

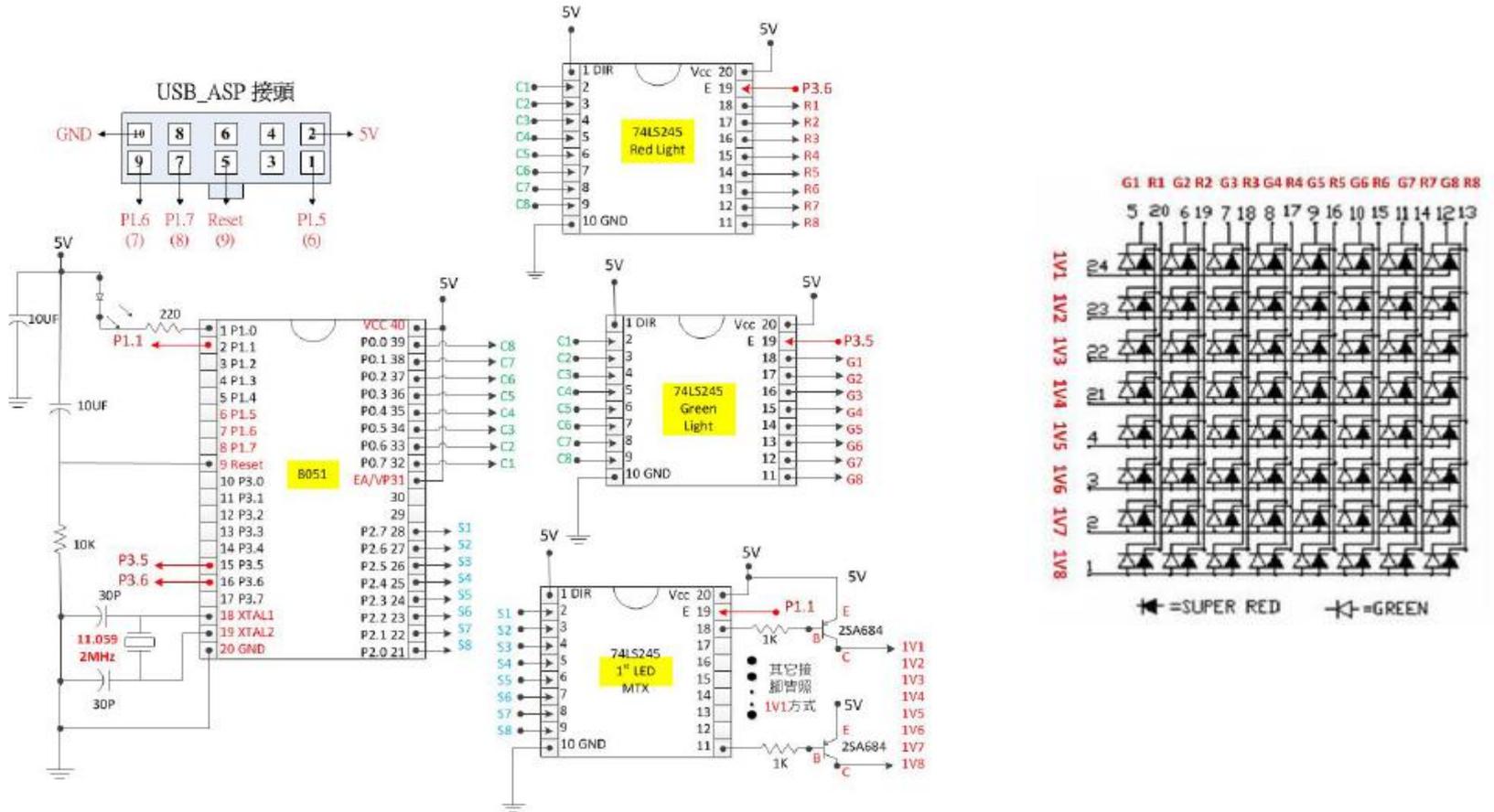
印刷電路板設計

案例與實作(一)

課程-大綱

- 電路圖設計
 - ✓ 實例電路設計與繪製
- 電路板設計
 - ✓ 實例電路板設計與線路佈置
- 非制式零件庫與元件輸出
 - ✓ 實例非制式元件零件設計
 - ✓ 實例焊接包裝製作
- 電路設計整合輸出
 - ✓ 電路板製作檔與元件表
 - ✓ 實例輸出報表

