

规格承认书

SPECIFICATION FOR APPROVAL

客户 CUSTOMER : 适用所有

品名 PRODUCT : 保险丝电阻

规格 TYPE : FR 1/4W-5WS

客户承认印
CUSTOMER APPROVED 广东翔胜电子科技有限公司
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出图	业务	审核	核准
DRAWING	SALES	AUDITING	APPROVED
			

翔胜电子技术品质部

编号：FR2021

日期：2021年11月30日

无卤
(F,Cl,Br,I)



FUSING METAL FILM RESISTORS 保险丝型金属膜电阻器

FR(1/4W, 1/2WS, 1/2W, 1WS, 1W, 2WS, 2W, 3WS, 3W, 5WS, 5W, 7WS)

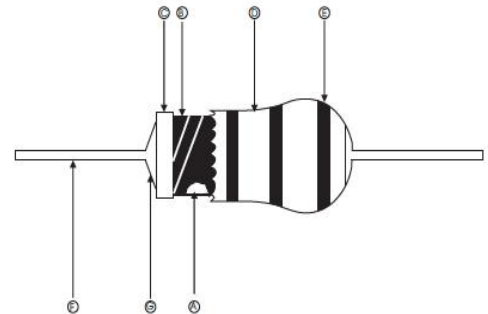
FEATURES 特点

- 1 THE ACCURATE FUSIBILITY IS APPLICABLE TO SAFETY CIRCUITS IN THE WIDE RANGE OF ELECTRONIC SETS.
熔断之特性以保护广大电子设备
- 2 SMALL IN SIZE, LIGHT IN WEIGHT
小型及易于安装于精密轻巧之电路
- 3 LOW TEMPERATURE COEFFICIENT. (UNDER $\pm 200\text{PPM}/^\circ\text{C}$)
温度系数低
- 4 NONCOMBUSTIBLE INSULATING COAT.
不燃性绝缘涂装



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 (可靠度信赖性高)
- 4 HIGH INSULATION AND NON-COMBUSTIBILITY OF FROG RESIN COATING.
(BULK POWERDIMMED, 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).
符合MIL & EIA规定之标准色码带。
- 6 LEAD WIRE (EXCELLENT SOLDER ABILITY)
焊锡性良好的镀锡铜线
- 7 WELDING (LONG RELIABILITY GUARANTEE)
信赖性良好的焊接



SPECIFICATION: 规格描述

EXAMPLE 例:

FR1/2W-10 Ω $\pm 5\%$ -XT52

FR	1/2W	10 Ω	$\pm 5\%$	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	1/8W 1/4WS	0 Ω 1-1K Ω	$\pm 10\%$	0:0.43CU S:0.43CP	T26 编带26MM
MF 金膜电阻	1/4W 1/2WS	阻值表示方法 RESISTANCE VALUE REPRESENTATION	$\pm 5\%$	2:0.53CU X:0.53CP	T52 编带52MM
MO 氧化膜电阻	1/2W 1WS	阻值单位按 Ω , K, M	$\pm 2\%$	6:0.63CU T:0.63CP	T63 编带63MM
MGR 高压玻璃釉电阻	1W 2WS	1000 Ω =1K 1000K=1M	$\pm 1\%$	9:0.73CU Q:0.73CP	T73 编带73MM
KNP 绕线电阻	2W 3WS	例: 9 Ω 1/5K6/4M7		C:0.83CU D:0.83CP	T93 编带93MM
NKNP 无感绕线电阻	3W 5WS				P 散装
FR 保险电阻	5W 7WS				M、F 成型
FRKNP 绕线保险电阻					FK/MB/TF 成型
SCF 高压脉冲电阻					

