

# 规格书

## SPECIFICATION

客户名称: \_\_\_\_\_

CUSTOMER: \_\_\_\_\_

品 名: \_\_\_\_\_ 碳膜电阻器

PARTNAME: \_\_\_\_\_ FHCFR-\*\*\*\*\*

规 格: \_\_\_\_\_

SPECIFICATION: \_\_\_\_\_

版 本 号: \_\_\_\_\_ A02

VERSION: \_\_\_\_\_

日 期: \_\_\_\_\_ 2026-1-8

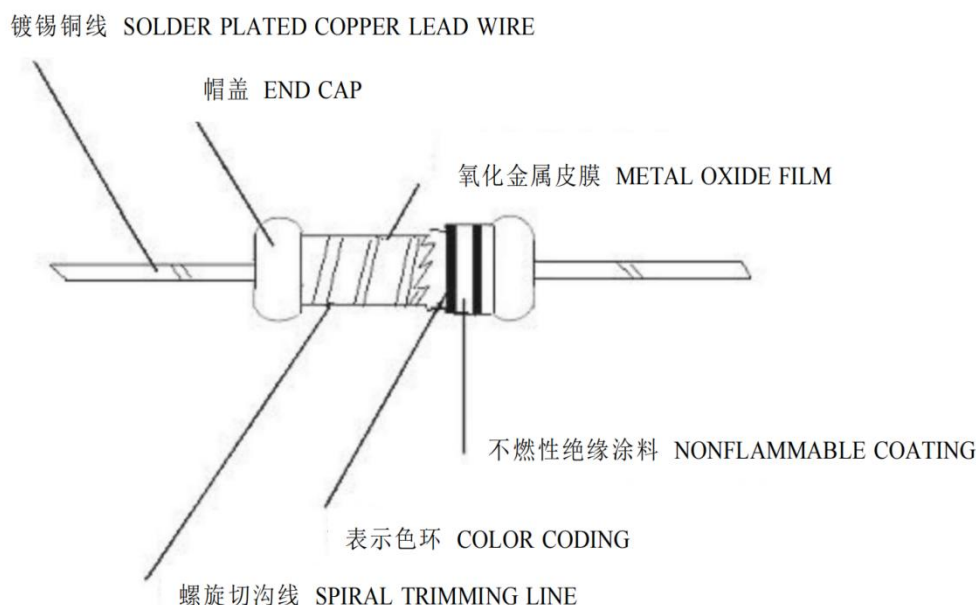
DATE : \_\_\_\_\_

制造			客户		
APPROVAL			APPROVAL		
拟制 Draft by	审核 Checked by	确认 Approve by	检验 Check by	审核 Checked by	批准 Approval by
张桂林	何建东	李四华			

## 一. 品名 TYPE NAME

FHCFR	1/4W	300	J	T
产品类别 Type	额定功率 Power Rating	标称电阻值 Nominal Resistance	精度 Tolerance	形状 Form
FHCFR	1/8W 1/6W 1/4W 1/2W 1W 2W 3W 1/4WS 1/2WS 1WS 2WS 3WS	三位数系列：前两位表示有效数字，第三位表示有效数字后零的个数。 Three digits (E-24 series): The first two digits are significant figures and the third one denotes number of zeros. 小数点用R表示。Decimal point should be expressed by "R".  例：000=0Ω; 0R3 =0.3Ω; 1R0 =1.0Ω; 121=120Ω; 122=1.2KΩ	J: ±5% G: ±2% .....	T: 编带 (标准长度, "TXX" 为特殊长度, 单位: mm) ) B: 散料 F: F-成型系列 (垂直成型) MB: MB-成型系列 MK: MK-成型系列

## 二. CFR型碳膜电阻器结构图 CARBON FILM CONSTRUCTION



REMARK: 底漆颜色 COATING COLOR : 米黄色 (LVORY)

## 三. 特点 FEATURES

- 标准误差：±2%，±5%  
STANDARD TOLERANCES: ±2%, ±5%
- 环保无铅产品  
ROHS COMPLIANT / LEAD-FREE AVAILABLE.

