
Foresee Technologies (Chuzhou) CO., LTD.

Product Specifications

LCD TV control board specification for L2M25 (TSUMV26KE/KU)

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CONTENTS

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RECORD OF REVISIONS

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1, General description

L2M25 is a control board of Color Active Matrix Liquid Crystal Display; it is designed to be applied to LVDS (Low Voltage Differential Signaling) as the interface method to enable a simple and low-cost implementation in both board and panel.

L2M25 is intended to support YPbPr&HDMI input and up to 1920x1080 FHD panel.

L2M25 also provides other very important functions; it supports PAL or SECAM color TV system for Europe, Moreover. it can achieve Analog RGB input signal up to SXGA 1024 vertical /1280 horizontal pixel resolution. it also supports DVD(Optional)/YPbPr /HDMI input.

L2M25 includes an audio amplifier which can support 2×3W (or 2x5W) audio power output. it supports NICAM/A2 stereo input and selects audio channels according to the input signal detection. OSD pictures are smooth and manual operating is very simple.

Notes:

Different between KE and KU .KE with Teletext and Nicam/A2, KU without Teletext and Nicam/A2.

2, Transport/storage/operation description

- ✧ Must not be pressed and distorted
- ✧ Keep away from static places and water
- ✧ Disconnect the TV before the power supply of panel is connected correctly.
- ✧ Do not drop any metal on the control board when it is working.
- ✧ Do not push or pull the connector when the control board is working.
- ✧ Do not disassemble the module.
- ✧ If the surface or the control board is dirty, clean it with soft dry cloth.
- ✧ Relative Humidity: $\leq 80\%$
- ✧ Storage Temperature: $-10\sim+60^{\circ}\text{C}$
- ✧ Operation Temperature: $0\sim+40^{\circ}\text{C}$

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3, Features

Below you will find the detailed features

Input signal	TV	SYSTEM	PAL BG/DK/I, SECAM BG/DK/L/L'
		Frequency Band	48.25 MHz—865.25MHz
	CVBS	Input Level	1.0Vp-p +/- 10%
		Format	PAL, NTSC, SECAM
	Analog RGB	Format	DOS,VGA, SVGA,XGA,SXGA
		Color	24BIT
		H-Frequency	30—80KHz
		V-Frequency	50—75Hz
	YPbPr(YCbCr)	Format	480i,576i,1080i,480p,576p,720p,1080P
	HDMI	Format	480i,576i,1080i,480p,576p,720p,1080P
	DVD(option)	Y/C+L/R signal Input	
		SPI protocol	
	Audio Input Level	≤2V rms.	
Interface	Input	TV	IEC socket
		Analog RGB	D-SUB 15 jack
		YPbPr/YCbCr	Green/Blue/Red RCA jack
		PC audio	Φ3.5mm headphone jack
		SCART	1xFull SCART
		HDMI	x1
		DVD(Option)	11Pin 2.0mm patch jack +5 pin 2.0mm patch power in
	Output	To panel	LVDS:30Pin 2.0mm patch jack
		Audio	Φ3.5mm headphone jack
			Speaker:4Pin 2.54mm patch Jack
Power	Power Input	DC in 12±2V	
	Panel voltage	3.3V, 5V, 12V	
	Standby Mode	<1W (main board need 12V 20mA for standby mode)	
Other	TDA7266 /TDA1517P Amplifier	2×5W (8Ω) / 2×2.5W (4Ω)	
	Remote and key	5 pin 2.0mm patch jack	

