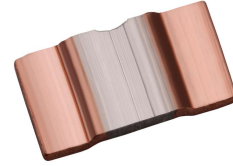


## ■ 片式分流電阻器

### Chip Shunt Resistor

#### ● 特點 Features

- \* 2512最高功率達3W  
The highest power of 2512 is up to 3W.
- \* 3921最高功率達5W  
The highest power of 3921 is up to 5W.
- \* 5931 最高功率達7W  
The highest power of 5931 is up to 7W.
- \* 適應再流焊  
Suit for re-flow soldering.
- \* 符合RoHS指令要求  
Compliant with RoHS directive.



#### ● 應用領域 Applications

開關電源、過電流保護、電壓調節器、電源轉換器、充電器、汽車引擎控制器、便攜式設備等。  
 Switching Power Supply、Over Current Protection、Voltage Regulation Module(VRM)、  
 DC-DC Converter、Charger、Automotive Engine Control、Portable Devices etc.

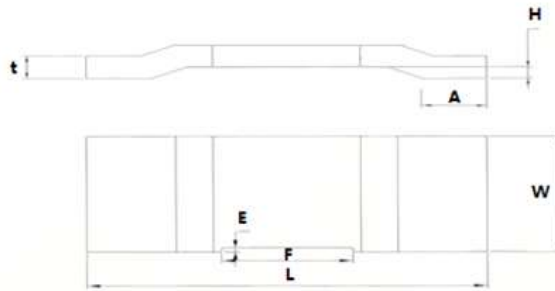
#### ● 品名構成 Type Designation

MS	V	3921	K	R001	F	T
產品代號 Product Code	額定功率代號 Rated Power Code	型號代號 Type Code	電阻溫度系數 T.C.R	電阻值代號 Resistance Value Code	電阻值誤差精度代號 Resistance Tolerance Code	包裝方式代號 Packaging Style Code
片式分流器 Chip Shunt Resistor	代號 Code	代號 Code	代號 Code	單位Ω，小數點用R表示； 單位mΩ，小數點用M表示； Units: Ω Decimal point should be expressed by "R" ; Units: mΩ Decimal point should be expressed by 'M' 例如Example: R001=0.001 Ω R004=0.004 Ω 0M20=0.20m Ω 0M50=0.50m Ω	代號 Code	代號 Code
	額定功率 Rated Power	型號 Type	T.C.R (ppm/°C)	誤差 Tolerance	包裝方法 Packaging Style	
	L 2W	12 2512	H ±50	F ±1%	T 編帶包裝 Tape & Reel	
	M 2.5W	3921 3921	X ±75	G ±2%	C 塑料袋 散裝 Bulk	
	N 3W	5931 5931	K ±100	J ±5%		
	V 5W		J ±150			
	W 6W		W ±200			
Z 7W		L ±250				