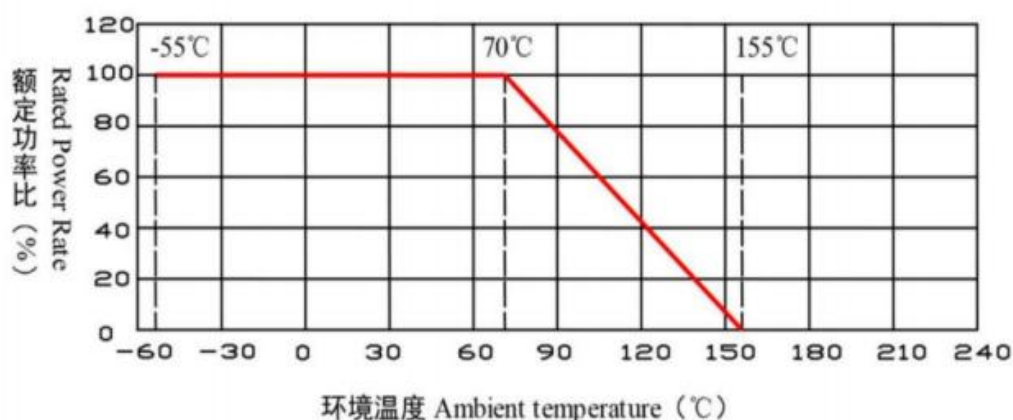
## 四. 主要技术指标 MAIN SPECIFICATION

型号 Type	最大工作电压 WORKING	最大负荷电压 MAX OVERLOAD	额定功率 Rated Power at 70°C	电阻范围 RESISTANCE VALUE RANGE
FHCFR1/6W / 1/8W	200V	400V	1/6W	0.1Ω-10MΩ
FHCFR1/4W / 1/4WS	250V	500V	1/4W	0.1Ω-10MΩ
FHCFR1/2W / 1/2WS	350V	700V	1/2W	0.1Ω-10MΩ
FHCFR1W / 1WS	500V	1000V	1W	0.1Ω-10MΩ
FHCFR2W / 2WS	600V	1000V	2W	0.1Ω-10MΩ
FHCFR3W / 3WS	700V	1000V	3W	0.1Ω-10MΩ

### 1. 额定功率 POWER RATING

额定功率的定义为在环境温度 70°C 最大输出功率。当环境温度超过 70°C。

Power rating is defined as maximum power rating continuously applied under ambient temperature at 70°C. when the ambient temperature exceeds 70°C.



环境温度（工作温度）：-55° C ~ +155° C。

Operating ambient temperature (Operating Temperature) :-55° C ~ +155° C.

### 2. 额定电压 RATED VOLTAGE

额定电压为交流或直流电压（频率为 50Hz 或 60Hz）额定电压计算方式为：

Rated voltage is defined as the DC or AC (effective Value at commercial frequency example 50 C/S, 60 C/S), Voltage when rated power is applied and can be calculated By the following:

$$V = \sqrt{P \times R}$$

**V** = RATED VOLTAGE

**P** = RATED POWER (WATTS)

**R** = NOMINAL RESISTANCE VALUE (OHM)

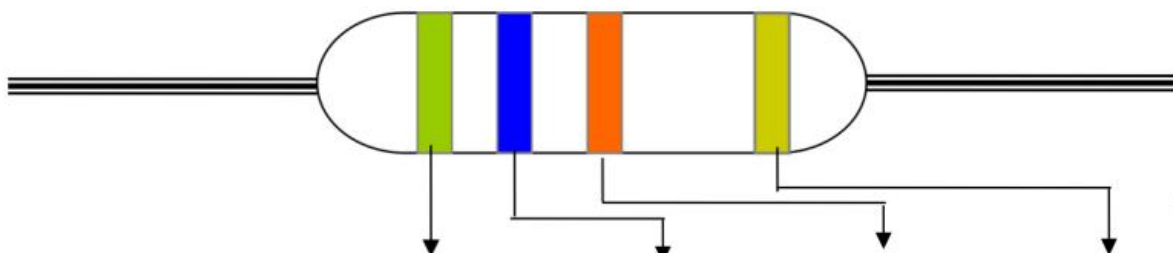
When the calculated rated voltage exceeds the Maximum usable voltage flue shown in CHART,the Maximum usable voltage is defined as the voltage According to the power-decreasing curve shown in CHART.

