

CV22X/CV222/CV223 Qi2.0/MPP module specification

1. Overview

CV22X/CV222/CV223 is a MPP standard wireless transmitter module. Based on newest Qi2.0 standard which can support MPP RX with 15W, it also supports Qi BPP, EPP, PPDE protocol and legacy iphone as 7.5W. CV222/CV223 module is designed to fit the current application with magsafe module C222. It has same diameter as Magsafe module C222, the thickness is about 8.0mm, User can replace C222 directly.



Fig 1 Module Top/Bottom View

Module Exploded View

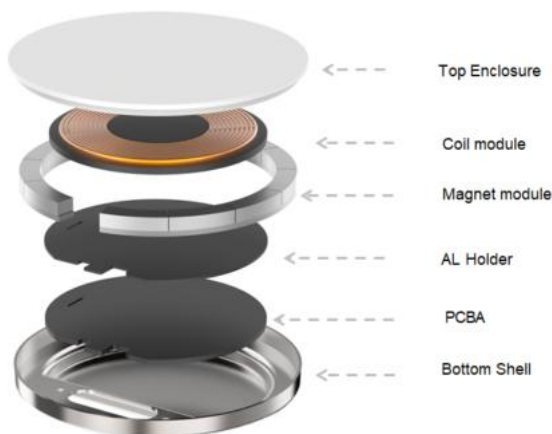


Fig 2

Modules Components

Module	TOP Enclosure	Coil Module	Magnet module	AL Holder	PCBA	Bottom Shell
CV222	Y	6.8uH	~7.9N	Y	Y	Y
CV222X		6.8uH	~7.9N		Y	
CV223	Y	6.8uH	~14N	Y	Y	Y
CV223X		6.8uH	~14N		Y	

2. Features

CV222/CV223 are modules developed basing 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.

CV222/CV223 have PD/QC ports which can support PD3.0、PD2.0、QC2.0/3.0、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.

CV222/CV223 has 2 more GPIO pins, which can be used as LED indicator, communication and data log output.

Feature Table1

Item	Parameters
Chip	CV90367
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	58.2mm*7.9+-0.1mm
Interface	Programming: VCC/GND/TMS/TLK Power: VBUS, D+,D-, CC1,LED,P16, GND

3. Connection Guidance

CV222/CV223 Module supports PD2.0、PD3.1、QC2.0/QC3.0、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 Fig2 and pin assignment to connect.



Fig 3

Pin Assignment table

Pin Number	Name	Function
U1 (Up Left1 /Square)	5V	5V Power supply for programming
U2	GND	GND
U3	TMS	
U4	TCK	
D1 (down Left /Square)	Vin	Power supply
D2	CC1	PD port CC1
D3	DP	QC port DP
D4	DM	QC port DM
D5	GPIO	For LED indication and communication ,
D6	GPIO/P16	GPIO, for communication
D7	GND	Main power supply ground

4. Firmware upgraded

CV222/CV223 supports on line programming through TMS\TCK port, and firmware can also be updated though DP/DM port.

5. Module test

6. 5.1、 Efficiency test
7. * Receiver : CV8055D
- 8.

