



芯高科技
HIGH TECH
TECHNOLOGY LIMITED

HT6329 演示板測試

適配HUSB350

測試單元: 21052702

2021/09/24 機密文件

報告大綱

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1. 摘要

操作模式:	單通道	雙通道
輸入電壓範圍	21V	
輸出電壓和電流範圍 (最大輸出功率是 20W + 20W)	5-20V 3A max	雙通道的最大總輸出電流為 6A
主要支持的快速充電協議	PD 2.0	
最大輸出功率	60W	30W+30W
負載調節(Load Regulation)準確度	輸出電壓在不同負載下準確度達 98% (Vout=20V)	
最大功率轉換效率	98%	97%
短路(Short Circuit)測試	✓	

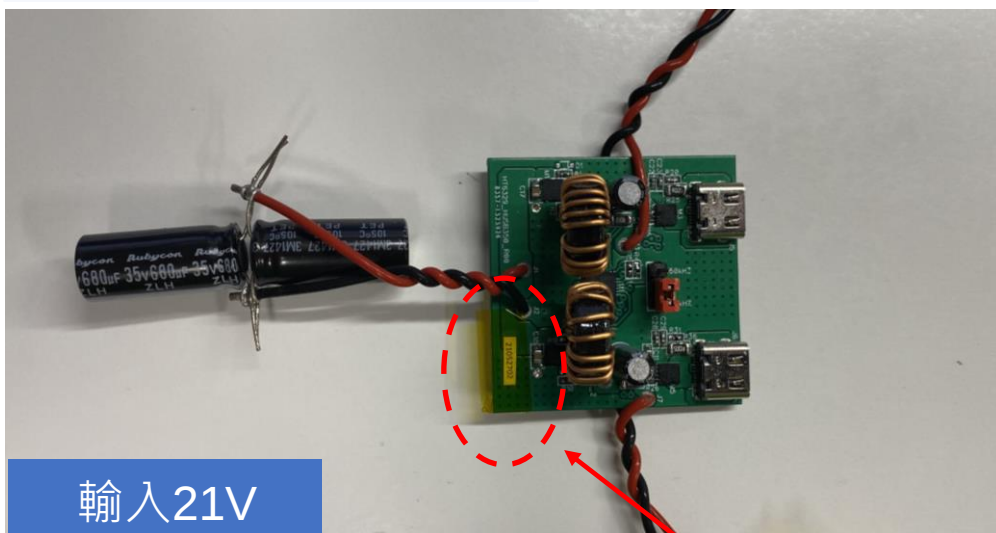
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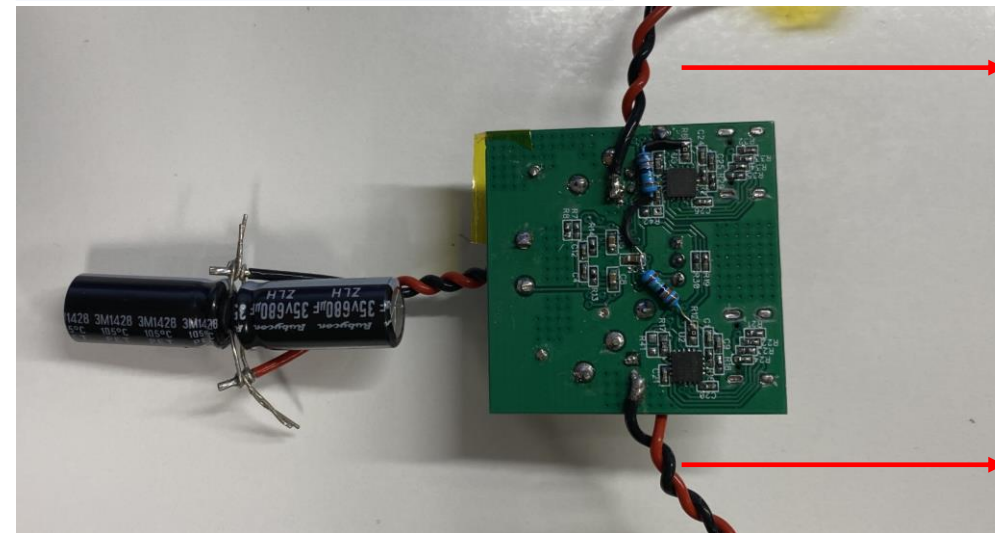
2. 演示板介紹