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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CHARACTERISTICS 特性项目	SPECIFICATIONS 规格值		TEST METHODS JIS C 5202 测试方法 JIS C 5202标准		
DC RESISTANCE 直流阻抗值	J (±5%)		TESTING VOLTAGE 测试电压如下表		
			RESISTANCE	VOLTAGE MAX	
			0.4 Ω TO 99 Ω		0.3V DC
			100 Ω TO 999 Ω		1V DC
T. C. R温度系数	1/2W 1WS 1W 2WS 2W 3WS 3W 5WS 5W 7WS	<10 Ω ±400PPM 10 Ω -1M ±350PPM >1M ±1000PPM	R2-R1———— X 10 ⁶ PPM/°C) R1(T2-T1) R1: RESISTANCE VALUE AT ROOM TEMPERATURE(T1) 常温 (T1) 阻抗值 R2: RESISTANCE VALUE AT ROOM TEMPERATURE +100°C (T2) 常温+100°C阻抗值		
LOAD LIFE IN HUMIDITY 湿度寿命	RESISTANCE CHANGE RATE ±(1.5%+0.05 Ω) WITH NO EVIDENCE OF RESISTOR DAMAGE. 阻抗值变化率± (1.5%+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 AT40+/-2°C AND 90-95% RELATIVE HUMIDITY.(when thetest voltage exceeds the working voltage,considerusing the working voltage) 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 温度寿命	RESISTANCE CHANGE RATE ±(1.5%+0.05 Ω)MAX WITH NO EVIDENCE OF RESISTOR DAMAGE. 阻抗值变化率± (1.5%±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 thetest voltage exceeds the working voltage,considerusing the working voltage) 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 短时间过负荷	±(1%+0.05 Ω)		RESISTANCE CHANGE AFTER THE APPLICATION OF APOTENTIAL OF 2.5T RATED VOLTAGE FOR 5 SE(when the test voltage exceeds the maximum overload,consider using the maximum overload voltage) 额定功率X2.5倍, 测试5秒(当实验电压超过最高过负载时, 采用最高过负载电压)		
PULSE OVER LOAD 断续过负荷	1/2W, 1W, 2W, 3W,	±(1%+0.05 Ω)	RESISTANCE CHANGE AFTER 10000C(1SEC ON, 25SEC OFF)AT 4T RATED VOLTAGE (AC)when the test voltage exceeds the maximam overload,consider using the maxmum overload voltage) 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)		
	1WS, 2WS, 3WS, 5WS,	±(2%+0.05 Ω)	RESISTANCE CHANGE AFTER 10000C(1SEC ON, 25SEC OFF)AT 4T RATED VOLTAGE (AC)when the test voltage exceeds the maximam overload,consider using the maximum overload voltage) 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 耐溶剂性	NO VISIBLE DAMAGES TO PROTECTIVE COAAING 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 (三氯乙稀浸泡3分钟, 再用湿布反复擦拭10次)		
INSULATION RESISTANCE 绝缘阻抗	>100M Ω				
ELECTRIC WITHSTANDING VOLTAGE 绝缘耐电压	RESISTANCE CHANGE RATE ±(1%+0.05 Ω) WITH NO EVIDENCE OR RESISTOR DAMAGE. 阻抗值变化率± (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 INFLECTION 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 温度循环	RESISTANCE CHANGE RATE IS ±(1%+0.05 Ω) MAX, WITH NO EVIDENCE OF RESISTOR DAMAGE. 阻抗值变化率± (1%+0.05 Ω) 以内, 电阻器不可有损伤		STEP 步骤、	TEMPERATURE 温度	TIME(MIN)放置时间
			1	-25°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 耐热性	RESISTANCE CHANGE RATE IS ±(1%+0.05 Ω) MAX, WITH NO EVIDENCE OF RESISTOR DAMAGE. 阻抗值变化率 (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 BASISO OF THE TABLE BELOW 将电阻两端导线浸入锡炉约3.2至4.8MM依下表规定实施		
			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 焊锡性	95% COVERAGE MINIMUM 95%覆盖于导线上		TEST TEMPERATURE OF SOLDER:230°C ±5°C DWELL TIME IN SOLDER:3±0.5 SEC 锡炉温度: 230°C ±5°C 浸锡时间: 3±0.5 秒		
SOLDER JOINT PULL 焊点拉力	PULLING TEST FOR 1/8W≥1.8KG, 1/4W≥3.8KG, 1/2W BIGGER THAN ≥5KG 拉力强度 1/8W≥1.8KG, 1/4W≥3.8KG, 1/2W 含以上 ≥5KG		SECURE BOTH LDAD WIRE ON EACH SIDE OF PULLING MACHING AND THEN PULL IT 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 寿命失效率	Under the rated condition Use Lire≥10000H 额定条件下使用寿命≥10000小时		failure rate≤10PPM 失效率≤10PPM		



