



Eight Discipline Report (8D Report)

To :	8D report No. :
From : Chicony Power Technology	RMA claim No. : N/A
CC :	Chicony Power P/N : W065RP76P-AX01
	Customer P/N : 0A001-01056600
Submit date:	Product description : 65W PD
Receive date : 2023/9/28	Defect D/C or Lot No. :
Subject : 客戶告知 X01 版本單體，PPS 模式 current ripple 稍大，需再改善以增加 margin 。FW(韌體), Regulation	
D1.) 問題解決成員:Use Team Approach	
主持者 (Team Leader) : Edward Ho 內部成員 (Internal Team Members) : PM : Laura Fang Sales : Jennie Chiang RD : Will Wu 外部成員 (External Team Member) : Richtek : Macro Chang 、Yiwei Wu 、 Ben Chi 、 Patty Wu	
D2.)問題說明:Problem Description:	
(Note: Use who, what, when, where, why, how, how many to specify the Customer's problem.)	
客戶告知 X01 版本單體，PPS 模式 current ripple 稍大，需再改善以增加 margin 。 樣機單體 : W065RP76P-AX01 / Version X01 。	
	
D3.)內部或客戶的暫時解決辦法及實施日期:Implement and Verify Containment Action:	
(Note: Internal / external containment action effectiveness and date.)	
2023/10/4 提供客戶分析報告與解決方案。	

D4.)不良原因確認: Define and Verify Root Causes:

(Note: Identify and verify all suspect causes, which needs explain why the problem occurred.)

