



PWR-OPT03 User Manual

BANANA TO USB ADAPTER

香蕉插頭轉USB適配器使用手冊



<https://www.picotest.com.tw>

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Product Introduction

產品介紹

- 1A and 3A refer to the maximum output capacity of the device, but it depends on whether the device being charged has the ability to "draw" such a large current. If the device being charged can only draw 0.5A of current, then connecting it to a 1A or 3A USB port will result in the same charging speed. However, some phones (such as Samsung and Apple) tamper with the USB D+/D- signals. When the phone detects different voltage capabilities, its charging capacity also changes.
- For example, Samsung phones will charge quickly at 0.5A when they detect a voltage of D+=D-, otherwise they will charge slowly at 0.1A. Therefore, if you plug a Samsung phone directly into a computer's USB port, it will charge slowly because D+ is not equal to D-. If you use a USB charger, it will short circuit D+ and D- internally, so that when the phone detects it, it will charge quickly at 0.5A.
- Typically, the chargers of various brands of phones or tablets define 500mA charging by short-circuiting D+ to D-, but this is insufficient for tablets with 9000mA batteries, so Apple tampered with the USB cable (D+/D-) to detect and return the voltage value of 2.8V/2V to allow for faster charging with larger currents.
- If D+/D- is 2.8V/2.0V, it is an iPad charger, with a power supply capacity of up to 1.5A. When connected to an iPad, it will draw 1.5A, and when connected to an iPhone, it will draw 1A.
- If D+/D- is 2.0V/2.8V, it is an iPhone charger, with a power supply capacity of up to 1A. When connected to an iPad, it will only draw 1A, and when connected to an iPhone, it will draw 1A.
- If D+/D- is 2.0V/2.0V, it means that D+ is short-circuited to D-, and the charging circuit inside the iPad and iPhone will automatically draw 500mA of charging current. Charging an iPhone will be slower than with an original charger, and charging an iPad will be possible but very slow. This is the general definition of mainstream USB chargers with D+ short-circuited to D- and 500mA current.
- This product has overload protection. If the power supply output exceeds the specifications due to improper adjustments, the product will pause power supply to prevent damage to the device being charged. When set correctly, the USB port will display a blue light.

- 1A、3A是指他最大輸出能力，但要看被輸入的裝置是否有能力“吸允”這樣大的電流。如果被輸入的裝置只能吸0.5A的電流，那將他接到1A,3A的USB孔，速度就會是一樣。不過，有些手機（例如 Samsung、Apple），會在 USB D+/D- 這兩根訊號上動手腳，當手機偵測到不同的電壓能力時，手機的吸允能力也不同。
- 例如,Samsung的手機，當偵測到 D+ =D- 的電壓時，就會以0.5A的速度快吸；否則就只會以 0.1A慢慢的吸。所以，平常若把 Samsung手機直接插電腦的USB孔，因為 D+不等於D-，所以只能慢慢充。若改用USB充電器的話，他內部會直接將D+和D-做簡單的短路，這樣手機偵測到以後,就會以0.5A 速度快充。
- 通常一般各廠牌手機或平板的充電器,都是以D+ 短路D- 來當作500mA的充電定義，只是500mA 對平板上 9000mA的大電池，得充到天荒地老,所以 Apple在 USB 接頭的資料線 (D+ / D-) 動了手腳，兩條資料線偵測並回傳到 iPhone / iPad 的電壓值為 2.8V / 2V, 就能用更大的電流充電。
- D+/D-如果是2.8V/2.0V表示是iPad充電器，供電能力可達1.5A。接iPad會吸1.5A，接iPhone就會吸取1A。
- D+/D-如果是2.0V/2.8V表示是iPhone充電器，供電能力可達1A。接iPad他自己只會抽取1A,接iPhone也是吸1A。
- D+/D-如果是2.0V/2.0V表示是D+ 短路到D-，ipad和iphone內部的充電線路，會自動吸允500mA充電電流，充iPhone會較原廠慢一半，充iPad可充但很慢。一般市面上普通的USB充電器，都是D+ 短路到D-的500mA，主流定義方式。
- 本產品設有過載保護，若人為調整不當造成電源供應器超規輸出，本產品將暫停供電，以防止終端電器損壞。當設定正確，USB端口將出現藍光。

1. Product Usage

產品用途

- PWR-OPT03 provides 3 charging terminals.
PWR-OPT03提供三組USB供電座

For Devices below to connect...

