

DATA SHEET

Model : ORCHID

Part No. : SMLM06001xx

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Data sheet Revision 0.2

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The information presented in this document may form a part of quotation or contract under the agreement of both parties. Otherwise, this datasheet is subject to change without prior notice.

1. Revisions of History

Revision No.	Date	Page	Description	Actionee
Ver. 0.1 Ver. 0.2	Mar.03 '06 July. 20 '06	ALL ALL	Preliminary Specification Revision	Doojun.Jang Doojun.Jang

2. General Descriptions

Orchid is an advanced TFT-LCD Monitor Control Board. The function of this design can replace a full conventional CRT monitor with a large size of TFT-LCD modules.

It is suitable for video resolution up to UXGA @ 60Hz and 1080i in all video modes, the full display Area of the module is used. The design is implemented as a single printed circuit board, the main function of which will be analog and digital video interface.

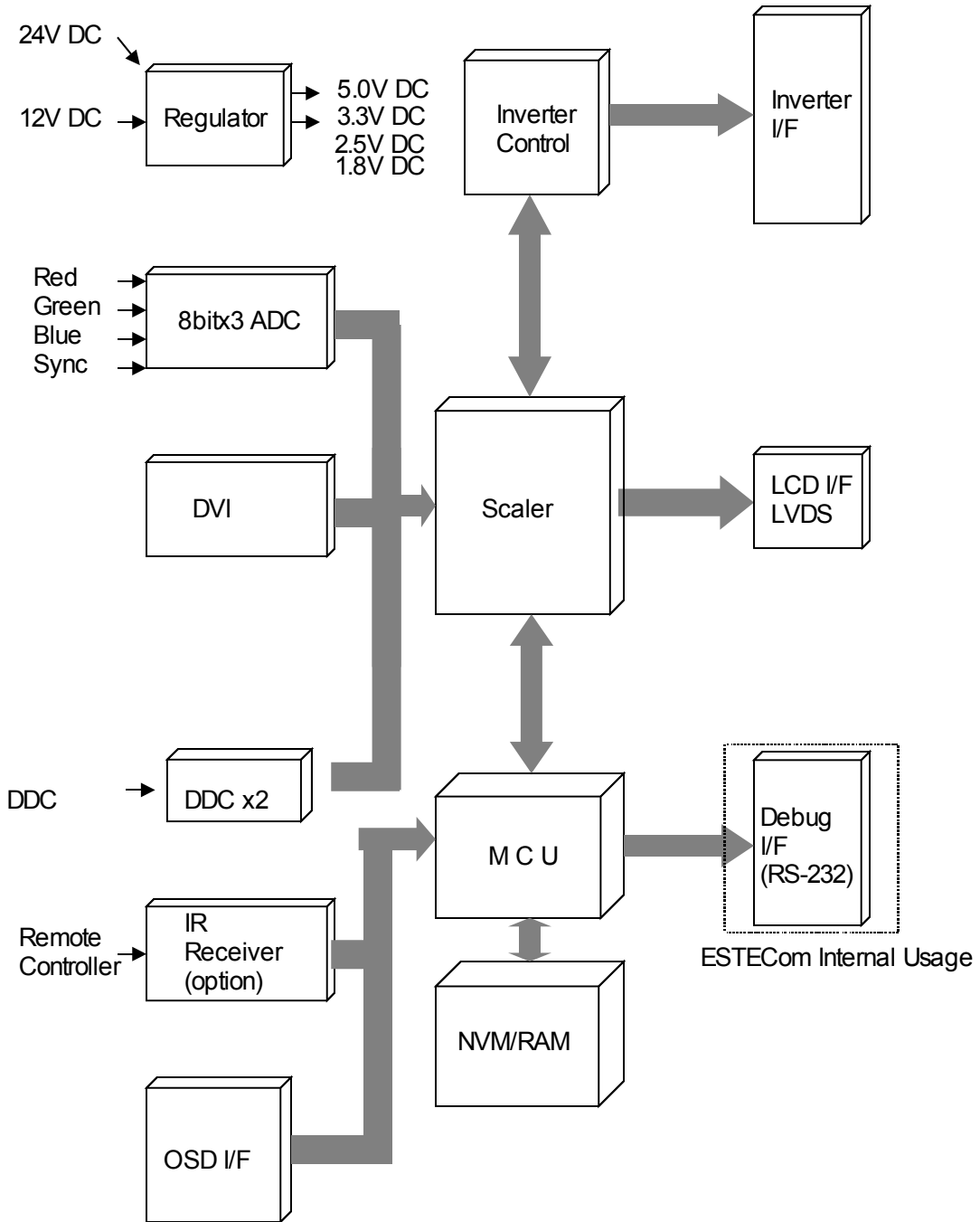
Orchid is designed to support various TFT LCDs up to UXGA resolution by BIOS option.

