



昌 勛 股 份 有 限 公 司  
Dr . POWER CORPORATION

零 件 規 格 書/承 認 書  
SPECIFICATION FOR APPROVAL

CUSTOMER : \_\_\_\_\_

DESCRIPTION : Switching Adapter

MODEL : SAC20W0512P

CUSTOMER PART NO : \_\_\_\_\_

**APPROVED SIGNATURES**

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Rev	Date	Description	Designed	Checked	Approved
A	2024/11/5	Release		Po Chen	

臺北市北投區吉利街 131 號 3 樓

3F, NO. 131, JILI ST., PEITOU, TAIPEI, TAIWAN, R.O.C.

TEL : 886-2-2820-7419 · FAX : 886-2-2827-0348

## EDITION RECORD 版本記錄

Edition 版本號	Date 日期	Revision Items 修改項目	Page Nr. 頁碼
0	30-10-2024	Initial release 初版	

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Important Notes (重要事項) :

(I) Unless otherwise specified , all above-listed items of tests are carried out by Electronic Load.

除非有例外說明,以上各項測試,皆使用電子負載執行.

(II) Unless otherwise specified , all tests are governed by the relevant clauses of the safety standards under which this model is designed and certified (Specification Contents item 7).

除非有例外說明,所有測試,皆按照此型號所屬的安規標準內的相關測試條款執行(規格書內容第七項).

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## 1. SCOPE/概述

The document details the electrical ,mechanical and environmental specifications of a SMPS , the power supply provides 18W continuous output power.

資料詳細描述了一款20W（連續輸出功率）開關電源的電氣特性，結構性及環境等要求。

The power supply shall meet the ROHS requirements.

此款電源符合ROHS要求。

### Description/描述:

- SMPS Adapter(Wall mount)/插牆式適配器       SMPS Adapter(Desk-top)/桌面型適配器  
 Open Frame/開放式結構       SMPS Unit (Wth Case)/帶鐵殼型  
 Others/其他

## 2. Input Characteristics /輸入特性

### 2.1 Input Voltage & Frequency/輸出電壓與頻率

The range of input voltage is from 90Vac to 264Vac.

輸入電壓範圍：從90Vac到264Vac。

	Minimum/最小	Rating/額定值	Maximum/最大
Input voltage/輸入電壓	90 Vac	100 Vac ~240Vac	264Vac
Input Frequency/輸入頻率	47 Hz	50Hz/60Hz	63Hz

### 2.2 Input AC Current/輸入交流電流

0.5Amax @ 90Vac input & Full load/在90Vac輸入和滿載條件下最大0.5A.

### 2.3 No-Load Input Power Dissipation/輸入空載功率損耗

While input 115Vac or 230Vac and the output is no load, the input power loss must be less than 0.1W.

在輸入115Vac/230Vac ,空載功耗小於0.1W.

## 3. Output Characteristics/輸出特性

### 3.1 Static Output Characteristics<Vo & R+N>/靜態輸出特性<輸出&紋波+噪音>

All data was measured at the end of end of 0.8m Type Cord/使用0.8m TYPE C線測試。

Output	Load Condition/負載條件	Output Range 輸出電壓範圍	R+N 紋波與噪聲	Remark 備註
Rating	Load 100%			
+ 5.0V	3.0A	4.6V~5.4V	300mVp-p	
+ 9.0V	2.2A	8.55V~9.45V	300mVp-p	
+12.0V	1.67A	11.40V~12.60V	300mVp-p	

Ripple & Noise: Tested by a oscilloscope using 20MHz bandwidth and the output is paralleled a 0.1uF ceramic capacitor and a 10Uf electrolysis capacitor, (Under the input Voltage 100~240Vac )

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紋波與噪聲：量測時示波器選用20MHz帶寬限制，輸出端要並聯一顆0.1uF的陶瓷電容  
 一顆10uF的電解電容（輸入電壓100~240Vac）

### 3.2 Line/Load Regulation/線性/負載調整率

All data was measured at the end of end of 0.8m Type Cord/使用0.8m TYPE C線測試。

Output Rating	Load Condition/負載條件		Line Regulation 線性調整率	Load Regulation 負載調整率	Remark 備註
	Min.Load	Max.Load			
+ 5.0V	0A	3.0A	4.6V~5.4V	4.6V~5.4V	
+ 9.0V	0A	2.2A	8.55V~9.45V	8.55V~9.45V	
+12.0V	0A	1.67A	11.40V~12.60V	11.40V~12.60V	

## 4. Protection Requirements/保護要求

### 4.1 Short Circuit Protection/短路保護

The input power shall decrease when the output is short to GND: the power supply shall not damage ,and shall be self-recovery when the fault condition is removed.

