

# 规格承认书

APPROVED SHEET

客户 CUSTOMER:

立创商城

品名 PRODUCT :

碳膜电阻

规格 TYPE :

客户承认印  
CUSTOMER APPROVED



东莞市粤翔电子科技有限公司  
DongGuan City FlyWin electronic SCI-tech co.,Ltd

地址：广东省东莞市企石镇新南管理区第二工业区

电话： 0769--86732558 传真： 0769--86666308

一式二份

粤翔一份

客户一份

出图  
DRAWING

| 发行<br>ISSUE   | 业务<br>SALES   | 审核<br>AUDITING  | 核准<br>APPROVED   |
|---|---|---|--|
|  |  |  |  |

DATE: 2018年 12月 13 日

粤翔电子科技品保部

承认书编号 CR20181213001

### 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 AND 52mm TAPE, CUT AND FORMED  
可供散装, 带装26mm/52mm, 成型剪脚.
- 5 HIGH RESISTANCE RANGE (0 Ω 1-10M Ω ).  
阻抗范围高 (0 Ω 1-10M Ω ).



### 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).  
符合MIL & EIA规定之标准色码带。
- 6 LEAD WIRE (EXCELLENT SOLDER ABILITY)  
焊锡性良好的导线
- 7 WELDING (LONG RELIABILITY GUARANTEE)  
信赖性良好的焊接



### SPECIFICATION: 规格描述

EXAMPLE 例:

CR1WS-9 Ω 1 ± 5%-XT52

CR

1WS

9 Ω 1

± 5%

X

T52

品名  
PRODUCT

额定功率  
RATED POWER

阻值范围  
RESISTANCE RANGE

误差值  
TOLERANCE

线径  
WIRE DIAMETER

形状  
SHAPE

|       |         |
|-------|---------|
| CR    | 碳膜电阻    |
| MF    | 金膜电阻    |
| MO    | 氧化膜电阻   |
| MGR   | 高压玻璃釉电阻 |
| KNP   | 绕线电阻    |
| NKNP  | 无感绕线电阻  |
| FR    | 保险电阻    |
| FRKNP | 绕线保险电阻  |
| SCF   | 高压脉冲电阻  |

|      |       |
|------|-------|
| 1/8W | 1/4WS |
| 1/4W | 1/2WS |
| 1/2W | 1WS   |
| 1W   | 2WS   |
| 2W   | 3WS   |
| 3W   | 5WS   |
| 5W   | 7WS   |

|                                 |
|---------------------------------|
| 0 Ω 1-22M Ω                     |
| 阻值表示方法                          |
| RESISTANCE VALUE REPRESENTATION |
| 阻值单位按 Ω, K, M                   |
| 1000 Ω = 1K 1000K = 1M          |
| 例: 9 Ω 1/5K6/4M7                |

|       |
|-------|
| ± 10% |
| ± 5%  |
| ± 2%  |
| ± 1%  |

|           |           |
|-----------|-----------|
| 0: 0.43CU | S: 0.43CP |
| 2: 0.53CU | X: 0.53CP |
| 6: 0.63CU | T: 0.63CP |
| 9: 0.73CU | Q: 0.73CP |
| C: 0.83CU | D: 0.83CP |
| A: 0.75CU |           |

|          |        |
|----------|--------|
| T26      | 编带26MM |
| T52      | 编带52MM |
| T63      | 编带63MM |
| T73      | 编带73MM |
| T93      | 编带93MM |
| P        | 散装     |
| M、F      | 成型     |
| FK/MB/TF | 成型     |

NOTE1注解: RATED VOLTAGE 额定电压 =

$\sqrt{\text{POWER RATING 额定功率} * \text{RESISTANCE VALUE 公称阻值}}$

| 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                            | 1/8W 1/4WS<br>1/4W 1/2WS<br>1/2W 1WS<br>1W 2WS<br>2W 3WS<br>3W 5WS<br>5W 7WS                                      | <10Ω ±400PPM<br>10Ω -1M±350PPM<br>>1M±1000PPM | $\frac{R2-R1}{R1(T2-T1)} \times 10^6 \text{PPM/}^\circ\text{C}$<br>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   |                |                |                 |           |           |            |   |              |       |   |          |    |   |              |       |
| LOAD LIFE IN HUMIDITY<br>湿度寿命          | RESISTANCE CHANGE RATE ±(5%+0.05Ω)<br>WITH NO EVIDENCE OF RESISTOR DAMAGE.<br>阻抗值变化率 (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 ±(5%+0.05Ω) MAX WITH NO EVIDENCE OF RESISTOR DAMAGE.<br>阻抗值变化率 (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         | ±(1%+0.05Ω)   |   | 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,<br>1W, 2W, 3W, 5W   | ±(1%+0.05Ω)                                   | 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)  |                |                |                 |           |           |            |   |              |       |   |          |    |   |              |       |
|  | 1/4WS, 1/2WS, 1WS, 2WS,<br>3WS, 5WS, 7WS  | ±(2%+0.05Ω)                                   | 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 (外观无异样, 标识能够清楚易辨)  |   | SOAK 3MIN IN THE MELTING AGENT TO AGAIN AND AGAIN WIPE 10 TIMES<br>(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          | >1000MΩ   |   |   |                |                |                 |           |           |            |   |              |       |   |          |    |   |              |       |
| ELECTRIC WITHSTANDING VOLTAGE<br>绝缘耐电压 | RESISTANCE CHANGE RATE ±(1%+0.05Ω) WITH NO EVIDENCE OR RESISTOR DAMAGE.<br>阻抗值变化率±(1%+0.05Ω), 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%+0.05Ω) MAX, WITH NO EVIDENCE OF RESISTOR DAMAGE.<br>阻抗值变化率±(1%+0.05Ω) 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 ±(2%+0.05Ω) MAX, WITH NO EVIDENCE OF RESISTOR DAMAGE.<br>阻抗值变化率 (2%±0.05Ω) 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<br>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 Lire ≥ 10000H<br>额定条件下使用寿命 ≥10000小时   |   | failure rate ≤10PPM<br>失效率 ≤10PPM   |                |                |                 |           |           |            |   |              |       |   |          |    |   |              |       |