3. Features

- Designed to give state-of-the-art picture quality
- Analog RGB / DVI (Digital Video Interface)
- Optional input combination, e.g., PC monitor only
- Full CRT multi-sync monitor compatibility
- Multi-sync capability up to UXGA resolution @ 60Hz, compatible standard SVGA, XGA, SXGA and UXGA VESA timing
- Expand DOS, VGA, SVGA and UXGA to full screen display
- True color (16.7M) data processing and display driving
- Single control operated & transparent On-Screen-Display (hereafter 'OSD') user interface
- Full control of all relevant display and interface parameters via OSD
- Multi-language
- VESA DDC1/2B compliant
- Compatible with VESA DPMS power saving modes
- Form factor: 120(L) x 150(W) x 22(H)
- +12V DC single power: 48watts AC/DC power adapter recommended (p/n:SMLM050xx)
- Up to +24V DC single power available for large size panel (p/n: SMLM050xx)
- Operating temperature: 0 C to 50 C
- OSD & Power Switch Board : SMLM00006

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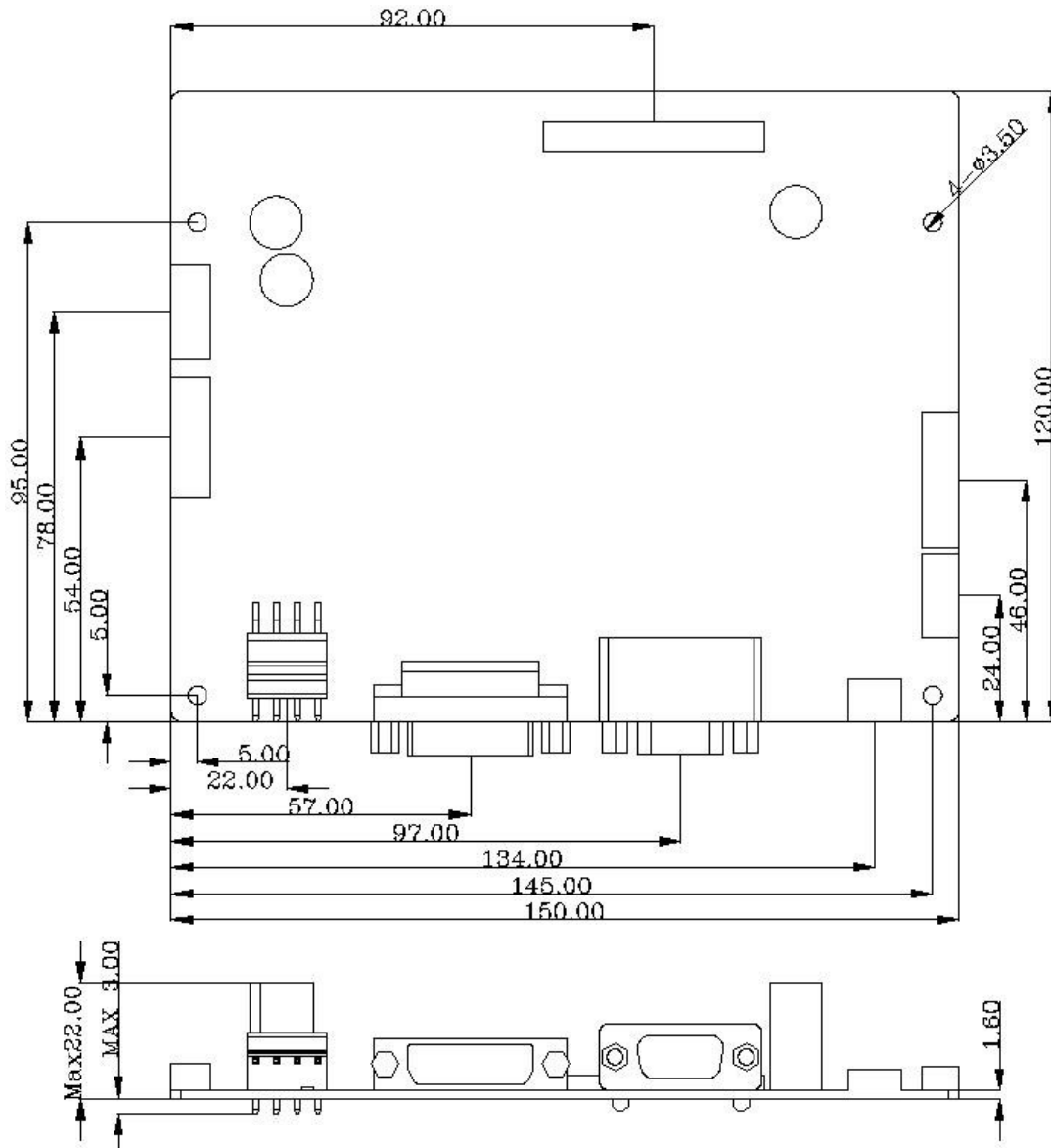
4. Block Diagram