當輸出對地短路時，產品輸入功率降低且不會損傷，當短路情況解除後，產品將會自動恢復正常。

### 4.2 Over Voltage Protection/過壓保護

The power supply shall protection when the output over voltage, the power supply shall No damage.當輸出過壓時，產品保護且不會損傷。

## 5. Environment Requirements/環境要求

Ambient Temperature 環境溫度	0	----	40	°C
Relative Humidity 相對濕度	40	----	93	%

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## 6. Safety Standards/安規標準

The power supply is designed to meet the following safety standards at 25°C ambient temperature: 在室溫 25°C 下這電源供應器設計合符以下安規標準:

Safety Standard 安規標準
BS/EN/IEC60950-1 <input type="checkbox"/> UL/CSA 60950-1 <input type="checkbox"/> AS/NZS60950-1 <input type="checkbox"/> J60950-1 <input type="checkbox"/> K60950-1 <input type="checkbox"/> GB4943.1 <input type="checkbox"/>
BS/EN/IEC60065 <input type="checkbox"/> UL/CSA 60065 <input type="checkbox"/> AS/NZS60065 <input type="checkbox"/> GB8898 <input type="checkbox"/>
BS/EN/IEC62368-1 <input checked="" type="checkbox"/> UL/CSA62368-1 <input checked="" type="checkbox"/> AS/NZS62368-1 <input checked="" type="checkbox"/> J62368-1 <input type="checkbox"/>
BS/EN/IEC61558-1+BS/EN/IEC61558-2-7 <input type="checkbox"/> BS/EN/IEC61558-1+BS/EN/IEC61558-2-16 <input type="checkbox"/> GB19212.1 <input type="checkbox"/>
AS/NZS61558-2-7 <input type="checkbox"/> AS/NZS61558-2-16 <input type="checkbox"/> AS/NZS60335-2-29 <input type="checkbox"/> AS/NZS60335-2-29 Annex AA <input type="checkbox"/>
BS/EN/IEC61347-1+BS/EN/IEC61347-2-13 <input type="checkbox"/> J61347-2-13 <input type="checkbox"/> J60335-2-29 <input type="checkbox"/> J60335-2-29 Annex AA <input type="checkbox"/>
BS/EN/IEC60335-1 <input type="checkbox"/> BS/EN/IEC60335-2-29 <input type="checkbox"/> BS/EN/IEC60335-2-29 Annex AA <input type="checkbox"/>
GB4706.1+GB4706.18 <input type="checkbox"/> GB4706-1 <input type="checkbox"/> GB19212.17 <input type="checkbox"/>
UL1310 <input type="checkbox"/> CSA-C22.2 No. 223 <input type="checkbox"/> UL697 <input type="checkbox"/> CSA-C22.2 No. 173 <input type="checkbox"/>

## 7. EMC Standards /電磁兼容標準

Refer to related safety standards. 參考相關安全標準

UL/CSA 60950-1, UL/CSA 60065, UL/CSA62368-1,UL1310, UL697, CSA-C22.2 No. 223, CSA-C22.2 No.173, UL8750	FCC Part 15 subpart B, ICES-003
BS/EN/IEC60950-1, AS/NZS60950-1, BS/EN/IEC62368-1, AS/NZS62368-1, J62368-1	BS/EN55032 (or BS/EN55022,BS/EN55013), BS/EN55035( or BS/EN55020,BS/EN55024), BS/EN61000-3-2/3
BS/EN/IEC60065, AS/NZS60065 , BS/EN/IEC62368-1, AS/NZS62368-1, J62368-1	BS/EN55032 (or BS/EN55022,BS/EN55013), BS/EN55035( or BS/EN55020,BS/EN55024), BS/EN61000-3-2/3
BS/EN/IEC61558-1+ BS/EN/IEC61558-2-7 BS/EN/IEC61558-2-16,AS/NZS61558-2-16	BS/EN55014-1, BS/EN55014-2,BS/EN61000-3-2/3
BS/EN/IEC60335-1, AS/NZS60335-1 BS/EN/IEC60335-2-29, AS/NZS60335—2-29	BS/EN55014-1. BS/EN55014-2, BS/EN61000-3-2/3
BS/EN/IEC61347-2-13, AS/NZS61347-2-13	BS/EN55015,BS/EN61547, BS/EN61000-3-2/3

## 8. Hi-Pot/ 耐高壓測試

Input to output 輸入對輸出 3000VAC at 1 sec (秒)

Cutoff current 截止電流 10mA

## 9. Max Touch Current(Max Earth Leakage Current)/

最大接觸電流(最大漏電電流測試)

