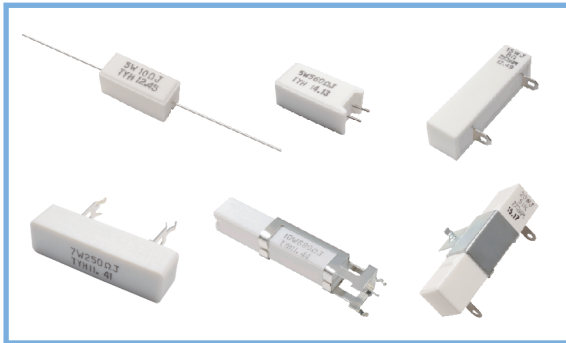


CEMENT RESISTORS

水泥電阻器



Features

1. Small dimension, excellent stability in high temperature, resistant to humidity and shock.
2. Completely insulated character suitable for printed circuit board.
3. Super heat dissipation : small linear temperature coefficient.
4. Instant overload capability : low noise figures and low annual shift on resistance values.

特色

1. 體積小，耐震，耐溼及良好散熱，低價格。
2. 完全絕緣，適用於印刷電路板。
3. 散熱性佳，溫度係數小且呈線性變化。
4. 耐短時間超負載；低雜音，阻值經年無變化。

ELECTRICAL AND MECHANICAL PERFORMANCE

電氣及機械特性

特性 Characteristics	規格值 Standards	試驗方法 Test Methods
阻值容許誤差 Resistance Tolerance	$\pm 5\%$ (J) or $\pm 1\%$ (F)	-
溫度係數 Resistance Temp. Coeff.	± 300 ppm / °C ; < 1Ω : ± 600 ppm/°C	-55°C ~ 155°C
額定負載 Power Rating Load	Surface temp. 275°C Max. 最高表面溫度 275°C, $\Delta R/R \leq \pm 2\%$	Rated voltage for 30 minutes 額定電壓 / 30分鐘
短時間過負載 Short Time Overload	$\pm 2\%$	10 times(power film : 5 times) of rated wattage for 5 seconds. 10 倍額定功率(皮膜型:5倍額定功率) / 5秒
耐電壓 Dielectric Withstanding Voltage	No evidence of mechanical damage or insulation breakdown. 無機械性能損壞及絕緣擊穿現象	AC 1000V for 1 minutes 施加 AC 1000V 電壓 1 分鐘
絕緣電阻 Insulation Resistance	1,000MΩ	DC 500V megger
端子強度 Terminal Strength	No evidence of mechanical damage. 無機械性能損壞現象	4.5 kg
焊錫性 Solder-ability	Minimum 95% coverage 焊錫面積 $\geq 95\%$	235 \pm 5°C for 2 seconds
浸錫耐熱性 Resistance to Soldering Heat	No evidence of mechanical damage. 無機械性能損壞現象, $\Delta R/R \leq \pm 1\%$	270 \pm 5°C for 10 \pm 1 seconds 350 \pm 10°C for 3.5 \pm 0.5seconds

ENVIRONMENTAL CHARACTERISTICS

耐環境特性

特性 Characteristics	規格值 Standards	試驗方法 Test Methods
溫度週率 Temp. Cycle	$\Delta R/R \leq \pm 1\%$	-55°C (30 min.) → Room Temp.(3 min.) → +155°C (30 min.) → Room Temp.(3 min.) / (5 cycles)
負載壽命 Load Life	$\Delta R/R \leq \pm 5\%$	Rated power load 90 minutes ON 30 minutes OFF 70°C 1000 hours
耐濕壽命 Moisture-proof Load Life	$\Delta R/R \leq \pm 5\%$	Rated power load 90 minutes ON 30 minutes OFF 40°C 95% RH 1000 hours
不燃性 Nonflammability	not flamed	16 times of rated wattage for 5 min.