### 3. 产品性能 PERFORMANCE

项目 ITEM	性能及验收标准 PERFORMANCE AND QUALITY ACCEPTANCE	测试方法 TEST METHOD
温度系数 Resistance to temperature coefficient	$\geq -500 \text{ PPM}/^{\circ}\text{C},$ $\leq +350 \text{ PPM}/^{\circ}\text{C}.$	$\text{PPM}/^{\circ}\text{C} = \frac{R - R_0}{R_0} * \frac{10^6}{T - T_0}$ <p> <math>R</math> = Measured resistance ( <math>\Omega</math> ) at <math>T</math>  <math>T</math> <math>^{\circ}\text{C}</math> 电阻实测值 ( <math>\Omega</math> )  <math>R_0</math> = Measured resistance ( <math>\Omega</math> ) at <math>T_0</math>  <math>T_0</math> <math>^{\circ}\text{C}</math> 电阻实测值 ( <math>\Omega</math> )  <math>T</math> = Measured test temperature( <math>^{\circ}\text{C}</math> ) 测试温度的实测值  <math>T_0</math> = Measured base temperature( <math>^{\circ}\text{C}</math> ) 基准温度的实测值 </p>
短时负荷 Short time overload	$\leq \pm (2\%R + 0.05\text{ohm})$ Shall be no mechanical breakage 无破损 (外观正常)	2.5 倍额定电压 (交流或直流), 5 秒。 AC or DC voltage 2.5times the rated Voltage for 5 seconds .
耐电压 Voltage endurance	No breakdown or flashover 无击穿或飞弧	将电阻放于“V”形槽内, 加 1.42 倍 额定电压, 保持一分钟。 Lay the resistor on the $90^{\circ}$ angle metal “V” peak is 1.42 times as much as insulate voltage .
端子强度 Terminal strength	内外部无损伤 Shall be no mechanical breakage	施加 3.5KG 30S的拉力 Pull test apply 3.5KG force to the lead in the direction of lead axis for $30 \pm 5$ seconds.
耐焊性 Heat resistively against soldering	$\leq \pm (2\%R + 0.05\text{ohm})$ Shall be no mechanical breakage 无破损 (外观正常)	将电阻引出端浸入 $350^{\circ}\text{C} \pm 10^{\circ}\text{C}$ 的 锡中, 深度离电阻体 $3 \pm 0.05\text{mm}$ , 时 间 $3.5 \pm 0.5$ 秒。放置一小时再测试。Dip the lead into a solder bath having a temperature of $350^{\circ}\text{C} \pm 10^{\circ}\text{C}$ up to $3 \pm 0.05\text{mm}$ from the body of the resistor and hold it for $3.5 \pm 0.5\text{seconds}$ leave the resistor ,at room temperature 1 hours after ,then Measure.

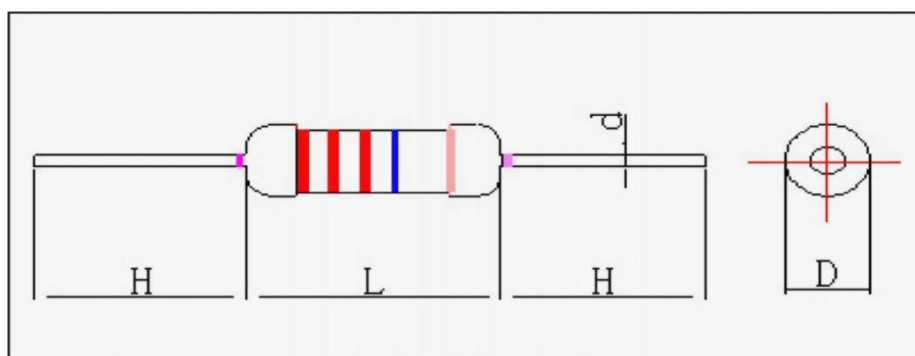
项 目 ITEM	性能及验收标准 PERFORMANCE AND QUALITY ACCEPTANCE	测试方法 TEST METHOD
寿命试验 Load life test	$\leq \pm (5\%R + 0.05\text{ohm})$ Shall be no mechanical breakage 无破损 (外观正常)	在 70℃ 的环境中施加额定电压, 1 小 时通, 0.5 小时断 1000 小时。 In the constant temperature chamber 70 °C ,apply rated voltage for 1 hour and shut voltage for 0.5 hour and repeat this cycle for 1000 hours,
上锡效果 Solder ability	$\geq 95\%$	浸入 260℃±5℃ 的锡槽中, 时间 5±0.5 秒。 Dip the lead in to a solder bath having a temperature of 260 °C ± 5 °C . Time: 5 ± 0.5 seconds.
湿度负荷试验 Humidity load test	$\leq \pm (5\% R + 0.1\text{ohm})$ Shall be no mechanical breakage 无破损 (外观正常)	温度在 40℃±2℃, 相对湿度 90 - 95 % 室内, 用额定电压 1.5 小时开和关闭电压 0.5 小时, 重复这个周期 1000 小时, 离开 1 小时后在室温下测试。 In temperature chamber 40℃±2℃ , relative humidity 90 - 95%, Apply rated voltage 1.5 hour and shut voltage 0.5 hour repeat this cycle for 1000 hours, leave in room temperature for 1 hour after test,
耐振性 Vibration	Shall be no mechanical breakage 无破损 (外观正常)	设置振动频率在 10HZ - 55HZ 10HZ/ 秒 1.5mm 的幅度, 在 1 分钟更换频率的。振动三个方向, 在 3 小时内完成。set a resistor at the vibration table and vibrate 10HZ—55HZ 10HZ/s. with 1.5mm amplitude in 1 min. when the change of frequency shall be completed uniformly. the vibration shall apply to 3 directions, vertical and horizontal to the axis of resistor each for 3h.
上限类别温度耐久性 Endurance at upper-limit temperature	$\leq \pm (5\%R + 0.1 \ \Omega)$	在 125℃ 温度下, 持续时间 1000H At 125 °C temperature, duration of 1000h