	Key	3 pin 2.0mm patch jack
	Inverter	6 pin 2.0mm patch jack
	Key definition	VOL-,VOL+,CH+,CH-,MENU,TV/AV,POWER
	OSD language	25 countries OSD language
	Comb filter	2D
	De-interlace	2D
	Teletext	8pages
DVD unit (option)	Compatibility of Disc	DVD-R/DVD-RW/DVD+R/DVD+RW/CD-R/CD+R
	Digital Video Playback	DVD-Video/Divx/Xvid/SVCD/VCD
	Digital Audio Playback	CD-DA/HDCD/MP3/WMA
	Digital Graphic Playback	Kodak Picture CD/ JPEG
	Others	Dolby & DTS Decoding ,Children Lock for inappropriate Discs
Card Reader and USB Section (option)	Digital Video Format	1: MPEG-1 ML/MP conforming to ISO-11172 2: MPEG-2 ML/MP conforming to ISO-13818 3: MPEG-4 and Divx 3.x/4.x/5.x compliant
	digital Audio format	1:Full MPEG Audio Layer I/II and III(MP3) 2:Flexibility to Dolby AC-3 5.1 Channel or 2 Channel Down-mixing,HDCD,MP3 and WMA
	Supported card	SD/MS/MMC Media Card

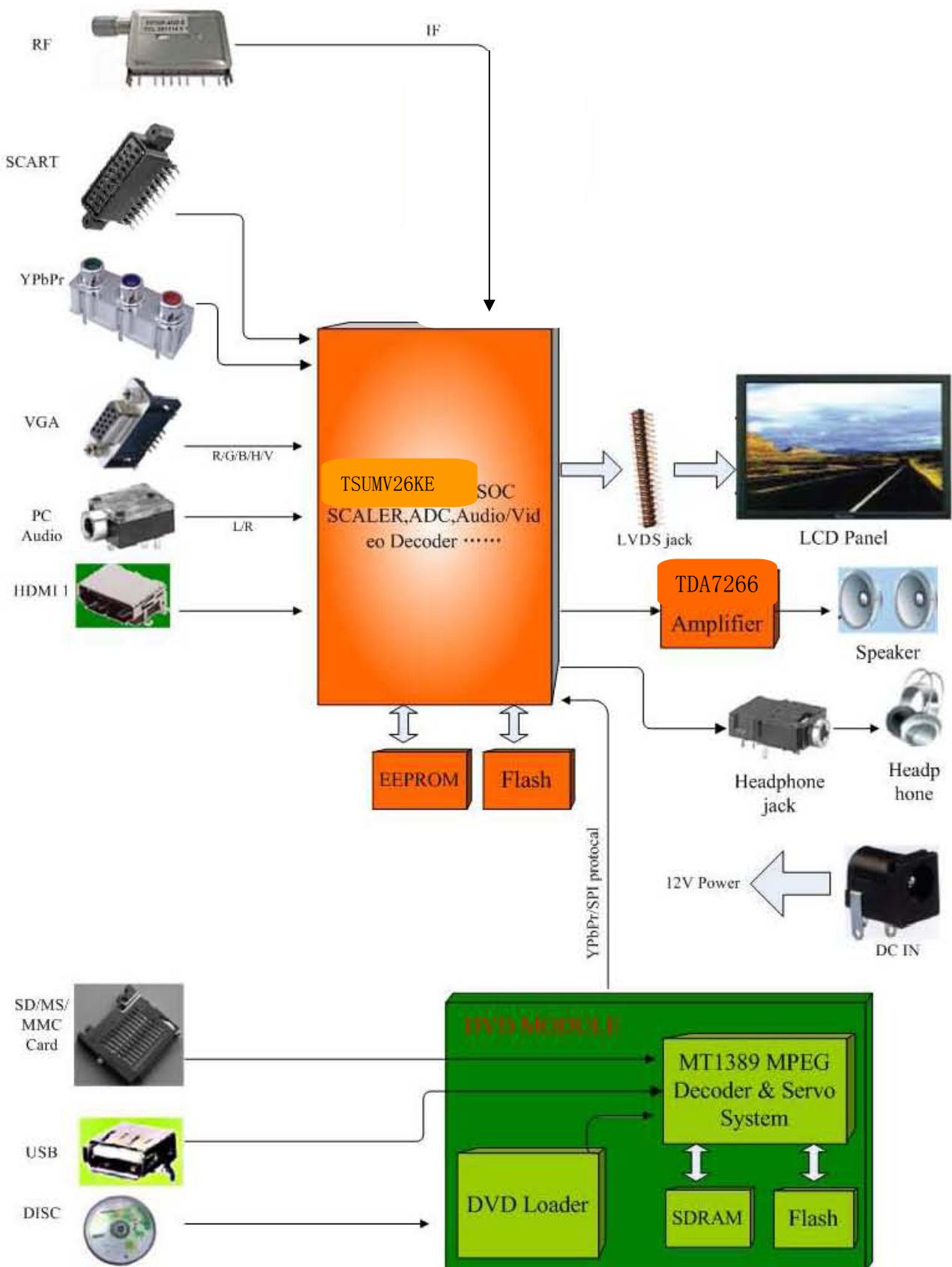
Notes:

Supported OSD language:

Arabian/Spanish/Portuguese/Swedish/German/French/Russian/Italian/Danish/Finnish/Greek/
Norwegian/Dutch/Polish/Turkish/Lithuanian/Serbian/Chinese/Romanian/Blugarian/Lettish/Estoni
an/Hungarian/Slovenian/Slovakian/Czech

L2M25 chassis only can support 8 countries OSD language caused by the flash rom size limitation. Please indicate which OSD language you needed when you place purchase order.

4,Block diagram



5, Preset mode for VGA/YPbPr inputs

Below the preset mode for VGA,YPbPr (pixel format, H-Frequency and V-Frequency)

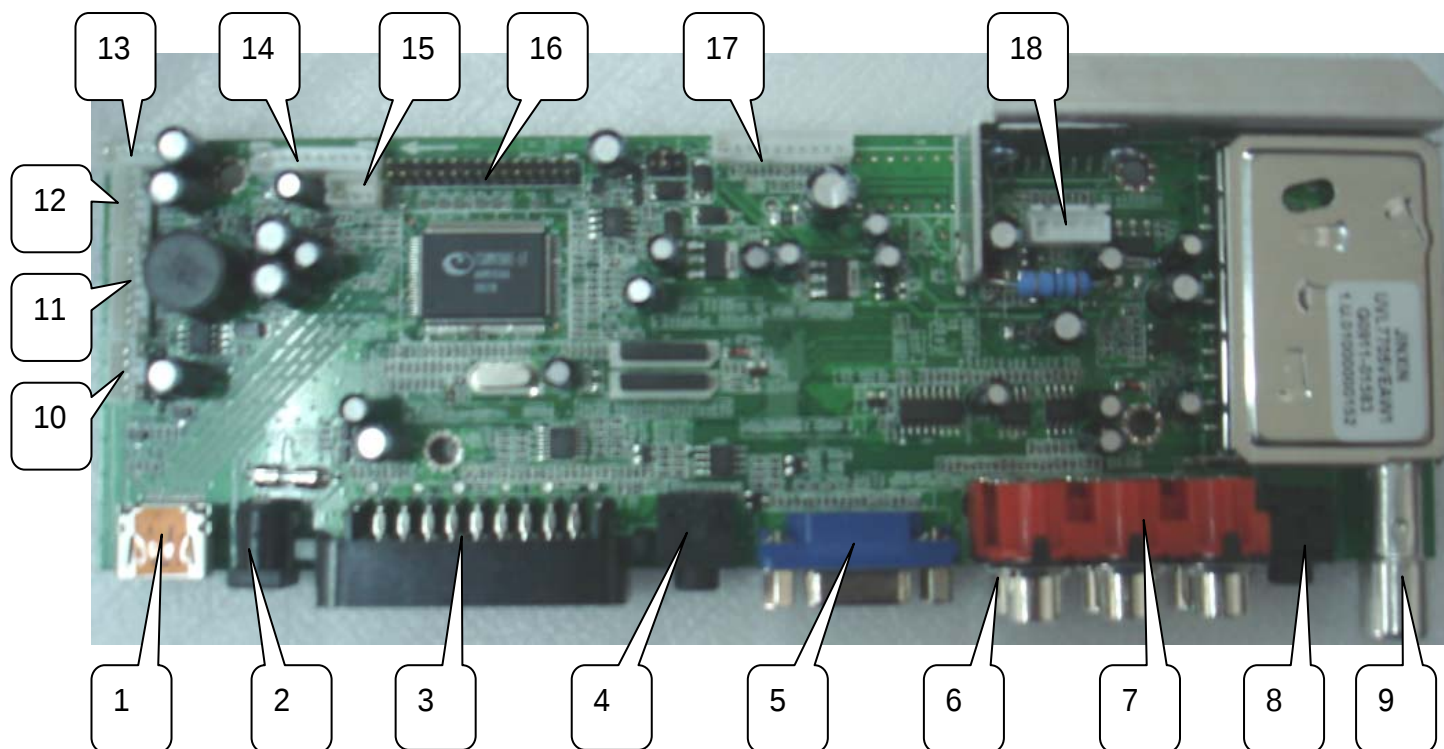
★Analog RGB format table

Pixel Format	Resolution	Horiz.Freq.(KHz)	Vert.Freq.(Hz)	Standard
SXGA	1280×1024	63.5 80	60 75	VESA
XGA	1024×768	48.4 56.5 60.0	60 70 75	VESA
SVGA	800×600	37.9 47.2 46.9	60 72 75	VESA
VGA	640×480	31.5 37.5 37.9	67 75 72	VESA
DOS	640×480 720×400	31.5 31.5	60 70	VESA

★YPbPr format table

Format	Resolution	Horiz.Freq(KKz)	Vert. Freq. (Hz)
576i	576	15.63	50.00
480i	480	15.73	59.94 60.00
576p	576	31.26	50.00
480p	480	31.47	59.94 60.00
1080i/50	1080	28.13	50.00
1080i/60	1080	33.75	59.94 60.00
720p/60	720	44.96	59.94 60.00

6-1, Interface arrangement



