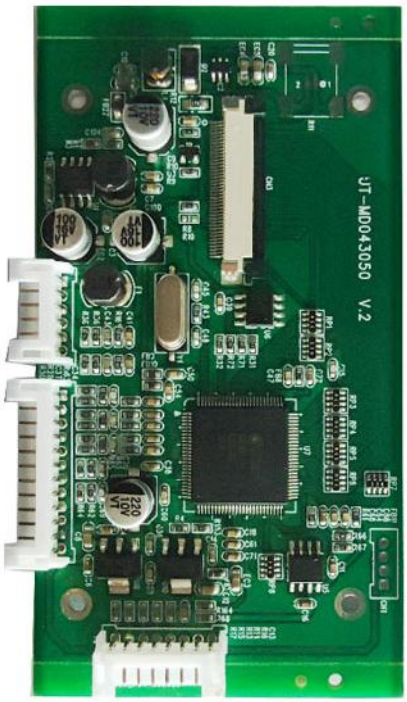
SPECIFICATION FOR APPROVAL



客　户　名　称（CUSTOMER）：_____

客　户　料　号（PART NO.）：_____

客　户　品　名（DESCRIPTION）：_____

客　户　品　名（DESCRIPTION）：UT-MD043050V.2

日　　期　　（DATE）：2011-07-01

Table of Contents

Change Description

Version	Release Date	Modification Content	Remarks
V1.0	2011-08-01	Initial formulation	

1. Scope of Application

Assembly of AT043TN24 V.1, AT043TN25 V.2, and AT050TN43 V.1 for 4.3 - inch and 5 - inch LCD displays with resolutions of 480*272 and 800*480, and their display drivers

2. Product Function Description

2.1 Video signal input: VGA, CVBS1, and CVBS2 (optional).
2.2 Power input: DC +12V.
2.3 Multi - function OSD operation.
2.4 Equipped with IR infrared remote control function (optional).

3. Signal Input Standards

3.1 CVBS: 1.0Vp-p, 75Ω
3.2 VGA: 480272, 800480 (Refresh rate: 60 - 70 Hz)

4. Operating Environment

4.1 Operating temperature: - 10℃ - +60℃.
4.2 Operating humidity: 90%RH (no condensation allowed).

5. Storage Environment

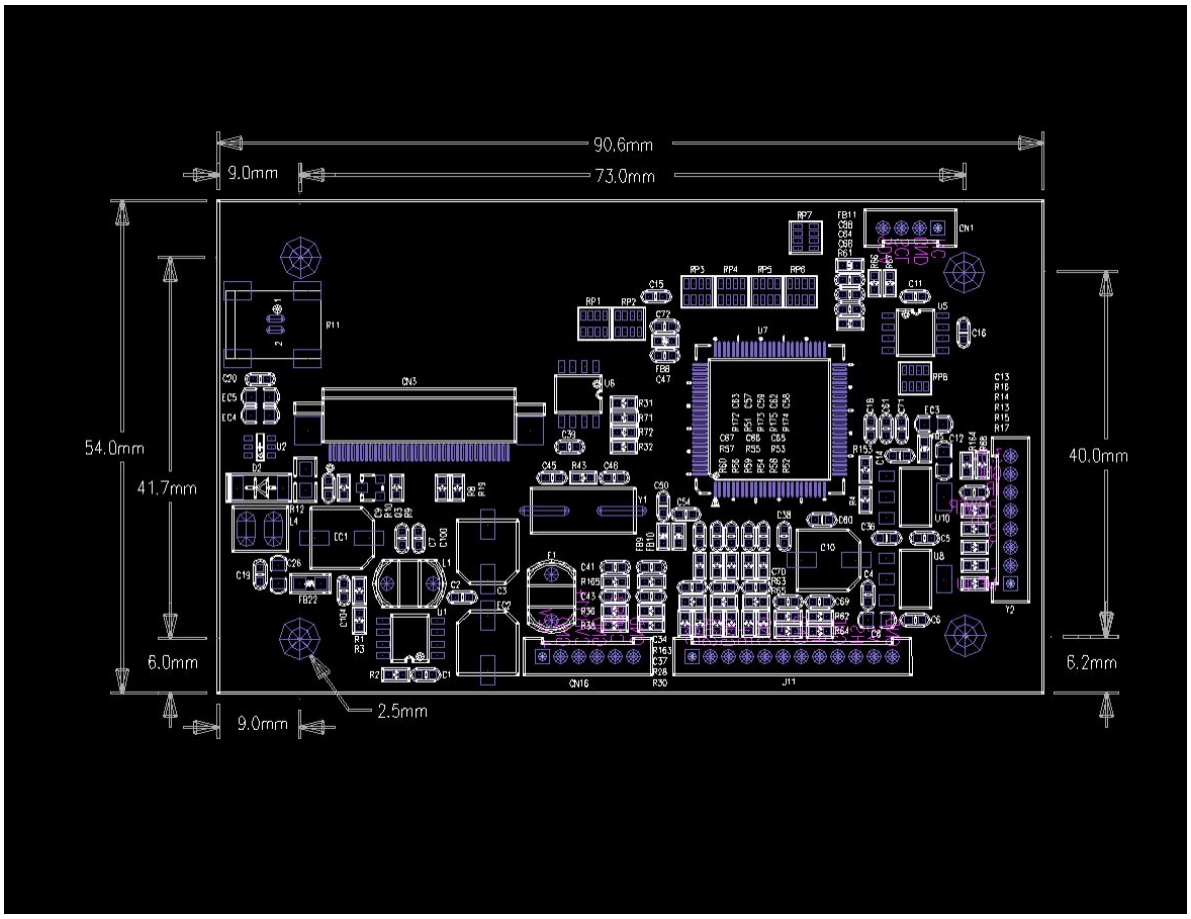
5.1 Storage temperature: - 20℃ - +70℃.
5.2 Storage humidity: 90%RH (no condensation allowed).