# 片式分流電阻器

## CHIP SHUNT RESISTOR

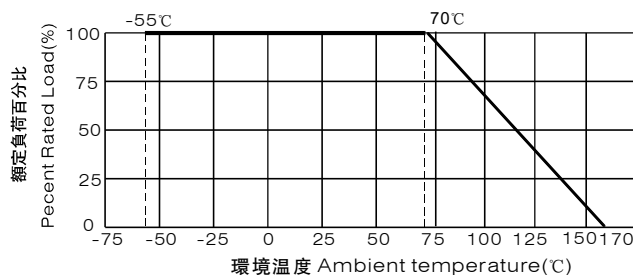
### • 結構 Construction



### • 規格尺寸 Dimensions

型號 Type	電阻值 Resistance value	電阻材料 Material	t(mm)	L(mm)	W(mm)	H(mm)	A(mm)	F(mm)	E(mm)
3921	0.2mΩ	錳銅	1.66 ± 0.10	10.00 ± 0.25	5.20 ± 0.20	0.50 ± 0.20	2.00 ± 0.20	4.50 ± 0.50	max.1
	0.3mΩ	錳銅	1.28 ± 0.10						
	0.5mΩ	錳銅	0.77 ± 0.10						
	0.7mΩ	錳銅	0.55 ± 0.10						
	1mΩ	鐵鉻鋁	1.25 ± 0.10						
	2mΩ	鐵鉻鋁	0.62 ± 0.10						
	3mΩ	鐵鉻鋁	0.42 ± 0.10						
	4mΩ	鐵鉻鋁	0.35 ± 0.10						
5931	0.2mΩ	錳銅	1.50 ± 0.10	15.00 ± 0.25	7.70 ± 0.20	0.50 ± 0.20	4.20 ± 0.20	5.00 ± 0.50	max.1
	0.3mΩ	錳銅	0.96 ± 0.10						
	0.4mΩ	錳銅	0.72 ± 0.10						
	0.5mΩ	錳銅	0.58 ± 0.10						
	0.8mΩ	錳銅	0.36 ± 0.10						
	1mΩ	鐵鉻鋁	0.94 ± 0.10						
	2mΩ	鐵鉻鋁	0.48 ± 0.10						
2512	0.3mΩ	錳銅	0.95 ± 0.10	6.40 ± 0.25	3.20 ± 0.20	0.50 ± 0.20	1.20 ± 0.20	3.00 ± 0.50	max.1
	0.35mΩ	錳銅	0.60 ± 0.10						
	0.4mΩ	錳銅	0.88 ± 0.10						
	0.5mΩ	錳銅	0.85 ± 0.10						
	0.7mΩ	錳銅	0.60 ± 0.10						
	1mΩ	錳銅	0.42 ± 0.10						
	2mΩ	鐵鉻鋁	0.67 ± 0.10						
	3mΩ	鐵鉻鋁	0.45 ± 0.10						
	4mΩ	鐵鉻鋁	0.32 ± 0.10						
	5mΩ	鐵鉻鋁	0.32 ± 0.10						

### • 負荷下降曲線 Derating Curve



使用溫度範圍:  
Operating  
Temperature  
Range:  
-55°C~170°C

注：當電阻使用的環境溫度超過70°C時，其額定負荷(額定功率)按上述曲線下降。

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

**● 額定值 Standard Electrical Specifications**

型號 Type	額定功率 Rated Power	電阻值 Resistance value	電阻溫度系數 T.C.R(ppm/°C)	使用溫度範圍 Operating Temperature Range
3921	3W 5W	0.2mΩ	±250	-55°C~170°C
		0.3mΩ	±150	
		0.5mΩ	±150	
		0.7mΩ	±150	
		1mΩ	±150	
		2mΩ	±75	
		3mΩ	±75	
		4mΩ	±75	
		5mΩ	±75	
5931	5W 7W	0.2mΩ	±250	
		0.3mΩ	±250	
		0.4mΩ	±250	
		0.5mΩ	±200	
		0.8mΩ	±150	
		1mΩ	±75	
		2mΩ	±75	
		3mΩ	±75	
2512	2W 3W	0.3mΩ	±250	
		0.35mΩ	±250	
		0.4mΩ	±250	
		0.5mΩ	±150	
		0.7mΩ	±150	
		1mΩ	±75	
		2mΩ	±75	
		3mΩ	±75	
		4mΩ	±75	
5mΩ	±75			

**● 特性 Characteristics**

項目 Item	標準 Specifications	測試方法 Test Methods
電阻溫度系數 T.C.R	在規定值內 Within specified T.C.R	IEC 60115-1 4.8 +20°C/-55°C/+20°C/+125°C/+20°C
短時間過負載 Short Time Overload	無可見損傷 No mechanical damage $\Delta R \leq \pm 1.0\%R$	IEC 60115-1 4.13 5倍額定功率，保持5秒。 5 times rated power for 5 s.
耐焊接熱 Resistance to Soldering Heat	無可見損傷 No mechanical damage $\Delta R \leq \pm 1.0\%R$	IEC 60115-1 4.18 260°C ± 5°C, 保持10s ± 1s. Lead-free solder bath at 260°C ± 5°C for 10s ± 1s.
70°C 耐久性 Endurance at 70°C	無可見損傷 No mechanical damage $\Delta R \leq \pm 1.0\%R$	IEC 60115-1 4.25.1 70°C ± 2°C, 1000小時, 額定電流或元件極限電流(取較小值), 通1.5小時/斷0.5小時。 70°C ± 2°C, 1000h, rated current or limiting element current whichever is lower for 1.5h ON/0.5h OFF.
高溫高濕 Biased Humidity	無可見損傷 No mechanical damage $\Delta R \leq \pm 1.0\%R$	AEC-Q200 Test 7/MIL-STD-202 Method 103 溫度85°C, 濕度85%的條件下施加10%額定功率(電流)或元件極限電流(取較小值), 持續1000小時。 At 85°C/85%RH, apply 10% of operating power(current) or limiting element current whichever is lower for 1000hours.

