

盟訊科技 Display A/D Board

產品承認書

客戶名稱 Customer		
產品型號 Part No.	UL 169-A	
客戶型號		
產品內容 Product type	12V Power Input With Panel Switch Display A/D Board	
客戶確認簽章: Signature by Customer:		
Checked By	Rechecked By	Approved By
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備註	ROHS	

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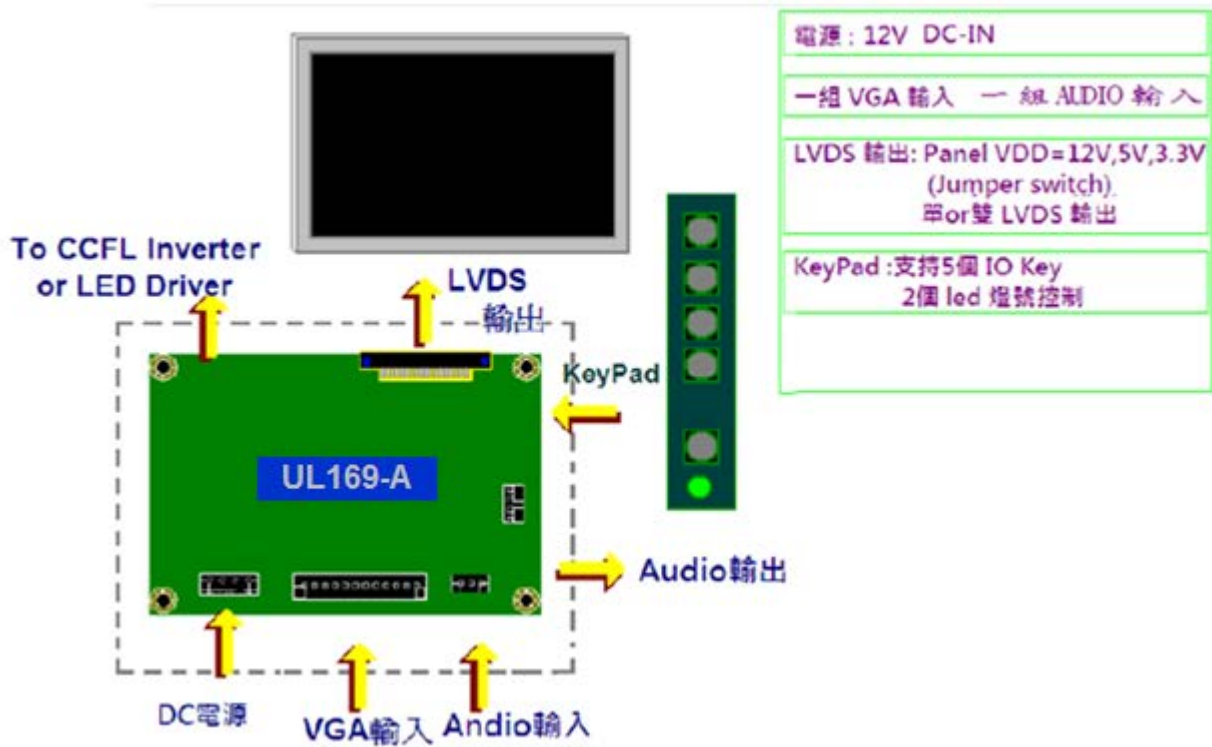
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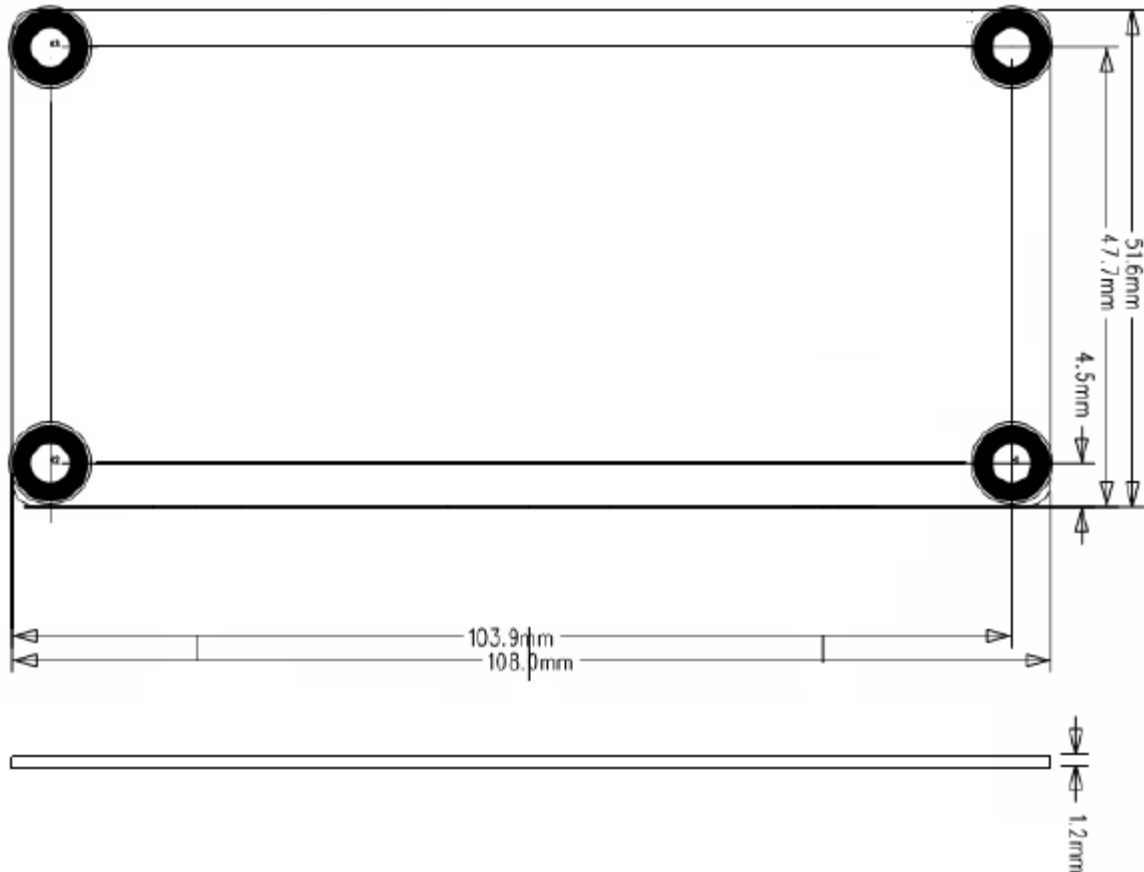
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一. 功能與規格