實例電路

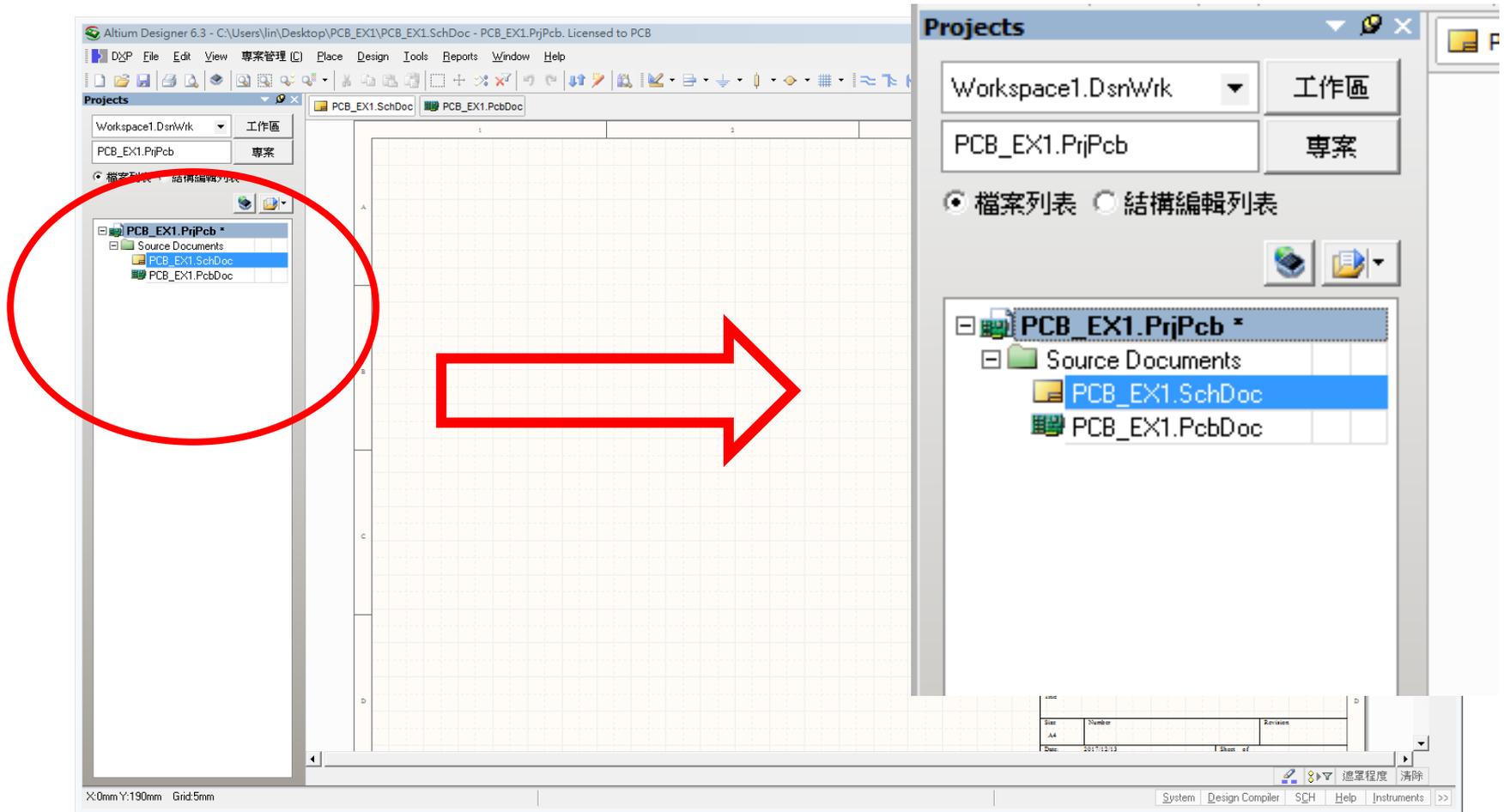


8051雙色LED Matrix 驅動顯示電路

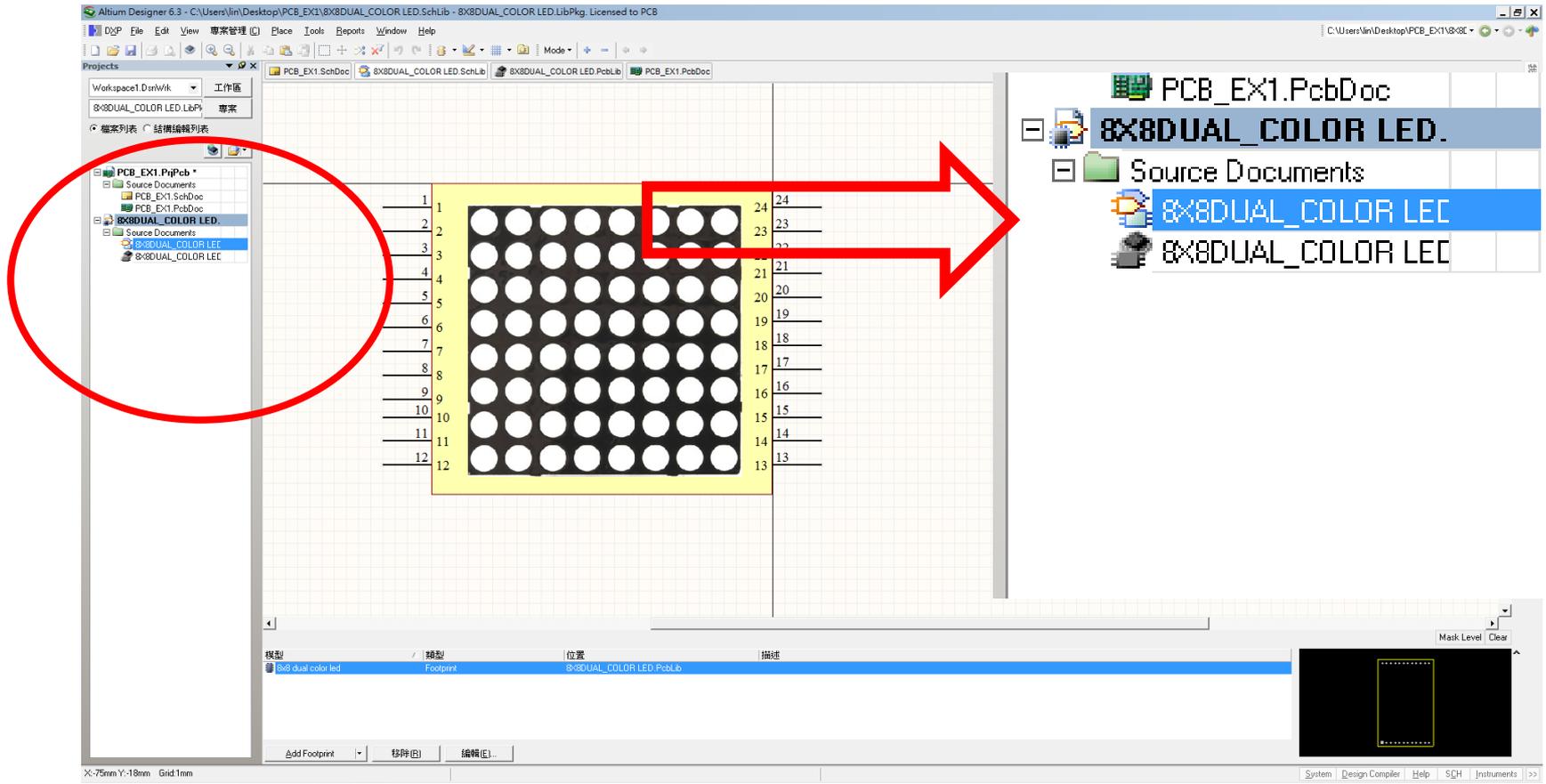
設計流程

- 建立電路板專案
 - 添增 電路圖設計檔案
 - 添增 電路板設計檔案
