



SPECIFICATIONS FOR APPROVAL

(CUSTOMER) :

(PART NO.) :

(DESCRIPTION) :

U T (DESCRIPTION) : STARTEK-KD043050 V.1

(DATE) : 2011.8.1



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General description

Version	Date	Amendment	Note
V.1	2011.8.1	First Release	

1. The Scope of Application

The standard model is applicable to KD043C-1 and KD043C-1-TP LCD module. The driving board Startek-KD043050 V.1 from Startek electronic Technology. Co.,Ltd

2. Description of function

- 2.1 VGA、CVBS1、CVBS2、AV (optional) video signal input;
- 2.2 power input: DC +12V
- 2.3 multi functional OSD operation
- 2.4 Equipped with remote control function (optional)

3. Signal input standards

- 3.1 CVBS: 1.0Vp-p75Ω
- 3.2 VGA: 800*600 640*480 (Refresh rate 60)

4. Working conditions

- 4.1 Working temperature: -10℃~+60℃
- 4.2 Working humidity: 90%RH (can not be any dew)

5. Storage condition

- 5.1 Storage temperature: -20℃~+70℃
- 5.2 Storage humidity: 90%RH (can not be any dew)

6. Demand of working voltage (KD043C-1 and KD043C-1-TP)

(Ta=25℃)

Item	minimum value	Typical value	Maximum value
Working voltage	9V	+12V	14V
working current	130mA	100mA	70mA