6. Operating Power Supply Requirements (AT043TN24 V.1)

	Minimum Value	Typical Value	Maximum Value	Unit
Operating Voltage	+9	+12	14	V
Operating Current	130	100	70	mA

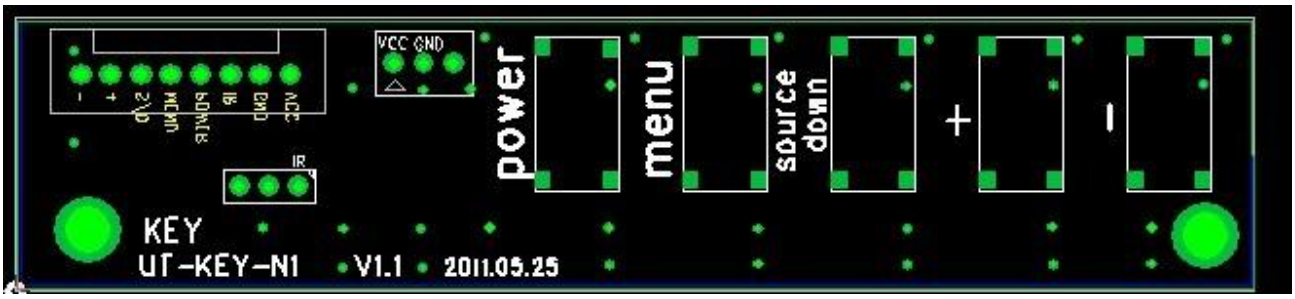
7. Product Specifications

7.1 Product Appearance Structure and Physical Picture (Unit: mm)



Length = 90.6mm, Width = 53.1mm, and the positioning hole diameter is 2.5mm.

7.2. Key Structure Diagram



Product Interface Definition

（Backlight Interface）2PIN Narrow - Mouth High - Voltage Socket

Pin Number	Definition	Description
1	LED+	Positive terminal of LED voltage
2	LED-	Negative terminal of LED voltage