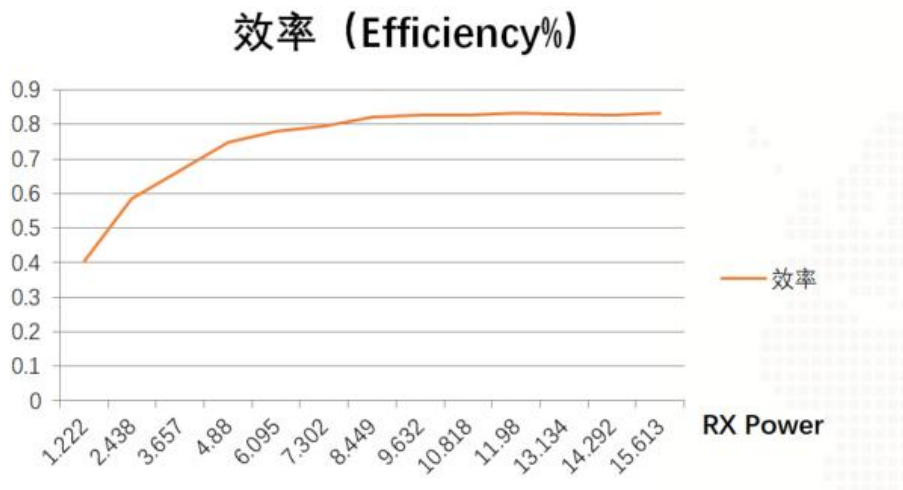
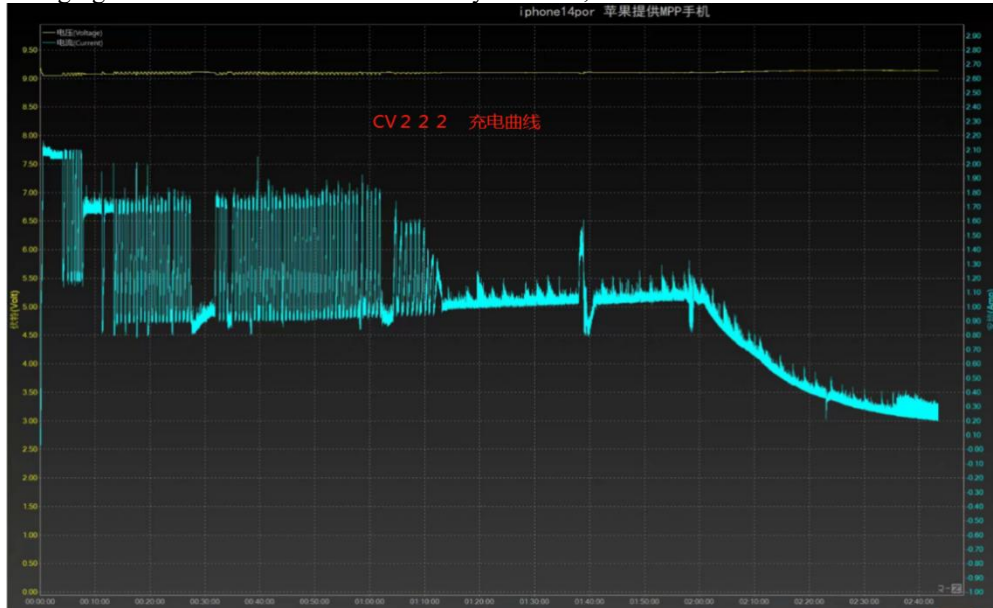


Fig 4 Efficiency curve

- 9.
- 10.
- 11.
- 12.
- 13.
- 14.
- 15.
- 16.
- 17.
- 18.
- 19.
- 20.
- 21.

- 5.2、 Charging test
22. *Test Phone: Iphone 14 Plus MPP version (provided by Apple) ;

- 23. Ambient temperature is 26.8° C;
- 24. Charging duration from 0 to 100% of battery: 2H43M;