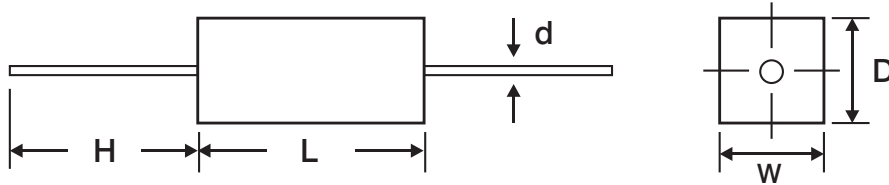
※ 參考規格 Reference Standards
JIS C 5201-1

Dimensions

尺寸

Axial Leded Type SQP Series

軸式導線型 SQP 系列



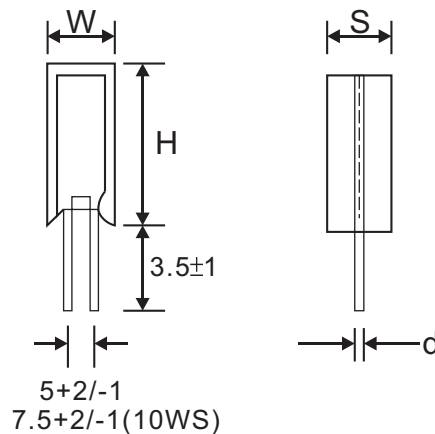
Unit : mm

Rated Wattage	W \pm 1	D \pm 1	L \pm 1.5	H \pm 3	d \pm 0.1	Resistance(Ω)		Max.Working Voltage
						Wire Wound	Power Film	
2W	7	7	18	23	0.65	0.1~100	101~10K	150V
3W	8	8	22	35	0.8	0.1~150	151~33K	350V
5W	10	9	22	35	0.8	0.1~150	151~50K	350V
7W	10	9	35	35	0.8	0.1~430	431~50K	500V
10W	10	9	48	35	0.8	0.1~470	471~50K	750V
15W	12.5	11.5	48	35	0.8	0.5~600	601~150K	1000V
20W · 25W	14	13.5	60	35	0.8	0.5~1K	1.1K~150K	1000V

Note: 1. Max. Overload Voltage is 2 times of Max. Working Voltage.
2. Max. Working Voltage is applying for all SQ types.

Radial Leded Type SQM Series

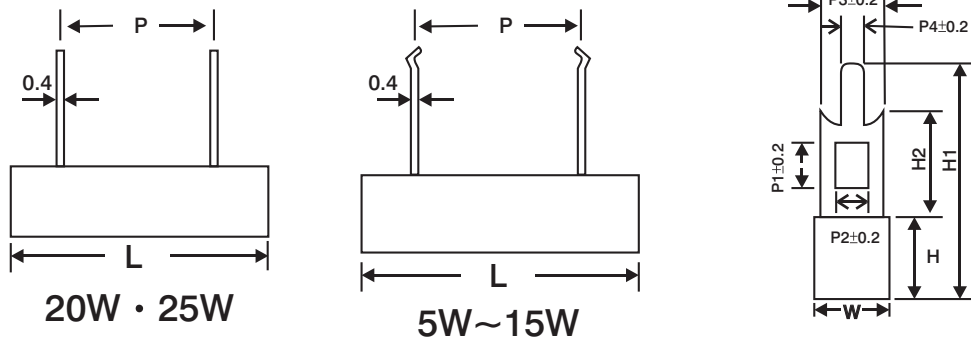
立式導線型 SQM 系列



Unit : mm

Rated Wattage	H \pm 1.5	W \pm 1	S \pm 1	d \pm 0.1	Resistance(Ω)		Max.Working Voltage
					Wire Wound	Power Film	
1W	10	10	5	0.6	0.1 ~ 47	48 ~ 10K	150V
2W	20	11	7	0.65	0.1 ~ 82	83 ~ 10K	150V
3W	25	12	8	0.8	0.1 ~ 150	151 ~ 50K	350V
5W	25	13	9	0.8	0.1 ~ 150	151 ~ 50K	350V
7W	39	13	9	0.8	0.1 ~ 430	431 ~ 50K	500V
10WS	35	16	12	0.8	0.1 ~ 300	301 ~ 100K	750V
10W	52	13	9	0.8	0.1 ~ 470	471 ~ 75K	750V

