

规格承认书

SPECIFICATION FOR APPROVAL

客户 CUSTOMER : 适用所有

品名 PRODUCT : 水泥电阻器 (SQM)

规格 TYPE : SQM1W-20W

客户承认印
CUSTOMER APPROVED

广东翔胜电子科技有限公司

Guang Dong VICO Electronic Technology Co.,Ltd

地址: 广东省东莞市大朗镇莞樟路大朗段746号301室

电话: 0769--86732158 传真: 0769--86666888

一式二份 翔胜一份 客户一份

出图	业务	审核	核准
DRAWING	SALES	AUDITING	APPROVED

翔胜电子技术品质部

编号: SQMS2023

日期: 2023年2月22日

无卤
(F,Cl,Br,I)

CEMENT

CEMENT TYPE RESISTORS (WIREWOUND&FLUTING) 水泥电阻器

CEMENT (1W. 2W. 3W. 5W. 7W. 10W. 20W)

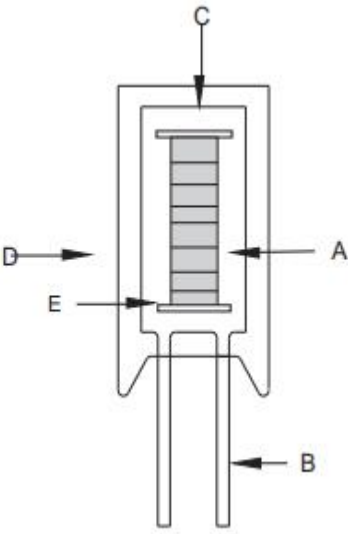
FEATURES 特点

- 1 LOW NOISE
低杂音
- 2 INSULATION FULLY CAN BE USED IN P.C.B
使用于电路板，绝缘良好
- 4 USE FLUTING REPLACES WIREWOUND ,CAN MANUFACTURE THE HIGH RESISTANCE RANGE (OVER 100)
使用刻槽代替绕线，可制作高阻抗电阻。
- 5 SUPPER HEAT DISSIPATION;WITHOUT ANNUAL SHIFT ON RESISTANCE VALUE.
耐热性久，电阻系数直承直线变化
- 6 INSTANT OVERLOAD CAPABILITY;WITHOUT ANNUAL SHIFT ON RESISTANCE VALUE.
耐短时间过负载，阻值长时间无变化



CONSTRUCTION 结构图

- A CERAMIC CORE (HIGE THERMAL CONDUCTIVITY)
高品质陶瓷棒心
- B SOLDER PLATED COPPER LEAD WIRE
铜质导线
- C FIRE PROOF INSULATION CEMENT
不燃性绝缘材质
- D CERAMIC CASE
瓷质外盒
- E WIREWOUND RESISTORS OR GROOVE RESISTANCE
绕线电阻或刻槽电阻