適用於以下裝置

1. J2103A - Power Stage Isolator

J2103A 功率級隔離器

2. Smart Phone

智慧型手機

3. Other Devices requiring 15W, 5V and 0.5A ~ 3A.

其它需要15W, 5V, 1A到3A之電器

Product Appearance

產品外觀

Figure 1 – Front



Figure 2 – Front



Figure 3 – Rear



Figure 4 – Rear



Product Disassembly

產品拆解

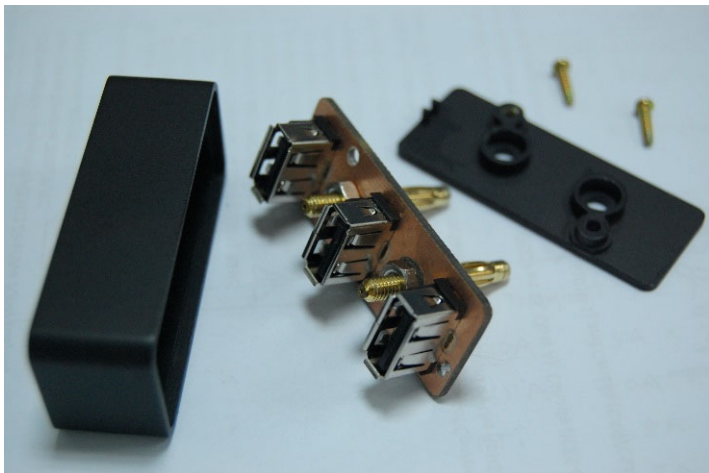
Procedure 1



Procedure 2



Procedure 3



Procedure 4



Diagram

接線圖

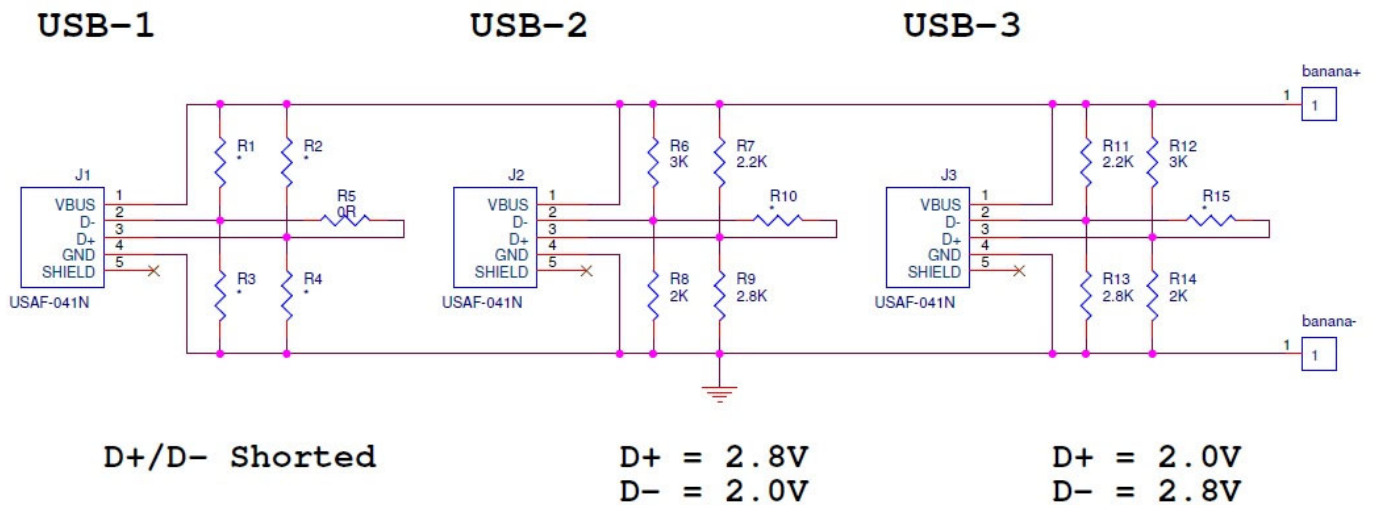


Figure 5 Product Diagram

USB Charger Test Report

測試報告

Slot 1: Short D+ and D-

Slot 2: Set D+ and D- at 2.0V (75K and 51K)

Slot 3: Set D+ at 2.8V (43K and 51K) and D- at 2.0V (75K and 51K)

Test Result:

	Slot 1	Slot 2	Slot 3
iPhone 6	< 1 A	< 500 mA	< 1.3 A
Sony Xperia Z	< 1.2 A	~ 200 mA	< 1.2 A
Samsung Note 2	~ 1.0 A	~ 1.0 A	~ 1.0 A
小米	~ 1.0 A	< 500 mA	~ 1.0A

iPhone requires the use of an original USB cable. The charging current for third-party chargers is limited to < 800mA.

iPhone 需用原廠USB線材，副廠充電電流只到 < 800 mA