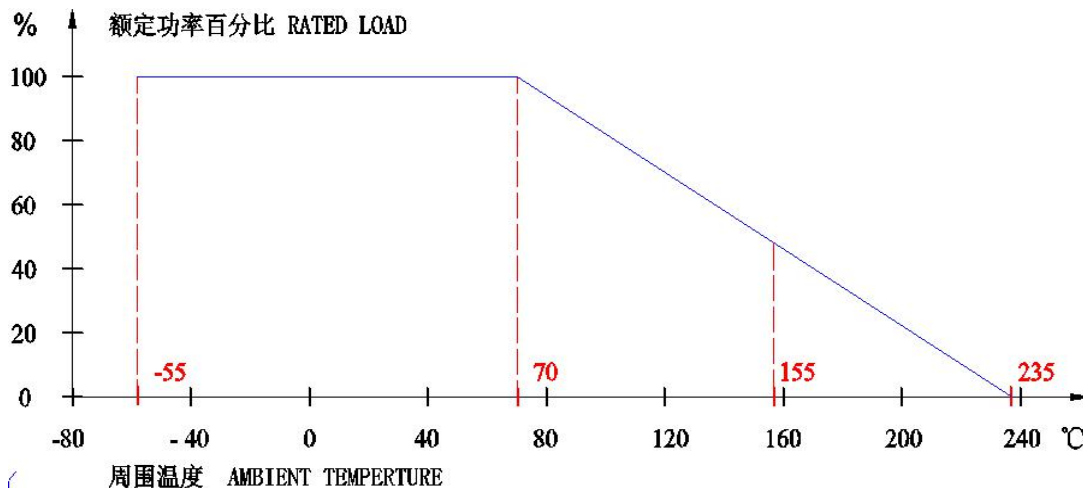
## △ POWER CHARACTERISTIC 电力特性

| POWER PATED<br>额定功率<br>ITEM<br>项目                 | 1/4W                             | 1/2WS  | 1/2W   | 1WS    | 1W     | 2WS    | 2W     | 3WS    | 3W     | 5WS    | 5W     | 7WS    |
|---|----------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| MAX WORKING<br>VOLTAGE<br>最高使用电压                  | 200V                             | 250V   | 250V   | 350V   | 350V   | 500V   | 500V   | 500V   | 500V   | 500V   | 500V   | 500V   |
| MAX OVERLOAD<br>VOLTAGE<br>最高过负荷电压                | 400V                             | 500V   | 500V   | 700V   | 700V   | 1000V  | 1000V  | 1000V  | 1000V  | 1000V  | 1000V  | 1000V  |
| MAX INTERMITTENCE<br>OVER LOAD VOLTAGE<br>最高断续过负荷 | 400V                             | 500V   | 500V   | 700V   | 700V   | 1000V  | 1000V  | 1000V  | 1000V  | 1000V  | 1000V  | 1000V  |
| ELECTRIC<br>WITHSTANDING<br>VOLTAGE<br>绝缘耐电压      | 300V                             | 300V   | 300V   | 300V   | 350V   | 350V   | 400V   | 400V   | 500V   | 500V   | 500V   | 500V   |
| RESISTANCE<br>TOLERANCE<br>阻抗误差值                  | K (±10%) J (±5%) G (±2%) F (±1%) |        |        |        |        |        |        |        |        |        |        |        |
| RANGE (OHM)<br>阻抗值范围                              | MIN                              | 0.05 Ω | 0.05 Ω | 0.05 Ω | 0.05 Ω | 0.05 Ω | 0.05 Ω | 0.05 Ω | 0.05 Ω | 0.05 Ω | 0.05 Ω | 0.05 Ω |
|   | MAX                              | 150 Ω  | 150 Ω  | 200 Ω  | 200 Ω  | 330 Ω  | 330 Ω  | 510 Ω  | 510 Ω  | 680 Ω  | 680 Ω  | 1K 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~+235°C