CN3 (FPC Socket Definition) 40PIN/ 0.5mm

Pin Number	Definition	Description	Pin Number	Definition	Description

1	VLED-	Power for LED backlight cathode	21	B0	Blue data (LSB)
2	VLED+	Power for LED backlight anode	22	B1	Blue data
3	GND	Power ground	23	B2	Blue data
4	VDD	Power voltage	24	B3	Blue data
5	R0	Red data (LSB)	25	B4	Blue data
6	R1	Red data	26	B5	Blue data
7	R2	Red data	27	B6	Blue data
8	R3	Red data	28	B7	Blue data (MSB)
9	R4	Red data	29	GND	Power ground
10	R5	Red data	30	CLK	Pixel clock
11	R6	Red data	31	DISP	Display on/off
12	R7	Red data (MSB)	32	NC	No connection
13	G0	Green data (LSB)	33	NC	No connection
14	G1	Green data	34	DE	Data Enable
15	G2	Green data	35	NC	No connection
16	G3	Green data	36	GND	Power ground
17	G4	Green data	37	NC	No connection
18	G5	Green data	38	NC	No connection
19	G6	Green data	39	NC	No connection
20	G7	Green data (MSB)	40	NC	No connection

CN16 (Signal Input) 6PIN/2.0mm

Pin Number	Definition	Description
1	+12V	Power supply
2	DGND	Power ground
3	CVBS2	AV input
4	AGND	Signal ground
5	CVBS1	AV input
6	AGND	Signal ground

J11 (VGA Input) 12PIN/2.0mm

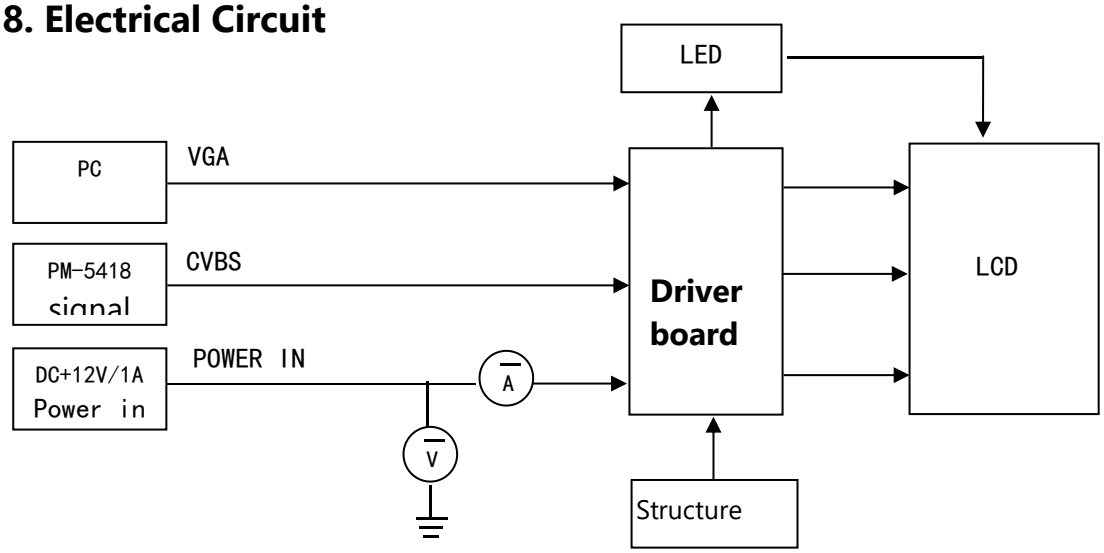
Pin Number	Definition	Description	Pin Number	Definition	Description
1	GND	Empty	7	G+	Green signal +
2	VS	Vertical synchronization signal	8	GND	+Ground
3	HS	Horizontal synchronization signal	9	B+	Blue signal +
4	GND	Empty	10	GND	Ground
5	R+	Red signal	11	NC	No connection
6	GND	Ground	12	NC	No connection

Y2 (Keypad Definition) 8PIN/2.0mm

Pin Number	Definition	Description	Pin Number	Definition	Description
1	KEY5	Function menu key (MENU)	5	KEY1	Power key (POWER)
2	KEY4	Decrease key (RIGH)	6	IR	Infrared reception
3	KEY3	Increase key (LEFT)	7	GND	Ground