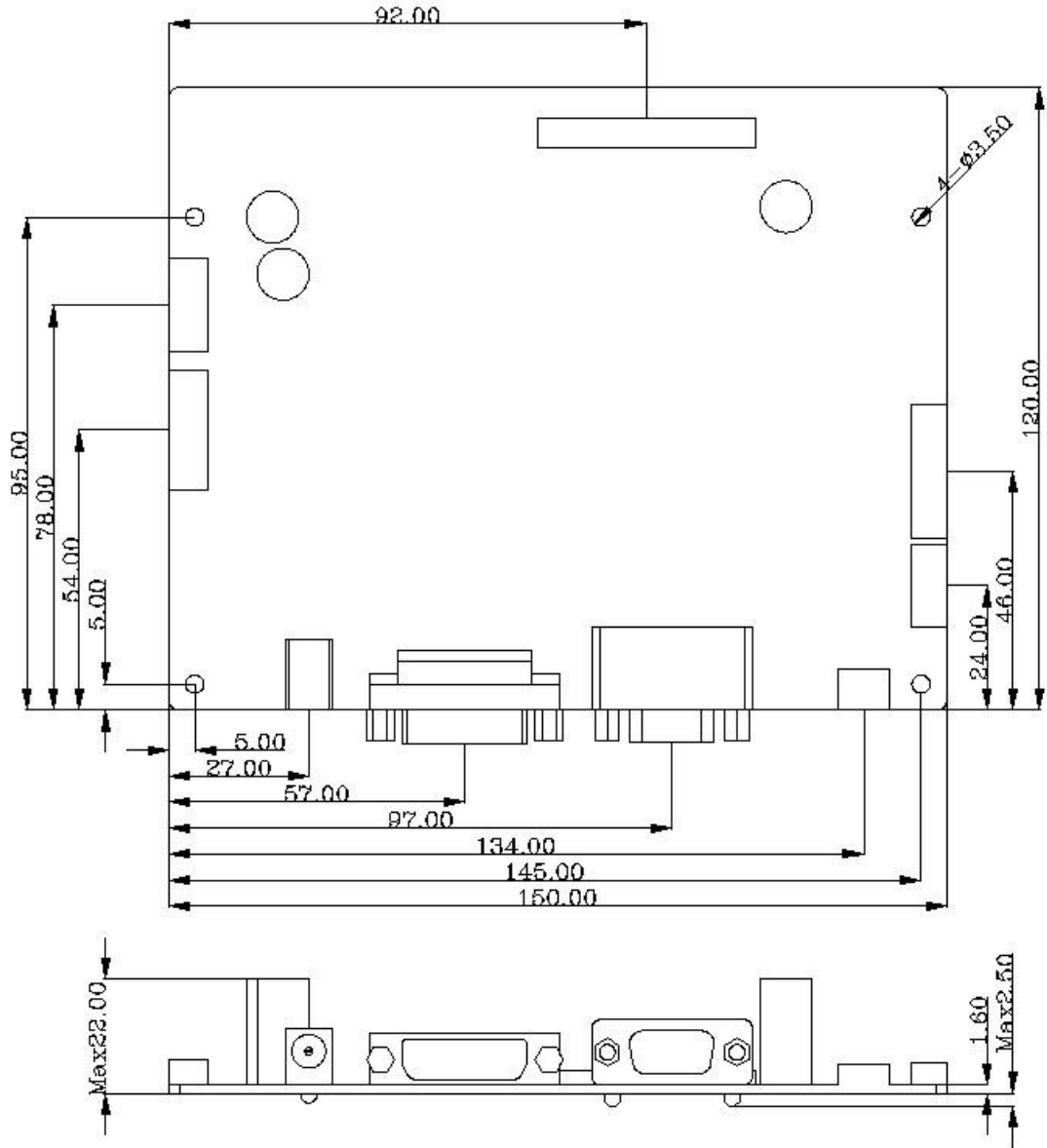
5. Outline Dimensions

5.1 Standard Connectors for Power, DVI, Audio, OSD, Inverter

- Dimension : 120mm(L) x 150mm (W) x 22(H)



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6. Connectors Information

6.1 Input Connectors

- Power Input Connector
Connector : DC12V Jack (J4)

Pin no.	Function	Pin no.	Function	Pin no.	Function
1	VCC (DC12V)	2	GND	3	GND

- Power Input Connector (**Alternative**)
Connector : Molex 5274-04 (J6)

Pin No.	Function	Pin No.	Function
1	POWER	3	GND
2	POWER	4	GND

- Power Input Connector (**Alternative**)
Connector : Molex 5268-04 (J5)

Pin No.	Function	Pin No.	Function
1	POWER	3	GND
2	POWER	4	GND

- Power Input Connector (**Alternative**)
Connector : (JP1)

Pin No.	Function	Pin No.	Function
1	POWER	4	GND
2	POWER	5	GND
3	GND		

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- Analog RGB Input Connector
Connector : Mini D-Sub 15pin(J2)

Pin no.	Function	Pin no.	Function	Pin no.	Function
1	RED	2	GREEN	3	BLUE
4	N/C	5	GND	6	GND (RED)
7	GND (GREEN)	8	GND (BLUE)	9	N/C
10	GND	11	N/C	12	SDA
13	HSYNC	14	VSYNC	15	SCL

- DVI-I Input Connector
Connector : DVI-D (J14)

Pin no.	Function	Pin no.	Function	Pin no.	Function
1	DATA_E2-	2	DATA_E2+	3	GND
4	N/C	5	N/C	6	SCL
7	SDA	8	VSYNC	9	DATA_E1-
10	DATA_E1+	11	GND	12	N/C
13	N/C	14	5V	15	DVI DET
16	HOT PLUG	17	DATA_E0-	18	DATA_E0+
19	GND	20	N/C	21	N/C
22	GND	23	CLOCK+	24	CLOCK-

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- Audio Control Connector

Output Connector : (J9)

Pin No.	Function	Pin No.	Function
1	POWER	5	SCL
2	POWER	6	SDA
3	MUTE	7	GND
4	VOLUME		