一. 功能與規格

1. 尺寸說明(單位：mm):



一. 功能與規格

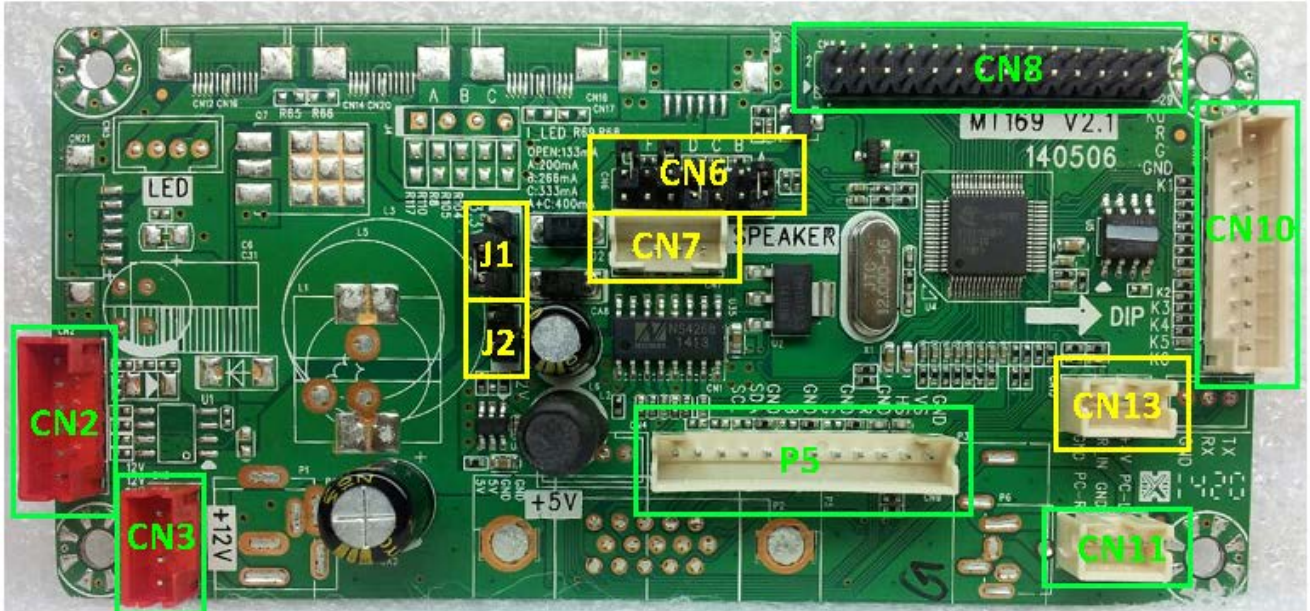
2. 電子規格

板厚:1.2 mm 兩層板 單面上件

輸入電源	DC IN: 12V		
Panel	Single/ Dual LVDS up to 1920x1080		
	LVDS 訊號	30PIN 雙排排針式輸出	
	供電	3.3V 、 5V 、 12V 可供選擇	利用板上 Jumper 選擇
背光	開關	有	ON/OFF
	調光方式	有	DC 調光
	供電	12V	
輸入訊號	VGA 端子	12pin wafer	
	Audio	3pin wafer	
其它功能	硬體 Panel choose		
	5V 電源輸出		
KeyPad	對外指示燈號輸出組 , 對外接受按鍵 5 組		

二. 板子與各端子說明

1.各端子位置



- 1 · CN3: DC Power IN (DC 12V 電源輸入)
- 2 · CN2: 背光電源與訊號輸出
- 3 · CN8: LVDS 排針式(pin header)輸出
- 4 · CN10: KeyPAD (按鍵) 輸入
- 5 · P5: VGA 輸入端子訊號
- 6 · CN7: 音頻輸出
- 7 · CN11: 音頻輸入
- 8 · CN6: PANEL SELECT
- 9 · J1: PANEL VCC → 3.3V, 5V
- 10 · J2: PANEL VCC → 12V
- 11 · CN13 : 5V 輸出

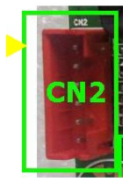
2.各插座說明

(1) . **CN3**: DC Power IN (DC 12V 電源輸入) 箭頭處為 PIN1



PIN1	PIN2	PIN3	PIN4
12V	12V	GND	GND

(2) . **CN2**: 背光電源與訊號輸出，下圖箭頭表 PIN1



PIN1	PIN2	PIN3	PIN4	PIN5	PIN6
GND	GND	BL ADJ	BL ON/OFF	12V	12V

(3) . **CN8** : LVDS 排針式(pin header)輸出....箭頭處為 PIN 1，信號排列如下表:



PIN 2	PIN 4	PIN 6	PIN 8	PIN 10	PIN 12	PIN 14	PIN 16	PIN 18	PIN 20	PIN 22	PIN 24	PIN 26	PIN 28	PIN 30
VSEL	NC	GND	TX00+	TX01+	TX02+	GND	TX0C+	TX03+	TXE0+	TXE1+	TXE2+	GND	TXEC+	TXE3+
PIN 1	PIN 3	PIN 5	PIN 7	PIN 9	PIN 11	PIN 13	PIN 15	PIN 17	PIN 19	PIN 21	PIN 23	PIN 25	PIN 27	PIN 29
VSEL	NC	GND	TX00-	TX01-	TX02-	GND	TX0C-	TX03-	TXE0-	TXE1-	TXE2-	GND	TXEC-	TXE3-

(4) . **CN10** : KeyPAD (按鍵) 輸入, 箭頭處為 PIN1



PIN No.	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8	PIN9	PIN10
Sch Nane	Key 0	LED R	LED G	GND	Key 1	Key2	Key 3	Key 4	No Supply	No Supply
對應 function	POWER	紅色燈號	綠色燈號	GND	UP	DOWN	AUTO	MENU	No Supply	No Supply

(5). **P5**: VGA 輸入端子訊號，箭頭處為 PIN1



PIN1	PIN2	PIN3	PIN4	PIN5	PIN6	PIN7	PIN8	PIN9	PIN10	PIN11	PIN12
SCL	SDA	GND	B	GND	G	GND	R	GND	HS	VS	GND

(6). **CN7**:音頻輸出,箭頭處為 PIN1



PIN1	PIN2	PIN3	PIN4
ROUT+	ROUT-	LOUT-	LOUT+

(7). **CN11**: 音頻輸入,箭頭處為 PIN1



PIN1	PIN2	PIN3
PC-L	GND	PC-R

(8). **Jumper 功能區** :

1. Panel 電源選擇 → (J1,J2)
2. Panel 參數選擇 『可選 23 種類 Panel』 → (CN6)

(9). **CN13** : 5V 輸出,箭頭處為 PIN1



PIN1	PIN2	PIN3
5V	NC	GND

三. 板子設定

注意事項:

- (1) Panel 電源需正確
- (2) Panel 參數需正確

1. 跳 PIN(Jumper)的說明

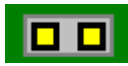


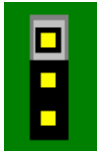
表 Jumper 未插上



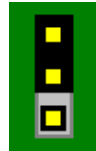
表 Jumper 插上



(1) J1 : Panel 電源選擇



Panel 電源為 5V 時



Panel 電源為 3.3 V 時

(2) J2: Panel 電源選擇



Panel 電源為 12V 時

2. 支援 Panel 表及各 Jumper 跳法

支援 PANEL									
NO.	PANEL JUMP							PANEL 型號	備註
	A	B	C	D	E	F	G		
1	V	V							
2	V		V						
3	V			V					

V:SHORT

四. OSD 功能表說明

功能選單	色彩調整	對比度	0~100
		亮度	0~100
		色溫	9300K 6500K User
		離開選單	離開選單
影像調整		水平位置	0~100
		垂直位置	0~100
		相位	0~100
		時脈	0~100
		銳利度	1 2 3 4 5
		離開選單	離開選單
		自動校正	
自動色彩調整	是 否		
離開選單	離開選單		
選單調整		語言選擇	8 國語言
		選單水平位置	0~100
		選單垂直位置	0~100
		選單時間	ON OFF
		離開選單	離開選單
其它		重置	是 否
		離開選單	離開選單

五. Main Chip Features

NT68169UFG

Features

Analog Graphic Input

- ◆ Support RGB WUXGA 1920x1200@75, 2048x1152@60hz input for NT68169UFG and WSXGA 1680x1050@75hz for NT68169FG
- ◆ Triple 8bit 500Mhz ADCs (0.55 ~ 0.9V) Bandwidth
- ◆ 205Mhz HPLL With 64 steps phase Adjust for RGB Channel in NT68169UFG and 187Mhz HPLL for NT68169FG
- ◆ Sync. Processor for H/V Sync. Measurement with SOG support
- ◆ Supports Both Non-interlaced and Interlaced Input signals
- ◆ Support ADC offset dither (reg. 0x129)
- ◆ 1.2V ADC support low power operation