★ INTERFACE FUNCTION DESCRIPTION

NO	Description	NO	Description
1	HDMI Input	10	Inside power supply jack(small size)
2	Outside power supply jack(small size)	11	Inverter Jack
3	SCART	12	IR Jack
4	PC/YpbPr Audio Input	13	DVD power supply jack
5	VGA Input	14	Inside power supply jack(big size)
6	YPbPr Input	15	Key Jack
7	AV Input	16	LVDS Interface
8	Headphone output	17	DVD Interface
9	RF Input	18	Speaker Jack

6-2, interface definition and pin function

★J9: Inverter jack

NO.	Definition	Description
1	12v	Power Supply
2	12v	Power Supply
3	BLO	Black-Light ON/OFF Control
4	Bri	Brightness Adjustment
5	GND	Ground
6	GND	Ground

★CON16: Speaker jack

NO.	Definition	Description
1	R	Right Speaker Output
2	GND	GND
3	GND	GND
4	L	Left Speaker Output

★ CN104: Key jack

NO.	Definition	Description
1	K1	Key 1 (ADC Input)
2	GND	GND
3	K2	Key 2 (ADC Input)

★J6: DVD INTERFACE

NO.	Definition	Description
1	SCK	SPI Communication Protocol SCL
2	SDA	SPI Communication Protocol SDA
3	DRIN	Right Channel of DVD Audio Input
4	STB	SPI Communication Protocol STB
5	DLIN	Left Channel of DVD Audio Input
6	DCVBS	DVD Signal CVBS
7	GND	GND
8	NC	NC
9	C	DVD Signal C
10	GND	GND
11	Y	DVD Signal Y

