



芯高科技
HIGH TECH
TECHNOLOGY LIMITED

HT6310 (65W + 65W) DC車載充電器 雙通道PD

應用注解
Application Note

雙輸出充電器
測試單元: 21010403

2020/1/20 | 機密文件

這個文件內所有信息、產品圖片和顯示內容僅供參考，實際產品功能、成本和規格等（包括但不限於外觀、顏色和尺寸）以及實際顯示內容（包括但不限於背景、UI和圖標）可能會因時間及實際情況有所差異。這個文件內所有數據及比較是在特定情況下對比市面部份同類產品，均為內部實驗室通過特定條件下進行的測試獲得的理論值。如實際充電時間及快充模式兼容性等是可能因客觀環境而變化。所有結果會因此出現差異。由於個別產品、軟件版本、應用條件和環境因素的差異，實際數據可能會有不同。所有數據因實際使用而有所不同，受條款及細則約束。請參閱上述產品詳細和規格。有關更多信息、文件內容、產品信息、價格等如有更改，恕不另行通知。

All data, images and content in this document are for reference only. Actual function, cost and specification etc. (included but not limited to appearance, color and size) as well as content shown (included but not limited to background, UI and icons) may be subjected to changes according to time and actual situation. All data included in this document are compared with market products under specific circumstances. Theoretical values were attained by test under specific conditions at internal laboratory. For example, actual charging time and compatibility of Fast Charging Protocol are subjected to changes under different conditions, thus may leading to differ in results. Different software updates, application conditions and environment factor in individual product may lead to differ in experimental results. All data may differ from actual application and subjected to terms and conditions, please refer to details and specifications herein. We reserve the right to make changes at any time, of any products or specifications herein, without further notice.

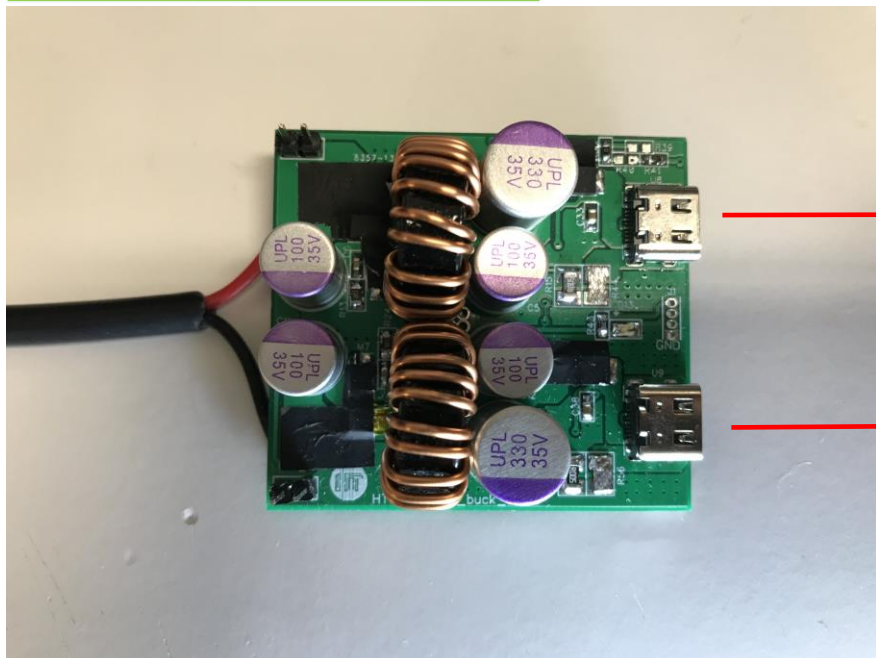
1. 演示板介紹

HT6310 (65W + 65W) DC車載充電器 雙通道PD



- 演示板 (測試單元: 21010403)
- 尺寸: 50mm(長) x 45mm(闊) x 18mm(高)