4	KEY2	Switch key (DOWN key) SOURCE/UP	8	VCC	3.3V

8. Electrical Circuit



9. Electrical Parameters

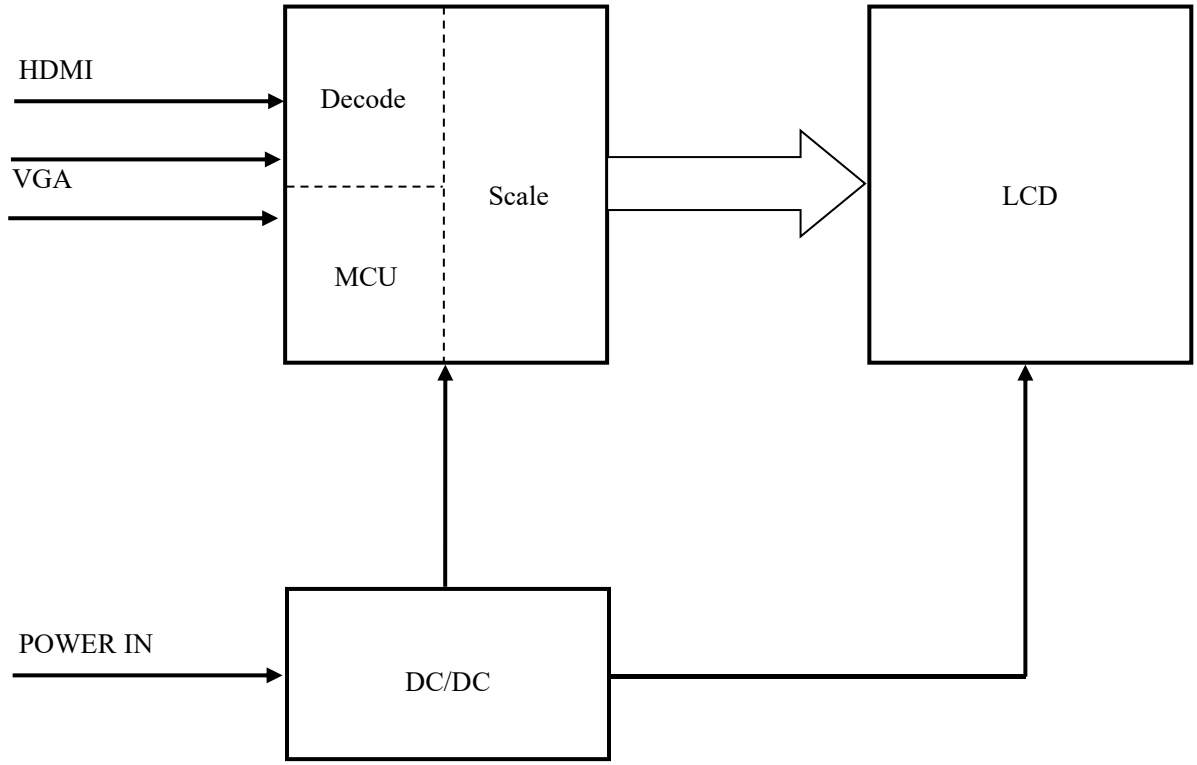
9.1 Power Consumption Details of the Driver Board (AT043TN24 V.1)

Input Voltage (VIN)	Input Current (IIN)	Input Current (IIN)	Input Current (IIN)	Input Current (IIN)	Remarks
	Minimum Value	Typical Value	Maximum Value	Unit	
+12V	70	100	130	mA	

10. LCD Specifications (EJ101IA - 01G)

Item	Specification	Unit
Screen Size	4.3 (Diagonal)	inch
Pixel Number	480×(R,G,B)×272	dot
Effective Display Area	95.04(H)×53.868(V)	mm
Pixel Size	0.066(W)×0.198(H)	mm

11. Electrical Circuit



12. Basic Operation Instructions

12.1 Key Operations

There are five operation keys in total, namely POWER, MENU, SOURCE/UP, LEFT, and RIGHT.

12.1.1 Key Definitions

- **POWER**: In the power - off state, press the POWER key once to turn on the device. In the power - on state, press the POWER key once to turn off the device.
- **SOURCE/UP**: When there is no OSD menu, it is used for source switching. When the OSD menu is present, it functions as the UP key.
- **MENU**: It is used to switch between the main menu items. The switching order is as follows: PICTURE, OPTION, SYSTEM, CLOCK, and Exit the menu window.
- **LEFT**: When no window is displayed, it is used to decrease the volume. When a menu window is displayed, it is used to decrease the data value.
- **RIGHT**: When no window is displayed, it is used to increase the volume. When a menu window is displayed, it is used to increase the data value.