25. Fig 5 charging Curve

- 26.
- 5.3. Temperature monitor
- 27. *unit: °C

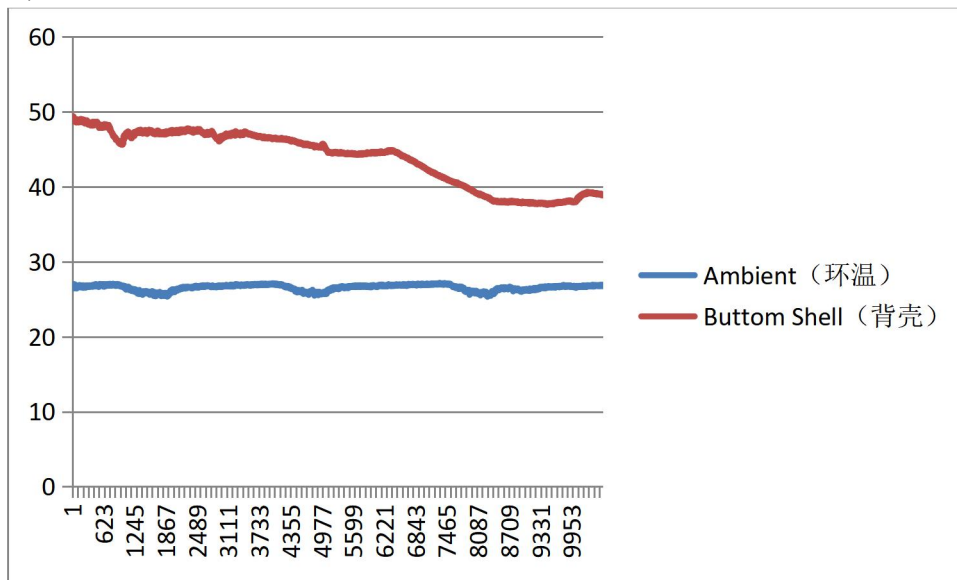


Fig 6 Temperature curve

- 28.
- 29.
- 30.
- 31.
- 32.
- 33.
- 34.
- 35.
- 36.
- 37.
- 38.
- 39.

40. Mechanical design Guidance

CV222/CV223's back cover have the same dimension as that of Magsafe module (C222). It can replace C222 directly. Refer to Fig 3 for detail information. Please contact us for 3D file (CV222 module -V2 with Cover16.stp) if you need it.

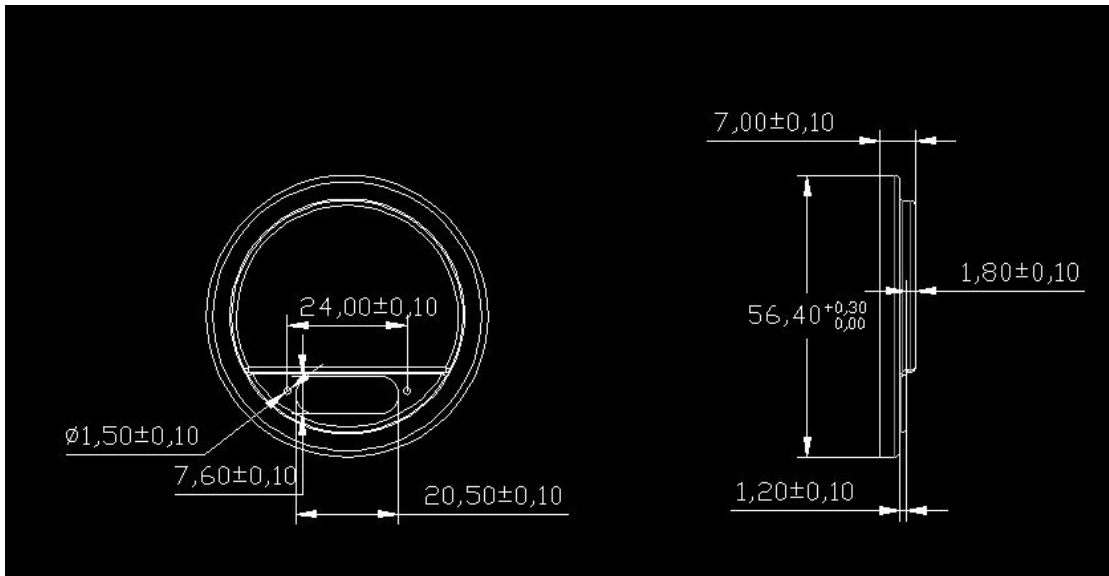


Fig 7 (Bottom Shell Dimensions)