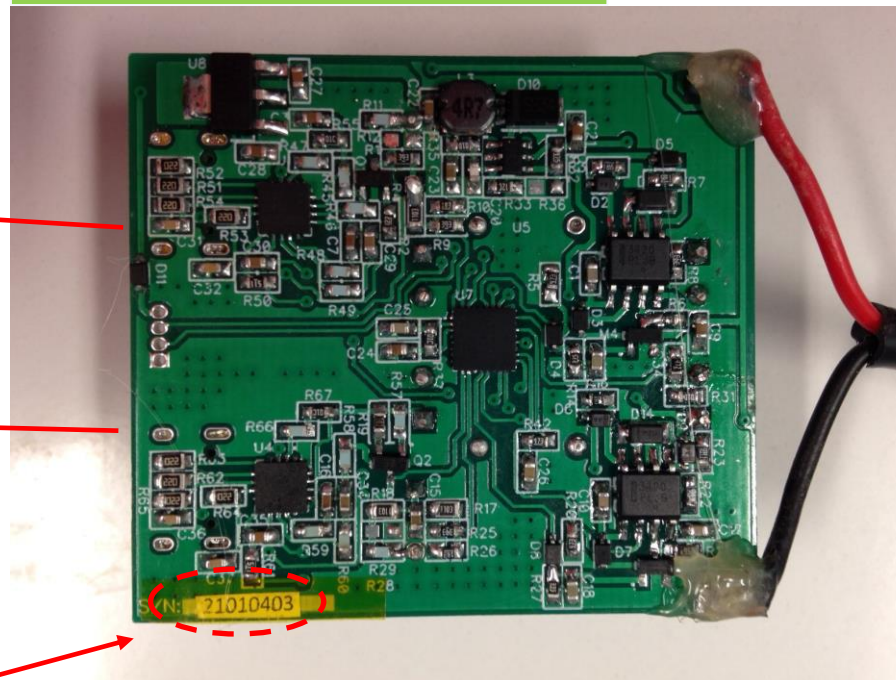
演示板 (頂視圖)



輸出 1

輸出 2

演示板 (底視圖)



HT6310_Dual buck_DB05

這個文件內所有信息、產品圖片和顯示內容僅供參考。實際產品功能、成本和規格等 (包括但不限於外觀、顏色和尺寸) 以及實際顯示內容 (包括但不限於背景、UI和圖標) 可能會因時間及實際情況有所差異。這個文件內所有數據及比較是在特定情況下對比市面部份同類產品。均為內部實驗室通過特定條件下進行的測試獲得的理論值。如實際充電時間及快充模式兼容性等是可能因客觀環境而變化。所有結果會因此出現差異。由於個別產品、軟件版本、應用條件和環境因素的差異，實際數據可能會有所不同。所有數據因實際使用而有所不同。受條款及細則約束。請參閱上述產品詳細和規格。有關更多信息、文件內容、產品信息、價格等如有更改，恕不另行通知。
All data, images and content in this document are for reference only. Actual function, cost and specification etc. (included but not limited to appearance, color and size) as well as content shown (included but not limited to background, UI and icons) may be subjected to changes according to time and actual situation. All data included in this document are compared with market products under specific circumstances. Theoretical values were obtained by test under specific conditions at internal laboratory. For example, actual charging time and compatibility of Fast Charging Protocol are subjected to changes under different conditions, thus may leading to differ in results. Different software updates, application conditions and environment factor in individual product may lead to differ in experimental results. All data may differ from actual application and subjected to terms and conditions, please refer to details and specifications herein. We reserve the right to make changes at any time, of any products or specifications herein, without further notice.

2. 摘要

HT6310 (65W + 65W) DC車載充電器 雙通道PD



操作模式:	Ch1	Ch2
輸入電壓範圍	12V to 24V	
輸出電壓和電流範圍 (最大輸出功率是 65W + 65W)	(5V 3A), (9V 3A), (15V 3A) *, (20V 3.25A) *, (11V 5A)	(5V 3A), (9V 3A), (15V 3A) *, (20V 3.25A) *, (11V 5A)
主要支持的快速充電協議	PD 2.0	PD 2.0
尺寸	50mm(長) X 45mm(闊) X 18mm(高)	
最大輸出功率	65W	65W
負載調節(Load Regulation)準確度	輸出電壓在不同負載下準確度達 98%#	
最大功率轉換效率	97%	97%
短路(Short Circuit)測試	✓	

