

15.6“ Lcd Panel With Display Kits

■ Preliminary Specification

□ Approval Specification

Module	15.6” LCD Panel with Display Kits
Module Name	K156DHW-V01 Rev.0

Customer

Approved by

Date

Notice: This Specification is subject to change without notice.

Approved By	Prepared By
Tony Chiu 2017/12/26	Ray Lin 2017/12/6

15.6“ Lcd Panel With Display Kits

K156DHW-V01

Overview

- 15.6“ a-si TFT LCD panel with resolution 1920 x 1080
- Suitable for Military, Tablet, Ruggedized PC, Kiosk, Advertising, POS, Marine, Transportation....etc.
- 15 Pin D-SUB VGA connector input
- DVI-D (Digital Video Input) connector input
- OSD(On-Screen-Display) control menu
- Audio input and Audio output
- Include following parts =
 1. 15.6“ Panel
 2. ADBoard
 3. eDP Cable
 4. OSD 4 key Board
 5. OSD 4 Key Cable



15.6” LCD Panel with Display Kits	
PANEL ITEM	SPECIFICATION
Module	15.6” Color TFT-LCD with LED Backlight (eDP Interface)
Resolution (Pixels)	1920 x 1080 (FHD)
White Luminance	300 cd/m2
Display Mode	VA Mode, Normally Black
Contrast Ratio	800:1
Response Time	30ms (MAX 35ms)
View Angle	85/85/85/85 deg
Outline Dimension	359.5mm(H) x 217.5mm(V) x 3.2mm(T) (With PCB, Without Bracket)
Weight	MAX 380 g
Power Consumption	MAX 5.2Watt
LED Life Time	15,000 Hrs

Product Specification

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K156DHW-V01 Panel General Description

General Specifications

Item	Specification	Unit
Screen Size	15.6" diagonal	-
Driver Element	a-si TFT active matrix	-
Pixel Number	1920 x R.G.B. x 1080	pixel
Pixel Pitch	0.17925(H) x 0.17925(V)	mm
Pixel Arrangement	RGB vertical stripe	-
Display Colors	262k Colors	color

Mechanical Specifications

Item		Type	Unit
Module Size (With PCB) (Without Bracket)	Horizontal(H)	359.5	mm
	Vertical(V)	217.5	mm
	Thickness(T)	(MAX 3.2)	mm
Bezel Area	Horizontal	-	mm
	Vertical	-	mm
Active Area	Horizontal	334.16	mm
	Vertical	193.59	mm
Weight		(MAX 380)	g

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Absolute Rating of Environment

Item	Symbol	Value		Unit
		Min.	Max.	
Storage Temperature	T _{ST}	-20	+60	°C
Operating Temperature	T _{OP}	0	+50	°C