★J1: DVD Power jack

NO.	Definition	Description
1	5V	DVD 5V Power Supply
2	5V	DVD 5V Power Supply
3	GND	GND
4	GND	GND
5	12V	DVD 12V Power Supply

★CN6: IR&LED jack

NO.	Definition	Description
1	GND	GND
2	IR	Remote Receiver
3	LED-G	Green Indicator
4	LED-R	Red Indicator
5	5V	Power Supply

★CN2: Internal power supply jack for small size TV

NO.	Definition	Description
1	12v	Internal 12V Power Supply
2	12v	Internal 12V Power Supply
3	GND	GND
4	GND	GND

★J10: Internal power supply jack for big size TV

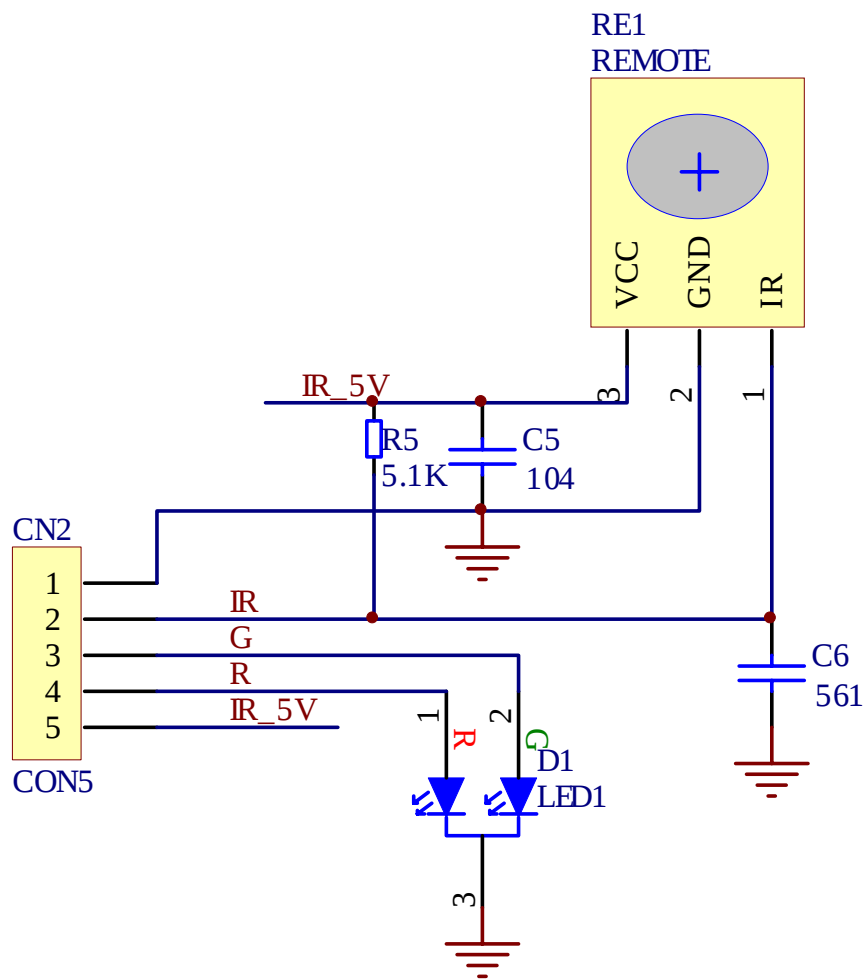
NO.	Definition	Description
1	SW12v	Switchable 12V Supply
2	SW 5v	Switchable 5V Supply
3	SW 5v	Switchable 5V Supply
4	GND	GND
5	GND	GND
6	GND	GND
7	STB	Standby on/off
8	STB 5V	Standby 5V
9	GND	GND