* For 24 Vin

Definition: (Actual Vout / Target Vout) %

這個文件內所有信息、產品圖片和顯示內容僅供參考。實際產品功能、成本和規格等(包括但不限於外觀、顏色和尺寸)以及實際顯示內容(包括但不限於背景、UI和圖標)可能會因時間及實際情況有所差異。這個文件內所有數據及比較是在特定情況下對比市面部份同類產品。均為內部實驗室通過特定條件下進行的測試獲得的理論值。如實際充電時間及快充模式兼容性等是可能因客觀環境而變化。所有結果會因此出現差異。由於個別產品、軟件版本、應用條件和環境因素的差異，實際數據可能會有不同。受條款及細則約束，請參閱上述產品詳細和規格。有關更多信息、文件內容、產品信息、價格等如有更改，恕不另行通知。
All data, images and content in this document are for reference only. Actual function, cost and specification etc. (included but not limited to appearance, color and size) as well as content shown (included but not limited to background, UI and icons) may be subjected to changes according to time and actual situation. All data included in this document are compared with market products under specific circumstances. Theoretical values were attained by test under specific conditions at internal laboratory. For example, actual charging time and compatibility of Fast Charging Protocol are subjected to changes under different conditions, thus may leading to differ in results. Different software updates, application conditions and environment factor in individual product may lead to differ in experimental results. All data may differ from actual application and subjected to terms and conditions, please refer to details and specifications herein. We reserve the right to make changes at any time, of any products or specifications herein, without further notice.

3. 測試規格



輸入電壓

12V to 24V

輸出電壓和電流

- CH1
 - 5 V, 0 – 3 A (15 W)
 - 9 V, 0 – 3 A (27 W)
 - 11V, 0 – 5 A (55 W)
 - 15 V, 0 – 3 A (45 W) (只適用於 Vin=24V)
 - 20 V, 0 – 3.25 A (65 W) (只適用於 Vin=24V)
- CH2
 - 5 V, 0 – 3 A (15 W)
 - 9 V, 0 – 3 A (27 W)
 - 11V, 0 – 5 A (55 W)
 - 15 V, 0 – 3 A (45 W) (只適用於 Vin=24V)
 - 20 V, 0 – 3.25 A (65 W) (只適用於 Vin=24V)

雙路輸出的總輸出電流及功率

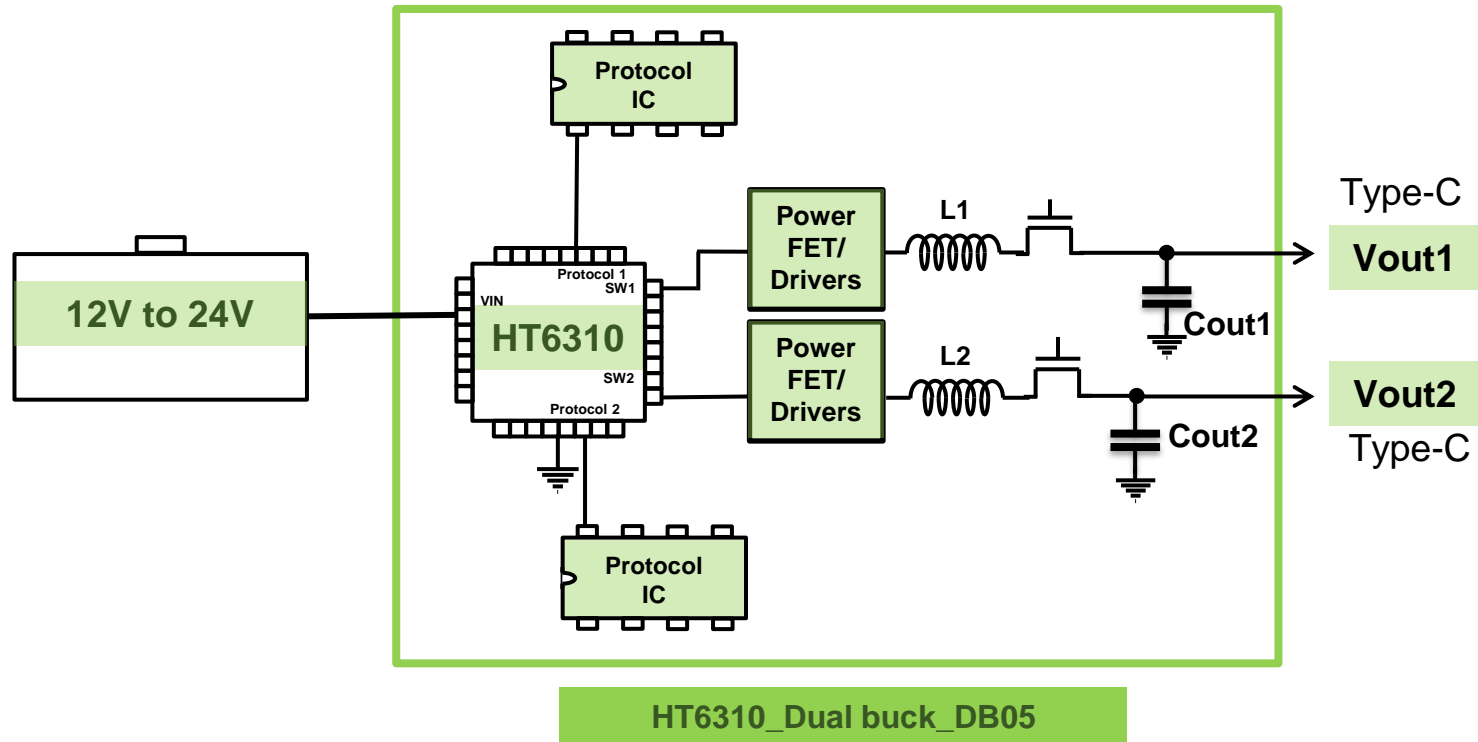
- 最大總輸出電流為 6.5 A
- 總功率最高為130 W (65W + 65W)