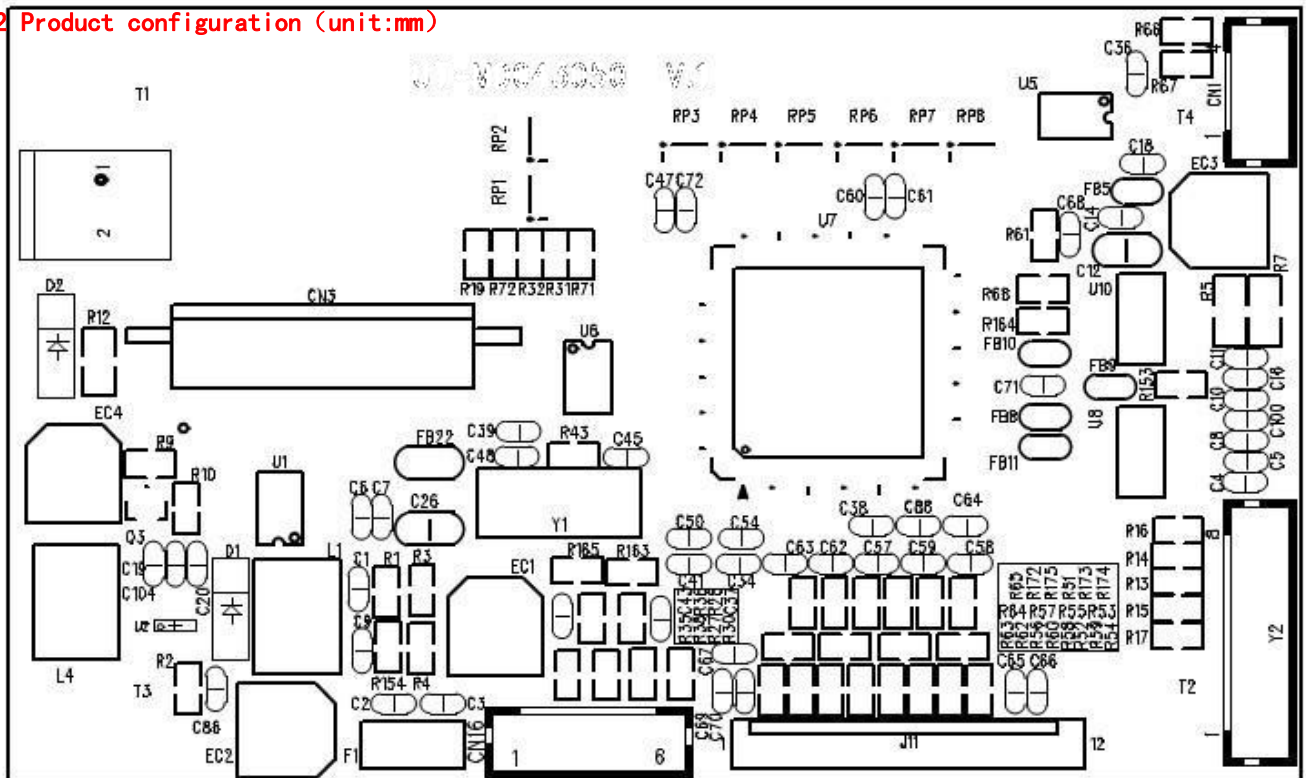
7. Specifications



7.1 Main parts and components:

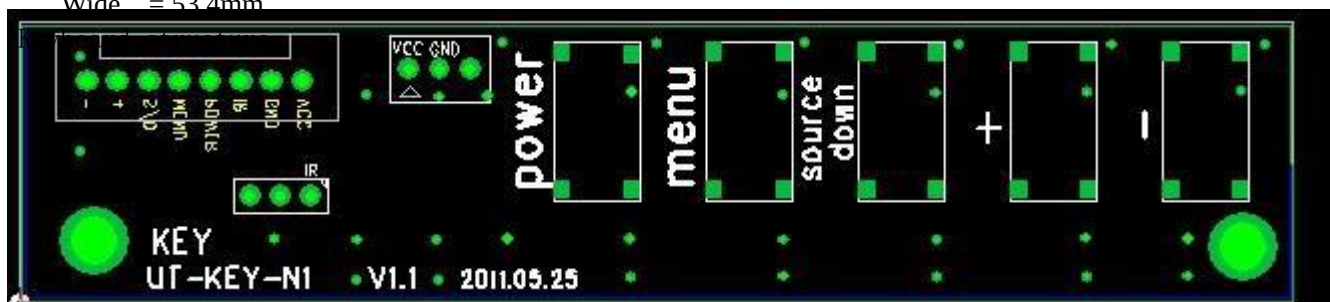
No.	Parts name	specification	Manufacturer	Quantity	Note
		MST703	Mstar	1PCS	U7
1	Main IC	PM25LV010		1PCS	U5
2	crystal oscillator	12.000MHz	Hongkang/Keci	1PCS	Y1

7.2 Product configuration (unit:mm)



Length = 90.6mm

Wide = 53.4mm



Length = 81.9mm

Wide = 17.2

7.3 Interface definition:



CN16(Signal input) 6PIN/2.0

Pin No.	Definition	Description
1	+12V	Power
2	DGND	Power ground
3	CVBS2	AV input
4	AGND	Signal ground
5	CVBS1	AV input
6	AGND	Signal ground

J11(VGA Input) 12 PIN/2.0

Pin No.	Definition	Description
1	GND	No connector
2	VS	Field synchronizing signal
3	HS	Horizontal synchronizing signal
4	GND	Ground
5	R+	Red signal
6	GND	Ground
7	G+	Green signal
8	GND	Ground
9	B+	Blue signal
10	GND	Ground
11	NC	No connector
12	NC	No connector

Y2(keyboard definition) 8PIN/2.0

No.	Definition	Description
1	KEY5	Function menu (MENU)
2	KEY4	- key RIGHT
3	KEY3	+ key LEFT
4	KEY2	Shift key (down) SOURCE/UP
5	KEY1	Switch (POWER)
6	IR	Infrared receiver
7	GND	Ground
8	VCC	3.3V

CN1 (adjust interface) 4PIN/2.0

No.	Definition	Description
1	NC	NC
2	GND	Ground
3	TX	Serial output
4	RX	Serial input



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Backlight interface) **2PIN** substandard high pressure seat

No.

