

### 厚膜片式網絡電阻器

#### THICK FILM CHIP NETWORK RESISTOR

#### ● 特長FEATURES

- \* 體積小、重量輕。 Miniature and light weight.
- \* 適應再流焊。 Suit for reflow solder.
- \* 電性能穩定，可靠性高。 Stable electrical capability, high reliability.
- \* 裝配成本低，并與自動裝貼設備匹配。 Low assembly cost, suit for automatic SMT equipment.
- \* 機械强度高、高頻特性優越。 Superior mechanical and frequency characteristics.
- \* 符合ROHS指令要求 RoHS compliant



#### ● 品名構成 TYPE DESIGNATION

\* RCM系列RCM Series( 8P4R、4P2R)

R C M
L
0 8
W
1 0 3
J
T
L

①
②
③
④
⑤
⑥
⑦
⑧

① 產品代號 Product Code
厚膜片式 網絡電阻器 Thick Film Chip Network Resistor

② 型號代號 Type Code	
代號 Code	型號 Type
T	0402型 0402 Type
L	0603型 0603 Type
C	1206型 1206 Type

③ 端子數 Terminal Number
04
08

④ 端子形狀 Terminal Style	
代號 Code	端子數 Terminal Number
W	凸電極直角 convex type with corner
V	凸電極缺角 convex type without corne

⑤ 電阻值代號 Resistance Value Code
三位數(E-24系列):前兩位表示有效數字,第三位表示有效數字后零的個數 Three digits (E-24 series): The first two digits are significant figures and the third one denotes number of zeros. eg:103=10KΩ “000”表示跨接電阻: Jumper is expressed by “000”. 小數點用“R”表示: Decimal point should be expressed by “R”. eg:1R0=1.0Ω

⑥ 電阻值誤差精度代號 Resistance Tolerance Code	
代號 Code	誤差精度 Tolerance
F	±1%
G	±2%
J	±5%
K	±10%
J (跨接電阻 chip jumper)	≤50mΩ

⑦ 包裝方式代號 Packing Style Code	
代號 Code	包裝方法 Packing Style
T	編帶包裝 Tape & Reel
B	塑料盒包裝 Bulk Case
C	塑料袋散裝 Case

⑧ 無鉛化等級代號 Lead-free Level Code	
代號 Code	無鉛化等級 Lead-free Level
無表示 No Marking	端子無鉛(端子鉛含量 ≤100ppm) Terminal Lead-free (pb content in ter- minal ≤100ppm)
L	整體低鉛(<1000ppm) Low Lead (pb content in resistor body <1000ppm)
G	整體無鉛(<100ppm) Low Lead (pb content in resistor body <100ppm)