這個文件內所有信息、產品圖片和顯示內容僅供參考。實際產品功能、成本和規格等(包括但不限於外觀、顏色和尺寸)以及實際顯示內容(包括但不限於背景、UI和圖標)可能會因時間及實際情況有所差異。這個文件內所有數據及比較是在特定情況下對比市面部份同類產品。均為內部實驗室通過特定條件下進行的測試獲得的理論值。如實際充電時間及快充模式兼容性等是可能因客觀環境而變化。所有結果會因此出現差異。由於個別產品、軟件版本、應用條件和環境因素的差異，實際數據可能會有所不同。所有數據因實際使用而有所不同。受條款及細則約束。請參閱上述產品詳細和規格。有關更多信息、文件內容、產品信息、價格等如有更改，恕不另行通知。
All data, images and content in this document are for reference only. Actual function, cost and specification etc. (included but not limited to appearance, color and size) as well as content shown (included but not limited to background, UI and icons) may be subjected to changes according to time and actual situation. All data included in this document are compared with market products under specific circumstances. Theoretical values were attained by test under specific conditions at internal laboratory. For example, actual charging time and compatibility of Fast Charging Protocol are subjected to changes under different conditions, thus may leading to differ in results. Different software updates, application conditions and environment factor in individual product may lead to differ in experimental results. All data may differ from actual application and subjected to terms and conditions, please refer to details and specifications herein. We reserve the right to make changes at any time, of any products or specifications herein, without further notice.