Optical Specifications

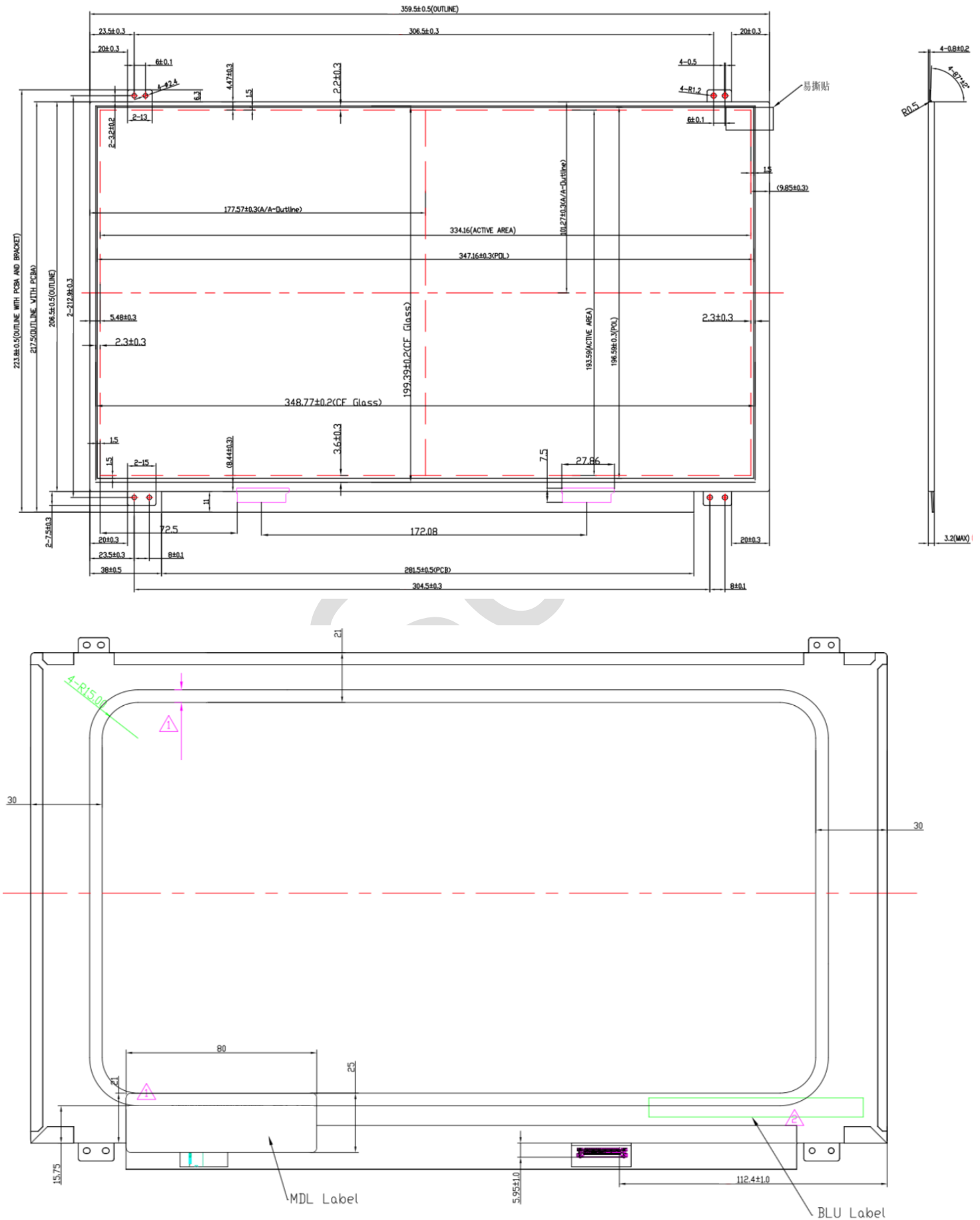
Item	Symbol	Condition	Min.	Type	Max.	Unit
Color Chromaticity	Red	Rx	Typ – 0.03	0.653	Typ + 0.03	-
		Ry		0.340		-
	Green	Gx		0.317		-
		Gy		0.629		-
	Blue	Bx		0.153		-
		By		0.064		-
	White	Wx		0.313		-
		Wy		0.329		-
	Viewing Angle	Horizontal		θ_{x+}		-
θ_{x-}			-	85	-	
Vertical		θ_{y+}	-	85	-	
		θ_{y-}	-	85	-	

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Panel Dimension



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ADBoard & OSD Key General Function

- A. TFT-LCD module drive board
- B. Resolution up to 1920 X 1080 @ 60 Hz
- C. 15 PIN D-SUB VGA connector input
- D. DVI-D (Digital Video Input) connector input
- E. 1/2/4 lane eDP interface output to panel
- F. OSD (On Screen Display) control menu
- G. Supporting HDCP protocol (optional)
- H. Supporting DDC/CI protocol