250µA max. at 250Vrms

## 10. MTBF Standard/平均無故障時間標準

Minimum 50,000 hours MTBF at max rated load & 25°C ambient temperature

在室溫 25°C 下及最大額定負載下，平均無故障時間為最少 50,000 小時。

## 11. Insulation Resistance /絕緣阻抗

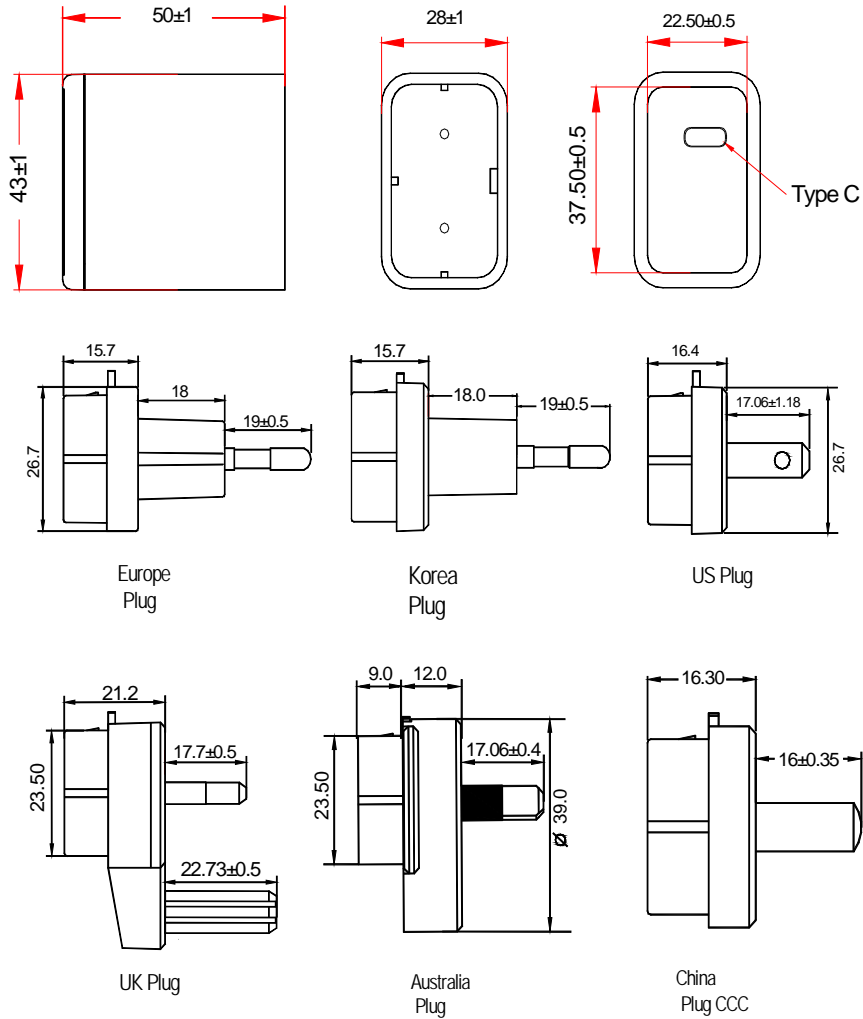
Input to Enclosure / Output ( 初對殼 / 次 ) :  $\geq 7M \text{ ohm ( DC 500V , 1 minute )}$

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## 12. MECHANICAL CHARACTERISTIC 機械規格

### 12.1 Mechanical Dimensions 外形尺寸 (for Ref. only 參考用)

顏色 Colour: 黑色 Black Colour.



#### Type-C Port Polarity (Type-C 端口極性)

A1	A4	A5	A6	A7	A8	A9	A12
GND	VBUS	CC1	D+	D-	NC	VBUS	GND
GND	VBUS	NC	D-	D+	CC2	VBUS	GND
B12	B9	B8	B7	B6	B5	B4	B1

單位  
Unit: mm

## 12.2 Model Labels 產品標籤

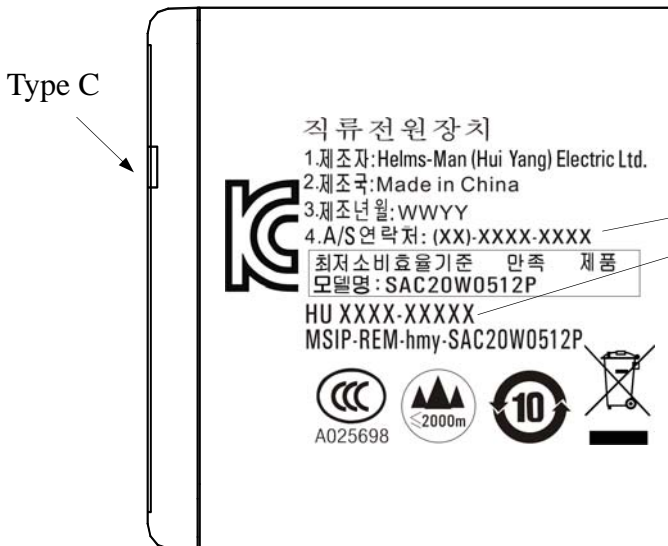


Type C



注：1:1 唵頭 長 x 寬: 25x35mm  
1:1 scale 25x35mm (LxW)