1

2

8. Power supply

8.1 Power supply test frame map



9. Electric parameters

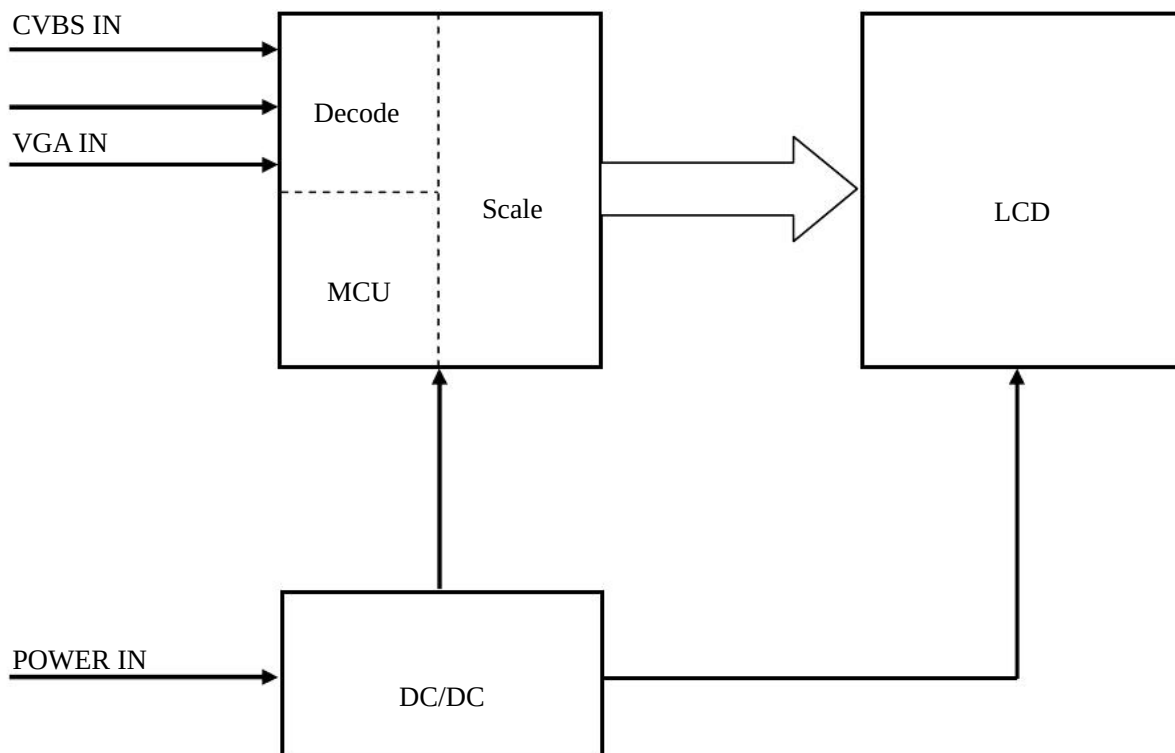
9.1 Driving board power consumption detailed list (KD043C-1 V.1)

					(Ta=25°C)
Input voltage	Input power (PIN)				
(VIN)		Typ. value	max value		Note
+12V	70mA	100 mA	130mA		

10. LCD specification (KD043C-1)

Item	Specification	Unit
Screen size	4.3(diagonal line)	inch
pixels	480×(R, G, B)×272	dot
Active Area	95.04(W)×53.868(H)	mm
Pixel size	0.066(W)×0.198(H)	mm

11. Electrical loop





12. Basic operation description

12.1 Key operation:

There are five keys: POWER、MENU、SOURCE/UP、LEFT、RIGHT。

12.1.1 Key definition:

POWER: In the *off* condition , press POWER to turn it on. In the *on* condition , press POWER to turn it off.

SOURCE/UP: Without OSD menu, it will be power shift; With OSD, it will be up

MENU: main menu shift, shift sequence as follows: PICTURE、OPTION、SYSTEM、CLOCK、 window of out of menu.

LEFT: decrease volume without display window; decrease data with display windows.

RIGHT: increase volume without display window; increase data with display windows.

12.1.2 Menu definition in AV:

Menu includes four windows: PICTURE、AUDIO、FUNCTION、SYSTEM.

The window function is as follows:

PICTURE

BRIGHTNESS: adjust image brightness

CONTRAST: adjust image contrast

COLOR: adjust image color

ENGLISH; multi language shift

OPTION

NORMAL: turn up/down side

SYSTEM

AV; AV and VGA shift

CLOCK

SLEEP; sleep shutdown

TIME; clock

OFF-TIME; turn-on time

ON-TIME; shutdown time

12.1.3 Menu definition in VGA:

Menu includes four windows:PICTURE、AUDIO、FUNCTION、SYSTEM.

The window function is as follows:

PICTURE

BRIGHTNESS: adjust image brightness

CONTRAST: adjust image contrast

ENGLISH; multi language shift

OPTION

HPOSITION; image horizontal correction

VPOSITION; image vertical correction

AUTO; image level, vertical correction

SYSTEM

VGA; AV and VGA shift



CLOCK

SLEEP; sleep shutdown

TIME; clock

OFF-TIME; turn-on time

ON-TIME; shutdown time

12.1.4 Operation description:

Press MENU and show the window, press SOURCE/UP to choose each item (from upside down, the chosen item will show red color. and then press left or right key to adjust its parameter.

In PICTURE window, choose the brightness, luminance, contrast and press LEFT OR RIGHT to adjust them within 100 degrees

In OPTION window, NORMAL and UP or HPOSITION、VPOSITION、AUTO can be adjusted by LEFT or RIGHT (The last three items are only valid in VGA)。

In SYSTEM (valid in AV/S-VIDEO) window, AV and VGA model can be shifted by LEFT or RIGHT。

12.2 Remote control operation:

Remote has six operating key: POWER、MENU、LEFT、RIGHT、UP、DOWN, which have same function with the keyboard.