4. 演示板介紹



設計簡約*



* 有關完整的電路圖，請參見附錄I。

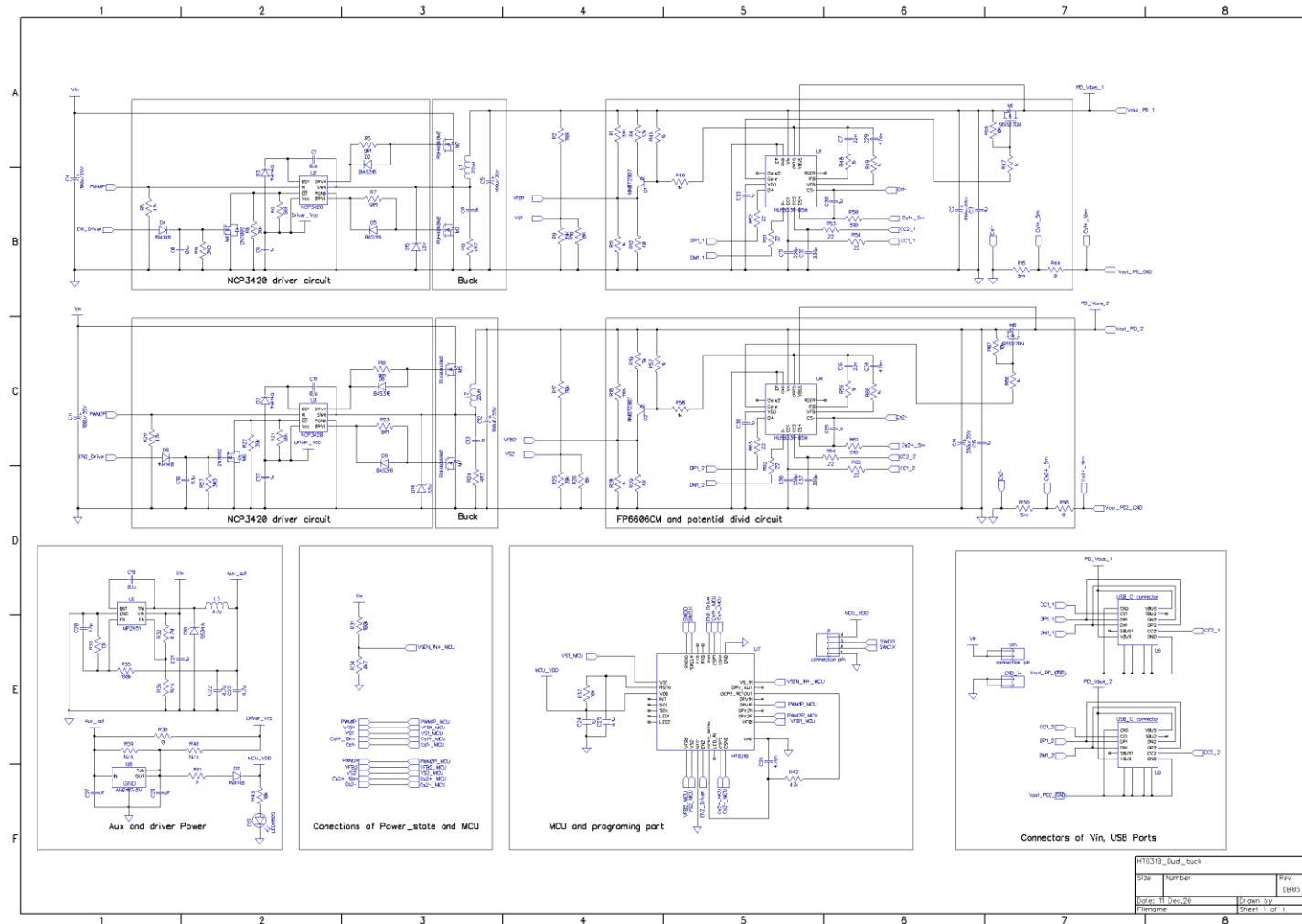
這個文件內所有信息、產品圖片和顯示內容僅供參考。實際產品功能、成本和規格等（包括但不限於外觀、顏色和尺寸）以及實際顯示內容（包括但不限於背景、UI和圖標）可能會因時間及實際情況有所差異。這個文件內所有數據及比較是在特定情況下對比市面部份同類產品。均為內部實驗室通過特定條件下進行的測試獲得的理論值。如實際充電時間及快充模式兼容性等是可能因客觀環境而變化。所有結果會因此出現差異。由於個別產品、軟件版本、應用條件和環境因素的差異，實際數據可能會有所不同。所有數據因實際使用而有所不同。受條款及細則約束。請參閱上述產品詳細和規格。有關更多信息、文件內容、產品信息、價格等如有更改，恕不另行通知。
All data, images and content in this document are for reference only. Actual function, cost and specification etc. (included but not limited to appearance, color and size) as well as content shown (included but not limited to background, UI and icons) may be subjected to changes according to time and actual situation. All data included in this document are compared with market products under specific circumstances. Theoretical values were attained by test under specific conditions at internal laboratory. For example, actual charging time and compatibility of Fast Charging Protocol are subjected to changes under different conditions, thus may leading to differ in results. Different software updates, application conditions and environment factor in individual product may lead to differ in experimental results. All data may differ from actual application and subjected to terms and conditions, please refer to details and specifications herein. We reserve the right to make changes at any time, of any products or specifications herein, without further notice.