★CN3: LVDS Interface

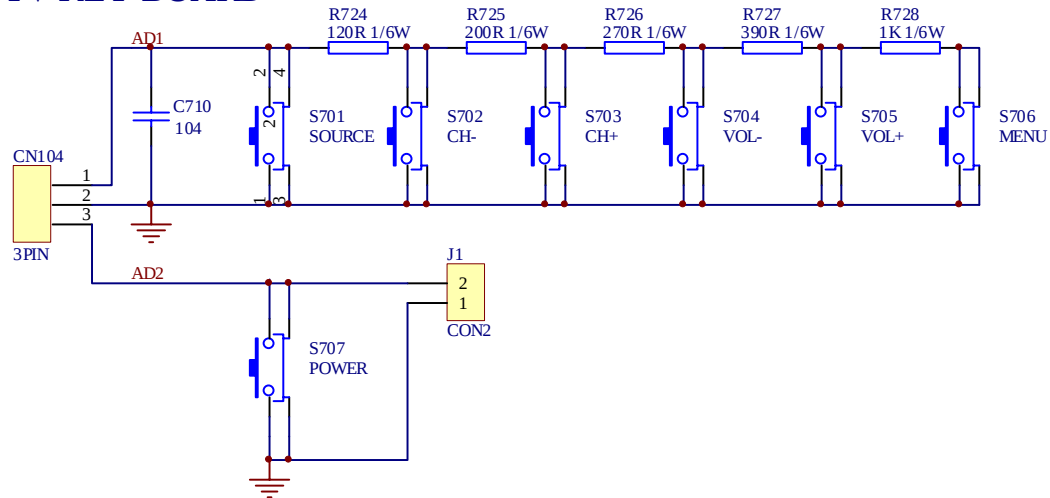
NO.	Definition	Description
1	LCD-VDD	Power for Panel
2	LCD-VDD	Power for Panel
3	LCD-VDD	Power for Panel
4	NC	NO Connect
5	GND	GND
6	GND	GND
7	GND	GND
8	GND	GND
9	EDA3+	LVDS EVEN3+ Signal
10	EDA3-	LVDS EVEN3+ Signal
11	ECK+	LVDS EVEN Clock + Signal
12	ECK-	LVDS EVEN Clock - Signal
13	EDA2+	LVDS EVEN2 + Signal
14	EDA2-	LVDS EVEN2 - Signal
15	EDA1+	LVDS EVEN1 + Signal
16	EDA1-	LVDS EVEN1 - Signal
17	EDA0+	LVDS EVEN0 + Signal
18	EDA0-	LVDS EVEN0 - Signal
19	GND	GND
20	GND	GND
21	ODA3+	LVDS ODD3 + Signal
22	ODA3-	LVDS ODD3 + Signal
23	OCK+	LVDS ODD Clock + Signal
24	OCK-	LVDS ODD Clock - Signal
25	ODA2+	LVDS ODD2 + Signal
26	ODA2-	LVDS ODD2 - Signal
27	ODA1+	LVDS ODD1 + Signal
28	ODA1-	LVDS ODD1 - Signal
29	ODA0+	LVDS ODD0 + Signal
30	ODA0-	LVDS ODD0 - Signal

- ✧ **PCB Height** =29.0 mm
- ✧ **PCB Length** = 218mm
- ✧ **PCB Width** = 70 mm
- ✧ **PCB Screw Size** : Diameter is 3.5 mm