Radial Terminal Type SQZ Series (立式端子型 SQZ 系列)



Unit : mm

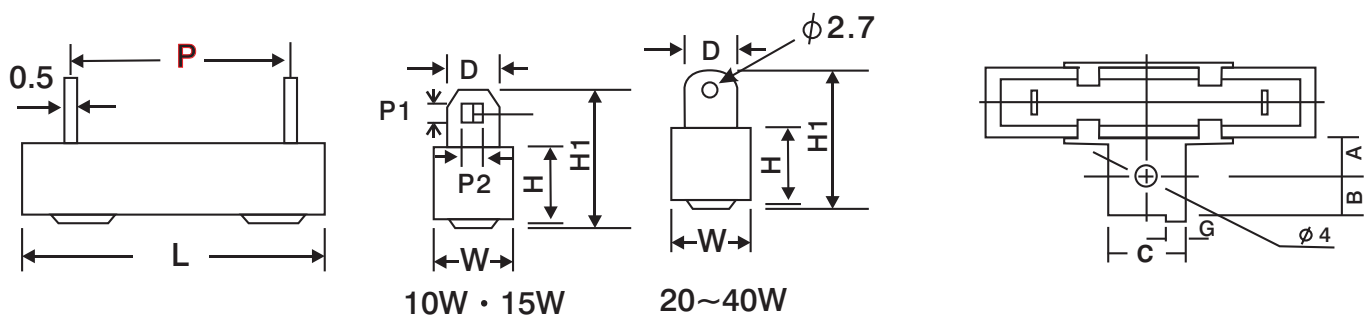
Rated Wattage	L±1.5	W±1	H±1	P±1.5	P1	P2	P3	P4	H1±1	H2±1	Resistance Range(Ω)	
											Wire Wound	Power Film
5WS	25	10	10	9.5	4.2	2	5	1.5	25	10	0.1~130	131~50K
5W	28	10	10	15	4.2	2	5(5)(7.5)	1.5	25(30)(40)	10(15)(25)	0.1~130	131~50K
7W	36	10	10	20	4.2	2	5(5)(7.5)	1.5	25(30)(40)	10(15)(25)	0.1~430	431~50K
10W	48	10	9	32	4.2	2	5(5)(7.5)	1.5	25(30)(40)	10(15)(25)	0.2~470	471~50K
15W	48	12.5	12	32	4.2	2	5	1.5	27	10	1~600	601~150K
20W · 25W	60	15	13	42	7	5	10	2.7	32	15	1~1K	1.1K~150K

Radial Terminal Type SQH Series (立式端子型 SQH 系列)

SQHG Series(With metal mounting basket) SQHG 系列 (帶安裝金屬架)

SQH type :

SQHG type :

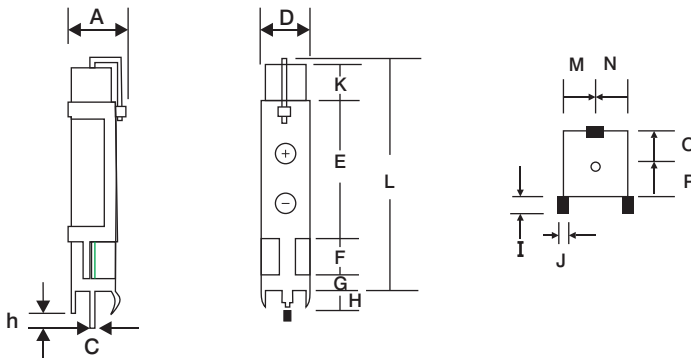


Unit : mm

Rated Wattage	W±1	H±1	L ±1.5	P	H1±1	D±0.5	P1±0.2	P2±0.2	A±0.5	B±0.5	C±0.5	G±0.5	Resistance Range(Ω)	
													Wire Wound	Power Film
10W	10	9	48	32±1	21	5	2.5	1.7	8	5	12	3	0.5~600	601~50K
15W	12.5	11.5	48	32±1	21	5	2.5	1.7	8	5.5	12	3	1~600	601~150K
20W	14.5	13.5	60	42±1	24	6	-	-	8	5.5	12	3	1~1K	1.1K~150K
30W	19	19	75	55±2	31	7.5	-	-	10.5	8	18	3.5	1~2K	-
40W	19	19	90	67±2	31	7.5	-	-	10.5	8	18	3.5	1~2K	-