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- OSD, LED Interface Connector : OSD1

Connector : 53015-1210 Made by Molex (J8)

Pin No.	Function	Pin No.	Function
1	LED GREEN	7	RIGHT
2	LED RED	8	LEFT
3	5VCC	9	SOURCE
4	REMOTE	10	MENU
5	GND	11	SELECT
6	POWER	12	AUTO

- RS-232 Connector : J13

Connector : 53015-0410 Made by Molex(J13)

Pin No.	Function
1	Ground
2	TxD
3	RxD
4	+5V DC

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6.2 Output Connectors

- LVDS Output Connector (J3) : Yeonho 12507WR-30

Pin No.	LVDS	TTL	Pin No.	LVDS	TTL
1	VCC	VCC	16	Tx1-(ODD)	Not use
2	VCC	VCC	17	Tx0+(ODD)	Not use
3	VCC	VCC	18	Tx0-(ODD)	Not use
4	VCC	VCC	19	GND	GND
5	GND	GND	20	Tx3+(EVEN)	BLUE7
6	N/C	N/C	21	Tx3-(EVEN)	BLUE6
7	GND	GND	22	TxCLK+(EVEN)	BLUE5
8	Tx3+(ODD)	Not use	23	TxCLK-(EVEN)	BLUE4
9	Tx3-(ODD)	Not use	24	Tx2+(EVEN)	BLUE3
10	TxCLK+(ODD)	Not use	25	Tx2-(EVEN)	BLUE2
11	TxCLK-(ODD)	Not use	26	GND	GND
12	Tx2+(ODD)	Not use	27	Tx1+(EVEN)	BLUE1
13	Tx2-(ODD)	Not use	28	Tx1-(EVEN)	BLUE0
14	GND	GND	29	Tx0+(EVEN)	GREEN7
15	Tx1+(ODD)	Not use	30	Tx0-(EVEN)	GREEN6

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● Backlight Connector

Connector : 53015-0810 made by Molex(J11)

Pin No.	Function	Pin No.	Function
1	Brightness Adjustment	5	GND
2	Back light on/off	6	GND
3	GND	7	INV POWER
4	5VCC	8	INV POWER

● Backlight Power Connector (For Large size panel)

Connector : 53015-0810 made by Molex(J12)

Pin No.	Function	Pin No.	Function
1	INV POWER	6	GND
2	INV POWER	7	GND
3	INV POWER	8	GND
4	INV POWER	9	GND
5	INV POWER	10	GND

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7. Supported input formats

Resolution	Refresh Rate	H-Freq.	Pixel Freq	Remarks
640 x 350	70Hz	31.469KHz	25.175MHz	IBM
720 x 400	60Hz	31.469KHz	28.322MHz	IBM
640 x 480	60Hz	31.469KHz	25.175MHz	IBM
640 x 480	66Hz	35KHz	30.24MHz	MAC
640 x 480	72Hz	37.861KHz	31.5MHz	VESA
640 x 480	75Hz	37.5KHz	31.5MHz	VESA
800 x 600	56Hz	35.156KHz	36MHz	VESA
800 x 600	60Hz	37.879KHz	40MHz	VESA
800 x 600	72Hz	48.077KHz	50MHz	VESA
800 x 600	75Hz	46.875KHz	49.5MHz	VESA
832 x 624	75Hz	49.726KHz	57.284MHz	MAC
1024 x 768	60Hz	48.363KHz	65MHz	VESA
1024 x 768	70Hz	56.476KHz	75MHz	VESA
1024 x 768	75Hz	60.023KHz	78.75MHz	VESA
1152 x 864	75Hz	67.5KHz	108MHz	VESA
1152 x 870	75Hz	68.681KHz	100MHz	MAC
1280 x 1024	60Hz	63.981KHz	108MHz	VESA
1280 x 1024	75Hz	79.976KHz	135MHz	VESA
1600 x 1200	60Hz	75KHz	162MHz	VESA
1600 x 1200	65Hz	91.25KHz	175.5MHz	VESA (RGB only)
1600 x 1200	70Hz	87.5KHz	189MHz	VESA (RGB only)
1600 x 1200	75Hz	93.75KHz	202.5MHz	VESA (RGB only)
1920 x 1200	60Hz	74.52KHz	193.156MHz	WUXGA2 (RGB only)
720P	60Hz			SMPTE 296M & EIA-770.3
1080I	60Hz(Interlace)			SMPTE 274M & EIA-770.3