1. 比較 PD mode 與 PPS mode 的 comp pin 波形, 發現 PD mode comp pin 波形比較 smooth。

PD Mode

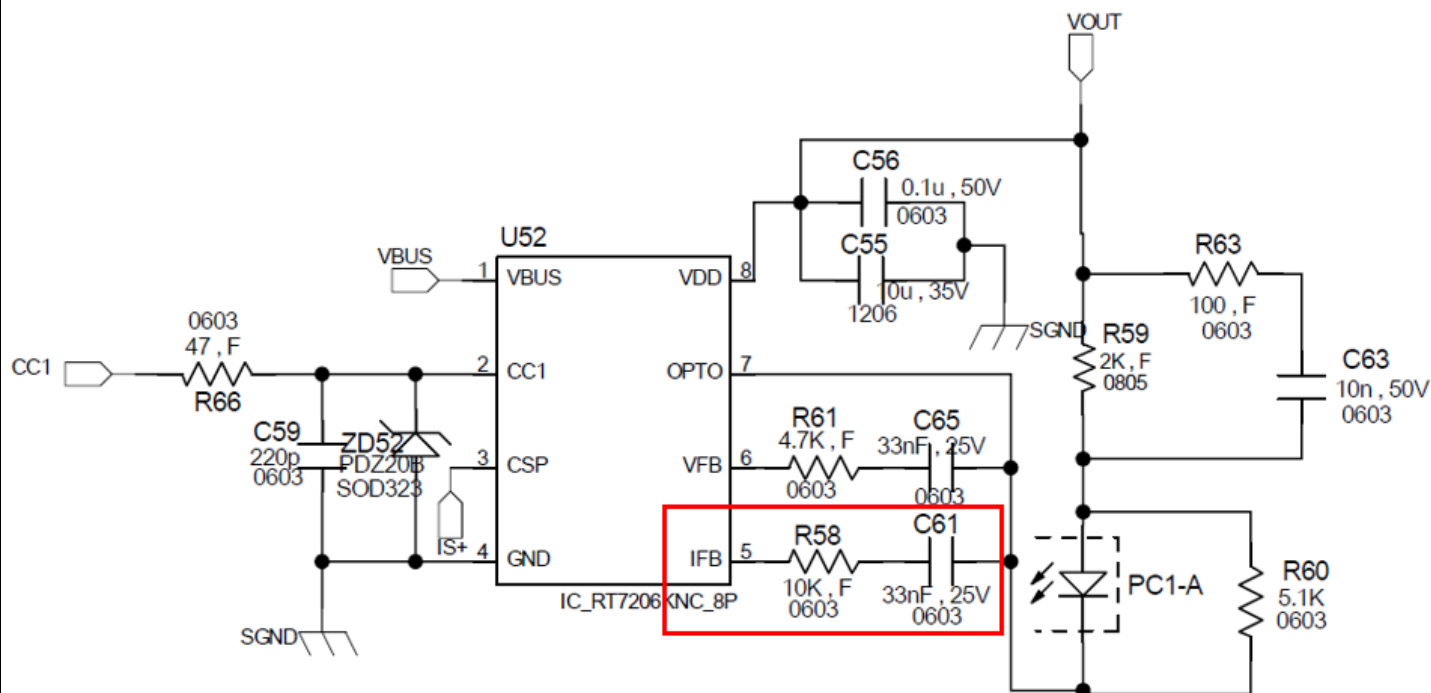


PPS Mode



2. PPS 模式中, CC 模式由 IFB 電流迴授補償(R58+C61)。

3. PD 模式僅由 VFB 電壓迴授補償(R61+C65), 更動 R58 不影響 PD 模式行為。



D5.)改善措施:Corrective Action Verification:

(Note: Be make sure the corrective actions is effective in process as well as able to fix the customer complaint problem)

1. 調整 IFB 電阻 R58 , 10Kohm -> 1Kohm 。
2. Improved current ripple from 48mA to 36mA 。

R58 = 10Kohm (Original)

Output Voltage	Input Vac	Output Current (A)	Spec	Current Ripple (mA)	Spec	Waveform
5V	90V/47Hz	3.25 ~ 3.29	3.25A ± 0.1A	44	50mA	W1
	264V/63Hz	3.25 ~ 3.3		48		
21V	90V/47Hz	3.14	3.095A (65W max)	34	50mA	W2
	264V/63Hz	3.14		48		

R58 = 1Kohm

Output Voltage	Input Vac	Output Current (A)	Spec	Current Ripple (mA)	Spec	Waveform
5V	90V/47Hz	3.26 ~ 3.29	3.25A ± 0.1A	28	50mA	W3
	264V/63Hz	3.26 ~ 3.29		32		
21V	90V/47Hz	3.14	3.095A (65W max)	32	50mA	W4
	264V/63Hz	3.14		36		