Radial Leaded Type SPS Series

立式導線型 SPS 系列



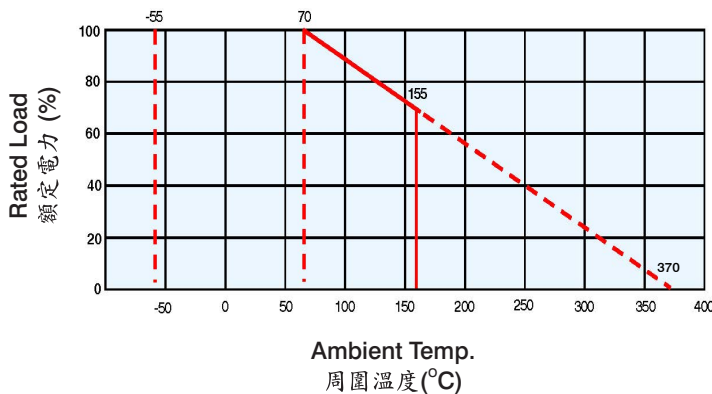
Unit : mm

Rated Wattage	A	C	D	E	F	G	H	I	J	K	L	M	N	O	P	h	Resistance Range(Ω)	
	±1	±0.1	±1	±0.5	±0.5	±0.2	±0.3	±0.1	±0.1	±1	±1.5	±0.5	±0.5	±0.5	±0.5	±0.5	Wire Wound	Power Film
7W	12	0.8	11	28	7	3	4	1.5	0.5	7.5	46	5	5	5	5	2	0.1~430	431~50K
10W	12	0.8	11	28	7	3	4	1.5	0.5	20	60	5	5	5	5	2	0.1~470	471~50K

Derating Curve

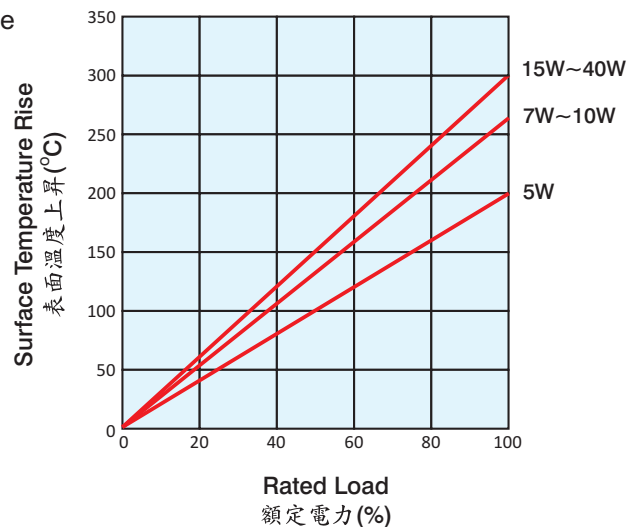
電力輕減曲線

For resistors operated in ambient temperatures above 70°C, power rating must be derated in accordance with the curve below.



Surface Temperature Rise

表面溫度上昇曲線



How to order

訂貨方式

It is composed by Type, Type Form, Rated Wattage, Nominal Resistance and Tolerance. e.g.

SQ M 5W 10R J
 a. b. c. d. e.

- a. : Type(種類) : Cement Resistors are called "SQ".
- b. : Type Form(樣式) : Upon the shape of type form there are "P" form, "M" form, "Z" form, and "H" form.
- c. : Rated Wattage(額定電力) : Shown by "W", such as 1W, 2W, 3W, 5W,....40W.
- d. : Nominal Resistance(公稱電阻值) : 10Ω.
- e. : Tolerance(容許誤差): F = ±1% , J = ±5% .

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