使用温度范围: -55°C~+235°C

3 FOR RESISTORS OPERATED 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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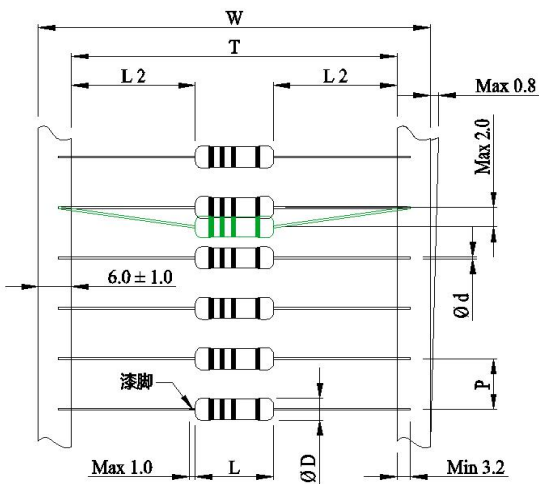
## △ TYPE DIMENSION 型号尺寸

### ◆ BULK TYPE 散装



| POWER<br>功率   | DIMENSION 尺寸 (mm) |        |         |       |
|---------------|-------------------|--------|---------|-------|
|               | L±1.0             | ØD±1.0 | Ød±0.05 | H±3.0 |
| 1/4W<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 |
| 1/4W<br>1/2WS | 52                | 2.7    | 0.40    | 5     | 6.2   | 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               |

# KNP SERIES

WIREWOUND NONFLAME RESISTORS 绕线不燃性涂漆装电阻器

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◆ "M" TYPE M型



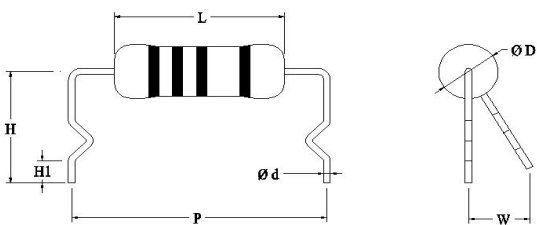
| POWER<br>功率   | DIMENSION 尺寸 (mm) |                         |                          |             |             |       |
|---------------|-------------------|-------------------------|--------------------------|-------------|-------------|-------|
|               | $L \pm 1.0$       | $\varnothing D \pm 1.0$ | $\varnothing d \pm 0.05$ | $H \pm 1.0$ | $P \pm 1.0$ | W Max |
| 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) |                         |                          |             |              |             |       |
|-------------|-------------------|-------------------------|--------------------------|-------------|--------------|-------------|-------|
|             | $L \pm 1.0$       | $\varnothing D \pm 1.0$ | $\varnothing d \pm 0.05$ | $H \pm 1.0$ | $H1 \pm 0.5$ | $P \pm 1.0$ | 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



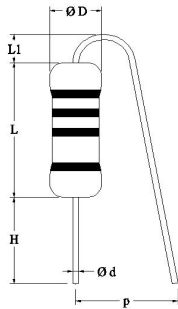
| POWER<br>功率 | DIMENSION 尺寸 (mm) |                         |                          |             |              |             |       |
|-------------|-------------------|-------------------------|--------------------------|-------------|--------------|-------------|-------|
|             | $L \pm 1.0$       | $\varnothing D \pm 1.0$ | $\varnothing d \pm 0.05$ | $H \pm 1.0$ | $H1 \pm 0.5$ | $P \pm 1.0$ | 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     |

# KNP SERIES

WIREWOUND NONFLAME RESISTORS 绕线不燃性涂漆装电阻器

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



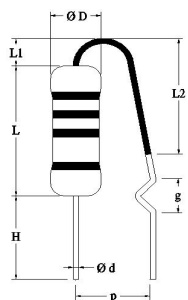
| POWER<br>功率   | DIMENSION 尺寸 (mm) |        |         |        |       |       |       |
|---------------|-------------------|--------|---------|--------|-------|-------|-------|
|               | L±1.0             | ØD±1.0 | Ød±0.05 | L1 Max | H±1.0 | P±1.0 | g±1.0 |
| 1/4W<br>1/2WS | 6.2               | 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