3. 實測 comp pin signal 、 peak load 、 transient load ， 驗證 R58 更動不影響 PD 模式行為。

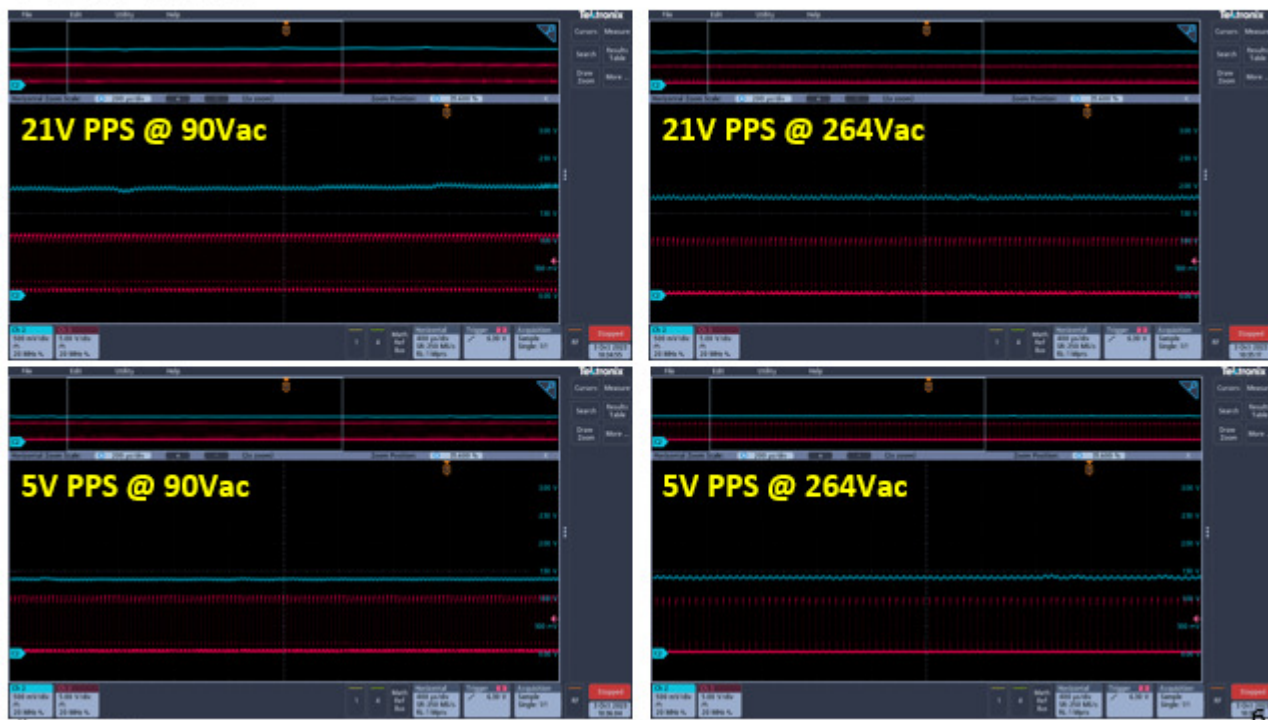
❑ PPS mode: **comp pin** / **gate pin**

❑ R58 = 10Kohm (original)