Video Processing

- ◆ Zoom and shrink engine with non-linear scaling in horizontal direction for wide screen panels
- ◆ The 3rd generation Bright Frame with adaptive contrast control, 24 color tones adjustment , sRGB real color engine and edge enhancement functions
- ◆ Adjustable sharpness setting
- ◆ Support DBC to save system operation power
- ◆ Fixed 10 bit dither LSB & 10-8 dither enable
- ◆ Text Enhancement
- ◆ Enhance ghost cancellation
- ◆ DBC support 64 step

Sync Processor

- ◆ Support TTL Sync-On-Green (SOG) (including Sync Slicer)
- ◆ Polarity detection
- ◆ Frequency measurement
- ◆ Fast mode change detection
- ◆ Interlace or non-interlace input detection
- ◆ Separate or composite sync auto switching (including Sync Separator)

Internal OSD

- ◆ Programmable multi-color RAM font as well as a bitmapped graphical OSD are supported
- ◆ Provide 1,2,3,4 bits/pixel RAM Fonts
- ◆ Optional 10x18, 12x18, 10x16, 12x16 dot matrix
- ◆ Internal SRAM allows up to **8192** characters, with programmable OSD frame size. Width is **256**

column, and Height is **64** row (reg. 0x083)

- ◆ Programmable shadow or border control for each character by each row
- ◆ Programmable blinking effects for each character
- ◆ Spacing control to avoid expansion distortion
- ◆ Supports simultaneous display of up to 8 OSD windows
- ◆ Maximum 8 times of global zoom for horizontal and vertical axis (reg. 0x090)
- ◆ Support flexible FG or BG optional transparent, translucent, and opaque effects
- ◆ 256 palette with 64K color selectable
- ◆ Top-bottom flip, left-right mirror and 90 degree / 270 degree rotated
- ◆ Flexible Fade-in, Fade-out effect
- ◆ Splitting OSD frame supported
- ◆ Gradient fade-in/fade -out

NT68169 Scaler

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- ◆ Insert variable space by row
- ◆ 2 Independent control Frame control supported.
- ◆ Pixel base adjustment for window size control.
- ◆ Gradient stop point support 2 window
- ◆ Up to **18K** byte RAM size (6Kx24bits)

Display Output

- ◆ 8/6 bit single/dual port WUXGA ,LVDS panels for NT68169UFG and WSXGA for NT68169FG.
- ◆ LVDS Dual port support up to 200MHz (AC spec).
- ◆ All of output keep “Low” after power up

Built-in Dual Pixel LVDS Transmitter

- ◆ Integrate the Dual Port, 4 Data Channel and Clock-Out Low-Voltage differential LVDS transmitter to supports single or dual pixel 6/8-bit display data transmission
- ◆ Suited for single pixel VGA, SVGA, XGA and dual pixel SXGA, WSXGA, WUXGA(NT68169UFG only) display transmission from controller to display with low EMI
- ◆ SSC new mode (reg. 0xB47~0xB48)

Embedded Microcontroller

- ◆ External SPI flash IF (Support flash size up to 4Mbits)
- ◆ 1 Hardware DDC ports
- ◆ Provide 3 timers for software application.
- ◆ Low power detector function
- ◆ Support SSC function (reg. 0xB49)

Power

- ◆ Support ultra-low-power mode for power saving 4mA@ 3.3V input

- ◆ Support Zero-power for DC off mode 30uA@ 3.3V input
- ◆ Embedded 1.2V LDO

ESD

- ◆ ESD resistivity enhanced on each pin, especially on Hsync, Vsync, SCL, SDA, RST, P34, P35.

Package

- ◆ TQFP 64 pin

六. Revision History

版本	變更內容	變更時間
Ver.A	初版	2015/03/31