CV225(W0) Qi2.0/MPP Module Specification

1. Overview

CV225 (W0) is a MPP standard wireless transmitter module. Based on the latest Qi2.0 standard which can support MPP RX with 15W and also supports Qi BPP,PPDE protocol and legacy iPhone as 7.5W. CV225(W0) module is high efficiency and lower heating and facilitate to build in customer's products. CV255(W0) has passed Qi2 certification test. The Qi2 Certificate ID# is **20987**.

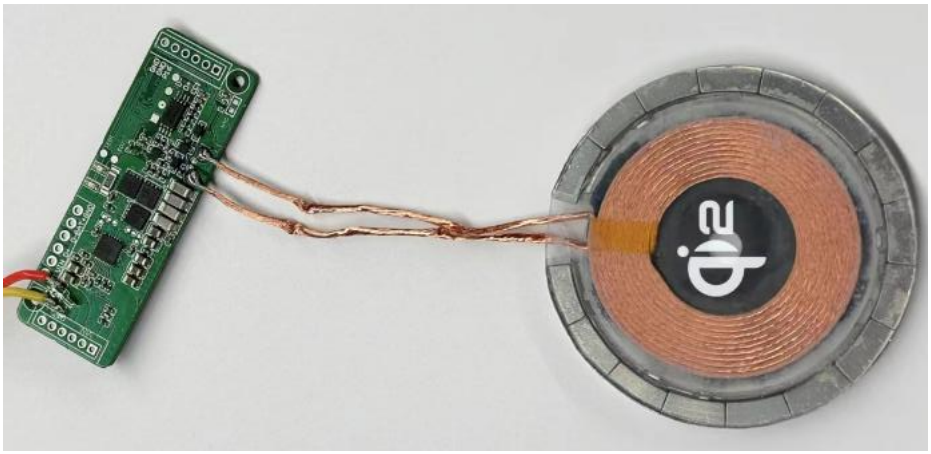

Fig - 1 CV225(W0) Module

2. Features

CV225(W0) are modules developed based on Qi2.0(MPP) , which can support WPC full profiles including BPP, PPDE, EPP, MPP and legacy iPhone 7.5W. EPP and MPP RX device with 15W power. CV225(W0) have PD/QC ports which can support PD3.0, PD2.0, QC2.0/3.0, AFC, SCP, BC1.2 and DC power input (5V/9V adjustable). Module can apply 5V/9V/12V power supply depend on power level demand. In order to achieve 15W power delivery, at least a 20W@9V power supply is required.CV225(W0) has 2 more GPIO pins, which can be used as LED indicator communication and data logoutput. CV225(W0) has one battery voltage monitor pin which can be used in PowerBank products. CV225 supports SW upgraded through Type_C port.

Feature Table

Item	Parameters
Chip	CV90367(W0)
Input Power	USB PD/QC 12V@2A/ 9V@2.22A / 5V@3A DC 9V@2.22A
Output Power	15W Max
Standby power	<300mW

System Efficiency	82%
Protocol	Qi2.0 : MPP/EPP /PPDE/ BPP
Coil Type	6.8uH@360KHz/128KHz
Protection	OVP / UVP / OCP / OTP
FOD	Q factor / Analog Ping / Power Transfer FOD based on power loss modeling
Dimension	55mm*19mm
Interface	Programming: VCC/GND/TMS/TCK Power: VBUS, D+,D-, CC1,LED,P16, BAT, GND

3. Connection Guidance

CV225(W0) Module supports PD2.0, PD3.1, QC2.0/QC3.0, AFC, SCP, BC1.2 quick charger protocol, allowing 5V, 9V and 12V (depend on adapter, will rise to 12V once iphone with case) power supply. Please refer to below Fig-2 and pin assignment to connect.

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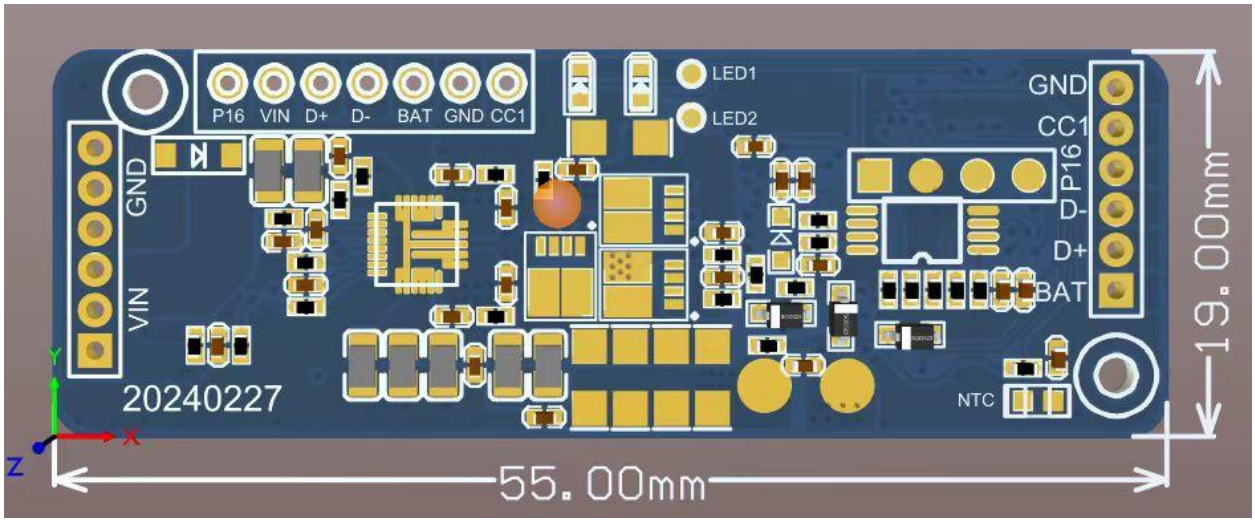