5. 附錄 I

HT6310 (65W + 65W) DC車載充電器 雙通道PD



- 演示板原理圖
(物料清單詳見附錄II)



這個文件內所有信息、產品圖片和顯示內容僅供參考。實際產品功能、成本和規格等(包括但不限於外觀、顏色和尺寸)以及實際顯示內容(包括但不限於背景、UI和圖標)可能會因時間及實際情況有所差異。這個文件內所有數據及比較是在特定情況下對比市面部份同類產品。均為內部實驗室通過特定條件下進行的測試獲得的理論值。如實際充電時間及快充模式兼容性等是可能因客觀環境而變化。所有結果會因此出現差異。由於個別產品、軟件版本、應用條件和環境因素的差異，實際數據可能會有所不同。所有數據因實際使用而有所不同。受條款及細則約束。請參閱上述產品詳細和規格。有關更多信息、文件內容、產品信息、價格等如有更改，恕不另行通知。
All data, images and content in this document are for reference only. Actual function, cost and specification etc. (included but not limited to appearance, color and size) as well as content shown (included but not limited to background, UI and icons) may be subjected to changes according to time and actual situation. All data included in this document are compared with market products under specific circumstances. Theoretical values were attained by test under specific conditions at internal laboratory. For example, actual charging time and compatibility of Fast Charging Protocol are subjected to changes under different conditions, thus may leading to differ in results. Different software updates, application conditions and environment factor in individual product may lead to differ in experimental results. All data may differ from actual application and subjected to terms and conditions, please refer to details and specifications herein. We reserve the right to make changes at any time, of any products or specifications herein, without further notice.

6. 附錄 II



• 演示板物料

RefDes	Type	Value / Part Number	RefDes	Type	Value / Part Number	RefDes	Type	Value / Part Number	RefDes	Type	Value / Part Number
C1	Cap	0.1u	C26	Cap	0.47u	R1	Res	110K	R26	Res	18k
C2	Ecap	330u/35V	C27	Cap	1u	R2	Res	110K	R27	Res	3M3
C3	Cap	1U	C28	Cap	1u	R3	Res	9R1	R28	Res	39k
C4	Ecap	100u/35V	D1	Diode	1N4148	R4	Res	2.7K	R29	Res	18k
C5	Ecap	100uF/35V	D2	Diode	BAS316	R5	Res	47k	R30	Res	10m
C6	Cap	1n	D3	Diode	1N4148	R6	Res	56k	R31	Res	100k
C7	Cap	4.7U	D4	Diode	1N4148	R7	Res	9R1	R32	Res	4.7M
C8	Cap	0.1u	D5	Diode	BAS316	R8	Res	39k	R33	Res	13k
C9	Cap	1u	D6	Diode	BAS316	R9	Res	39K	R34	Res	4k7
C10	Cap	0.1u	D7	Diode	1N4148	R10	Res	18K	R35	Res	100k
C11	Ecap	100u/35V	D8	Diode	1N4148	R11	Res	39K	R36	Res	Nil
C12	Ecap	100uF/35V	D9	Diode	BAS316	R12	Res	18K	R37	Res	10k
C13	Cap	1n	D10	Diode	SS34A	R13	Res	4R7	R38	Res	0
C14	Ecap	330u/35V	D11	Diode	1N4148	R14	Res	3M3	R39	Res	Nil
C15	Cap	1u	J3	Connector	USB_A connector	R15	Res	10m	R40	Res	Nil
C16	Cap	470n	L1	Inductor	22uH	R16	Res	9R1	R41	Res	0
C17	Cap	1u	L2	Inductor	22uH	R17	Res	100k	R42	Res	47k
C18	Cap	0.1u	L3	Inductor	4.7u	R18	Res	100k	U1	PD protocol IC	HUSB339-65W
C19	Cap	100n	M1	N-MOS	RUH4040M2	R19	Res	2.2k	U2	Half bridge driver	NCP3420
C20	Cap	47p	M2	N-MOS	RUH4040M2	R20	Res	47k	U3	Half bridge driver	NCP3420
C21	Cap	1u	M3	N-MOS	RUH4040M2	R21	Res	56k	U4	PD protocol IC	HUSB339-65W
C22	Cap	4.7u	M4	N-MOS	2N7002	R22	Res	39k	U5	Buck IC	MP2451
C23	Cap	4.7u	M5	N-MOS	RUH4040M2	R23	Res	9R1	U7	Control IC	HT6310
C24	Cap	1u	M6	N-MOS	2N7002	R24	Res	4R7	U8	LDO	AMS1117-5V
C25	Cap	100n	M7	N-MOS	RUH4040M2	R25	Res	39k			