- 建立零件庫專案
 - 添增 電路圖零件
 - 添增 電路板焊接包裝
- 繪製電路圖
- 繪製電路板/佈線
- 輸出PCB製作檔案

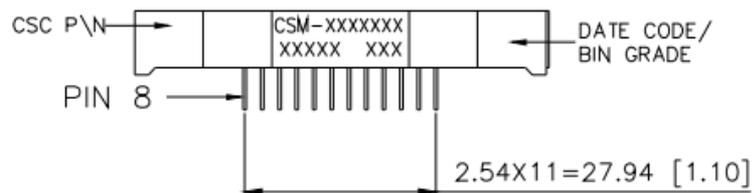
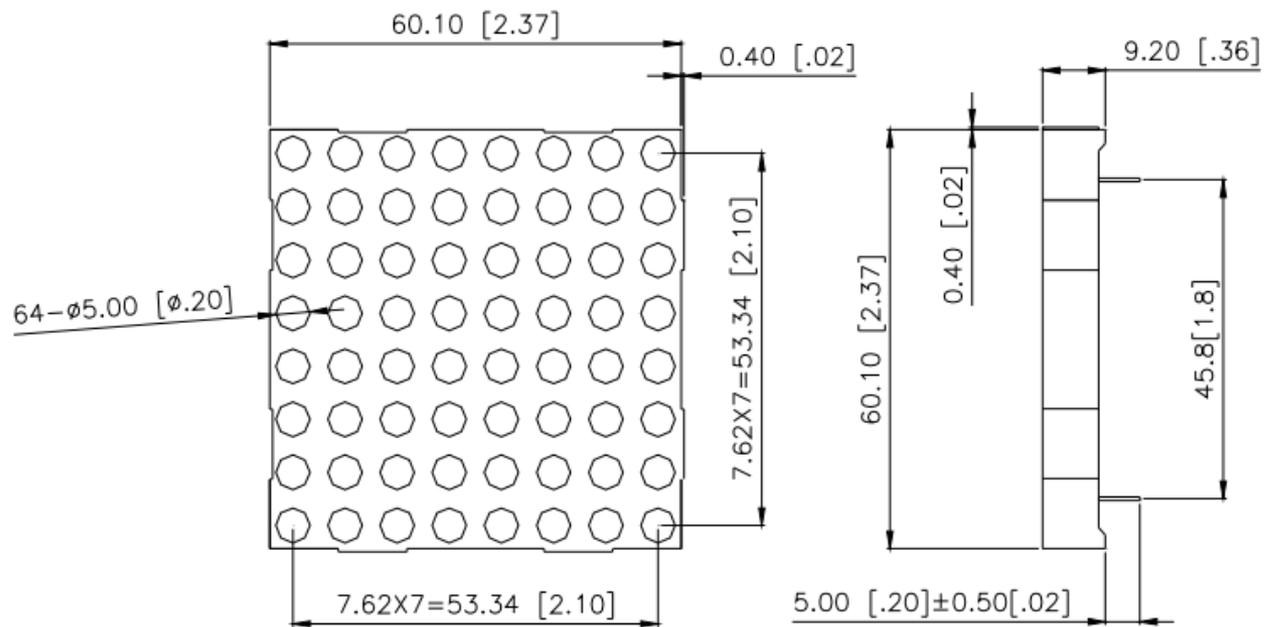
建立PCB電路板專案