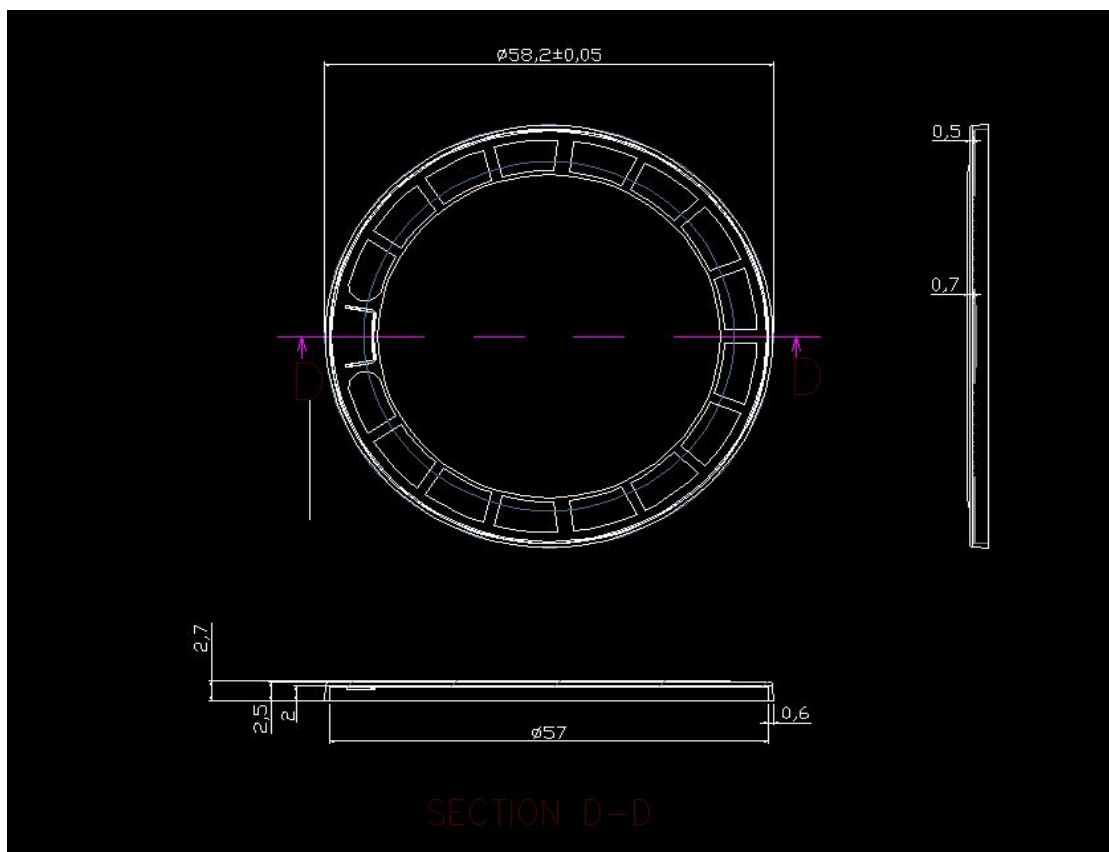


Fig 8 (Top Enclosure Dimensions)

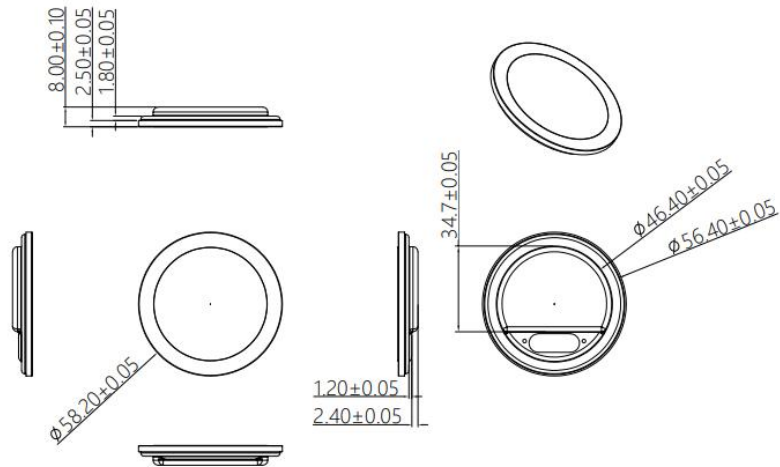


Fig 9 (Module Dimensions)