

1. 適用範圍 / SCOPE

此份規格書涵蓋 MSU 分流器系列相關規格.

This specification covers MSU2512/3921/5931 series, which are Metal Type Current Shunt Resistor.

2. 產品型號 / TYPE NUMBER

<b>MSU</b>	<b>3921</b>	<b>M/F</b>	<b>xWx</b>	<b>Rxxx</b>	<b>x</b>	<b>*</b>
	(1)	(2)	(3)	(4)	(5)	(6)

- (1) 產品系列號 / SERIES NUMBER : Ex.MSU3921 = 短電極 / Short electrode ; 兩端子 / two terminal ; 尺寸 / size “0.39×0.21”
- (2) 產品材質 / Material : M = 錳銅合金 / MnCu alloy ; F = 铁铬铝合金 / Complex alloy
- (3) 產品瓦特數 / Power Rating : Ex. 5W0=5.00 Watt, 3W5=3.50Watt
- (4) 產品阻值 / Nominal Resistance Value : Ex. 1mΩ → R001; 0.5mΩ → 0M50
- (5) 元件電阻偏差值 / Resistance Tolerance : Ex. F=±1% ; D=±0.5%
- (6) 產品碼 / Product code: Ex. S → Special design

3. 產品尺寸 / PRODUCT DIMENSIONS

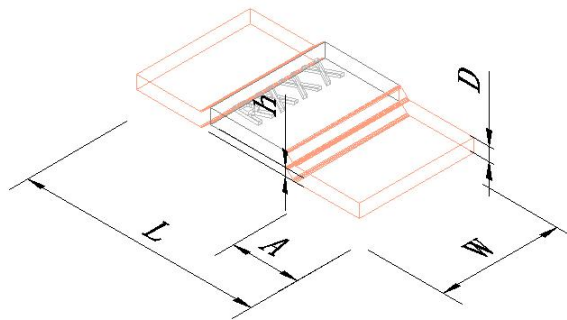


圖 1 / Fig.1

Unit(mm)

Part Number	W	L	A	D Typical	h
MSU2512-series 0M30	3.02 ± 0.25	6.35 ± 0.20	1.0 ± 0.30	1.15	0.35 ± 0.05
MSU2512-series 0M50				0.84	
MSU2512-series R001				0.42	
MSU2512-series R002				0.54	
MSU2512-series R003				0.36	

Part Number	W	L	A	D Typical	h
MSU3921-series 0M20	5.20 ± 0.30	10.0 ± 0.30	2.00 ± 0.30	1.34	0.5 ± 0.10
MSU3921-series 0M30				1.08	
MSU3921-series 0M50				0.65	
MSU3921-series 0M70				0.47	
MSU3921-series R001				0.41	
MSU3921-series 1M50				0.90	
MSU3921-series R002				0.68	
MSU3921-series R003				0.45	
MSU3921-series R004				0.34	

Part Number	W	L	A	D Typical	h
MSU5931-series 0M20	7.75 ± 0.30	15.0 ± 0.30	4.00 ± 0.30	1.32	0.5 ± 0.10
MSU5931-series 0M30				0.88	
MSU5931-series 0M50				0.53	
MSU5931-series R001				1.10	
MSU5931-series R002				0.55	
MSU5931-series R003				0.37	

4. 產品結構及使用材料說明 (參考圖 2) / STRUCTURE & MATERIAL (Ref to Fig.2)

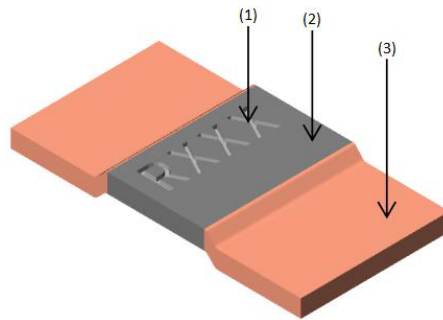


圖 2 / Fig.2

4.1 文字 / Marking(1) : 激光打印 / Laser

4.2 電阻本體 / Resistive element(2) : 銅合金 / Cu - alloy; 铁铬铝合金 / Complex alloy

4.3 端電極 / Terminal electrode(3) : 銅 / Cu

## 5. 電氣特性 / ELECTRICAL CHARACTERISTICS

Part Number	Resistance Value (mΩ)	Power Rating (Watt)	Resistance Tolerance (%)	TCR (ppm/°C)
MSU2512-series 0M30	0.3	6	±1% / ±5%	±175
MSU2512-series 0M50	0.5	6		±175
MSU2512-series R001	1.0	5		±150
MSU2512-series R002	2.0	4		±100
MSU2512-series R003	3.0	4		±100

Part Number	Resistance Value (mΩ)	Power Rating (Watt)	Resistance Tolerance (%)	TCR (ppm/°C)
MSU3921-series 0M20	0.2	9	±1% / ±5%	±150
MSU3921-series 0M30	0.3	9		±150
MSU3921-series 0M50	0.5	7		±150
MSU3921-series 0M70	0.7	5		±150
MSU3921-series R001	1.0	5		±100
MSU3921-series 1M50	1.5	7		±100
MSU3921-series R002	2.0	5		±100
MSU3921-series R003	3.0	5		±100
MSU3921-series R004	4.0	4		±100

