Eight Discipline Report (8D Report)

To:	8D report No.:
From:：	RMA claim No.:
CC：	Chicony Power P/N: **W065RP02P-SA01**
	Customer P/N:
Submit date: **2019/10/04**	Product description:
Receive date: **2019/10/04**	

Subject：EFT 測試 PWM MOS 損壞 (EFT 引發 SR 誤動作造成 PWM & SR MOS 同時導通)
干擾，雜訊，突波，異常動作 [EFT, short through]

D1.) 問題解決成員:Use Team Approach

主持者 (Team Leader)：

內部成員 (Internal Team Members):

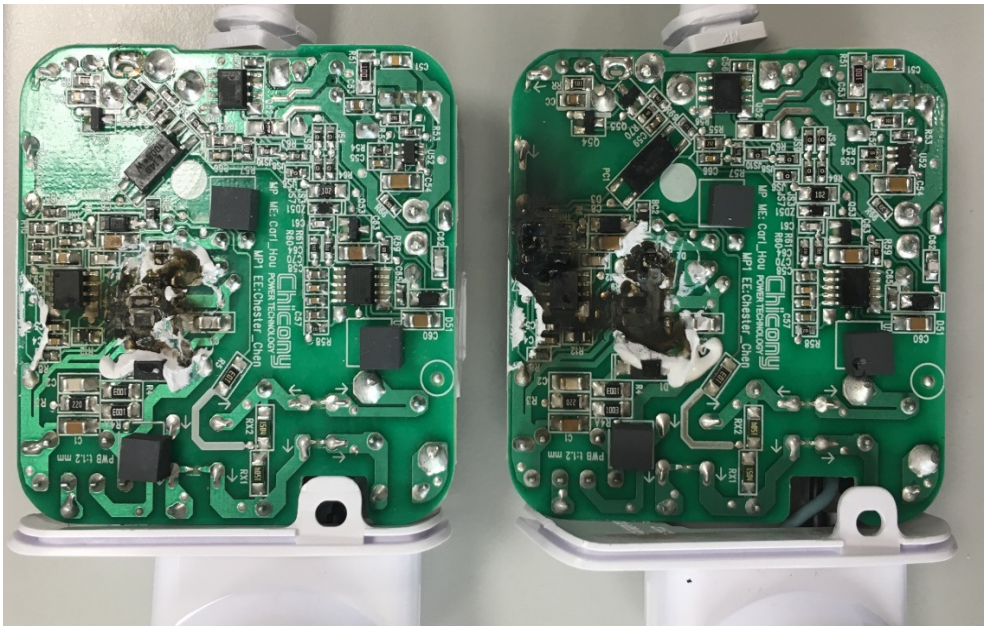
外部成員 (External Team Member):

D2.)問題說明:Problem Description:

(**Note**: Use **who**, **what**, **when**, **where**, **why**, **how**, **how many** to specify the Customer's problem.)

65W Power EFT Issue

1. **在客戶端測試 4KV EFT 時，發生 adapter damage 現象。**
2. **開蓋後如下，Q1 & PWM IC 及其周邊有焦黑現象。**



D3.)內部或客戶的暫時解決辦法及實施日期:Implement and Verify Containment Action:

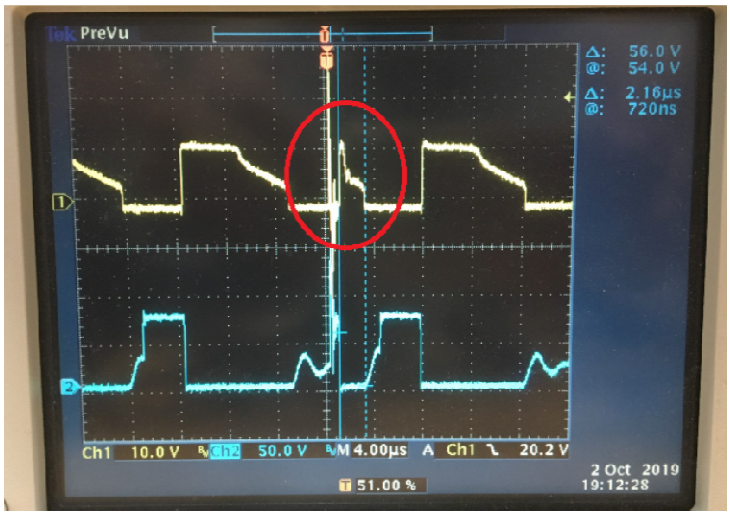
(Note: Internal / external containment action effectiveness and date.**)**