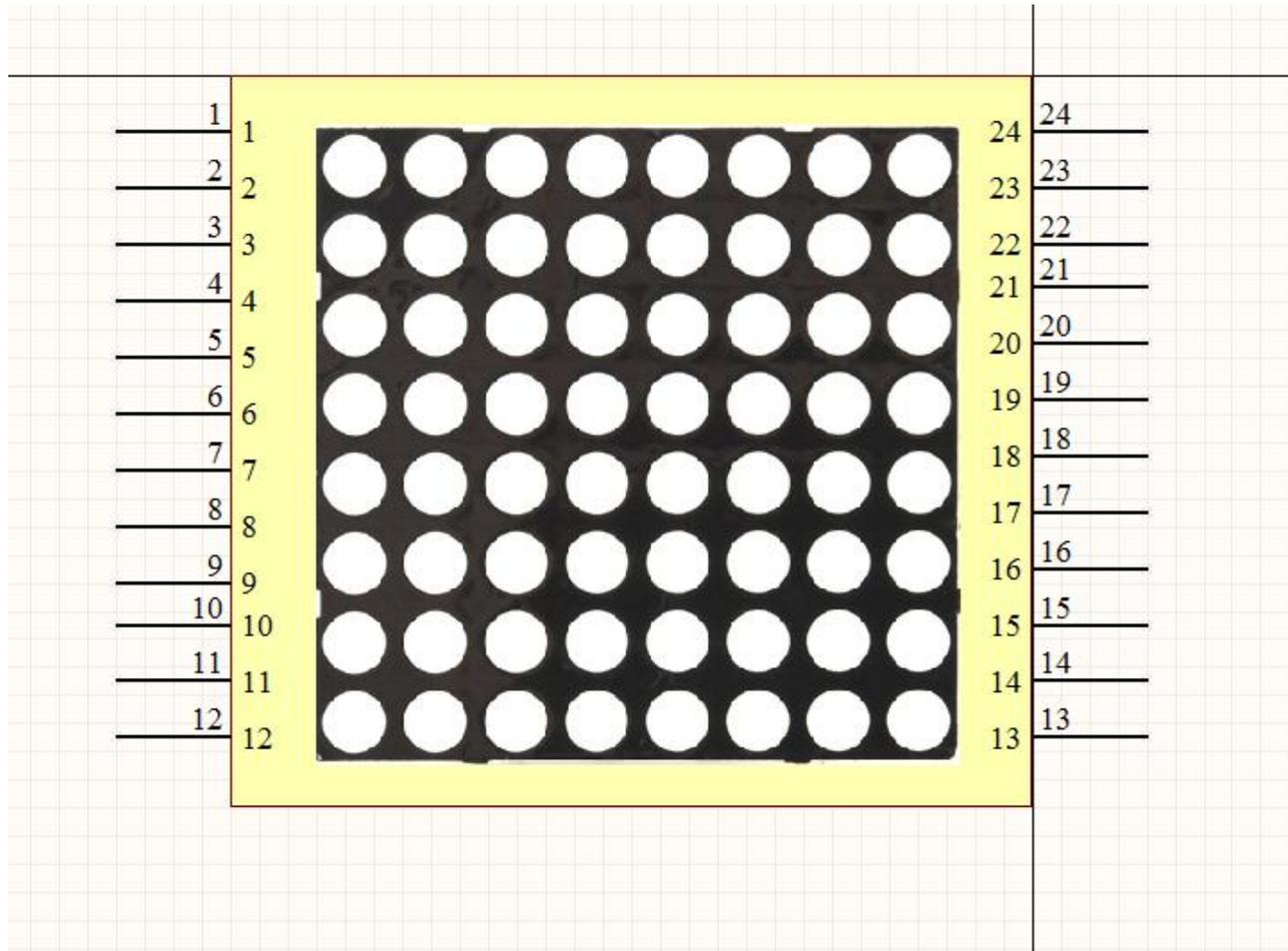
建立PCB零件庫專案



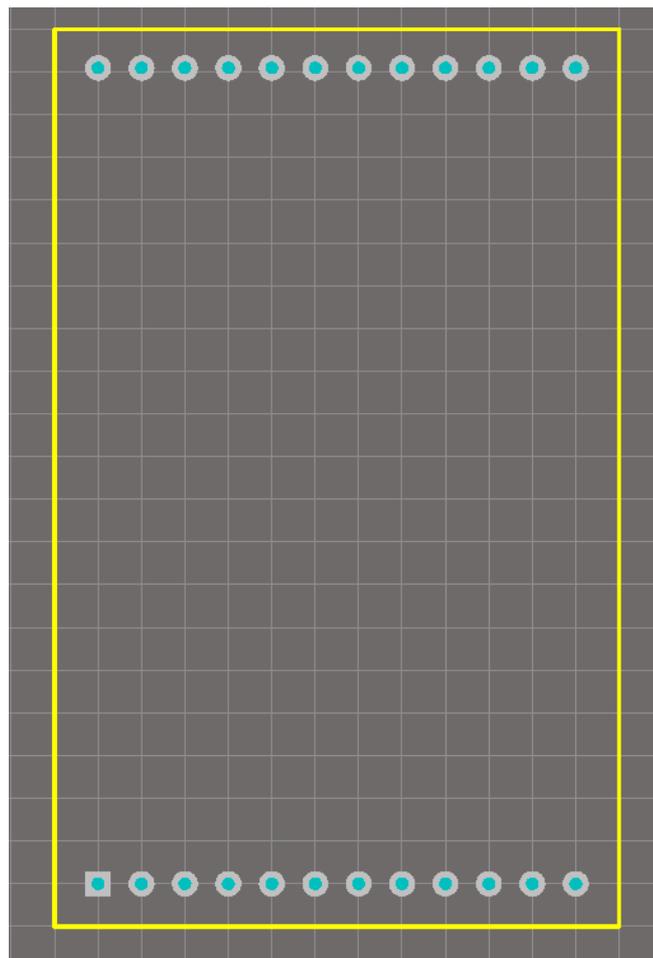
8x8 led 尺寸規格