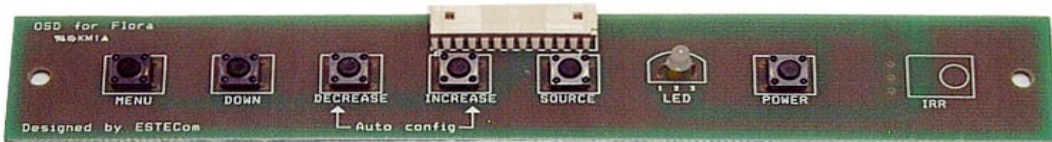
8. OSD (On Screen Display)

8.1 OSD Board Dimension

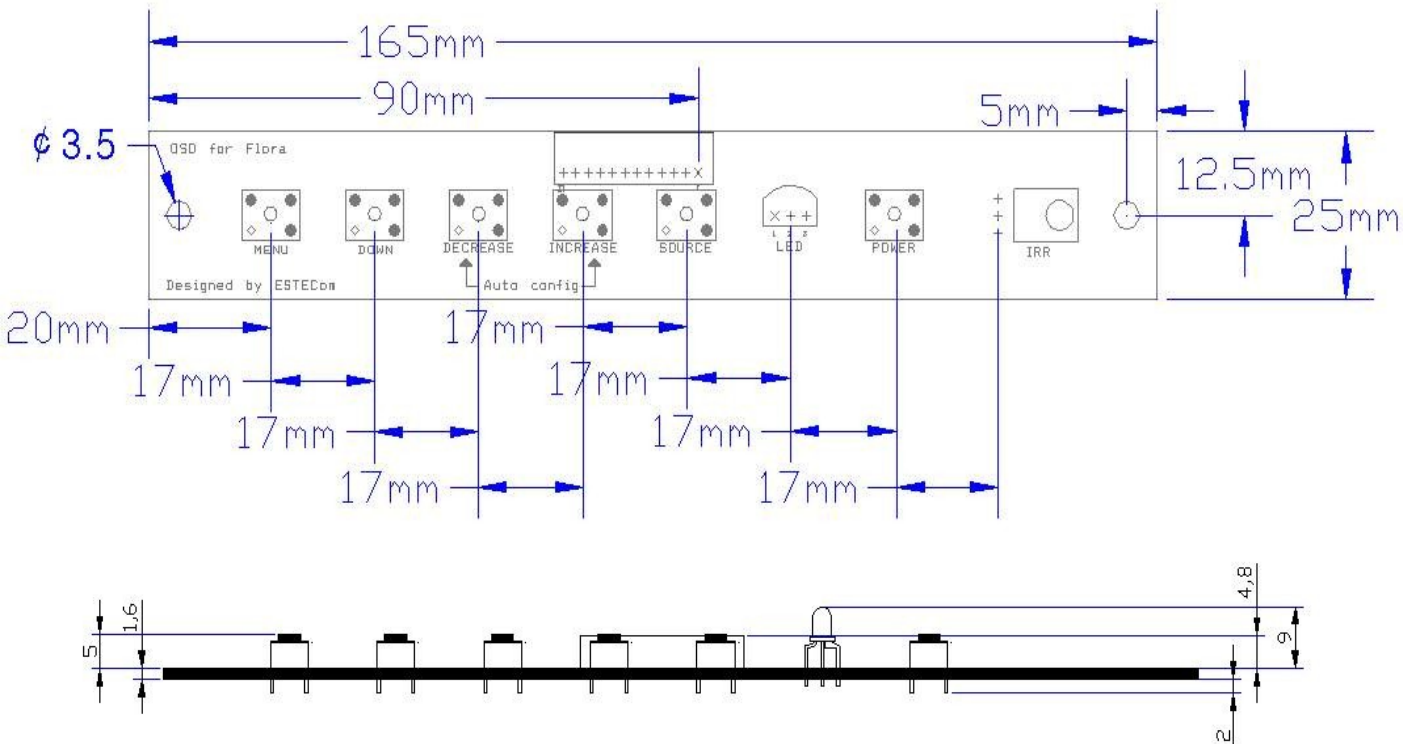
8.1.1 OSD Board with 6 Buttons

Part number : FOSD-T01

(Samsung Smart Panel Accessory Kit – Option on page 25~30)



**Menu / Down / Decrease / Increase / Source Select / Power
(Auto Config)**



OSD Key Description

- MENU : Menu Key
- DOWN (EXIT): Exit Key (HOT Key : Auto Config.)
- DECREASE : Decrease Key, Left Key (HOT Key : Audio Decrease)
- INCREASE : Increase Key, Right Key (HOT Key : Audio Increase)
- SOURCE : Source Select HOT Key : Source Select [Analog – DVI] [– Composite – S-Video {option}])

8.2 OSD menu enables user to manipulate the image and settings.



Brightness : Adjust Brightness of the screen. (used to PWM control)



Contrast : Contrast is ratio of luminance between black and white.
Adjust distinction. (Analog RGB Only)

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Color Control : Choice of Bluish, Reddish and user's option is chosen, RGB can be adjusted.

- **User** : Able to adjust the color by controlling Red, Green, and Blue.
- **Bluish** : Blue-tinged screen.
- **Reddish** : Red-tinged screen.

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Position :

- **H Position** : Move screen horizontally.
- **V Position** : Move screen vertically.



Clock Phase :

- **Phase** : Adjust Phase of screen. Used when noise or overlapped

lines are shown on the screen.

Caution : Do not make manual adjustment when the picture is in its normal Shape or you will create problem on it.

- **Clock** : Adjust horizontal size of the screen by increasing or decreasing the number of picture elements.