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POWER CHARACTERISTIC 电力特性

POWER PATED 额定功率 ITEM 项目		0.25W (1/4W)	1/2WS	0.5W (1/2W)	1WS	1W	2WS	2W	3WS	3W	5WS
MAX WORKING VOLTAGE 最高使用电压		250V	300V	300V	350V	350V	350V	350V	400V	400V	400V
MAX OVERLOAD VOLTAGE 最高过负荷电压		350V	350V	350V	500V	500V	500V	500V	600V	600V	600V
MAX INTERMITTENCE OVER LOAD VOLTAGE 最高断续过负荷		350V	350V	350V	500V	500V	500V	500V	600V	600V	600V
ELECTRIC WITHSTANDING VOLTAGE 绝缘耐电压		250V	250V	300V	300V	350V	350V	400V	400V	500V	500V
RESISTANCE TOLERANCE 阻抗误差值		J (±5%)									
RANGE (OHM) 阻抗值范围	MIN	0 Ω 1	0 Ω 1	0 Ω 1	0 Ω 1	0 Ω 1	0 Ω 1	0 Ω 1	0 Ω 1	0 Ω 1	0 Ω 1
	MAX	1K Ω	1K Ω	1K Ω	1K Ω	1K Ω	1K Ω	1K Ω	1K Ω	1K Ω	1K Ω

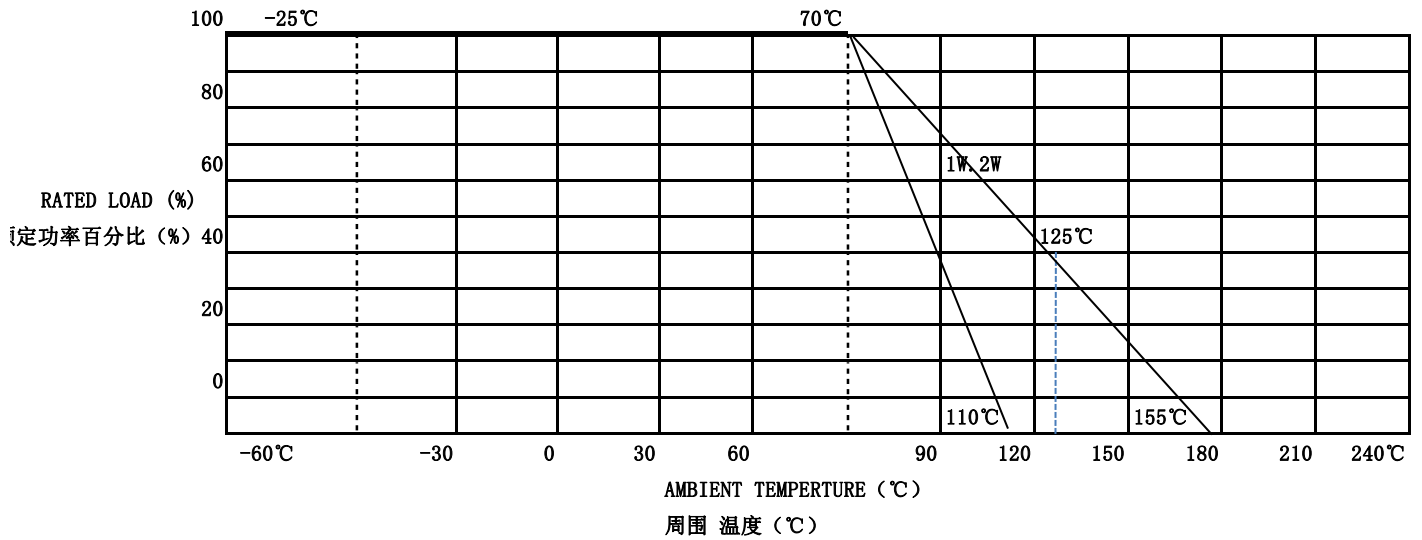
FUSING CHARACTERISTIC 熔断特性

CHARACTERISTICS 特性项目	SECIFICATION 规格值		TEST METHODS JIS C 5202 测试方法 JIS C 5202标准
FUSING CHARACTERISICS 熔断特性	RESISTANCE RANGE 阻抗值范围	TESTING VOLTAGE 熔断恒压	WITH IN 60 SECRETARY AT TESTING VOLTAGE 以熔断恒压负载60秒 NOTE : FRXING TEME SHALL BE MEASUTED AS THE DUTATION CIRCUIT CURRENT S DECREASED TO A 1/50. THE INTITAL EEST CURRENT OR LESS. 备注：保险丝电阻需在规定时间内，使电流 降低至初始电流的1/50
	0.1 Ω 1.0 Ω	RESISTOR MULTIPLY POWER MULTIPLY 32T √ (阻值*功率*32倍)	
	1.1 Ω 2.0 Ω	RESISTOR MULTIPLY POWER MULTIPLY 25T √ (阻值*功率*25倍)	
	2.1 Ω 10.0 Ω	RESISTOR MULTIPLY POWER MULTIPLY 16T √ (阻值*功率*16倍)	
	10.1 Ω 1K Ω	RESISTOR MULTIPLY POWER MULTIPLY 12T √ (阻值*功率*12倍)	