零件包裝設計



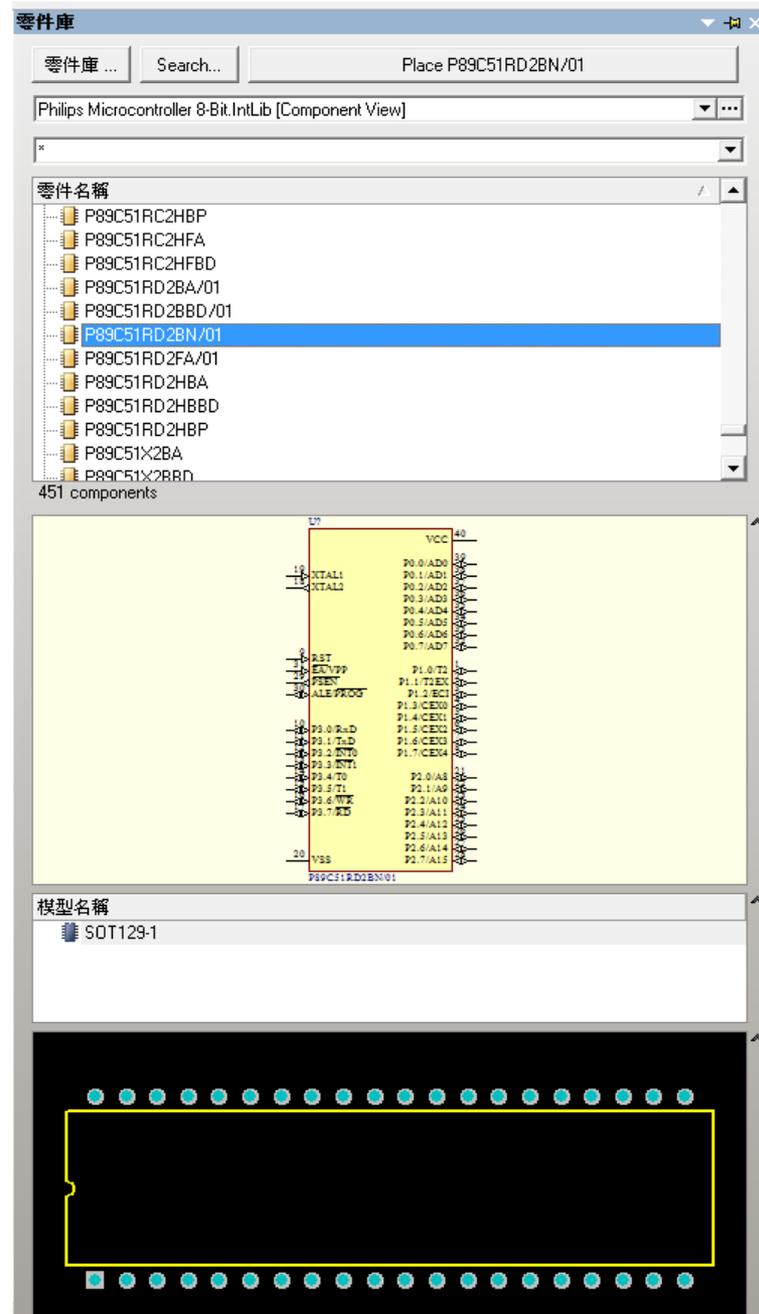
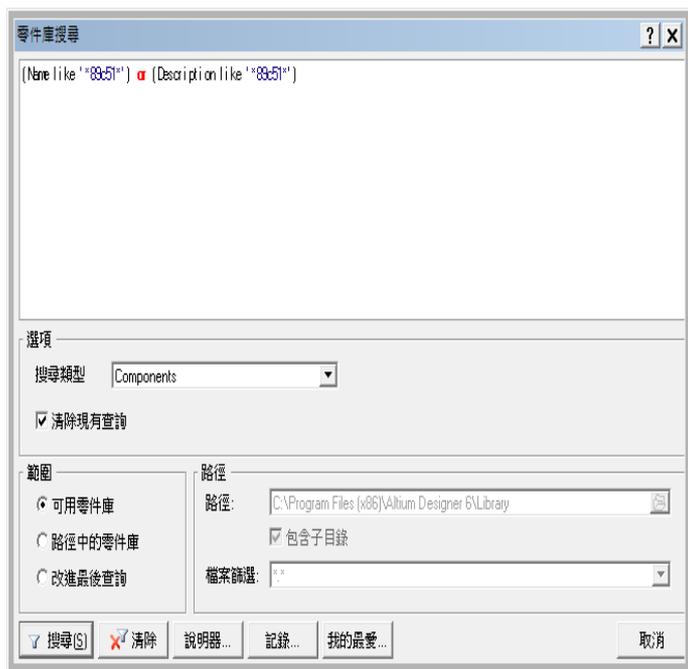
零件焊接包裝設計