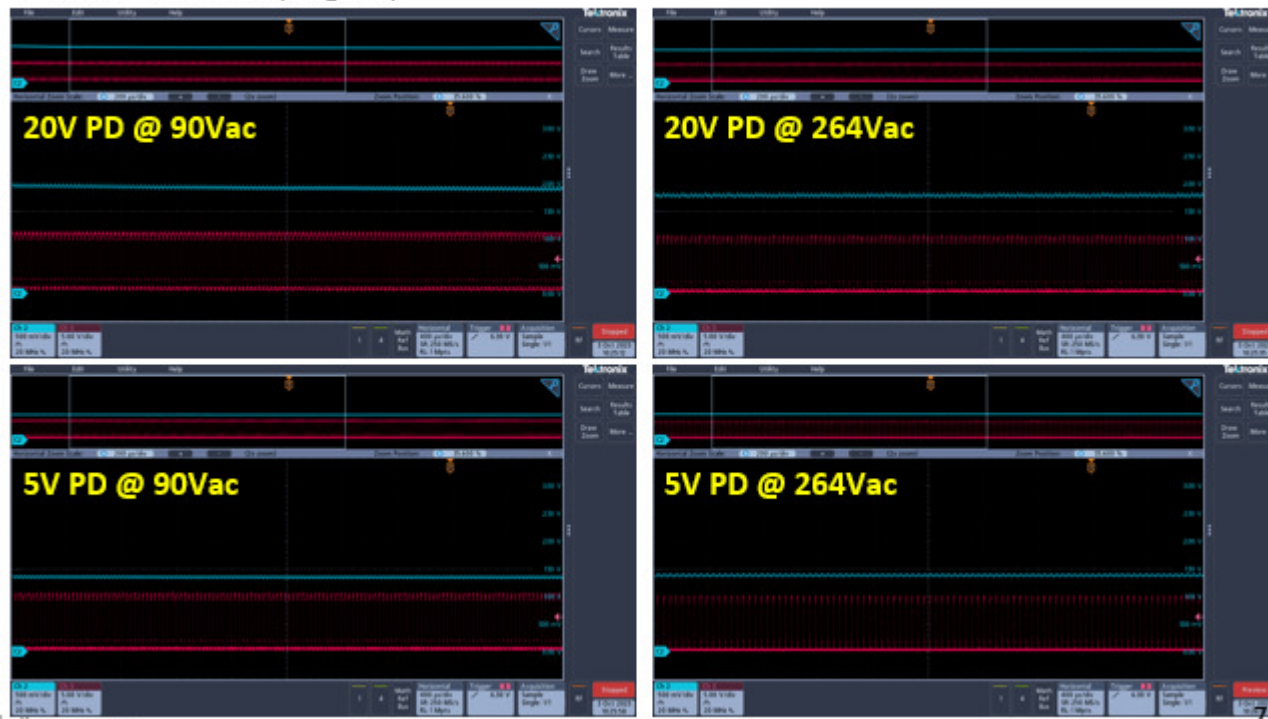
❑ PPS mode: **comp pin** / **gate pin**

❑ R58 = 1Kohm



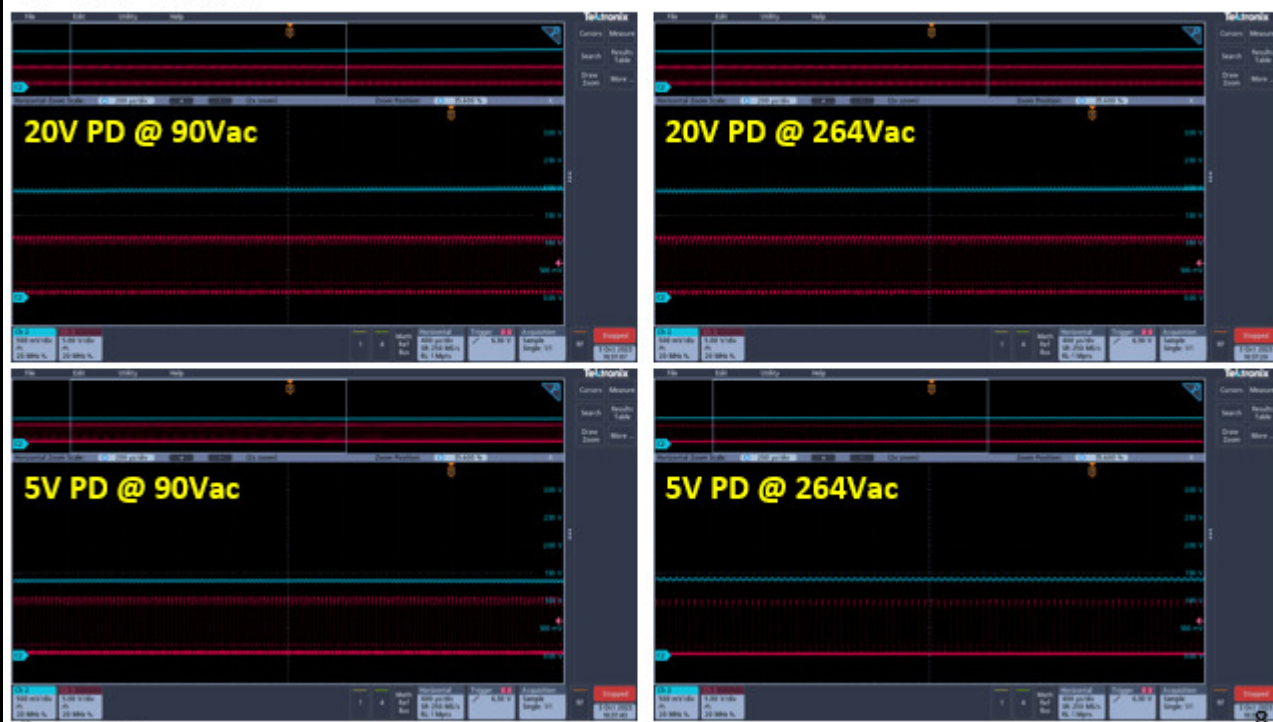
❑ PD mode: **comp pin** / **gate pin**

❑ R58 = 10Kohm (original)