Specification

Model	AD-0070
Panel interface	1/2/4 lane eDP
Maximum Resolution	Up to WUXGA 1920x1080 8 bits per color, total 16.7M Colors
Vertical Refresh Rate	VGA 、 SVGA ,XGA AND UXGA VESA standard up to 75Hz WUXGA up to 60HZ
Input Source	VGA analog (15 pin D-Sub) ,DVI ,Audio in
Dot Clock Maximum (pixel clock)	165 MHz
Key Function	Power Menu Adjust— Adjust+ Auto
Board Dimension	110 mm x 82 mm
Voltage for LCD Panel	5V, 3.3V DC (Jump Select)
Storage Temperature Limits	Temperature -40C~70C
Operation Temperature Limits	Temperature 0C~40C Humidity : Less than 85%

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Support PC Timing

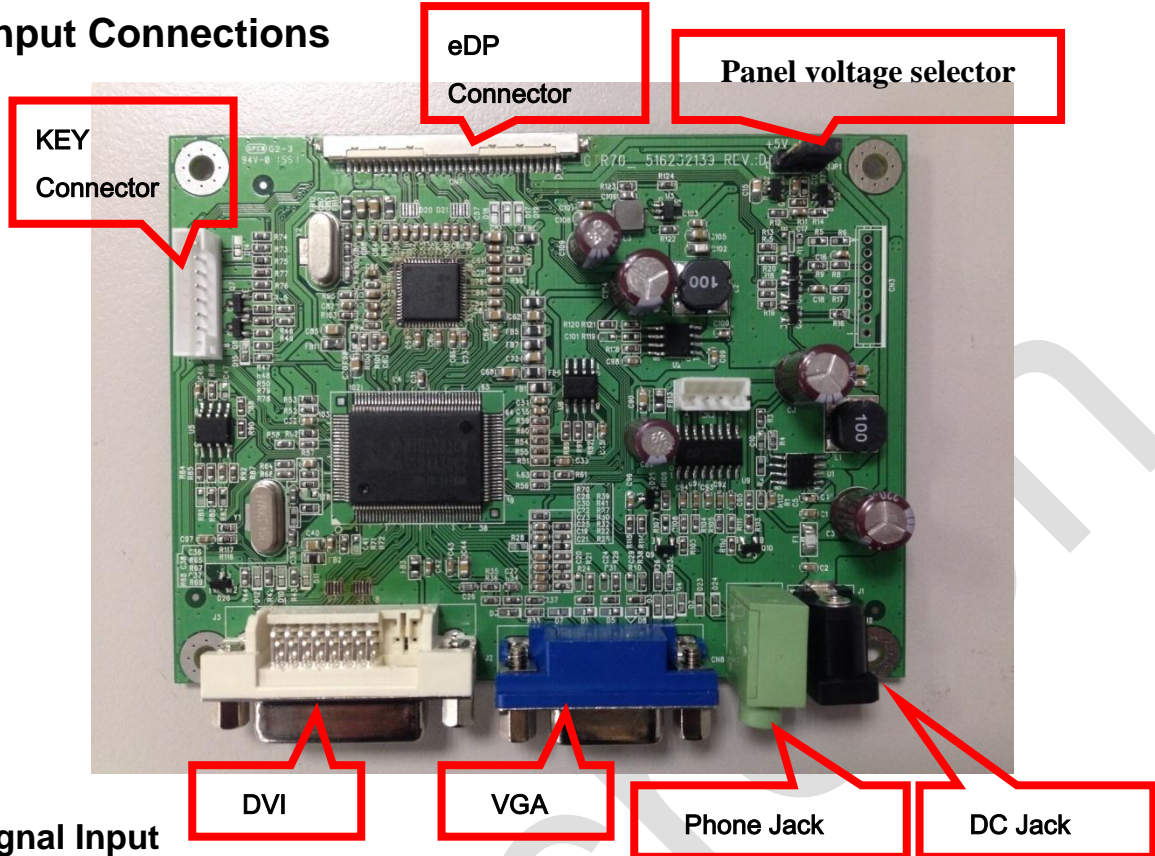
NO.	Description	H-Freq. (KHz)	V-Freq. (Hz)
1.	VGA640×400	31.480	70
2.	VGA640×480	31.649	60
3.	VGA720×400	37.469	70
4.	VESA 640×480	37.862	72.809
5.	VESA 640×480	37.5	75
6.	VESA 800×600	35.156	56.25
7.	VESA 800×600	37.9	60
8.	VESA 800×600	48.077	72.188
9.	VESA 800×600	46.875	75
10.	VESA 1024×768	48.363	60
11.	VESA 1024×768	56.476	70
12.	VESA 1024×768	60.023	75
13.	VESA 1152×864	67.5	75
14.	VESA 1280 x 768	47.8	60
15.	VESA 1280 x 768	60.3	75
16.	VESA 1280×960	60	60
17.	VESA 1280×1024	63.981	60
18.	VESA 1280×1024	79.977	75
19.	VESA 1440x900	59.9	60
20.	VESA 1440x900	75	75
21.	VESA 1600x1200	75	60
22.	VESA 1600x1200	81.3	65 Note1
23.	VESA 1600x1200	87.5	70 Note1
24.	VESA 1600x1200	93.8	75 Note1
25.	VESA 1680x1050	65.3	60
26.	VESA 1680x1050	74.9	75 Note1
27.	VESA 1920x1080	56.25	50
28.	VESA 1920x1080	67.5	60