Caution : Perform this adjustment just in the case of having horizontallyUnmatched picture after operation the

“ Auto Adjustment ”



Miscellaneous :

- **Recall** : Initial set-up, preset by the factory before forwarding.

- **OSD Time** : The range of controlling the duration time of the OSD menu (OSD turn-off time).

- **OSD Position** :

H Position : Adjust horizontal position of OSD menu by value.

V Position : Adjust vertical position of OSD menu by value.

- **Auto Color** : Color automatically set from strange input signal.
Auto Adjust : Auto configuration of geometry.

Automatically adjusted items are :

1) Clock 2) Phase 3) Position is centered

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Language : Select the language of OSD menu.

ENGLISH / ESPAÑOL / DEUTSCH / FRANÇAIS / ITALIANO / SVENSKA / SUOMI /
DANSK / PORTUGUÊS / DUTCH / / /



Input Select : Select input signal source.

Analog RGB / DVI

9. Operation Message

Auto Adjust (Analog RGB mode)

- Execute Auto Adjust Function

AUTO ADJUST

Self Diagnostics (Analog RGB mode)

- Input Signal or Cable is not present after power on with power switch. This message is disappeared after 10 sec or activity of input signal

**NO SIGNAL /
NO CABLE**

Auto Color (Analog RGB mode)

- Execute Auto Color Function

AUTO COLOR

Out of Range

- Input Signal is over the supporting range

**VIDEO MODE NOT
SUPPORTED**

10. Customization

Based on a customer's request, D.C.D. Display Solutions customizes the SMLM0500x board configuration, harness connection & length, Remote Controller, DDC and OSD menu. Generally, it requires MOQ (minimum order quantity) and a 1 month lead time after finalizing customization of the specification. Details should be agreed by both parties.