FR

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POWER DERATING CURVE 负载衰减曲线



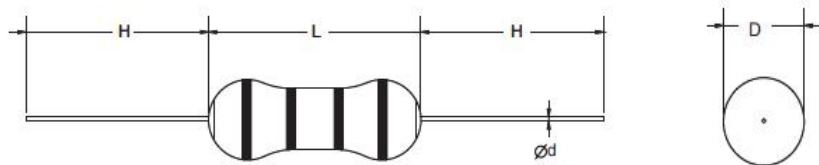
NOTE注解:

- 1 RATED AMBIENT TEMPERATURE :70°C
额定周围温度: 70°C
- 2 OPERATING TEMPERATURE RANGE:-25°C~+155°C
使用温度范围: -25°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

FR

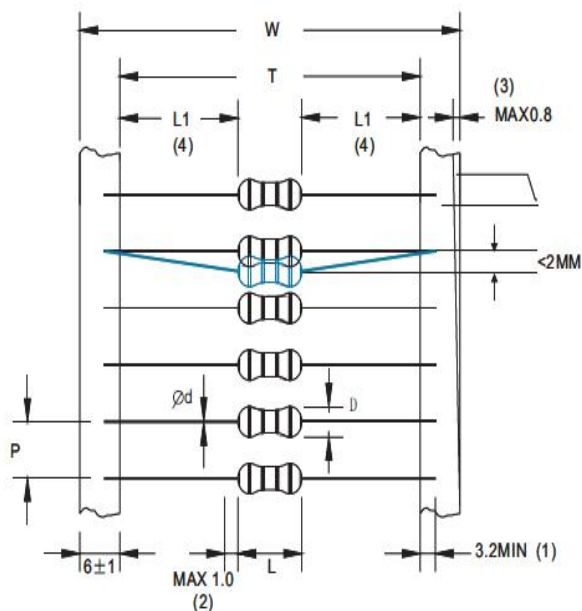
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BULK TYPE DIMENSION (TO TYPE)



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

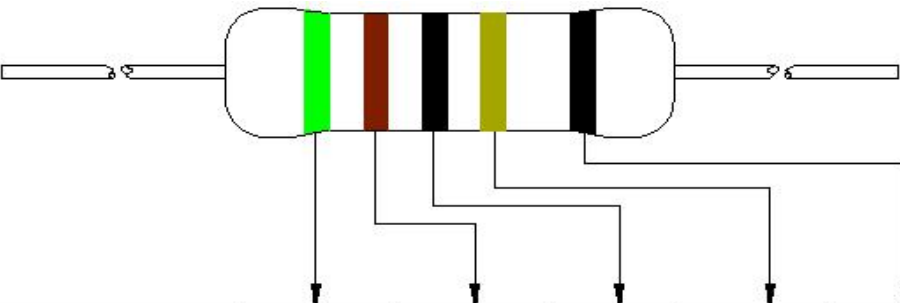
TO TYPE



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

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

Δ COLOR CODE 色码



COLOR 颜色	NO. 1 第一数字	NO. 2 第二数字	NO. 3 倍率	NO. 4 允许误差	NO. 5 识别码
BLACK (黑)	0	0	10^0		KNP
BROWN (棕)	1	1	10^1	±1% (F)	
RED (红)	2	2	10^2	±2% (G)	
ORANGE (橙)	3	3	10^3		
YELLOW (黄)	4	4	10^4		
GREEN (绿)	5	5	10^5		NKNP
BLUE (蓝)	6	6	10^6		SCF
VIOLET (紫)	7	7	10^7		
GRAY (灰)	8	8	10^8		
WHITE (白)	9	9	10^9		FR
GOLD (金)			10^{-1}	±5% (J)	
SILVER (银)			10^{-2}	±10% (K)	