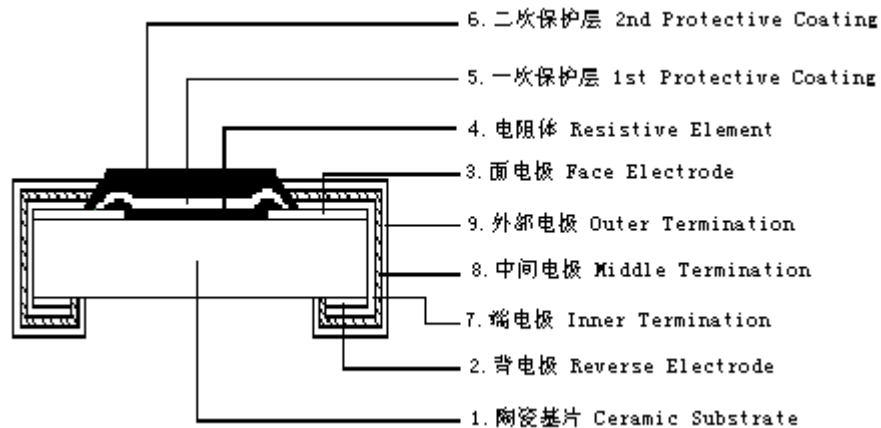
● 參考標準REFERENCE STANDARD

GB/T 5729-2003

GB/T 9546-1995

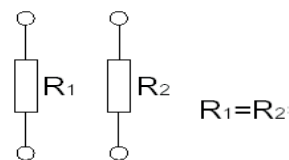
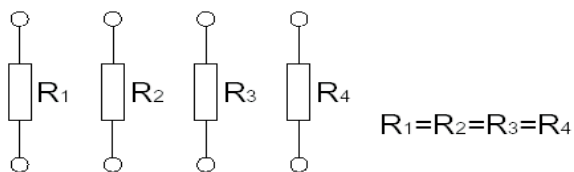
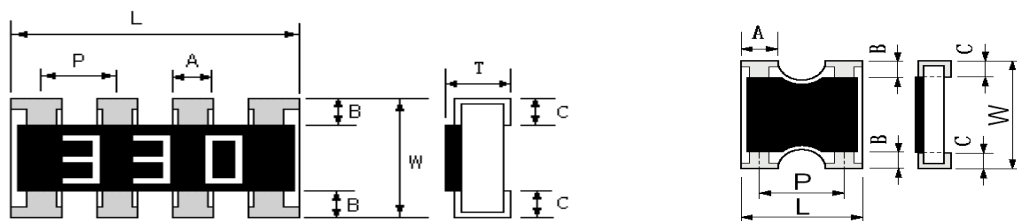
● 結構圖CONSTRUCTION

RCMT/RCML/RCMC;



● 規格尺寸及等效電路 DIMENSIONS AND EQUIVALENT CIRCUIT

RCMT/RCML/RCMC;

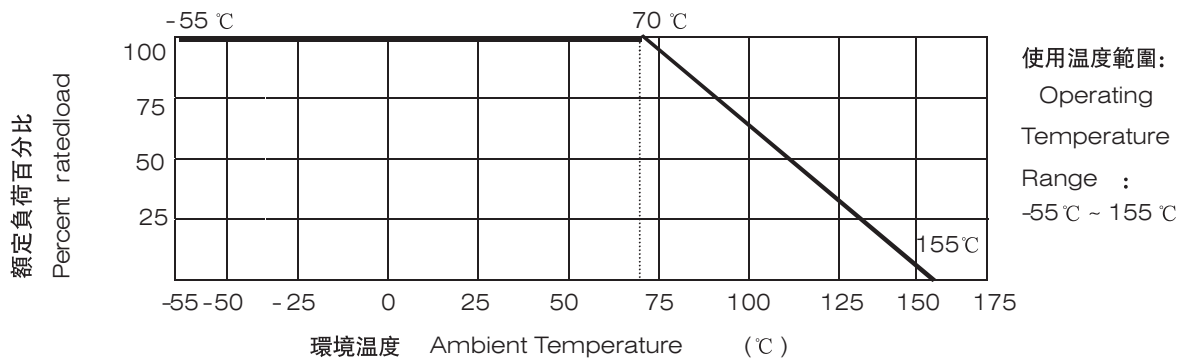


# 厚膜片式網絡電阻器

## THICK FILM CHIP NETWORK RESISTOR

型號 TYPE	L	W	T	P	A	B	C	端子形狀Terminal Style	
								常規Normal	非常規Special
RCMT04	1.00±0.10	1.00±0.10	0.35±0.10	0.65±0.05	0.35±0.10	0.15±0.10	0.25±0.10	W	/
RCMT08	2.00±0.10	1.00±0.10	0.45±0.10	0.50±0.05	0.30±0.15	0.15±0.10	0.25±0.10	W	/
RCML08	3.20±0.15	1.60±0.15	0.50±0.10	0.80±0.10	0.50±0.15	0.30±0.20	0.30±0.15	W	V
RCMC08	5.08±0.20	3.10±0.20	0.60±0.10	1.27±0.10	0.80±0.15	0.50±0.20	0.50±0.15	V	/

### • 負荷下降曲線 DERATING CURVE



\* 當電阻使用的環境溫度超過70°C時，其額定負荷(額定功率或額定電流)按上述曲線下降。

For resistors operated in ambient over 70°C, rated load (power rating or current rating) shall be derated in accordance with the above figure.

**● 額定值 RATINGS**

項目 Item	RCMT04	RCMT08	RCML08	RCMC08
額定功率 Power Rating	1/16W		1/16W	1/8W
最大工作電壓 Max.Working Voltage	50V		50V	200V
最大過負荷電壓 Max.Overload Voltage	100V		100V	400V
跨接電阻額定電流 Jumper Rated Current	1A		1A	2A
跨接電阻最大過負荷電流 Jumper Max. Overload Current	2A		3A	5A
電阻溫度系數 Resistance Temperature Coefficient	10Ω ≤ R ≤ 1MΩ: ± 200ppm/°C 1Ω ≤ R < 10Ω, 1MΩ < R ≤ 10MΩ: ± 400ppm/°C		10Ω ≤ R ≤ 1MΩ: ± 100ppm/°C 1Ω ≤ R < 10Ω, 1MΩ < R ≤ 10MΩ: ± 250ppm/°C	
阻值範圍 Resistance Range	0Ω (跨接電阻 chip jumper), 1Ω~10MΩ (E-24 E-96系列series)		0Ω (跨接電阻 chip jumper), 1Ω~10MΩ (E-24 E-96系列series)	
阻值誤差精度 Resistance Tolerance	± 1%, ± 2%, ± 5%, ± 10%, 跨接電阻 chip jumper: < 50mΩ		± 1%, ± 2%, ± 5%, ± 10%, 跨接電阻 chip jumper: < 50mΩ	
使用溫度範圍 Operating Temperature Range	-55°C~+155°C			
額定溫度 Rated Temperature	+ 70°C			