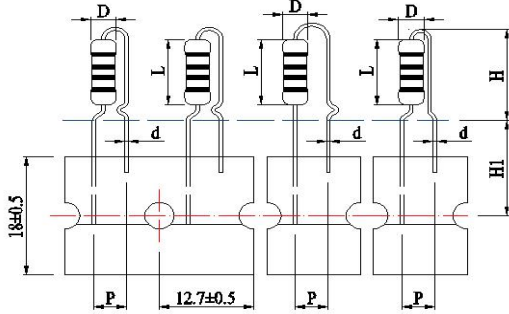
| POWER<br>功率   | DIMENSION 尺寸 (mm) |        |         |        |       |       |       |        |
|---------------|-------------------|--------|---------|--------|-------|-------|-------|--------|
|               | L±1.0             | ØD±1.0 | Ød±0.05 | L1 Max | H±1.0 | P±1.0 | g±1.0 | L2±1.5 |
| 1/4W<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     |

# KNP SERIES

WIREWOUND NONFLAME RESISTORS 绕线不燃性涂漆装电阻器

FLYWIN

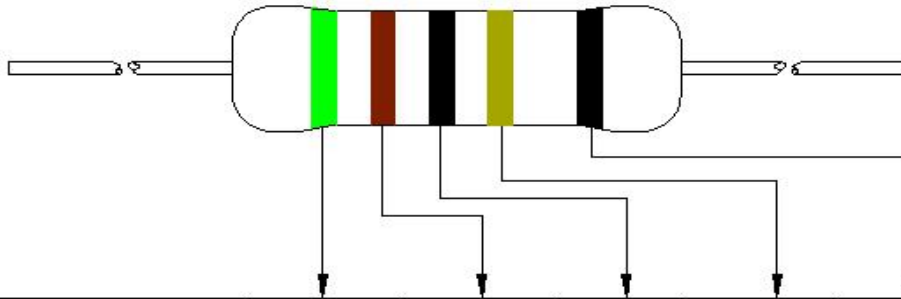
◆ "FT" TYPE FT型



| 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>倍率      | NO. 4<br>允许误差 | NO. 5<br>识别码 |
|-------------|---------------|---------------|------------------|---------------|--------------|
| BLACK (黑)   | 0             | 0             | 10 <sup>0</sup>  |               | KNP          |
| 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>  |               | NKNP         |
| BLUE (蓝)    | 6             | 6             | 10 <sup>6</sup>  |               | SCF          |
| VIOLET (紫)  | 7             | 7             | 10 <sup>7</sup>  |               |              |
| GRAY (灰)    | 8             | 8             | 10 <sup>8</sup>  |               |              |
| WHITE (白)   | 9             | 9             | 10 <sup>9</sup>  |               | FR           |
| GOLD (金)    |               |               | 10 <sup>-1</sup> | ±5% (J)       |              |
| SILVER (银)  |               |               | 10 <sup>-2</sup> | ±10% (K)      |              |



# KNP SERIES

WIREWOUND NONFLAME RESISTORS 绕线不燃性涂漆装电阻器

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 |
|---------------|-------------|---------------------|------------------------|---------------------------|
| 1/4W<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 |
|---------------|-------------------------|---------------------|------------------------|---------------------------|
| 1/4W<br>1/2WS | P                       | 1.00                | 10.00                  | 60.00                     |
|               | FY、FKY、FYL、FKYL、M       | 2.00                | 20.00                  | 120.00                    |
| 1/2W<br>1WS   | P                       | 0.50                | 5.00                   | 18.00                     |
|               | FY、FKY、FYL、FKYL、M       | 1.00                | 5.00                   | 30.00                     |
| 1W<br>2WS     | P                       | 0.20                | 2.00                   | 12.00                     |
|               | FY、FKY、FYL、FKYL、M、MB、MK | 0.50                | 3.00                   | 18.00                     |
| 2W<br>3WS     | P                       | 0.20                | 2.00                   | 12.00                     |
|               | FY、FKY、FYL、FKYL、M、MB、MK | 0.20                | 2.00                   | 12.00                     |
| 3W<br>5WS     | P                       | 0.10                | 1.00                   | 6.00                      |
|               | FY、FKY、FYL、FKYL、M、MB、MK | 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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