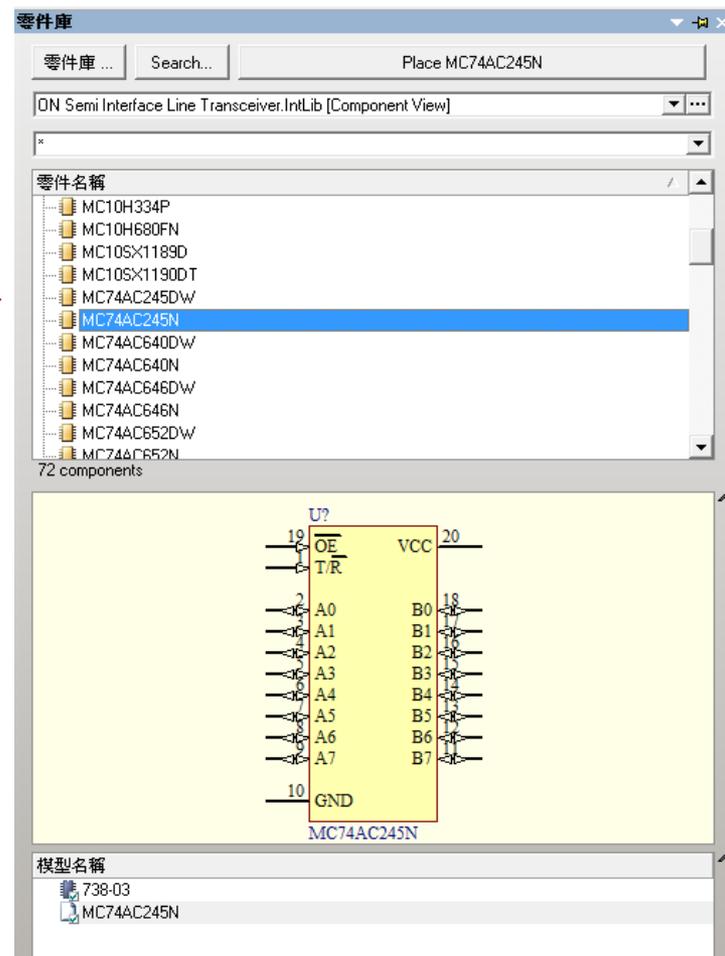
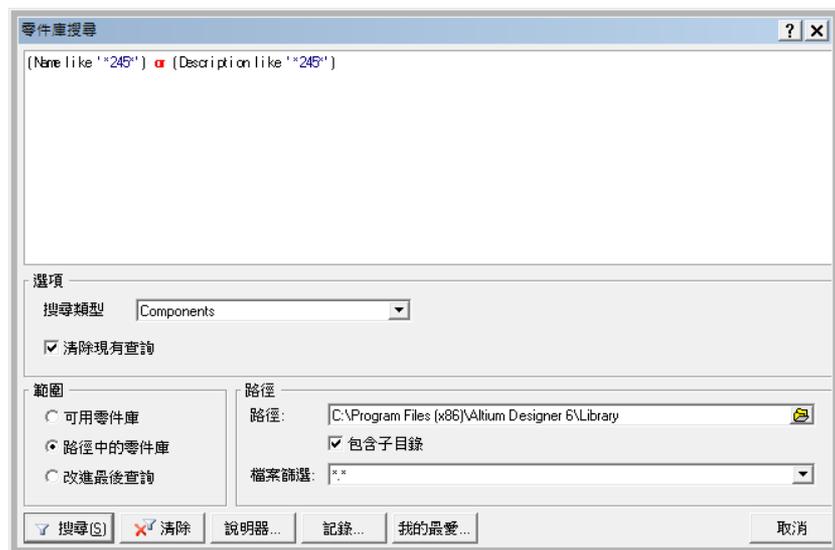
電路圖繪製

- 安裝零件庫
- 繪製電路接線

安裝零件庫 _89c51



安裝零件庫 _74ls245



繪製電路接線

The screenshot displays the Altium Designer 6.3 interface for a PCB design project. The main workspace shows a schematic diagram of an 8x8 dual-color LED matrix. The components include:

- Resistors (R1-R8) connected to the matrix pins.
- Capacitors (C1-C8) for decoupling.
- Crystal oscillators (XTAL1, XTAL2).
- Microcontroller pins (P1.0-T1, P1.1-T1, etc.) connected to the matrix.
- 8x8 Dual Color LED matrix (U1).