注：額定電壓=√額定功率×標稱電阻值 或最大工作電壓兩者中的較小值。

Note: Rated Voltage=√Power Rating × Resistance Value or Max. Working Voltage, whichever is lower.

**● 特性 CHARACTERISTICS**

項目 Item	標準 Specifications	測試方法( GB/T 5729-2003) Test Methods (GB/T 5729-2003)
端頭強度 Bending Strength	無可見損傷No mechanical damage $\Delta R \leq \pm ( 1.0\%R + 0.05\Omega )$ 跨接電阻Chip jumper: $R \leq 50m\Omega$	彎曲距離(Bending Distance):3mm 保持時間(duration):10S ± 1S
電阻溫度系數 T.C.R	在規定值內 within specified T.C.R	測定範圍: -55°C~+125°C Measure between -55°C~+125°C
溫度循環 Temperature Cycling	無可見損傷No mechanical damage $\Delta R \leq \pm ( 1.0\%R + 0.05\Omega )$ 跨接電阻Chip jumper: $R \leq 50m\Omega$	-55°C ( 30分鐘) ~常溫( 2分鐘~3分鐘) ~125°C ( 30分鐘) 5個循環 -55°C ( 30min) ~normal temperature( 2min~3min) ~125°C ( 30min) 5 cycles
短時間過負載 Short Time Overload	無可見損傷No mechanical damage $\Delta R \leq \pm ( 2.0\%R + 0.05\Omega )$ 跨接電阻Chip jumper: $R \leq 50m\Omega$	2.5倍額定電壓或最大過負荷電壓( 取最小者) 保持5秒 2.5 × Rated voltage or Max. Overload Voltage whichever is lower for 5 seconds 0Ω:施加最大過負荷電流, 保持 5S 0Ω:Apply Max.overload current for 5s.
穩態濕熱 Steady state humidity	無可見損傷No mechanical damage $\Delta R \leq \pm ( 3.0\%R + 0.1\Omega )$ 跨接電阻Chip jumper: $R \leq 100m\Omega$	40°C ± 2°C 90%~95%RH 1000小時 40°C ± 2°C 90%~95%RH 1000h

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## THICK FILM CHIP NETWORK RESISTOR

續上表

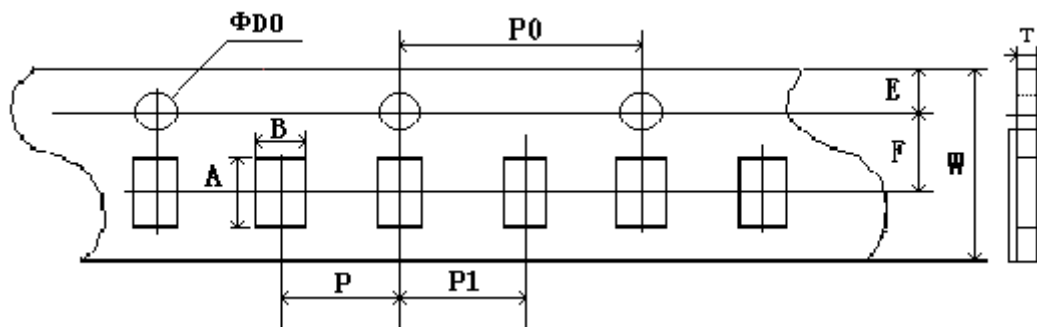
項目 Item	標準 Specifications	測試方法 ( GB/T 5729-2003 ) Test Methods (GB/T 5729-2003)
70°C 耐久性 Load Life	無可見損傷 No mechanical damage $\Delta R \leq \pm ( 3.0\%R + 0.1 \Omega )$ 跨接電阻 Chip jumper: $R \leq 100m\Omega$	70°C ± 2°C, 1000小時, 額定電壓或額定電流 (0Ω) 通1.5小時/斷0.5小時 70°C ± 2°C, 1000h, rated voltage or rated current (0Ω) 1.5h on / 0.5h off.
上限類別溫度耐久性 Endurance at upper temperature	無可見損傷 No mechanical damage $\Delta R \leq \pm ( 3.0\%R + 0.1 \Omega )$ 跨接電阻 Chip jumper: $R \leq 100m\Omega$	電阻器在溫度為155 ± 2°C 試驗箱內, 持續1000小時。 Chip network resistor should be exposed at the temperature of 155 ± 2°C in the test chamber for 1000 hours.
耐溶劑性 Resistance to Solvent	無可見損傷 No mechanical damage $\Delta R \leq \pm ( 1.0\%R + 0.05 \Omega )$ 跨接電阻 Chip jumper: $R \leq 50m\Omega$	浸入三氯乙烯 10h ± 1h Dip in chloroethylene for 10h ± 1h.
絕緣電阻 Insulation Resistance	1000MΩ Min	在電極與基片間施加100V直流電壓, 保持1分鐘, 然後測絕緣電阻值。 Apply DC 100V between substrate and termination for 1 minute, then check insulation resistance .
耐焊接熱 Resistance to Soldering Heat	無可見損傷 No mechanical damage $\Delta R \leq \pm ( 1.0\%R + 0.05 \Omega )$ 跨接電阻 Chip jumper: $R \leq 50m\Omega$	270°C ± 5°C 10s ± 1s
可焊性 Solderability	可焊面積 ≥ 95% 95% Cover Min	240°C ± 5°C 2s ± 0.5s
附着力 Adhesion	外觀無可見損傷 No mechanical damage	施加力5N 10s ± 1s Applying 5N 10s ± 1s