Fig - 2

Pin Assignment table

Pin Number	Name	Function
U1 (Up Left1)	P16	GPIO, for communication or LED indication
U2	VIN	Power supply
U3	DP	QC port DP
U4	DM	QC port DM
U5	BAT	Battery Voltage monitor for PowerBank application
U6	GND	Power supply ground
U7	CC1	PD port CC1

L1 (down Left /Square)	Vin (3 Pads)	Main Power supply
L2	GND (3 Pads)	Main Power supply GND
R1(down Right /Square)	BAT	Battery Voltage monitor for PowerBank application
R2	DP	QC port D6
R3	DM	QC port DM
R4	P16 GPIO	For LED indication and communication ,
R5	CC1	PD port CC1
R6	GND	Main power supply ground

4. Firmware upgraded

CV225(W0) supports on line programming through TMS\TCK port and firmware can also be updated though DP/DM port.

5. Module test

5.1 Efficiency test result: refer to Fig-4

* Receiver: Chipsvision RX CV8055D

CV 222 & CVS RX						
TX Input Voltage (V)	Input current (A)	TX Power (W)	RX output Voltage	RX output Current	RX Power	Efficiency %
8.95	0.33	2.9535	12.18	0.1	1.218	41.23920772
8.92	0.47	4.1924	12.17	0.2	2.434	58.05743727
8.89	0.61	5.4229	12.16	0.3	3.648	67.27027974
8.86	0.73	6.4678	12.16	0.4	4.864	75.20331488
8.83	0.88	7.7704	12.14	0.5	6.07	78.11695666
8.8	1.04	9.152	12.13	0.6	7.278	79.5236014
8.77	1.19	10.4363	12.11	0.7	8.477	81.22610504
8.74	1.32	11.5368	11.97	0.8	9.576	83.00395257
8.71	1.49	12.9779	11.97	0.9	10.773	83.01034836
8.68	1.66	14.4088	11.94	1	11.94	82.86602632
8.64	1.82	15.7248	11.91	1.1	13.101	83.31425519
8.61	2	17.22	11.99	1.2	14.388	83.55400697
8.57	2.16	18.5112	11.92	1.3	15.496	83.71148278

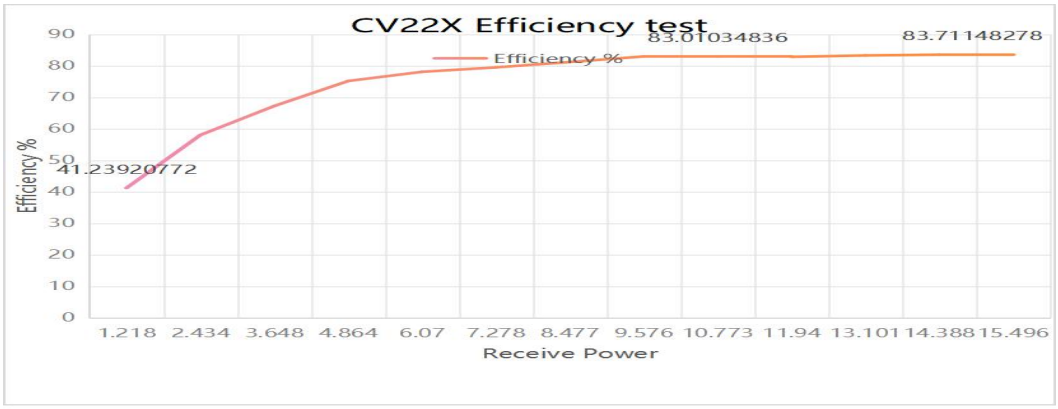

Fig-4 Efficiency curve

5.2 Charging test

- *Testing Phone: iPhone 14 Plus MPP version (provided by Apple Company)
- Ambient temperature : 25.4°C
- Charging duration from 0 to 100% of battery: 2H & 07M