** Note1 : VGA input only

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Signal Input Connections



1.VGA Signal Input

Location J2 - 15 pin Hi-Density Female D-SUB

Pin Assign and Definition

Pin No.	SYMBOL	Pin No.	SYMBOL	Pin No.	SYMBOL
1	RED IN	6	R-GND	11	GND
2	GREEN IN	7	G-GND	12	SDA DDC
3	BLUE IN	8	B-GND	13	SYNC. H
4	GND	9	PC 5V	14	SYNC. V
5	GND	10	DET	15	SCL DDC

2.DVI Input

Location J3 - 30 Pin DVI Connector

Pin Assign and Definition

Pin No.	SYMBOL	Pin No.	SYMBOL	Pin No.	SYMBOL
1	DATA2-	11	GND	21	NC
2	DATA2+	12	NC	22	GND
3	GND	13	NC	23	CLKa+
4	NC	14	DDC 5V	24	CLKa-
5	NC	15	GND	25	NC
6	DVI_DDC_SCL	16	GND	26	NC

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7	DVI_DDC_SDA	17	DATA0-	27	NC
8	NC	18	DATA0+	28	NC
9	DATA1-	19	GND	29	GND
10	DATA1+	20	NC	30	NC

3.Power Input

Location – J1 : DC JACK DC=2.5mm OR DC=2.0mm
OR

Location – CN2 : 4 Pin wafer pitch 2.0mm 180D

Pin assign and definition

Pin No.	SYMBOL
1	+12V
2	+12V
3	GND
4	GND

4.Panel power select (JP1)

Pin1,Pin2 short panel power 3.3V

Pin2,Pin3 short panel power 5V

5.eDP Output

Location – CN7 : WF13-423-3033

Pin Assign and Definition

Pin No.	SYMBOL	Pin No.	SYMBOL	Pin No.	SYMBOL
1	+12V	11	NC	21	D1-
2	+12V	12	HPD	22	D1+
3	+12V	13	AUX-	23	D0-
4	+12V	14	AUX+	24	D0+
5	Dimming control	15	D3-	25	GND
6	Back Light Enable	16	D3+	26	GND
7	GND	17	GND	27	NC
8	GND	18	GND	28	VLCD for Panel
9	GND	19	D2-	29	VLCD for Panel
10	GND	20	D2+	30	VLCD For Panel

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6.Key Output Connector

Location – CN5: 8PIN wafer pitch 2.0mm 180D

All Key Active Low Level., All LED Active HI Level , Output Current 10mA MAX

Pin assign and definition

Pin No.	SYMBOL	Pin No.	SYMBOL	Pin No.	SYMBOL
1	MENU KEY	4	UP KEY	7	LED_O
2	AUTO KEY	5	GND	8	POWER KEY
3	DOWN KEY	6	LED_G	---	-----