TYPE DESIGNATION 品名构成

例： SQM5W-5Ω±5%-9P

品名 PRODUCT CODE	
SQP	SQP水泥电阻
SQM	SQM水泥电阻
SQZ	SQZ水泥电阻
SQH	SQH水泥电阻
MPR	MPR水泥电阻

额定功率 RATED POWER	
1W	10W
2W	20W
3W	
5W	
7W	

阻值范围 RESISTANCE
0Ω 1-100KΩ

误差值 TOLERANCE
±10%:K
±5%:J
±2%:G
±1%:F

线径	
0:0.40CU	S:0.40CP
2:0.50CU	X:0.50CP
6:0.60CU	T:0.60CP
9:0.70CU	Q:0.70CP
A:0.75CU	D:0.80CP
C:0.80CU	

形状	
散装	P

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%)	RESISTANCE VALUE TEST AT ROOM TEMPERATURE 25℃ 阻值测试在室温25℃		
T.C.R温度系数	0.1Ω--0.5Ω ±1000PPM/℃ 0.5Ω以上 ±300PPM/℃ (按阻值高低而定)	$R2-R1 \frac{1}{R1(T2-T1)} \times 10^6 \text{PPM/℃}$ R1: RESISTANCE VALUE AT ROOM TEMPERATURE (T1) 常温 (T1) 阻抗值 R2: RESISTANCE VALUE AT ROOM TEMPERATURE +100℃ (T2) 常温+100℃阻抗值		
LOAD LIFE 负荷寿命	RESISTANCE CHANGE RATE IS ±(5%+0.05Ω) MAX WITH EVIDENCE OF RESISTOR DAMAGE. 阻抗值变化率 ±(5%+0.05Ω), 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℃ AND 90-95% RELATIVE HUMIDITY. (when the test voltage exceeds the working voltage, consider using the working voltage) 温度40+/-2℃, 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)		
	RESISTANCE CHANGE RATE IS (5%+0.05Ω) MAX WITH NO EVIDENCE OF RESISTOR DAMAGE. 阻抗值变化率 (5%+0.05Ω) 以内, 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℃±2℃ (when the test voltage exceeds the working voltage, consider using the working voltage) 温度70+/-2℃, 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	±(2%+0.05Ω)	RESISTANCE CHANGE AFTER THE APPLICATION OF A POTENTIAL 2.5 T RATED VOLTAGE FOR 5 SE (when the test voltage exceeds the maximum overload, consider using the maximum overload voltage) 额定电压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	RESISTANCE CHANGE RATE IS ±(2%+0.05Ω) MAX, WITH NO EVIDENCE OF RESISTOR DAMAGE. 阻抗值变化率 ±(2%+0.05Ω) 以内, 电阻器不可有损伤	RESISTANCE CHANGE AFTER 10000C (1SEC ON, 25SEC OFF) AT 4 T RATED VOLTAGE (AC) when the test voltage exceeds the maximum 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)		
HUMIDITY 耐湿性	RESISTANCE CHANGE RATE IS ±(1%+0.05Ω) MAX, WITH NO EVIDENCE OF RESISTOR DAMAGE. 阻抗值变化率 ±(1%+0.05Ω) 以内, 电阻器不可有损伤	RESISTANCE CHANGE AFTER 240H EXPOSURE IN A HUMIDITY TEST CHAMBER CONTROLLED AT 40±2℃ AND 90-95% RELATIVE HUMIDITY 温度 40±2℃, 相对湿度90-95%于恒湿箱中不加电压连续放置240小时		
INSULATION RESISTANCE 绝缘阻抗	>100MΩ			
ELECTRIC WITHSTANDING VOLTAGE 绝缘耐电压	NO EVIDENCE OF FLASH OVER MECHANICAL DAMAGE ARCING OR INSULATION BREAKDOWN. 浆料不可烧损, 绝缘不可破坏	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 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%+0.05Ω) MAX, WITH NO EVIDENCE OF RESISTOR DAMAGE. 阻抗值变化率 ±(1%+0.05Ω) 以内, 电阻器不可有损伤	STEP 步骤、	TEMPERATURE 温度	TIME (MIN) 放置时间
		1	-55℃±2℃	30
		2	ROOM TEMP 室温	10-15
		3	85℃±2℃	30
		4	ROOM TEMP 室温	10-15
RESISTANCE TO SOLDERING HEAT 耐热性	RESISTANCE CHANGE RATE IS ±(2%+0.05Ω) MAX, WITH NO EVIDENCE OF RESISTOR DAMAGE. 阻抗值变化率 ±(1%+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 PLEASE TAKE IMPLEMENTATION ON THE BASIS 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℃±10℃		3±0.5 SEC
		260℃±5℃		10±1.0 SEC
EFFECT OF SOLDERING 焊接影响		±(2%+0.05Ω)		
INCOMBUSTIBILITY 不燃性	EX 16TIMES V 5MIN			

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POWER CHARACTERISTIC 电力特性

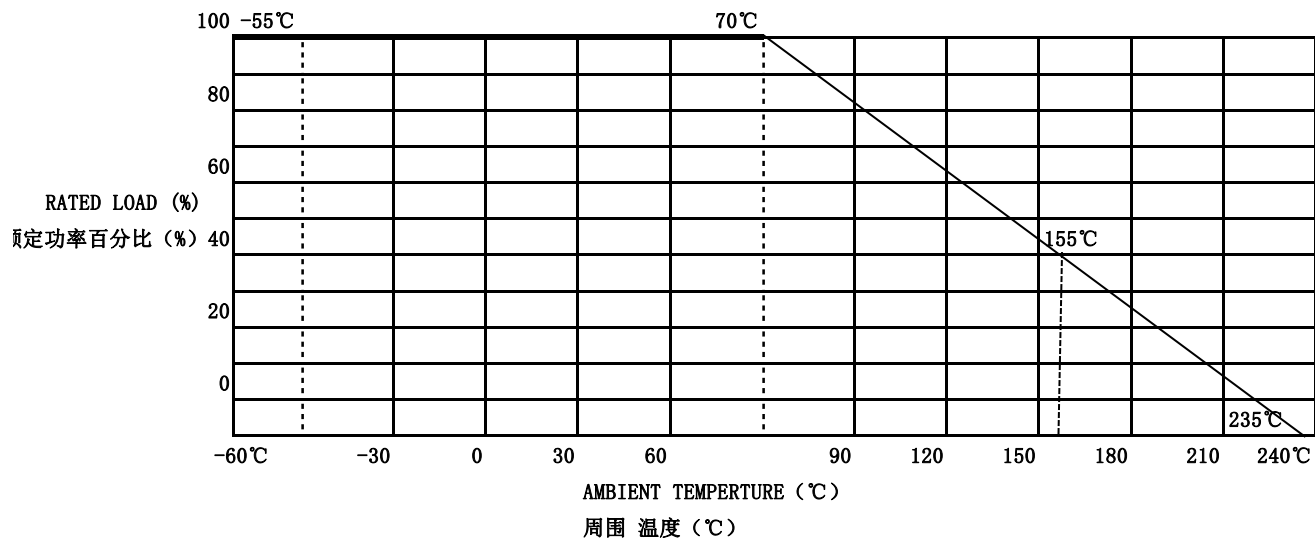
POWER PATED 额定功率 ITEM 项目	1W		2W		3W		5W		7W		10W		20W		
MAX WORKING VOLTAGE 最高使用电压	300V		350V		350V		500V		500V		750V		750V		
MAX OVERLOAD VOLTAGE 最高过负荷电压	600V		700V		700V		700V		1000V		1000V		1000V		
MAX INTERMITTENCE OVER LOAD VOLTAGE 最高断续过负荷	1000V		1000V		1000V		1000V		1000V		1500V		1500V		
ELECTRIC WITHSTANDING VOLTAGE 绝缘耐电压	1000V		1000V		1000V		1000V		1000V		1000V		1000V		
RESISTANCE TOLERANCE 阻抗误差值	J (±5%)														
	WIRWOUND TYPE 绕线形式														
RANGE (OHM) 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	
	MAX	30 Ω		50 Ω		100 Ω		100 Ω		100 Ω		200 Ω		200 Ω	
	FLUTING TYPE 刻槽形式														
	MIN	31 Ω		51 Ω		101 Ω		101 Ω		101 Ω		201 Ω		501 Ω	
	MAX	100K		100K		100K		100K		100K		100K		100K	