- 演示板 (測試單元: 21052702)

演示板 (頂視圖)



演示板 (底視圖)



S/N: 21052702

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3. 測試規格

輸入電壓

21V

輸出電壓和電流 (Single Channel)

- 5 V, 0 – 3A (15 W)
- 9 V, 0 – 3 A (18 W)
- 12 V, 0 – 3 A (36 W)
- 15 V, 0 – 3 A (45W)
- 20 V, 0 – 3 A (60 W)

雙路輸出的總輸出電流及功率

- 最大總輸出電流為 6 A
- 總功率最高為60 W {30W (20V, 1.5A) + 30W (20V, 1.5A)}

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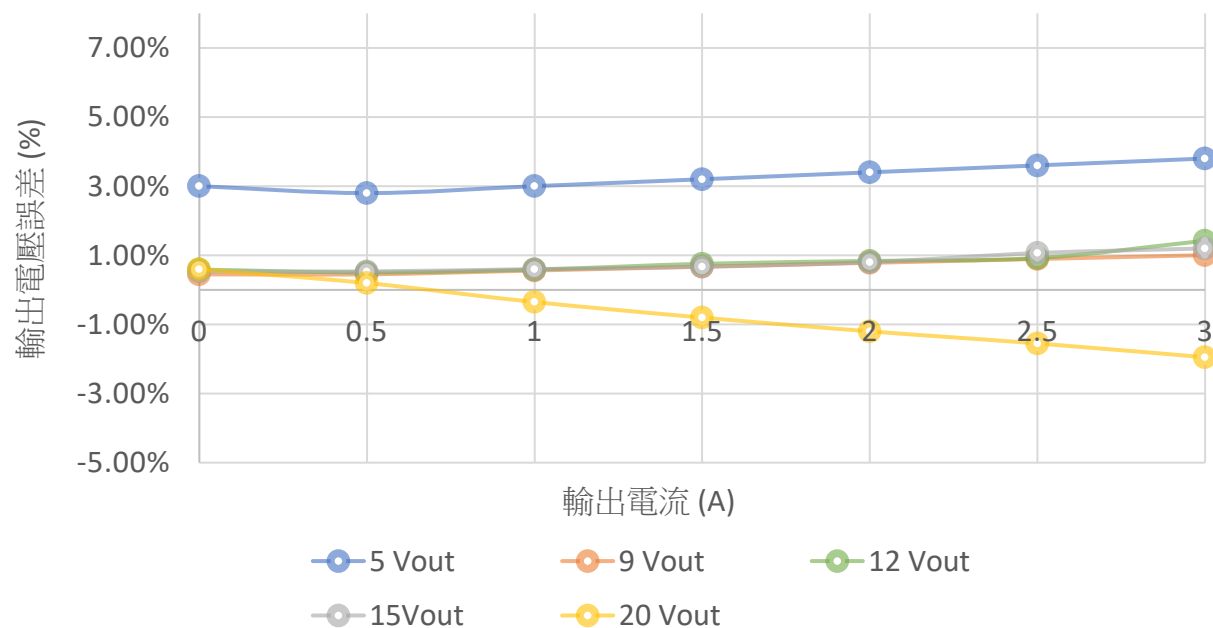
4. 負載調節 Load Regulation ($V_{in} = 21V$)