12.1.2 Menu Definitions in AV/S - VIDEO State

The menu consists of four windows: PICTURE, AUDIO, FUNCTION, and SYSTEM. Each window contains the following functions:

PICTURE

- **BRIGHTNESS**: You can adjust the brightness of the image.
- **CONTRAST**: You can adjust the contrast of the image.
- **COLOR**: You can adjust the color depth of the image.
- **ENGLISH**: You can switch between various languages.

OPTION

- **NORMAL**: Flip the image vertically.

SYSTEM

- **AV**: Switch between AV and VGA modes.

CLOCK

- **SLEEP**: Set the device to turn off automatically after a certain period (sleep mode).
- **TIME**: Display the clock.
- **OFF - TIME**: Set the power - off time.
- **ON - TIME**: Set the power - on time.

12.1.3 Menu Definitions in VGA State

The menu also consists of four windows: PICTURE, AUDIO, FUNCTION, and SYSTEM. Each window contains the following functions:

PICTURE

- **BRIGHTNESS**: You can adjust the brightness of the image.
- **CONTRAST**: You can adjust the contrast of the image.
- **ENGLISH**: You can switch between various languages.

OPTION

- **NORMAL**: Flip the image vertically.
- **HPOSITION**: Correct the image horizontally.
- **VPOSITION**: Correct the image vertically.
- **AUTO**: Automatically correct the image both horizontally and vertically.

SYSTEM

- **VGA**: Switch between AV and VGA modes.

CLOCK

- **SLEEP**: Set the device to turn off automatically after a certain period (sleep mode).
- **TIME**: Display the clock.
- **OFF - TIME**: Set the power - off time.
- **ON - TIME**: Set the power - on time.

12.1.4 Operation Instructions

After pressing the MENU key to display the window, press the SOURCE/UP key to select each item downward (in a cyclic order from top to bottom). The selected item will be displayed in red. Then, press the LEFT or RIGHT key to adjust the parameters of the selected item.
In the PICTURE window, after selecting brightness, color, or contrast, press the LEFT or RIGHT key to adjust them in 100 levels.
In the OPTION window, use the LEFT or RIGHT key to adjust the NORMAL, UP, HPOSITION, VPOSITION, and AUTO (the last three are only valid in VGA state) items.
In the SYSTEM window (valid in AV/S - VIDEO state), use the LEFT or RIGHT key to switch between AV and VGA modes.

12.2 Remote Control Operations

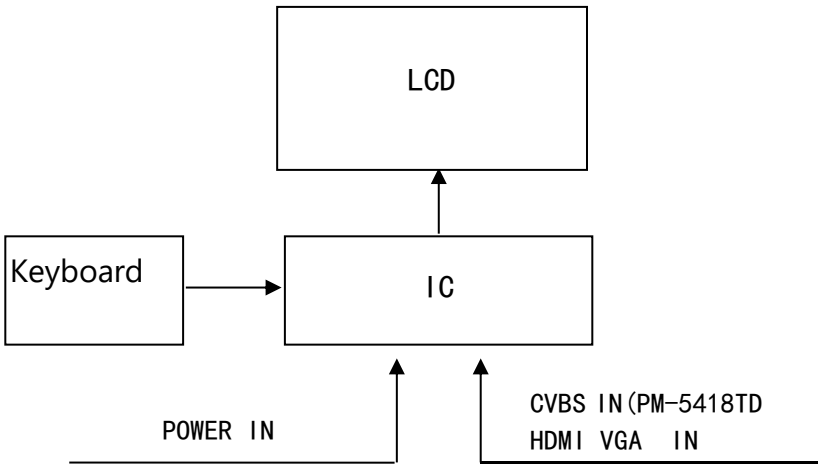
The remote control has six operation keys: POWER, MENU, LEFT, RIGHT, UP, and DOWN. The operations are the same as those of the keys on the device.