1. **FAE of CPT got this PSU from customer for further analysis.**
2. **CPT send 1pc PSU to customer for exchange.**

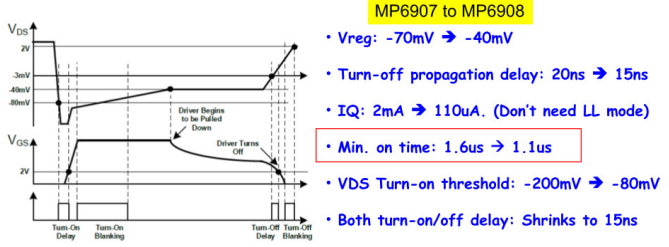
D4.)不良原因確認: Define and Verify Root Causes:

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

1. **將二次側 SR circuit 改為 schottky，測試結果為 PASS**
2. **推估是由於一二次側 MOS 同時導通而造成 damage。**
3. **實際所勾的波型中發現，在 EFT 過程中確實 Vgs 會有誤動作的現象，由於 SR IC 受到 noise 干擾，使得原本應該 turn off 的 MOS turn on，而造成一二次側 MOS 同時導通現象。**



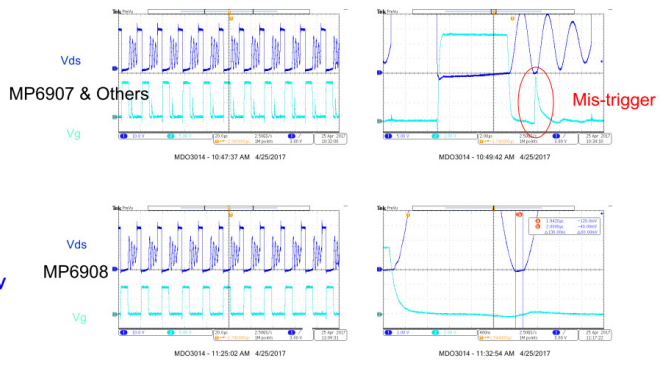
1. **原本使用 SR IC 為 MPS6907，將其改為 MPS6908。**
2. **MP6908 比起 MP6907 新修改了 Min on time 1.6uS→1.1uS，因此 Vgs 發生誤動作時可減少 Q1 與 SR 同時導通的時間。**



MP6907 to MP6908

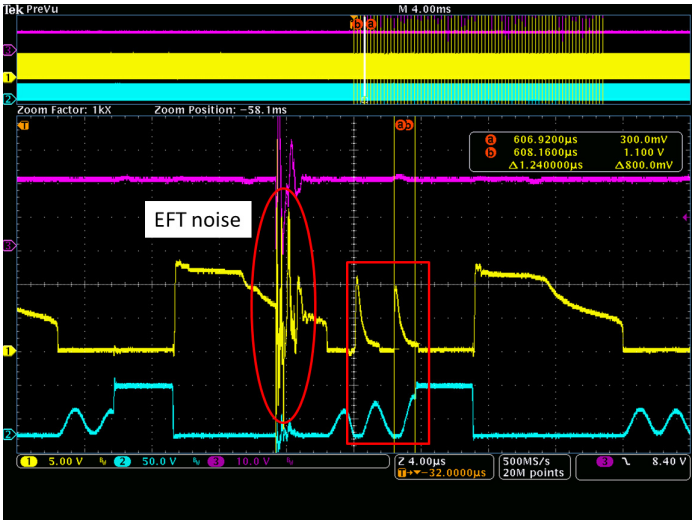
- Vreg: -70mV → -40mV
- Turn-off propagation delay: 20ns → 15ns
- IQ: 2mA → 110uA. (Don't need LL mode)
- Min. on time: 1.6us → 1.1us
- VDS Turn-on threshold: -200mV → -80mV
- Both turn-on/off delay: Shrinks to 15ns

Slew rate detection function



MP6908 can prevents false turn-on during DCM operations.

- 在發生 EFT noise 的干擾之後，原 MP6907 Vds DCM ring 會造成 Vgs 誤觸發而 turn ON。



- **同樣在發生 EFT noise 的干擾之後，改成 MP6908 的 Vds DCM ring 並不會造成 Vgs 有誤動作現象。**

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. PCB 修改 Layout

2. MP6907 改為 MP6908

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**.)**
EFT 規格較嚴時，需確認一二次側 gate 波形以避免誤動作
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！！！

Signature **Team Leader**:	
	Name – Title
Signature by Approver:	
	Name-Title