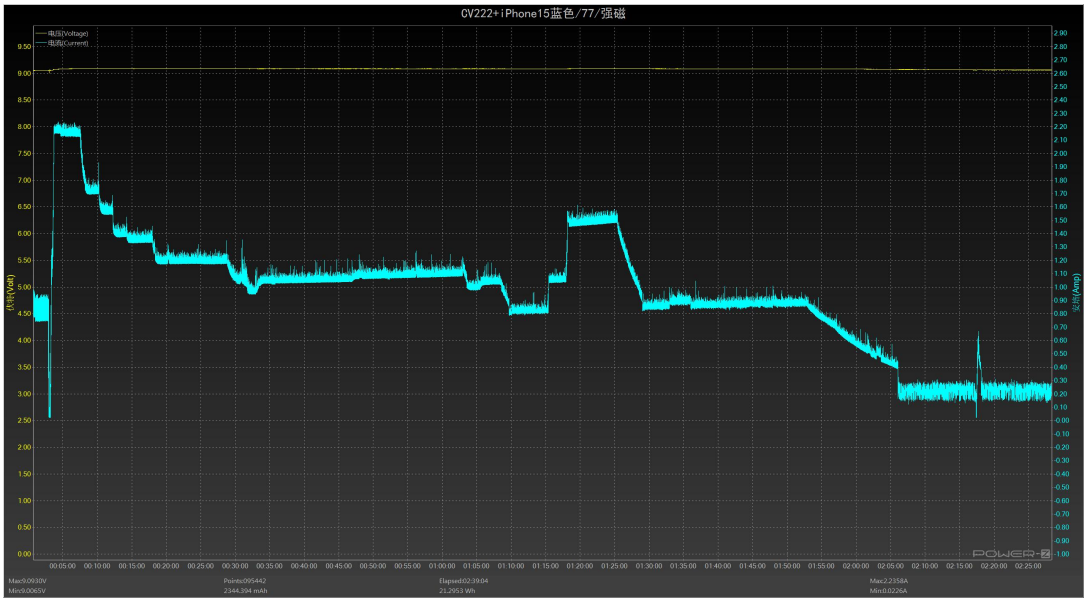

Fig 5 charging Curve

5.3 Compatibility test with adapters

CV225(W0) module's main controller is Chipsvison CV90367(W0) SoC chip. CV90367(W0) has built in PD/QC controller. And its series chip has passed PD certification. The VID number is **13358**. Below are compatibility test results with various adapters.

NO.	Adapter type 適配器型號	TYPE 類別	Ability 參数	Output 輸出電壓	Conclusion 單項結論	Remark 備註
1	Belkin-WCH009yz	AC	PD-20W	9.088V	Pass	
2	Belkin-WCA004yz	AC	PD-25W	9.091V	Pass	
3	Mophie-CHG-WALL	AC	PD-20W	8.963V	Pass	
4	苹果-A2244	AC	PD-20W	8.995V	Pass	賽爾康深圳製造
5	苹果-A2164	AC	PD-30W	8.902V	Pass	賽爾康深圳製造
6	苹果-A1719	AC	PD-87W	8.965V	Pass	賽爾康深圳製造
7	Mophie-Car-CHRG USBC&A	Car Charger	PD-33W	9.115V	Pass	
8	三星-EP-TA800	AC	PD-25W	8.983V	Pass	
9	品勝-LP-CC22	Car Charger	PD-20W	9.035V	Pass	
10	Apple-A1497	AC	PD-87W	9.017V	Pass	
11	貝爾金-F7U013	Car Charger	PD-30W	9.135V	Pass	
12	GSPD0052	Car Charger	PD-20W	9.015V	Pass	
13	盈源-C1902U	AC	PD-20W	9.001V	Pass	
14	盈源-TYPE-C30IC	AC	PD-30W	9.029V	Pass	
15	倍思-BS-C15CX	Car Charger	PD-30W	9.140V	Psaa	
16	中正仁和 GW-20PD3000U	Car Charger	PD-30W	9.005V	Pass	
17	中正仁和 GW-30PD-KA10	Car Charger	PD-30W	8.973V	Pass	
18	YS-2	Car Charger	PD-33W	8.978V	Pass	
19	赛尔康(賽小虎) SCC025C1A	AC	PD-25W	8.992V	Pass	
20	YB-P030WCBU	AC	PD-30W	9.137V	Pass	
21	安克 ANKER A2029	AC	PD-60W	9.148V	Pass	
22	DN.OX DNQ33-PD-U	AC	PD-30W	9.138V	Pass	
23	新思寶 PS453I	AC	PD-30W	8.999V	Pass	

24	賽爾康小方 PD-33W	AC	PD-33W	8.950V	Pass	
25	钜博 MK-P181EX	AC	PD-18W	9.117V	Pass	

Test conclusion /測試結論:

CV225 Qi2 module, in PD adapter test experiment, actually test 25 power devices.
25PCS of PD handshake protocol succeeded, 0PCS of PD handshake protocol failed, with a success rate of 100%. In the PD adapter compatibility test, it was judged to be Passed.

CV225 Qi2 模組，在 PD 適配器測試實驗中，實際測試 25 種電源設備。
PD 握手協議成功的有 25PCS,PD 握手協議失敗的有 0PCS，成功率為 100%，在 PD 適配器兼容性測試環節中，判定為合格。

* The test result had been provided by customers.