□ PD mode: **comp pin** / **gate pin**

□ R58 = 1Kohm



4. 調整 IFB 電阻後，peak load 無明顯差異。

R58 = 10Kohm (original)

Vout \ Vin		100Vac		240Vac		SPEC	Test Result
		SPEC1	SPEC2	SPEC1	SPEC2		
20V	Min	19.20V	19.10V	19.30V	19.10V	18.1V	Pass
	Max	20.20V	20.20V	20.30V	20.20V		
15V		100Vac		240Vac		SPEC	Test Result
		SPEC1	SPEC2	SPEC1	SPEC2		
15V	Min	14.40V	14.20V	14.40V	14.30V	13.5V	Pass
	Max	15.20V	15.20V	15.20V	15.20V		

R58 = 1Kohm

Vout \ Vin		100Vac		240Vac		SPEC	Test Result
		SPEC1	SPEC2	SPEC1	SPEC2		
20V	Min	19.30V	19.10V	19.30V	19.10V	18.1V	Pass
	Max	20.30V	20.30V	20.30V	20.30V		
15V		100Vac		240Vac		SPEC	Test Result
		SPEC1	SPEC2	SPEC1	SPEC2		
15V	Min	14.40V	14.30V	14.40V	14.30V	13.5V	Pass
	Max	15.30V	15.20V	15.30V	15.30V		

5. 調整 IFB 電阻後，transient load 無明顯差異。

R58 = 10Kohm (original)

Vout Vin		90Vac		264Vac		SPEC	Test Result
		condition1	condition2	condition1	condition2		
5V	Max.	5.28V	5.28V	5.28V	5.30V	4.6~5.8V	PASS
	Min.	4.92V	4.92V	4.92V	4.92V		
9V	Max.	9.17V	9.19V	9.19V	9.19V	8.55V~9.45V	
	Min.	8.79V	8.79V	8.79V	8.79V		
Vout Vin		90Vac		264Vac		SPEC	
		100Hz	50KHz	100Hz	50KHz		
15V	Max.	15.4V	15.3V	15.4V	15.3V	14.25~15.75V	
	Min.	14.7V	14.8V	14.6V	14.8V		
20V	Max.	20.5V	20.3V	20.4V	20.3V	19~21V	
	Min.	19.6V	19.7V	19.6V	19.7V		

R58 = 1Kohm

Vout Vin		90Vac		264Vac		SPEC	Test Result
		condition1	condition2	condition1	condition2		
5V	Max.	5.28V	5.28V	5.30V	5.30V	4.6~5.8V	PASS
	Min.	4.90V	4.90V	4.90V	4.90V		
9V	Max.	9.18V	9.18V	9.18V	9.20V	8.55V~9.45V	
	Min.	8.78V	8.78V	8.78V	8.78V		
Vout Vin		90Vac		264Vac		SPEC	
		100Hz	50KHz	100Hz	50KHz		
15V	Max.	15.4V	15.3V	15.4V	15.3V	14.25~15.75V	
	Min.	14.6V	14.8V	14.6V	14.8V		
20V	Max.	20.5V	20.3V	20.4V	20.3V	19~21V	
	Min.	19.6V	19.7V	19.6V	19.7V		

6. 提供客戶分析報告與解決方案，待同意後在下次生產版本導入。

D6.)改善措施實施日期:Implement Permanent Corrective Actions:

(Note: Be provide the phase-in date or lot# of corrective actions **implementation** in process)

Immediately.

D7.)預防再發生措施:Prevent Recurrence:

(Note: Modified the management, operating systems, practices, and procedures to prevent recurrence for the problems as well as lessons learned cases.)

Same as D5.

D8.)確認並感謝問題解決成員:Check and Congratulate the Team:

(Note: Recognize the collective efforts of the team.)

Thanks to you all ! ! !

PM : Laura Fang

Sales : Jennie Chiang

RD : Will Wu

Richtek : Macro Chang 、 Yiwei Wu 、 Ben Chi 、 Patty Wu



Signature Team Leader:	Edward Ho
Signature by Approver:	Edward Ho