13. Test equipment

13.1 PHILIPS PM-5418TD video signal generator;

13.2 PS-305D DC power service set;

13.3 Fluke 45 multimeter;

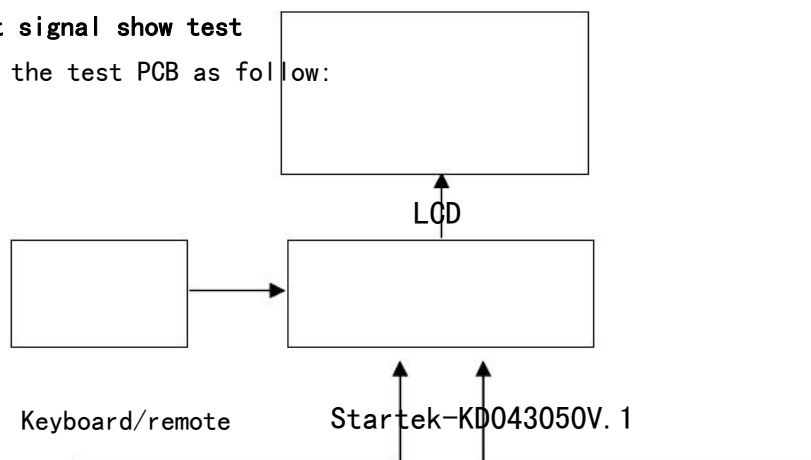
13.4 Lecroy Wave Surfer 454/Tektronix TDS 1012 oscilloscope;

13.5 Temperature Humidity test chamber

14. Function test (Ta=25°C)

14.1 CVBS input signal show test

14.1.1 Connect the test PCB as follow:



14.1.2 Connext power and signal, observe the screen to see if it works well.

14.1.3 Please shift to CVBS input signal



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14.1.4 Choose Grey scale in test machine PM5418TD, observe the screen performance carefully, it will show grey bars.

14.1.5 Choose color bars in test machine PM5418TD, and observe the screen performance carefully, it will show eight color bars (black, blue, red, magenta, green, dark blue, yellow, white).

14.1.6 Choose electron circle in test machine PM5418TD, observe the screen performance carefully, it will show the following images.

14.1.7 Choose primary red in test machine PM5418TD, observe the screen performance carefully, it will show all red.

All red

14.1.8 Choose primary green in test machine PM5418TD, observe the screen performance carefully, it will show all green.

All green

14.1.9 Choose primary blue in test machine PM5418TD, observe the screen performance carefully, it will show all blue.

All blue

14.1.10 Choose primary red and blue in test machine PM5418TD, observe the screen performance carefully, it will show all magenta.

All magenta

14.1.11 Choose primary green and red in test machine PM5418TD, observe the screen performance carefully, it will show all yellow.

All yellow

14.1.12 Choose primary blue and green in test machine PM5418TD, observe the screen performance carefully, it will show all dark green.

All dark
blue

14.1.13 Choose primary red green and blue in test machine PM5418TD, observe the screen performance carefully, it will show all white.



All white

14.1.14 Close the primary in test machine PM5418TD, observe the screen performance carefully, it will show black base.

All black
base

14.1.15 record the test result in sheet.

14.2 VGA input test

Please switch to VGA input signal and connect PC and test according to reference 14.1 content.

15. Reliable test

Type	Test item	Test consition		quanlity	standard
Save environme nt test Working Environme nt test	high tempera ture test	+70℃	96Hr	2	Normal
	high tempera ture test	-20℃	96Hr	2	After normal temperature
	high tempera ture test	+60℃	96Hr	2	
	Low tempera ture test	-10℃	96Hr	2	
Cold start test	Cold start test	Start once after keeping it below -20℃ for 40 minutes. Start 4 times after keeping it after 2 hours(once after 5 minutes). Start 4 times after keeping it after 4 hours(once after 5 minutes),check if it can work normally after 8 hours		2	Normal working in process
Heat cycle testing	heat cycle testing	-20℃ cycle		2	
steady temperature damp test		+60℃	90%RH	Continued woking 240hours	
Note:		30min	30min	Continued woking 30	

1、 Must be tested without dew;

2、 Must be put into the test box after tested, and get it after 24hours in normal temperature and humidity.;



16. Delivery inspection level

NO.	Inspect items	method	Sample level	inspection level
1	Electrical property	GB2828-2003	II	Serious defect: CR=0
2	Size			Main defect: AQL=0.65
3	packing and presentation			secondary defect: AQL=1.0