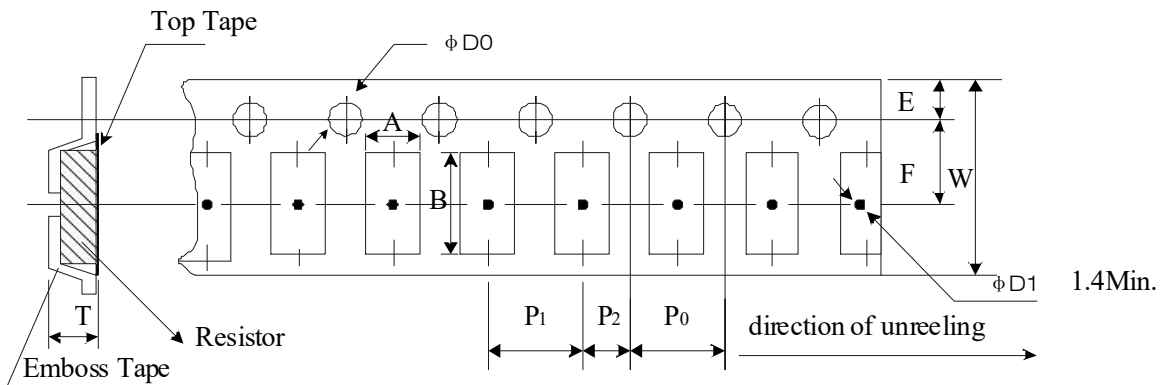
# 片式分流電阻器

## CHIP SHUNT RESISTOR

項目 Item	標準 Specifications	測試方法 Test Methods
溫度快速變化 Rapid Change of Temperature	無可見損傷 No mechanical damage $\Delta R \leq \pm 1.0\%R$	IEC 60115-1 4.19 -55°C (30分鐘) ~ 常溫 (5分鐘) ~ 125°C (30分鐘), 100個循環; -55°C(30min)~normal temperature(5min)~125°C(30min), 100 cycles.
上限類別溫度 持久性 Endurance at Upper Category Temperature	無可見損傷 No mechanical damage $\Delta R \leq \pm 1.0\%R$	IEC 60115-1 4.25.3 170°C ± 2°C, 1000hours

### • 包裝 Packaging

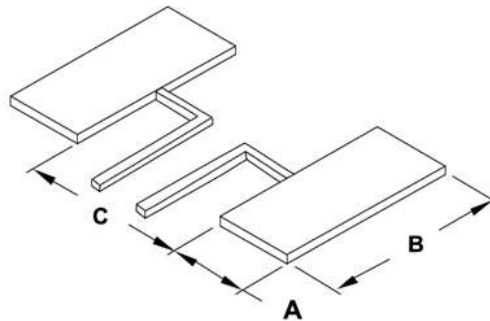
\* 編帶包裝 Tape and Reel



單位 Unit: (mm)

型號 Type	A	B	W	E	F	P0	P1	P2	$\phi D0$	T	數量 Quantity (EA)
2512	3.5±0.10	6.8±0.10	16±0.10	1.75±0.10	5.5±0.10	4.0±0.10	8.0±0.10	2±0.10	1.50±0.10	1.8±0.10	4000PCS
3921	5.7±0.10	11.2±0.10	24±0.10	1.75±0.10	7.5±0.10	12±0.10	12±0.10	6±0.10	1.50±0.10	2.5±0.10	2000PCS
5931	8.2±0.10	16.1±0.10	32±0.10	1.75±0.10	11.5±0.10	12±0.10	12±0.10	6±0.10	1.50±0.10	2.5±0.10	2000PCS

### • 推薦焊盤尺寸 Solder pad dimensions



型號 Type	A(mm)	B(mm)	C(mm)
2512	1.80±0.25	3.60±0.25	3.80±0.13
3921	2.70±0.25	6.20±0.25	5.60±0.13
5931	5.20±0.25	8.75±0.25	5.60±0.13

## ■ 修訂履歷 Revision History

版本Version	日期Date	修订内容 Change Description
V2020.0	2020-06-23	- 原版 The original version.

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