# 112學年專題 - Feature #45

Feature # 58 (Closed): 光源模組連接ESP32

## 光源模組連接ESP32_TCA6507 datasheet研讀

2023-09-25 05:03 - Chifu Chung

| | | | |
|---|---|---|---|
| **狀態:** | Closed | **開始日期:** | 2023-09-25 |
| **優先權:** | Normal | **完成日期:** | 2023-10-31 |
| **被分派者:** | 宏益 廖 | **完成百分比:** | 100% |
| **分類:** | | **預估工時:** | 0:00 小時 |
| **版本:** | | **耗用工時:** | 0:00 小時 |

**概述**

**相關的議題清單:**

| | | |
|---|---|---|
| 關聯至 硬體組 - Task #231: AWPPG P type 連續裝置製作 | New | 2024-09-02 |

### 歷史

#1 - 2023-09-25 05:08 - Chifu Chung

*- 狀態 從 New 變更為 In Progress*

#2 - 2023-09-25 05:12 - Chifu Chung

*- 完成日期 設定為 2023-10-31*

#3 - 2023-09-25 05:19 - Chifu Chung

*- 父議題 設定為 #58*

#4 - 2023-09-29 06:44 - 宏益 廖

*- 檔案 clipboard-202309291441-slgdu.png 已新增*

*- 檔案 clipboard-202309291441-cdaby.png 已新增*

*- 檔案 clipboard-202309291442-qfp6r.png 已新增*

# *Datasheet

# "強烈建議"還是自己讀過一遍datasheet，這樣對自己比較有幫助

# Datasheet：

https://www.ti.com/lit/ds/symlink/tca6507.pdf?ts=1695970436803&ref_url=https%253A%252F%252Fwww.ti.com%252Fproduct%252FTCA6507%253Futm_source%253Dgoogle%2526utm_medium%253Dcpc%2526utm_campaign%253Dasc-int-null-44700045336317593_prodfolderdynamic-cpc-pf-google-tw_int%2526utm_content%253Dprodfolddynamic%2526ds_k%253DDYNAMIC%2BSEARCH%2BADS%2526DCM%253Dyes%2526gclid%253DCjwKCAjwyNSoBhA9EiwA5aYlb7JddEi5t0lPffNHRYaTY-DATnTsM2m6wT50RoShAkQ86KoaUz1-oRoCvgYQAvD_BwE%2526gclsrc%253Daw.ds

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## 讀過datasheet之後發現要讓燈亮只需更改Select0、Select1、Select2三個暫存器(register)

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# Fully on (開到最大亮度)

**Table 8. Select2, Select1, and Select0 Register States**

| SELECT2 | SELECT1 | SELECT0 | STATE |
|---|---|---|---|
| 0 | 0 | 0 | LED off (high impedance). |
| 0 | 0 | 1 | LED off (high impedance). |
| 0 | 1 | 0 | LED on with maximum intensity value of PWM0 (ALD value or BRIGHT_F0 value, depending on One Shot / Master Intensity Register setting). |
| 0 | 1 | 1 | LED on with maximum intensity value of PWM1 (ALD value or BRIGHT_F1 value, depending on One Shot / Master Intensity Register setting). |
| 1 | 0 | 0 | LED fully on (output low). Can be used as general-purpose output. |
| 1 | 0 | 1 | LED on at brightness set by One Shot / Master Intensity register. |
| 1 | 1 | 0 | LED blinking with intensity characteristics of BANK0 (PWM0). |
| 1 | 1 | 1 | LED blinking with intensity characteristics of BANK1 (PWM1). |

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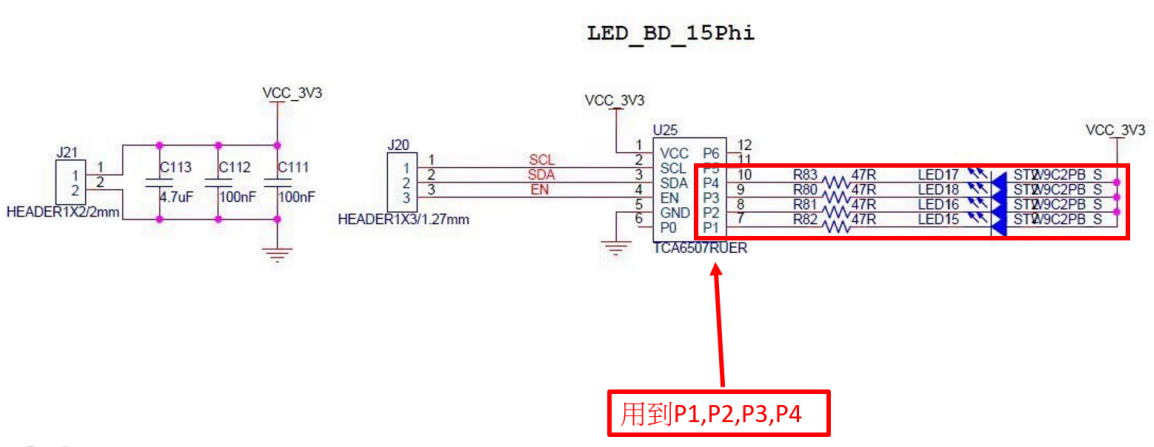
**且我們只需控制P1、P2、P3、P4四個腳位**

# 光板電路圖

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**所以我們只需做以下更改**
**即可將燈打開**

# Fully on (開到最大亮度)

Table 9. Register 0x00 (Select0 Register)

| BIT | S0-7 | S0-6 | S0-5 | S0-4 | S0-3 | S0-2 | S0-1 | S0-0 |
|---|---|---|---|---|---|---|---|---|
| DEFAULT | X(1) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(1) X = Don't care.

Table 10 show the Register 0x01 (Select1 Register).

Table 10. Register 0x01 (Select1 Register)

| BIT | S1-7 | S1-6 | S1-5 | S1-4 | S1-3 | S1-2 | S1-1 | S1-0 |
|---|---|---|---|---|---|---|---|---|
| DEFAULT | X(1) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(1) X = Don't care.

Table 11 show the Register 0x02 (Select2 Register).

Table 11. Register 0x02 (Select2 Register)

| BIT | S2-7 | S2-6 | S2-5 | S2-4 | S2-3 | S2-2 | S2-1 | S2-0 |
|---|---|---|---|---|---|---|---|---|
| DEFAULT | X(1) | 0 | 0 | 1 | 1 | 1 | 1 | 0 |

(1) X = Don't care.

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## *結論

**其實我們只需要改動Select2這個暫存器的值就可以控制燈的亮滅**
**亮：Select2 = 00011110 = 0x1E**
**滅：Select2 = 00000000 = 0x00**

#5 - 2023-10-02 05:08 - 宏益 廖

*- 狀態 從 In Progress 變更為 Resolved*

#6 - 2023-10-03 09:26 - Chifu Chung

*- 完成百分比 從 0 變更為 100*

#7 - 2023-12-14 18:45 - Chifu Chung

*- 狀態 從 Resolved 變更為 Closed*

#8 - 2024-09-03 14:45 - Chifu Chung

*- 關聯至 Task #231: AWPPG P type 連續裝置製作 已新增*

**檔案**

| | | | |
|---|---|---|---|
| clipboard-202309291441-slgdu.png | 374 KB | 2023-09-29 | 宏益 廖 |
| clipboard-202309291441-cdaby.png | 314 KB | 2023-09-29 | 宏益 廖 |
| clipboard-202309291442-qfp6r.png | 469 KB | 2023-09-29 | 宏益 廖 |