### ● 包裝 PACKAGING

\* 編帶包裝 Tape and reel

紙帶編帶 Paper taping

RCMT04、RCMT08

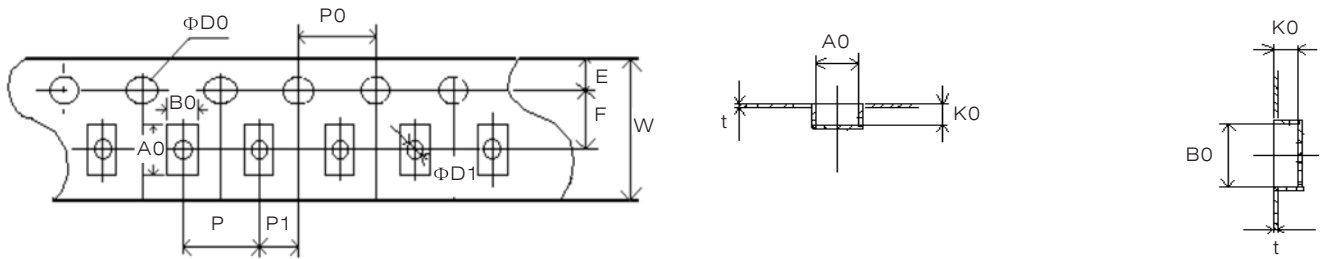


單位 unit:mm

型號 TYPE	A	B	W	F	E
RCMT04	1.20±0.05	1.20±0.05	8.0±0.20	3.5±0.05	1.75±0.1
RCMT08	2.20±0.10	1.20±0.05	8.0±0.20	3.5±0.05	1.75±0.1
RCML08	3.50±0.2	1.90±0.2	8.0±0.20	3.5±0.05	1.75±0.1

型號 TYPE	P	P0	P1	ΦD0	T
RCMT04	2.0±0.1	4.0±0.1	2.0±0.05	1.5±0.1	0.42±0.05
RCMT08	2.0±0.1	4.0±0.1	2.0±0.05	1.5±0.1	0.60±0.01
RCML08	4.0±0.1	4.0±0.1	2.0±0.05	1.5±0.1	0.75±0.1

## 塑料帶編帶 Embossed tapping



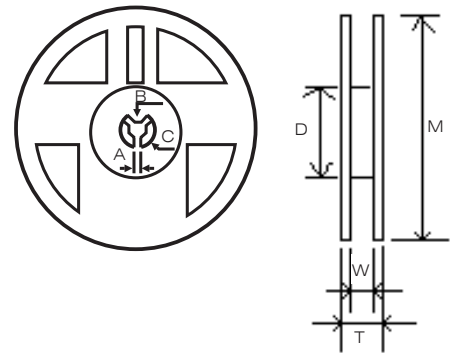
單位unit:mm

型號 TYPE	A0	B0	W	F	E	t
RCMC08	5.40±0.10	3.40±0.10	12.00±0.10	5.50±0.10	1.75±0.10	0.24±0.05
	P	P0	P1	ΦD0	ΦD1	K0
	4.00±0.10	4.00±0.10	2.00±0.05	1.55±0.10	1.50±0.10	0.81±0.10