## POWER CHARACTERISTIC 电力特性

| POWER PATED<br>额定功率                               | 0.125W<br>(1/8W) | 0.25WS<br>(1/4W)S | 0.25W<br>(1/4W) | 0.5WS<br>(1/2W)S | 0.5W<br>(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<br>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<br>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

**BULK TYPE DIMENSION (TO TYPE)**



| TYPE          | LEAD TYPING DIMENSION (mm) |       |         |       |
|---------------|----------------------------|-------|---------|-------|
|               | L±1.0                      | D±1.0 | Φd±0.05 | H±3.0 |
| 1/8W<br>1/4WS | 3.7                        | 2.3   | 0.43    | 26    |
| 1/4W<br>1/2WS | 6.2                        | 2.7   | 0.43    | 26    |
| 1/2W<br>1WS   | 9                          | 3.5   | 0.53    | 26    |
| 1W<br>2WS     | 11                         | 4.5   | 0.63    | 31    |
| 2W<br>3WS     | 15.5                       | 5     | 0.73    | 31    |
| 3W<br>5WS     | 17.5                       | 6     | 0.73    | 31    |
| 5W<br>7WS     | 25                         | 8     | 0.83    | 39    |

**TO TYPE**



| TYPE          | LEAD TYPING DIMENSION (mm) |              |       |         |       |       |     |              |
|---------------|----------------------------|--------------|-------|---------|-------|-------|-----|--------------|
|               | T                          | +1.5<br>-0.0 | D±1.0 | Φd±0.05 | P±0.3 | L±1.0 | T   | +2.0<br>-0.0 |
| 1/8W<br>1/4WS | 26                         |              | 2.3   | 0.43    | 5     | 3.7   | 38  |              |
|               | 52                         |              |       |         |       |       | 64  |              |
| 1/4W<br>1/2WS | 26                         |              | 2.7   | 0.43    | 5     | 6.2   | 38  |              |
|               | 52                         |              |       |         |       |       | 64  |              |
| 1/2W<br>1WS   | 52                         |              | 3.5   | 0.53    | 5     | 9     | 64  |              |
| 1W<br>2WS     | 63                         |              | 4.5   | 0.63    | 5     | 11    | 75  |              |
| 2W<br>3WS     | 73                         |              | 5     | 0.73    | 10    | 15.5  | 85  |              |
| 3W<br>5WS     | 73                         |              | 6     | 0.73    | 10    | 17.5  | 85  |              |
| 5W<br>7WS     | 93                         |              | 8     | 0.83    | 10    | 25    | 105 |              |

- LEAD DIMENSIONS INCLUDED IN TAPE  
纸带内缘导线长度
- LEAD PAINT DIMENSION  
涂漆于导线上的长度
- DIFFERENCE OF A & B  
A带与B带的位差
- [L1-L2]<1.0MM  
左右边差小于1.0MM

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Metal Film Resistors - Through Hole](#) category:*

*Click to view products by [FlyWin](#) manufacturer:*

Other Similar products are found below :

[FRN25J330R](#) [FRN50J1R0S](#) [H4100RBYA](#) [H415RBZA](#) [H41K1BYA](#) [H41K5BYA](#) [H41M0BDA](#) [H420R5BCA](#) [H421R5BZA](#) [H4221RBYA](#)  
[H424K3BDA](#) [H442K2BDA](#) [H45K62BZA](#) [H4634RBZA](#) [H473R2BZA](#) [H4931KBZA](#) [H8160KFDA](#) [H8274KBZA](#) [H82K0FDA](#) [H82K0FZA](#)  
[H87K5DYA](#) [RLR05C1501GPB14](#) [RLR05C6201GS](#) [RLR20C3240FRB14](#) [RLR20C51R0GMB14](#) [RLR32C7R50FMB14](#) [RNC55H4642FPB14](#)  
[HR01623J](#) [HR01682J](#) [270-1.69M-RC](#) [LR0204F110R](#) [LR0204F18R](#) [LR0204F20K](#) [LR0204F20R](#) [LR0204F510R](#) [LR1F121R](#) [LR1F133K](#)  
[LR1F383R](#) [LR1F3K01](#) [LR1F4K75](#) [LR2F330RJIT](#) [LR2F51R](#) [LR2F910R](#) [ERX-2SZJR20E](#) [SQMR74K7J](#) [FMF-25FTF52-100K](#)  
[FRN50J100RS](#) [FRN50J470RS](#) [H4100RBZA](#) [H414R3BZA](#)