輸出電壓準確度 > 97%, $V_{out} = 3.3 - 20V @ I_{out} = 0 - 3A$

輸出電壓準確度 > 91%, $V_{out} = 3.3 - 20V @ I_{out} = 0 - 3A$

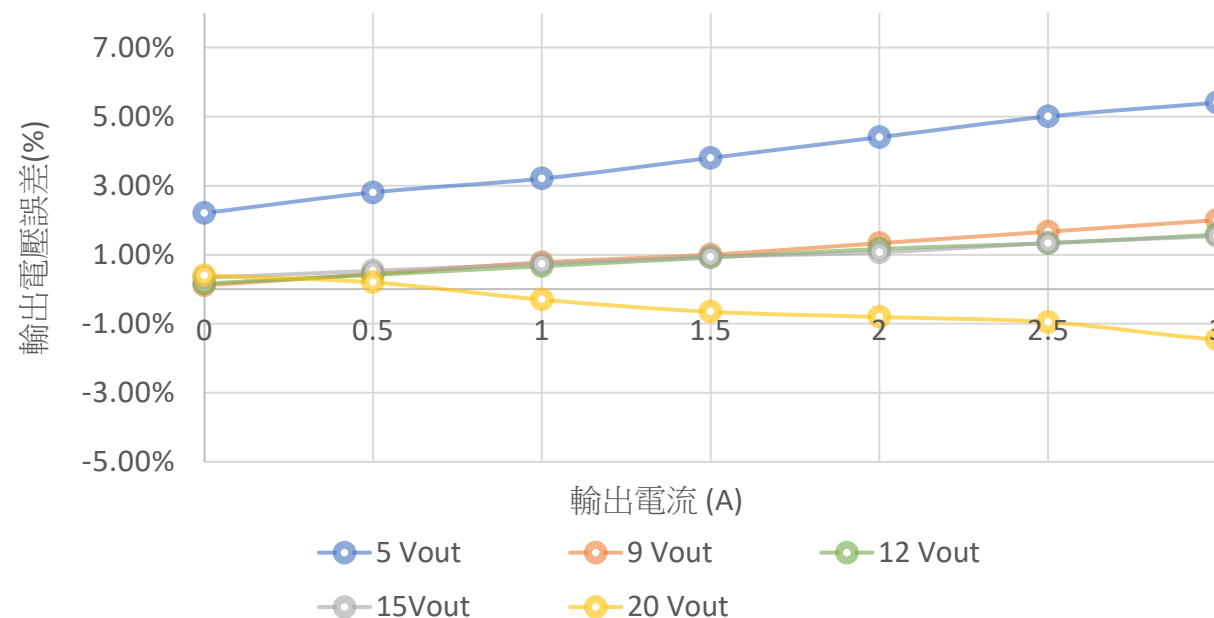
Ch1 (通道1), (Ch 2 No Load)

Ch1 負載調節 @ $V_{in} = 21V$



Ch2 (通道2), (Ch1 No Load)