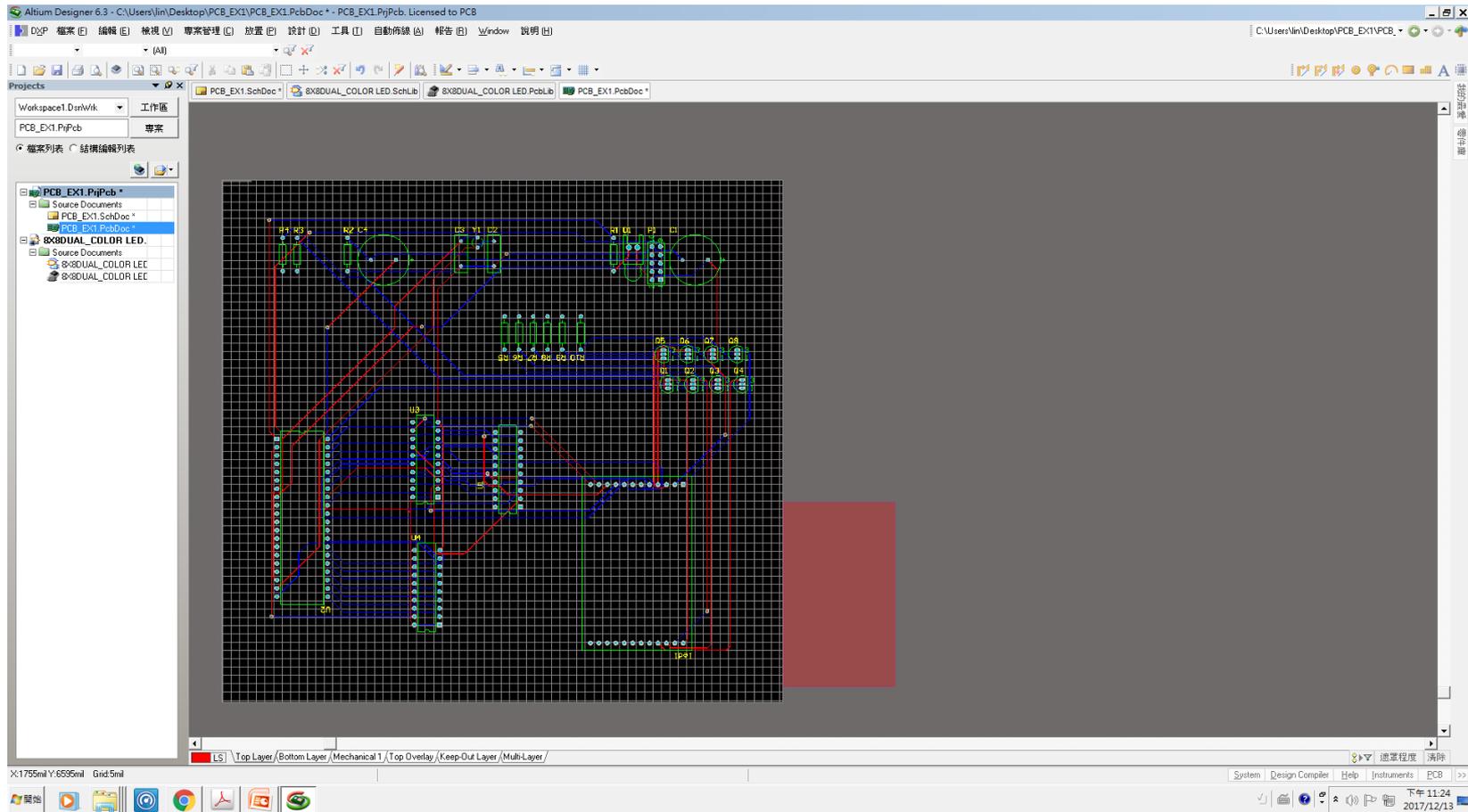
The project tree on the left shows the following structure:

- PCB_EX1.PjPcb
- Source Documents
 - PCB_EX1.SchDoc
 - PCB_EX1.PcbDoc
- 8x8DUAL_COLOR_LED
 - Source Documents
 - 8x8DUAL_COLOR_LEC
 - 8x8DUAL_COLOR_LEC