唵頭表達方法: 激光打印  
Marking method: laser printing



Type C

認証未申請  
Approval not available yet



注：1:1 唵頭 長 x 寬: 20x32mm  
1:1 scale 20x32mm (LxW)

唵頭表達方法: 激光打印  
Marking method: laser printing

## 13. Packing / 包裝規格

包裝規格: 標準紙格包裝  
Packing Spec.: Standard packing with card tray.

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### 14. Sample Primary Test Report / 樣品初測報告

Test Items 測試項目	Test Condition 測試條件		Sample No. and test result 樣品編號及測試結果					Pass/Fail
			1#	2#	3#	4#	5#	
<b>Unload output Voltage</b> 空載輸出電壓 (V) 4.6VDC~5.4VDC (輸出 1) 8.55VDC~9.45VDC (輸出 2) 11.4VDC~12.6VDC	90Vac	輸出 1 (5V3A)	5.02	5.11	5.01	5.01	5.03	Pass
		輸出 2 (9V3A)	9.09	9.17	9.08	9.08	9.10	
		輸出 3 (12V3A)	12.12	12.29	12.14	12.15	12.15	
	264Vac	輸出 1 (5V3A)	5.02	5.11	5.01	5.01	5.03	Pass
		輸出 2 (9V3A)	9.09	9.16	9.08	9.08	9.09	
		輸出 3 (12V3A)	12.11	12.20	12.14	12.15	12.15	
<b>Full load output Voltage</b> 滿載輸出電壓 (V) 4.6VDC~5.4VDC (輸出 1) 8.55VDC~9.45VDC (輸出 2) 11.4VDC~12.6VDC	90Vac	輸出 1 (5V3A)	4.75	4.91	4.86	7.84	4.80	Pass
		輸出 2 (9V3A)	8.92	9.01	8.97	8.95	8.88	
		輸出 3 (12V3A)	11.99	12.09	12.05	12.04	11.99	
	264Vac	輸出 1 (5V3A)	4.73	4.92	4.86	7.84	7.84	Pass
		輸出 2 (9V3A)	8.93	9.02	8.97	8.96	8.89	
		輸出 3 (12V3A)	11.99	12.10	12.04	12.05	12.0	
<b>Output ripple Voltage</b> 輸出紋波電壓 (mV) <300mV	90Vac	輸出 1 (5V3A)	90	52	62	92	10	Pass
		輸出 2 (9V3A)	66	66	74	114	144	
		輸出 3 (12V3A)	104	104	104	112	120	
	264Vac	輸出 1 (5V3A)	68	68	86	88	104	Pass
		輸出 2 (9V3A)	108	108	112	116	136	
		輸出 3 (12V3A)	112	112	112	124	104	
<b>Short Circuit Test</b> 短路保護測試 No damage occur 無危險現象	90Vac		OK	OK	OK			Pass
	264Vac		OK	OK	OK			Pass
<b>Hi-pot Test</b> 耐電高壓測試 (at 10mA)	3000Vac 10mA 1 sec(秒)		OK	OK	OK			Pass
<b>Average Efficiency</b> 平均效率 輸出 1 (5V3A) >81.39 %	115Vac/60Hz		83.58%	83.80%	83.89%			Pass
	230Vac/50Hz		83.02%	83.57%	83.27%			Pass

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<b>Average Efficiency</b> 平均效率 輸出 2 (9V3A) >86.62 %	115Vac/60Hz	86.21%	86.28%	86.30%			Pass
	230Vac/50Hz	86.22%	86.41%	86.34%			Pass
<b>Average Efficiency</b> 平均效率 輸出 3 (12V3A) >87.40 %	115Vac/60Hz	86.17%	86.28%	86.12%			Pass
	230Vac/50Hz	86.19%	86.46%	86.28			Pass
<b>No Load Power</b> 空載功率 <0.1W	115Vac/60Hz	0.1	0.1	0.1			Pass
	230Vac/50Hz	0.1	0.1	0.1			Pass
<b>Insulation Resistance</b> 絕緣阻抗 ≧ 7M ohm	500VDC 1 minute	OK	OK	OK			Pass

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