Ch2 負載調節 @ $V_{in} = 21V$

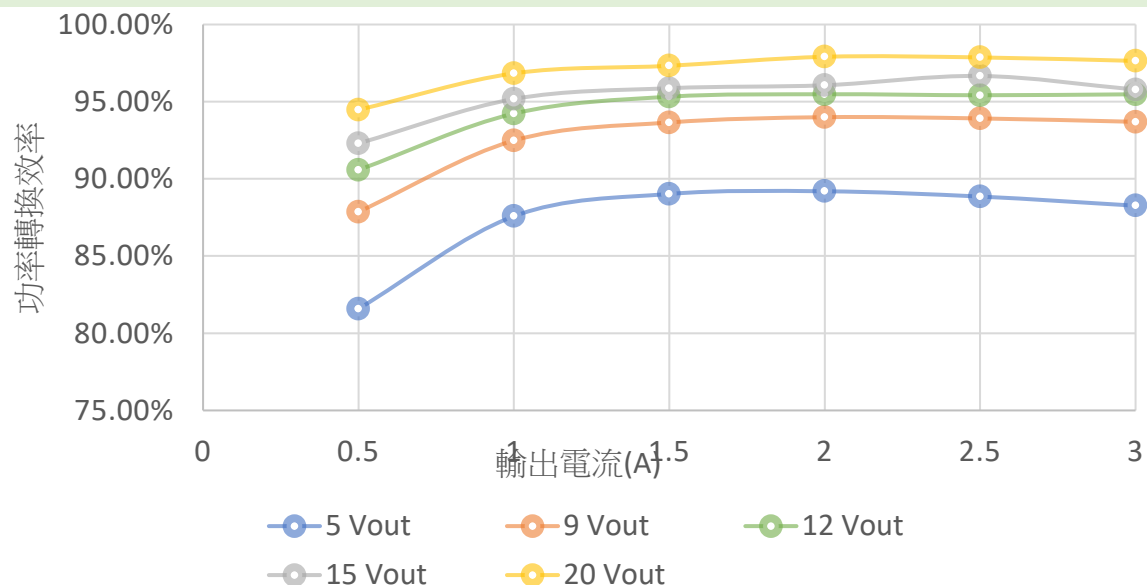


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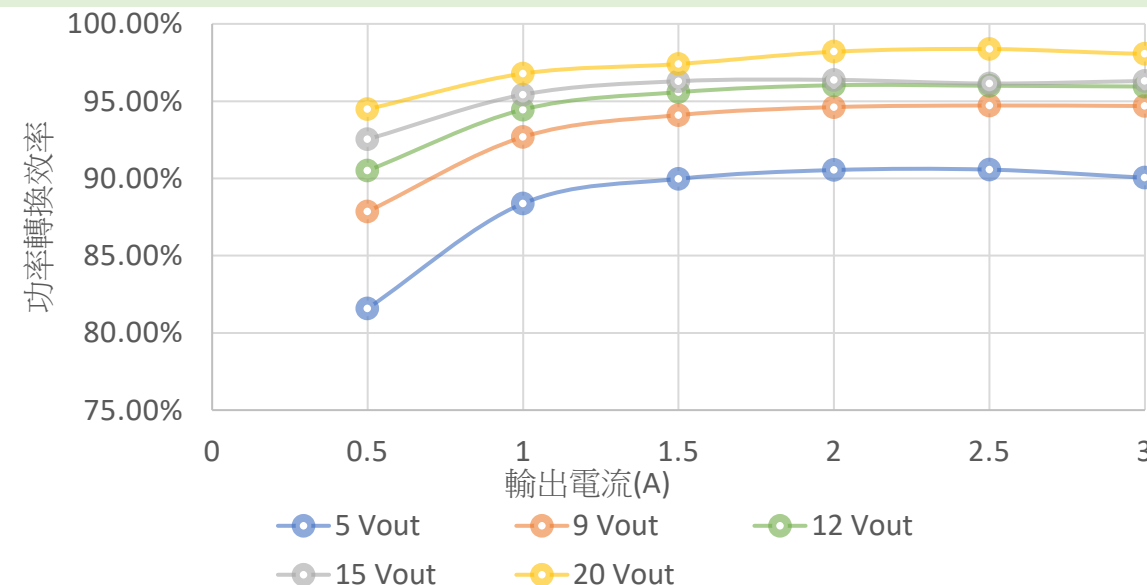
5. 電源效率, η_{single} @ $V_{in}=21V$

Ch1 功率轉換效率@ $V_{in} = 21V$



Ch 1, 單通道 (Ch 2 No Load)					
輸入電壓 21V					
輸出電壓	5 V	9 V	12 V	15V	20V
*效率 @ 滿載 $\eta_{fullload_Single}$	88%	94%	95%	96%	98%
最大效率, η_{max_single}	89%	94%	95%	97%	98%

Ch2 功率轉換效率@ $V_{in} = 21V$



Ch 2, 單通道 (Ch 1 No Load)					
輸入電壓 21V					
輸出電壓	5 V	9 V	12 V	15V	20V
*效率 @ 滿載 $\eta_{fullload_Single}$	90%	95%	96%	96%	98%
最大效率, η_{max_single}	91%	95%	96%	96%	98%

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5. 功率轉換效率 (雙通道), $\eta_{fulload_Dual}$