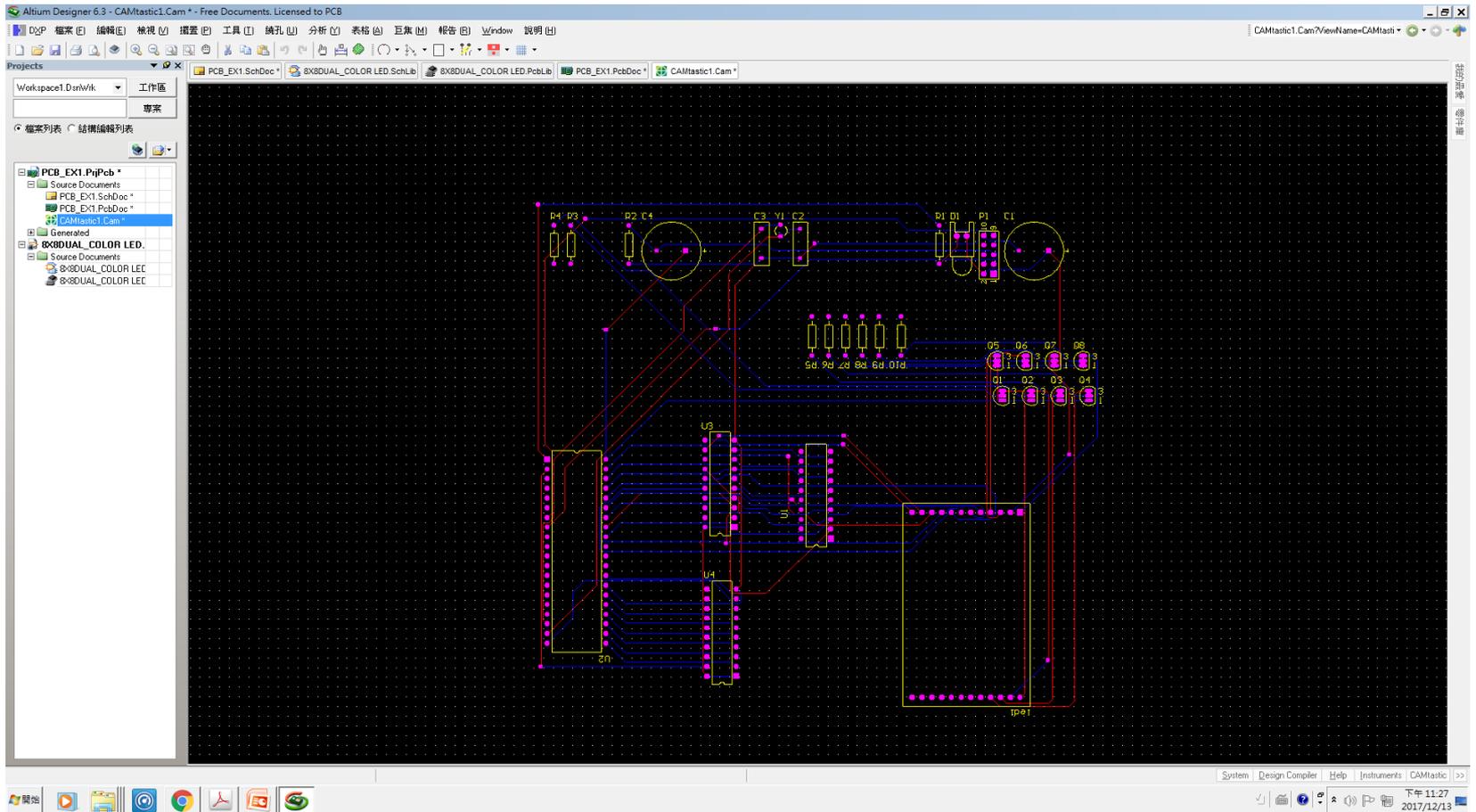
The status bar at the bottom indicates the design grid is X:0.00mm Y:181.61mm Grid:1.27mm. The system tray shows the date and time: 下午 11:15 2017/12/13.

電路板繪製

- 安排零件位置
- 電路繞線



輔助製造輸出



輔助製造輸出_檔案

名稱 ▲	修改日期	類型	大小
 PCB_EX1.apr	2017/12/13 下午 ...	CAMtastic Apert...	3 KB
 PCB_EX1.EXTREP	2017/12/13 下午 ...	EXTREP 檔案	2 KB
 PCB_EX1.GBL	2017/12/13 下午 ...	CAMtastic Botto...	9 KB
 PCB_EX1.GBO	2017/12/13 下午 ...	CAMtastic Botto...	1 KB
 PCB_EX1.GBP	2017/12/13 下午 ...	CAMtastic Botto...	1 KB
 PCB_EX1.GBS	2017/12/13 下午 ...	CAMtastic Botto...	5 KB
 PCB_EX1.GKO	2017/12/13 下午 ...	CAMtastic Keepo...	1 KB
 PCB_EX1.GM1	2017/12/13 下午 ...	CAMtastic Mech...	1 KB
 PCB_EX1.GM13	2017/12/13 下午 ...	CAMtastic Mech...	1 KB
 PCB_EX1.GM15	2017/12/13 下午 ...	CAMtastic Mech...	1 KB
 PCB_EX1.GPB	2017/12/13 下午 ...	CAMtastic Botto...	5 KB
 PCB_EX1.GPT	2017/12/13 下午 ...	CAMtastic Top P...	5 KB
 PCB_EX1.GTL	2017/12/13 下午 ...	CAMtastic Top L...	7 KB
 PCB_EX1.GTO	2017/12/13 下午 ...	CAMtastic Top O...	14 KB
 PCB_EX1.GTP	2017/12/13 下午 ...	CAMtastic Top P...	1 KB
 PCB_EX1.GTS	2017/12/13 下午 ...	CAMtastic Top S...	5 KB
 PCB_EX1.REP	2017/12/13 下午 ...	Report File	5 KB
 PCB_EX1.RUL	2017/12/13 下午 ...	RUL 檔案	1 KB
 PCB_EX1-macro.APR_LIB	2017/12/13 下午 ...	APR_LIB 檔案	0 KB
 Status Report.Txt	2017/12/13 下午 ...	文字文件	1 KB