7.Inverter Connector

Location – CN3: 6/8 PIN wafer pitch 2.0mm 180D

Pin assign and definition

6Pin No.	8Pin No	SYMBOL	6Pin No	8Pin No.	SYMBOL
	1	+5V	3	5	Dimming control
	2	+5V	4	6	Back Light Enable
1	3	GND	5	7	+12V
2	4	GND	6	8	+12V

A. Dimming: IF CCFL panel Range 0 (Inverter Current Max) to 5V (Inverter Current Min)

IF LED panel PWM Ratio 100%(LED Current Max) to PWM Ratio 20%(LED Current Min)

B. Back light enable: 5V (ON) or 0V (OFF)

8.Audio Input –CN8 , SCJ368R0NXS0G04G 3P Green or equiv.

Audio Input 1Vp-p Max.

9.Speaker Output –CN9, 4 PIN wafer pitch 2.0mm 180D

Audio Output 1.6W + 1.6W at 8 Ohm

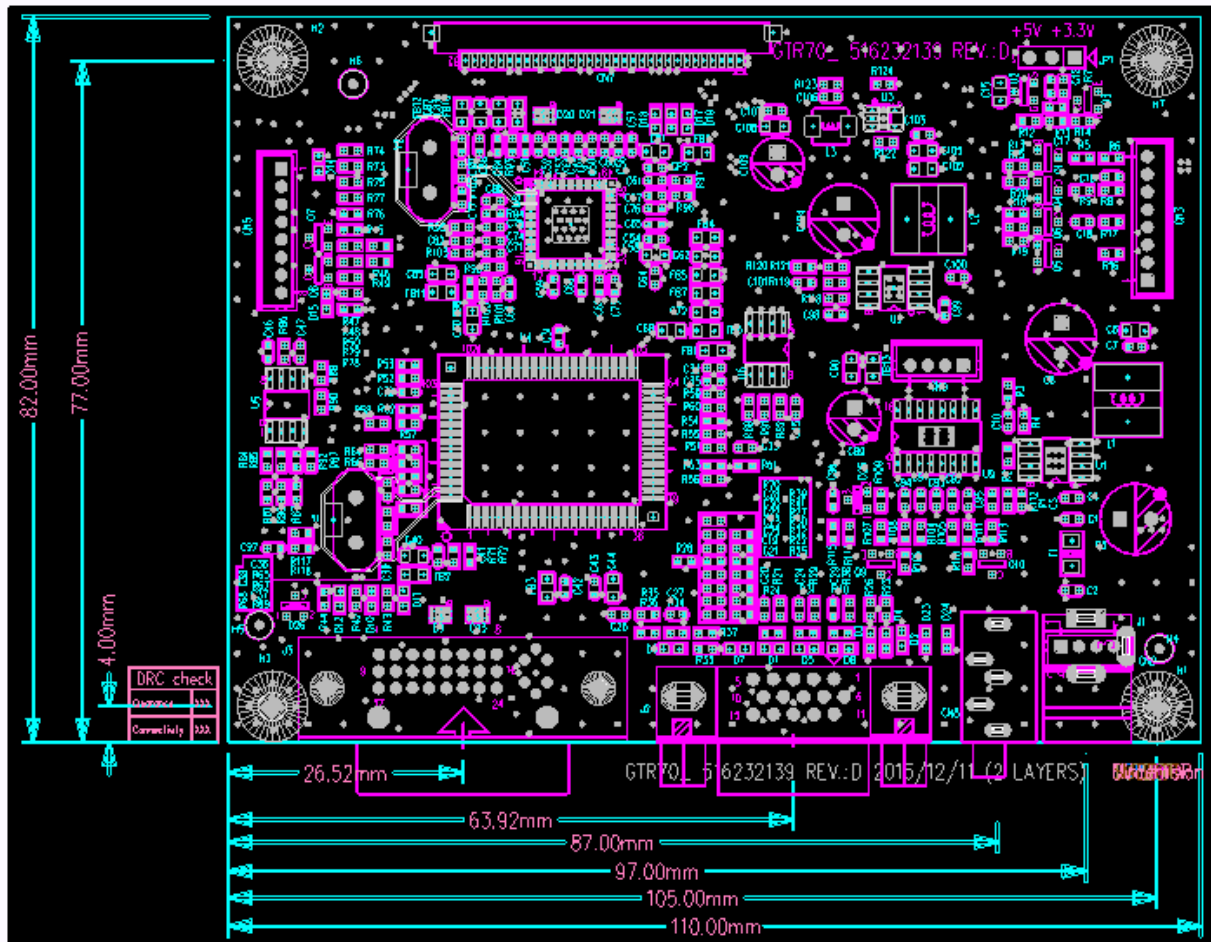
Pin assign and definition

Pin	Signal
1	L+
2	L-
3	R-
4	R+