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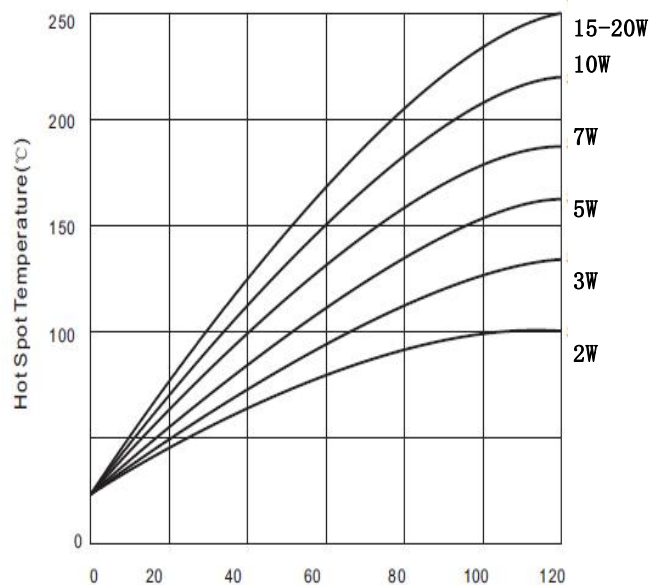
POWER DERATING CURVE 负载衰减曲线



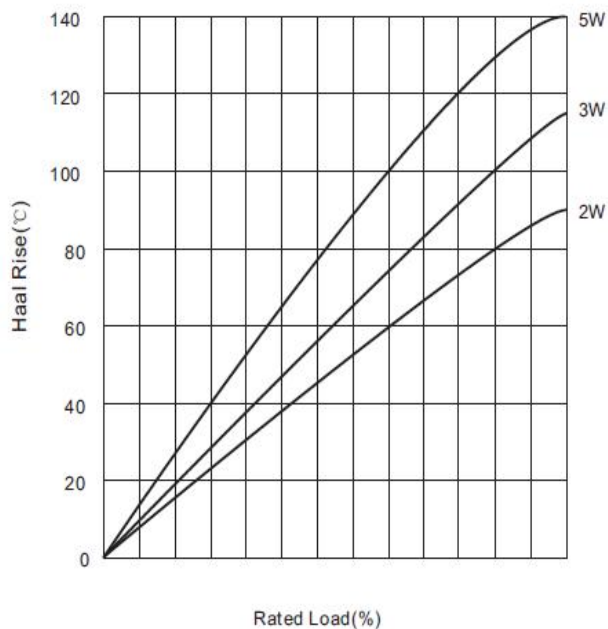
NOTE注解:

- 1 RATED AMBIENT TEMPERATURE :70°C
额定周围温度: 70°C
- 2 OPERATING TEMPERATURE RANGE:-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 AC
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

温度上升曲线 TEMPERATURE RISE



热上升曲线 HEAT RISE CHART



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SQM

TYPE 品名	DIMENSIONS (mm) 尺寸					
	W±1.0	W1±1.0	H±1.0	Φd±0.05	P±1.0	L±1.0
1W	10	5	10	0.50	5	5
2W	11	7	20	0.60	5	5
3W	12	8	25	0.60	5	5
5W	13	10	25	0.70	5	5
7W	13	10	39	0.75	5	5
10W	13	10	51	0.75	5	5
20W	20	10	50	0.75	5	5