13. Testing Equipment

13.1 PHILIPS PM - 5418TD Video Signal Generator;
13.2 PS - 305D DC Power Supply;
13.3 Fluke 45 Multimeter;
13.4 Lecroy Wave Surfer 454/Tektronix TDS 1012 Oscilloscope;
13.5 Temperature - Humidity Chamber.

14. Function Testing (Ta = 25℃)

14.1 Display Test under CVBS Input Signal
14.1.1 Connect the PCB to be tested as shown in the following figure.

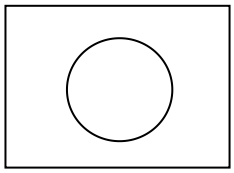


14.1.2 Connect the power supply and signal, and carefully observe whether the display screen shows normally.

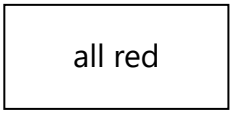
14.1.4 Select the gray - scale output on the testing instrument PM5418TD, and carefully observe the display effect of the display screen. It should show gray bars.

14.1.5 Select the color bar on the testing instrument PM5418TD, and carefully observe the display effect of the display screen. It should show color bars of eight colors (black, blue, red, magenta, green, cyan, yellow, and white).

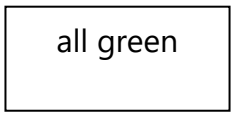
14.1.6 Select the electronic circle on the testing instrument PM5418TD, and carefully observe the display effect of the display screen. It should show the following pattern.



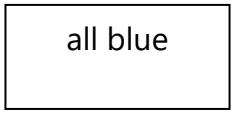
14.1.7 Select the red primary color on the testing instrument PM5418TD, and carefully observe the display effect of the display screen. It should show all red.



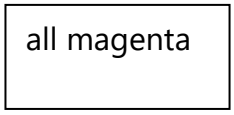
14.1.8 Select the green primary color on the testing instrument PM5418D, and carefully observe the display effect of the display screen. It should show all green.



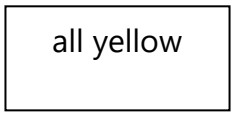
14.1.9 Select the blue primary color on the testing instrument PM5418TD, and carefully observe the display effect of the display screen. It should show all blue.



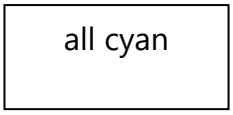
14.1.10 Select the red - blue primary color on the testing instrument PM5418TD, and carefully observe the display effect of the display screen. It should show all magenta.



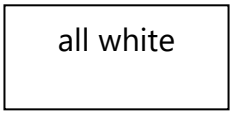
14.1.11 Select the red - green primary color on the testing instrument PM5418TD, and carefully observe the display effect of the display screen. It should show all yellow.



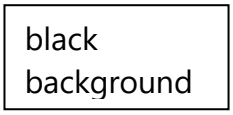
14.1.12 Select the blue - green primary color on the testing instrument PM5418TD, and carefully observe the display effect of the display screen. It should show all cyan.



14.1.13 Select the red - green - blue primary color on the testing instrument PM5418TD, and carefully observe the display effect of the display screen. It should show all white.



14.1.14 Turn off the primary color on the testing instrument PM5418TD, and carefully observe the display effect of the display screen. It should show a black background.



14.1.15 Record the test results in the report.

14.2 Display Test under VGA Input Signal

Switch to the VGA input signal, connect to a PC, and refer to the test content in 14.1 for testing.

15. Reliability Tests

Category	Test Item	Test Conditions	Number of Tests	Judgment Criteria
Storage Environment Tests	High - Temperature Test	+70℃, 96Hr	2	Normal after returning to room temperature
	Low - Temperature Test	-20℃, 96Hr	2	
Operating Environment Tests	High - Temperature Test	+60℃, 96Hr	2	Normal operation during the experiment

Remarks:

1. The tests should be carried out under non - condensing conditions.

2. After the tests, the product should be placed in the test chamber. It can be taken out after 24 hours at normal temperature and humidity.

16. Outgoing Inspection Standards

NO.	Inspection Item	Inspection Method	Sampling Level	Inspection Level
1	Electrical Performance	GB2828 - 2003	II	Critical Defect: CR = 0
2	Dimensions			Major Defect: AQL = 0.65
3	Appearance, Packaging			Minor Defect: AQL = 1.0