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PCB Dimension



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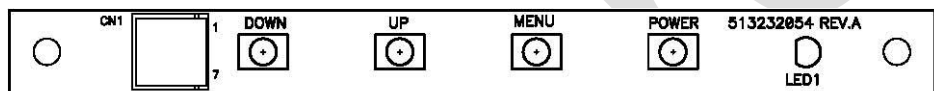
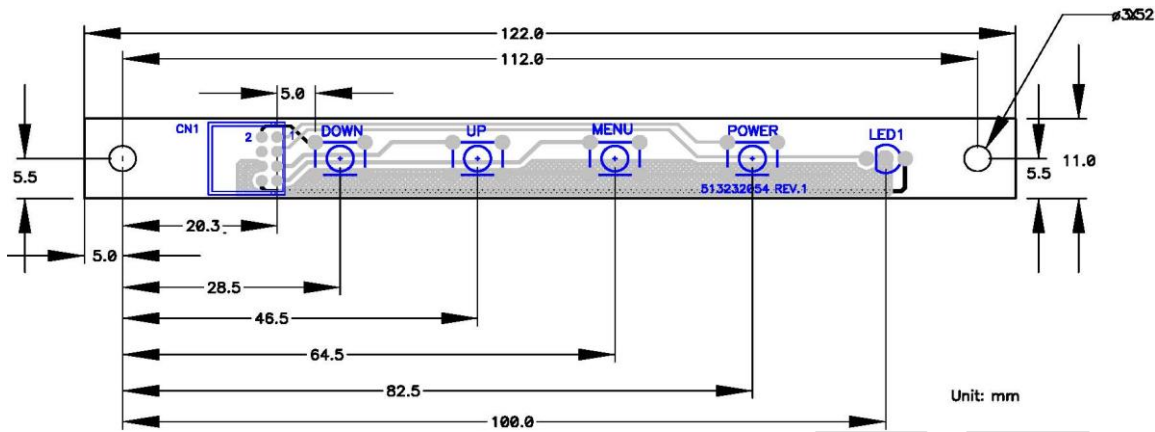
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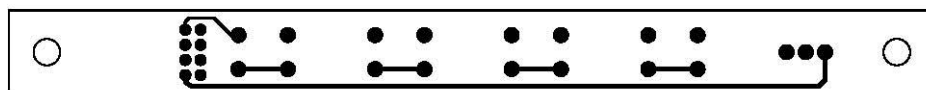
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OSD Key PCB

1.OSD Key PCB Dimension & Layout Drawings



LAYER : TOPSILK



LAYER : TOP



LAYER : BOTTOM

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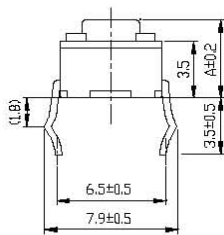
2.Output Connector

Location – CN1, Wafer PH 2.0mm 4x2 pin R/A, MD242154R or equiv.

Pin Assign and Definition

Pin No.	SYMBOL	Pin No.	SYMBOL
1	POWER	5	UP
2	DOWN	6	GND
3	LED_G	7	MENU
4	NC	8	LED_O

3.Tact Switch Spec



A = 7.0 mm