## 五. 标示 Marking



Color	1 st Band	2 nd Band	3 th Band	Tolerance
Black 黑	0	0	$10^0$	
Brown 棕	1	1	$10^1$	$\pm 1\%(F)$
Red 红	2	2	$10^2$	$\pm 2\%(G)$
Orange 橙	3	3	$10^3$	
Yellow 黄	4	4	$10^4$	
Green 绿	5	5	$10^5$	$\pm 0.5\%(D)$
Blue 蓝	6	6	$10^6$	$\pm 0.25\%(C)$
Violet 紫	7	7	$10^7$	$\pm 0.1\%(B)$
Grey 灰	8	8	$10^8$	$\pm 0.05\%(A)$
White 白	9	9	$10^9$	
Gold 金			$10^{-1}$	$\pm 5\%(J)$
Silver 银			$10^{-2}$	$\pm 10\%(K)$

## 六. B型尺寸 Dimension (B)

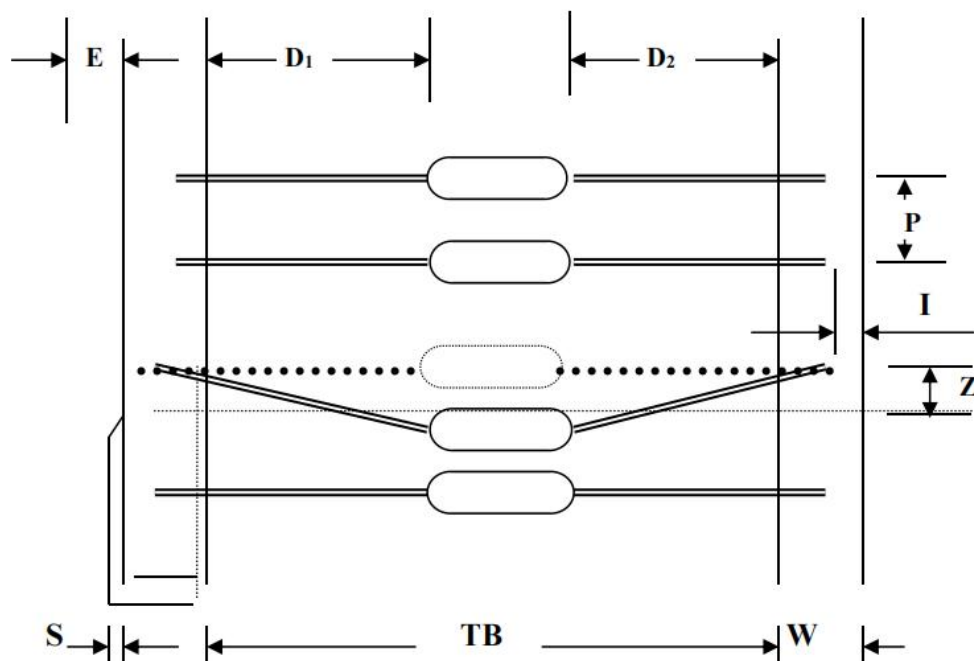


Unit: m/m

TYPE	L	D	H	d	PULLING(Kg)
1/6W 1/8W 1/4WS	$3.2 \pm 0.3$	$1.8 \pm 0.3$	$28 \pm 2.0$	$0.40 \pm 0.05$	2.5Kg-30S
1/4W / 1/2WS	$6.0 \pm 0.5$	$2.3 \pm 0.3$	$27 \pm 2.0$	$0.45 \pm 0.05$	2.5Kg-30S
1/2W / 1WS	$9.0 \pm 1.0$	$3.5 \pm 0.5$	$26 \pm 2.0$	$0.56 \pm 0.05$	2.5Kg-30S
1W / 2WS	$11.0 \pm 1.0$	$4.5 \pm 0.5$	$24.5 \pm 2.0$	$0.65 \pm 0.05$	3Kg-30S
2W / 3WS	$15.0 \pm 1.0$	$5.0 \pm 0.5$	$26.5 \pm 2.0$	$0.70 \pm 0.05$	5Kg-30S
3W	$17.0 \pm 1.0$	$6.0 \pm 0.5$	$25.5 \pm 2.0$	$0.70 \pm 0.05$	5Kg-30S



## 七. 编带尺寸 Taping Dimension (T) Unit: m/m



WATTS	Type	TB	P±0.5	W±0.5	(D1 - D2) MAX	E MAX	Z MAX	S MAX	(I) MAX
1/6W / 1/8W 1/4WS	T 52	52± 1.5	5	6	0.8	0	1.2	0.8	3.2
1/4W / 1/2WS	T 26	26±1.5	5	6	0.8	0	1.2	0.8	3.2
	T 52	52± 1.5	5	6	0.8	0	1.2	0.8	3.2
1/2W / 1WS	T 52	52± 1.5	5	6	0.8	0	1.2	0.8	3.2
1W / 2WS	T52	52±1.5	5	6	0.8	0	1.4	0.8	3.2
	T 63	63±1.5	5	6	0.8	0	1.4	0.8	3.2