- 總結

Vin 21V

滿載效率範圍*, $\eta_{fulload_Dual}$

84% - 98%

*In various combination of full load conditions

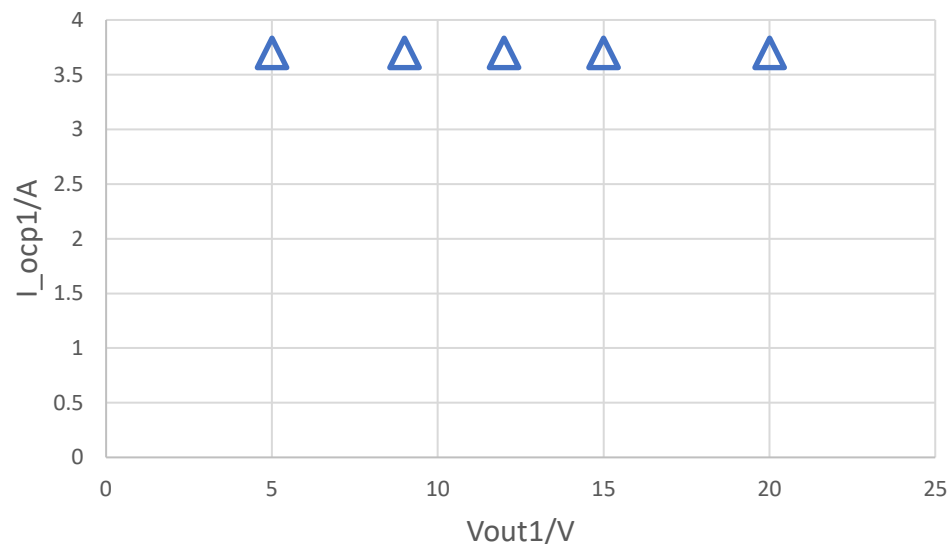
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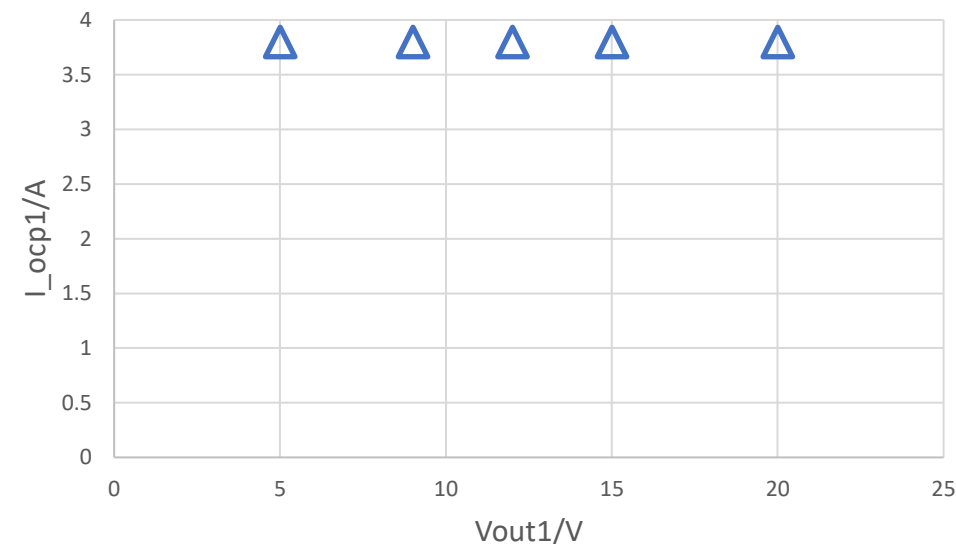
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6. 過流保護 Over-Current Protection