Part Number	Resistance Value (mΩ)	Power Rating (Watt)	Resistance Tolerance (%)	TCR (ppm/°C)
MSU5931-series 0M20	0.2	15	±1% / ±5%	±175
MSU5931-series 0M30	0.3	10		±175
MSU5931-series 0M50	0.5	8		±150
MSU5931-series R001	1.0	10		±100
MSU5931-series R002	2.0	8		±100
MSU5931-series R003	3.0	7		±100

## 6. 產品特性及信賴性測試規範 / PRODUCT CHARACTERISTICS AND RELIABILITY TEST STANDARD

測試方法 Parameter	條件 Conditions	允收標準 Requirements
瞬間過載測試 / Short Time Over Load	P= 5Pr ; T=25±2°C , t = 5sec.	±(2.0%+0.5mΩ) IEC60115-1 4.13
高溫測試 / High Temp. Exposure	T = +170±2°C ; t = 1000h	±(2.0%+0.5mΩ) IEC60115-1 4.25
低溫測試 / Low Temp. Storage	T = -55±2°C ; t = 1000h	±(1.0%+0.5mΩ) IEC60115-1 4.25
Biased Humidity Test / 高温高湿测试	+85 °C, 85 %R.H., 10% Rated power 1000 Hours	±(1.0%+0.5mΩ) IEC60115-1 4.25

冷熱衝擊測試 / Thermal Shock	[-55°C 30min. → R.T. 3min. → +155°C 30min. → R.T. 3min ],100 個連續循環 / 100Cycles	±(1.0%+0.5mΩ) IEC60115-1 4.19
在 70°C 下負載壽命測試 / Load Life at 70°C	T=70±2°C ;t= 90min ON , 30min OFF,1000h,Rated power	±(2.0%+0.5mΩ) IEC60115-1 4.25
機械衝擊測試 / Mechanical Shock	加速度 a =100G , 振幅時間 t =6ms a =100G , t =6ms	±(1.0%+0.5mΩ) IEC60115-1 4.21

21. 環境特性 / ENVIRONMENTAL CHARACTERISTIC

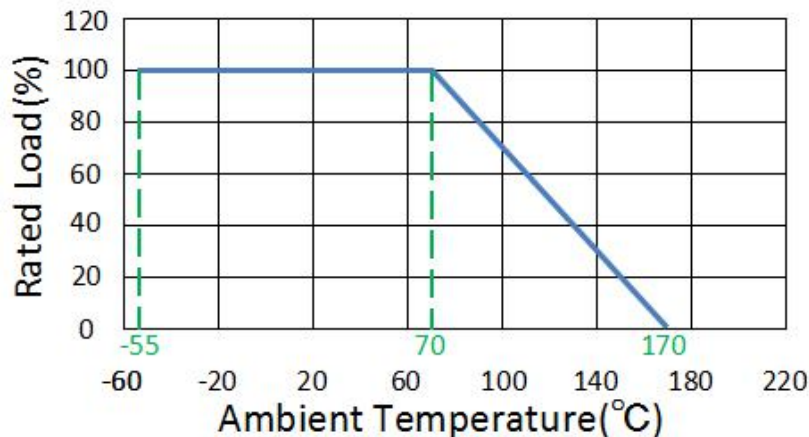
7.1 操作溫度範圍: -55°C ~ 155°C / Operating Temperature: -55°C ~ 155°C

額定功率溫度衰變曲線 / Typical Thermal Derating Curve

額定功率乃指於 70 °C 以內可連續滿額功率使用的術語。

下圖為當操作溫度高於 70°C 時的可使用功率衰減曲線。

Power rating is based on continuous full load operation at rated ambient temperature of 70 °C. For resistors operated at ambient temp. in excess of 70 °C, the max. load shall be derated in accordance with the following curve.



7.2 存儲條件 / STORAGE CONDITIONS

在溫度+10°C ~ 40°C、相對濕度 ≦ 75% 的密閉條件下可存放2年。 /

Under airtight in temperature +10°C ~ 40°C、relative humidity ≦ 75% can store 2 years.

在溫度+10°C ~ 60°C、相對濕度為95% 的非露天下最多可存放30 天。 /

Without dew in temperature +10°C ~ 60°C、relative humidity be 95% maximum value for 30days.

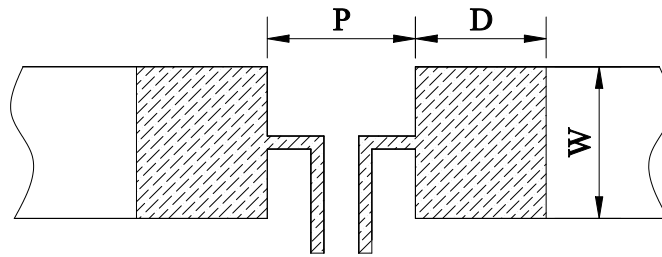
22. 焊錫墊尺寸及焊接條件 / SOLDER PAD SIZE AND WELDING CONDITIONS

8.1 建議如下圖焊接方式焊接，並滿足所要求的尺寸。 / Propose that the following picture installation way is installed, and satisfied the required size.

Part Number	P	W	D
MSU2512-series	3.60	3.40	1.60
MSU3921-series	5.60	6.20	2.70
MSU5931-series	5.60	8.75	5.20

Unit:mm

loading : 適用於本司建議焊墊設計並使用於限定穩定電流下 / suit for specific pad layout and specific steady current



单击下面可查看定价，库存，交付和生命周期等信息

[>>Walter\(华德\)](#)