這個文件內所有信息、產品圖片和顯示內容僅供參考。實際產品功能、成本和規格等(包括但不限於外觀、顏色和尺寸)以及實際顯示內容(包括但不限於背景、UI和圖標)可能會因時間及實際情況有所差異。這個文件內所有數據及比較是在特定情況下對比市面部份同類產品。均為內部實驗室通過特定條件下進行的測試獲得的理論值。如實際充電時間及快充模式兼容性等是可能因客觀環境而變化。所有結果會因此出現差異。由於個別產品、軟件版本、應用條件和環境因素的差異，實際數據可能會有所不同。所有數據因實際使用而有所不同。受條款及細則約束。請參閱上述產品詳細和規格。有關更多信息、文件內容、產品信息、價格等如有更改，恕不另行通知。
All data, images and content in this document are for reference only. Actual function, cost and specification etc. (included but not limited to appearance, color and size) as well as content shown (included but not limited to background, UI and icons) may be subjected to changes according to time and actual situation. All data included in this document are compared with market products under specific circumstances. Theoretical values were attained by test under specific conditions at internal laboratory. For example, actual charging time and compatibility of Fast Charging Protocol are subjected to changes under different conditions, thus may leading to differ in results. Different software updates, application conditions and environment factor in individual product may lead to differ in experimental results. All data may differ from actual application and subjected to terms and conditions, please refer to details and specifications herein. We reserve the right to make changes at any time, of any products or specifications herein, without further notice.



芯高科技
HIGH TECH
TECHNOLOGY LIMITED

芯度技術 高度品質

用「芯」為您創出科技高峰
hightt.com

聯絡我們 Contact Us (Hong Kong Office)

Tel: (852) 36195375
Email: sales@hightt.com

Address: Unit 713, 7/F, 12W, 12 Science Park West
Avenue, Hong Kong Science Park, Shatin, Hong
Kong

微訊WeChat



DISCLAIMER

這個文件內所有信息、產品圖片和顯示內容僅供參考。實際產品功能、成本和規格等（包括但不限於外觀、顏色和尺寸）以及實際顯示內容（包括但不限於背景、UI和圖標）可能會因時間及實際情況有所差異。這個文件內所有數據及比較是在特定情況下對比市面部份同類產品，均為內部實驗室通過特定條件下進行的測試獲得的理論值，如實際充電時間及快充模式兼容性等是可能因客觀環境而變化，所有結果會因此出現差異。由於個別產品、軟件版本、應用條件和環境因素的差異，實際數據可能會有所不同。所有數據因實際使用而有所不同。受條款及細則約束，請參閱上述產品詳細和規格。有關更多信息、文件內容、產品信息、價格等如有更改，恕不另行通知。

All data, images and content in this document are for reference only. Actual function, cost and specification etc. (included but not limited to appearance, color and size) as well as content shown (included but not limited to background, UI and icons) may be subjected to changes according to time and actual situation. All data included in this document are compared with market products under specific circumstances. Theoretical values were attained by test under specific conditions at internal laboratory. For example, actual charging time and compatibility of Fast Charging Protocol are subjected to changes under different conditions, thus may leading to differ in results. Different software updates, application conditions and environment factor in individual product may lead to differ in experimental results. All data may differ from actual application and subjected to terms and conditions, please refer to details and specifications herein. We reserve the right to make changes at any time, of any products or specifications herein, without further notice.