2W / 3WS	T63	63±1.5	5	6	0.8	0	1.4	0.8	3.2
	T 73	73±1.5	5	6	0.8	0	1.4	0.8	3.2
3W	T 73	73±1.5	10	6	0.8	0	1.4	0.8	3.2

## 八. 包装 PACKING

### 1. 标签规格 LABEL SPECIFICATION

- 1) TYPE、WATTS 规格及功率
- 2) RESISTOR VALUE AND TOLERANCE 阻值和误差
- 3) QUANTITY 包装数量
- 4) LOT NO. 生产批号
- 5) ORDER NO. 订单号码
- 6) PART NO. 客户物料号

## 2. 包装数量 Packing quantity

Unit: BOX / Kpcs

QTY \ TYPE	1/8W	1/4W	1/2W	1W	2W	3W	5W
T26	5	5	NA	NA	NA	NA	NA
T52	5	5	2.5	1	NA	NA	NA
T63	NA	NA	NA	1	1	0.5	0.25
T73	NA	NA	NA	1	1	0.5	0.25
B	20	10	5	4	3	2	1
F	20	10	5	4	3	2	1

### 附加说明: Additional instructions:

#### 1、产品存放条件 product storage conditions

a 电阻器应存放在干燥、通风的环境条件下，产品不得受阳光直接照射；

Resistor should be stored in dry and ventilated environment conditions, the product shall not be affected by direct sunlight ;

b 电阻器存放环境应无酸、碱、硫化等具有腐蚀气氛的环境中；Resistor to deposit environment should be no acid, alkali corrosion, sulfide, etc have atmosphere environment;

c 产品存储时间不得超过两年。Product storage time may not exceed two years

#### 2、产品使用补充说明 Products use added

a 产品功率负荷，遵循额定功率降功耗曲线负荷；Product power load, follow the rated power drop curve of load power consumption ;

b 工作电压按额定电压计算公式计算：Working voltage according to the rated voltage calculation formula:

$$V = \sqrt{P \times R}$$

式中：

V =额定电压（伏特） rated voltage (volt)

P =额定功率（瓦特） rated power (watts)

R =标称电阻值（欧姆） nominal resistance (ohms)