Ch1 的過流保護 @ 21 Vin



Ch2 的過流保護 @ 21 Vin

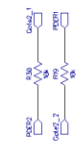
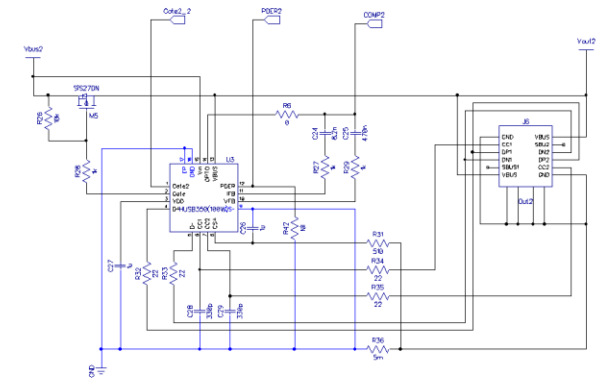
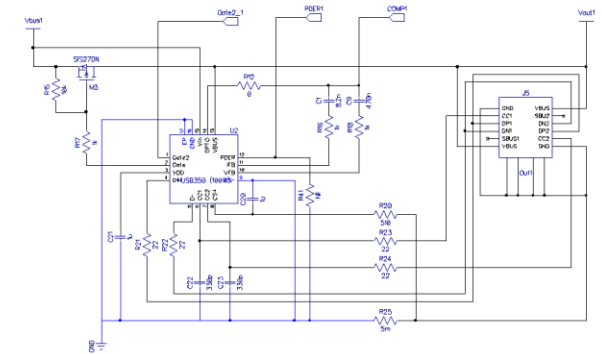
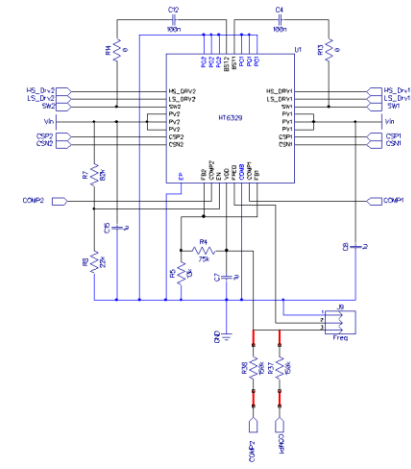
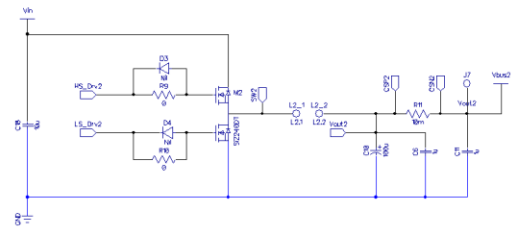
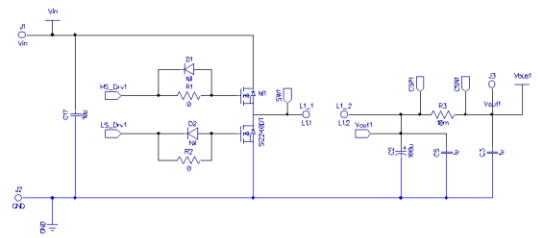


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8. 附錄 I

- 演示板原理圖
(物料清單詳見附錄II)



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8. 附錄 II

- Demo Board BOM
- 演示板物料

RefDes	Name	Value
C1	CAP_0402	8.2n
C2	100uF 25V 2/5h11	
C3	CAP_0603	
C4	CAP_0402	
C7	CAP_0603	
C8	CAP_0603	
C9	CAP_0402	470n
C10	100uF 25V 2/5h11	
C11	CAP_0603	
C12	CAP_0402	
C15	CAP_0603	
C17	CAP_0805	
C18	CAP_0805	
C20	CAP_0402	1u
C21	CAP_0402	1u
C22	CAP_0402	330p
C23	CAP_0402	330p
C24	CAP_0402	8.2n
C25	CAP_0402	470n
C26	CAP_0402	1u
C27	CAP_0402	1u
C28	CAP_0402	330p
C29	CAP_0402	330p
D1	BAS316	
D2	BAS316	
D3	BAS316	
D4	BAS316	
J5	Type-C-16p	Out1
J6	Type-C-16p	Out2
J9	644456-3	Freq
M1	SI2240DT	SI2240DT
M2	SI2240DT	SI2240DT
M3	si7111edn	SiS27DN
M5	si7111edn	SiS27DN
R1	RES_0402	
R2	RES_0402	
R3	RES_0805	
R4	RES_0402	
R5	RES_0402	

RefDes	Name	Value
R7	RES_0402	
R8	RES_0402	
R9	RES_0402	
R10	RES_0402	
R11	RES_0805	
R15	RES_0402	10k
R16	RES_0402	1k
R17	RES_0603	1k
R18	RES_0402	1k
R19	RES_0402	10k
R20	RES_0402	510
R21	RES_0402	22
R22	RES_0402	22
R23	RES_0402	22
R24	RES_0402	22
R25	RES_0805	5m
R26	RES_0402	10k
R27	RES_0402	1k
R28	RES_0603	1k
R29	RES_0402	1k
R30	RES_0402	10k
R31	RES_0402	510
R32	RES_0402	22
R33	RES_0402	22
R34	RES_0402	22
R35	RES_0402	22
R36	RES_0805	5m
R41	RES_0603	Nil
R42	RES_0603	Nil
U1	HT6329	
U2	HUSB350	HUSB350 (100W)
U3	HUSB350	HUSB350(100W)
R6	RES_0603	0
R12	RES_0603	0
C5	CAP_0603	
C6	CAP_0603	
R13	RES_0402	0
R14	RES_0402	0

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8. 附錄 III

1. 附件 – 印刷線路板圖(Gerber)
2. 附件 – 原理圖(Schematic)

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