## 卷盤 Reel

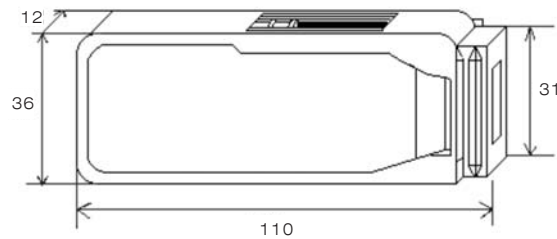
單位unit:mm

型號 TYPE	M	W	T	A	B	C	D
RCMT04/ RCMT08/ RCML08/	178 ±2.0	9.5 ±1.0	12.5 ±1.5	2.0 ±0.5	13.0 ±0.5	21.0 ±0.5	58.0 ±2.0
RCMC08	178 ±2.0	13.0 ±0.5	15.5 ±1.5	2.0 ±0.5	13.0 ±0.5	21.0 ±0.5	57.0 ±2.0



## \* 塑料盒包裝 Bulk case

單位unit:mm



## ● 包裝數量 PACKAGING QUANTITY

包裝方法 Packaging style	編帶 Tape and reel			塑料盒 Bulk case		塑料袋散裝 Bulk	
型號 Type	RCMT04 RCMT08	RCML08	RCMC08	RCML08	RCMC08	RCMT04 RCMT08 RCML08	RCMC08
數量 ( PCS ) Quantity	10000	5000	4000	5000	1000	≤10000	≤4000

• 標記表示方法 The Explanation For The Resistance Value Marking

IEC E-24、E-96系列電阻值對照表

IEC E-24、E-96 Series Resistance Cross-reference List

E-24 系列 ( E-24 series)

(  $\times 10^n \Omega$  )

(單位 unit: 1 $\Omega$ 、10 $\Omega$ 、100 $\Omega$ 、1K $\Omega$ 、10K $\Omega$ 、100K $\Omega$ 、1M $\Omega$ 、10M $\Omega$ )

表一 Table one

1.0	1.5	2.2	3.3	4.7	6.8
1.1	1.6	2.4	3.6	5.1	7.5
1.2	1.8	2.7	3.9	5.6	8.2
1.3	2.0	3.0	4.3	6.2	9.1

E-96系列 ( E-96 series)

(  $\times 10^n \Omega$  )

(單位: 1 $\Omega$ 、10 $\Omega$ 、100 $\Omega$ 、1K $\Omega$ 、10K $\Omega$ 、100K $\Omega$ 、1M $\Omega$ 、10M $\Omega$ )

表二 Table two

1.00	1.33	1.78	2.37	3.16	4.22	5.62	7.50
1.02	1.37	1.82	2.43	3.24	4.32	5.76	7.68
1.05	1.40	1.87	2.49	3.32	4.42	5.90	7.87
1.07	1.43	1.91	2.55	3.40	4.53	6.04	8.06
1.10	1.47	1.96	2.61	3.48	4.64	6.19	8.25
1.13	1.50	2.00	2.67	3.57	4.75	6.34	8.45
1.15	1.54	2.05	2.74	3.65	4.87	6.49	8.66
1.18	1.58	2.10	2.80	3.74	4.99	6.65	8.87
1.21	1.62	2.15	2.87	3.83	5.11	6.81	9.09
1.24	1.65	2.21	2.94	3.92	5.23	6.98	9.31
1.27	1.69	2.26	3.01	4.02	5.36	7.15	9.53
1.30	1.74	2.32	3.09	4.12	5.49	7.32	9.76

- E-24系列：采用三位數字表示，前二位表示電阻值有效數字，第三位表示乘以10的次方數。  
E-24 series: Express resistance value on the glass side with three digits, the first two digits should be significant and the third one denote number of zeros.

例 Example



- E-96系列：采用四位數字表示，前三位表示電阻值有效數字，第四位表示乘以10的次方數。  
E-96 series: Express the resistance value with four digits, the first three digits are significant figures and the fourth denotes the number of zeros.

例 Example



- 小數點以“R”表示 the decimal point should be expressed by "R"

例 Example



- 跨接電阻以“0”表示 the jumper should be expressed by “0”



- RCMT04：不作標記 For the type of RCMT04, there is no mark on the glass side.



- 非IEC標準系列的電阻值標記表示方法：一般以最接近IEC E-24系列標稱阻值的標記表示方法。  
For the resistance which don't belong to IEC serial, use the resistance of IEC serial which is most close to the required resistance of non-IEC serial for replacement.

- 客戶對標記有特殊要求時，則按照協商的結果印刷標記  
To get agreement by both party if there special requirement for the marking.