8 IR、KEY BOARD SCHEMATICS

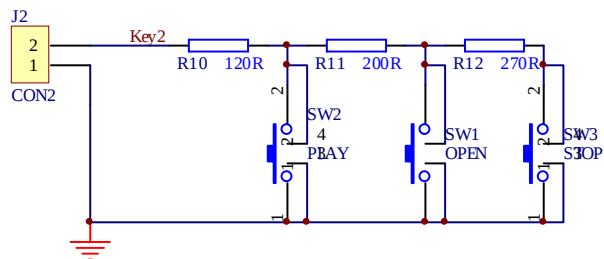


TV KEY BOARD



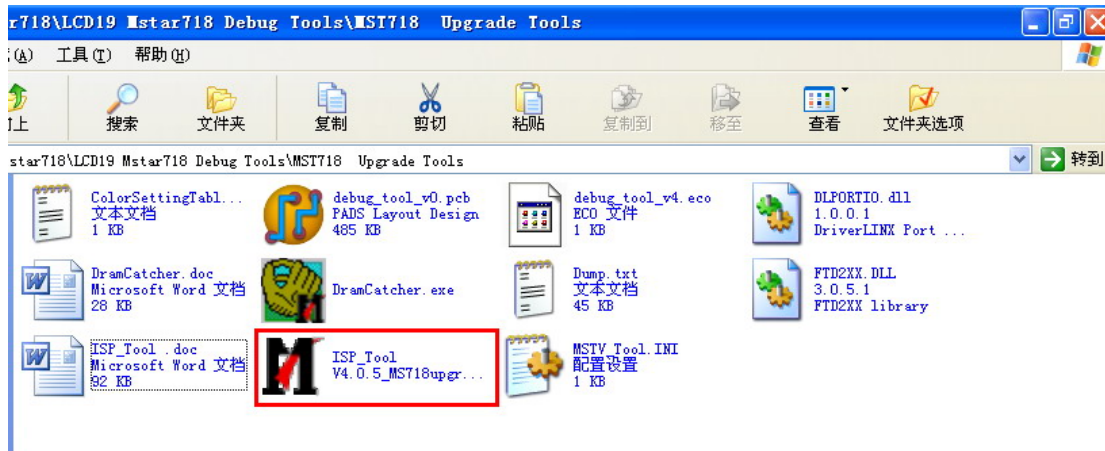
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DVD KEY BOARD

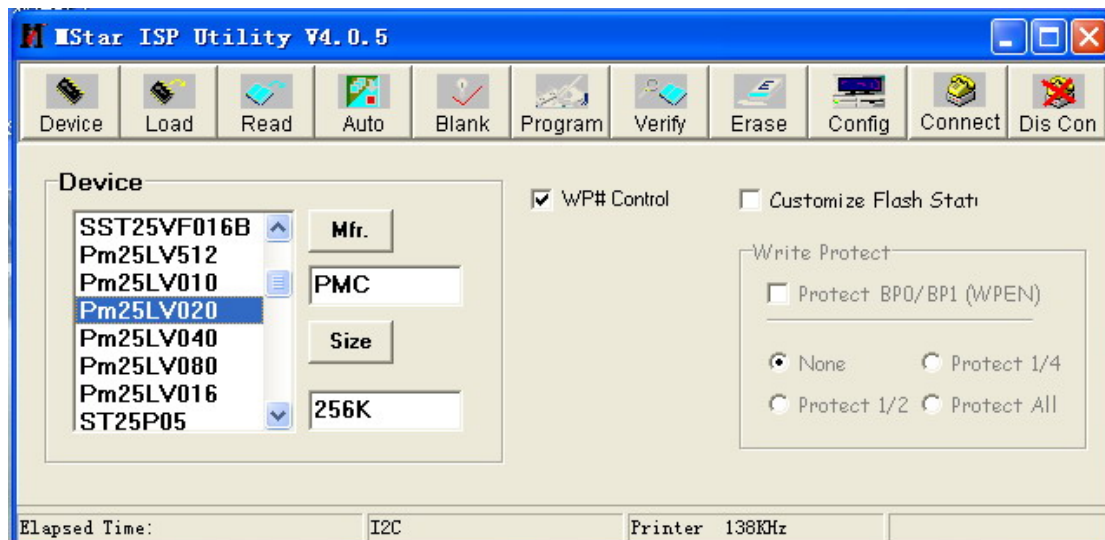


9, Software upgrade

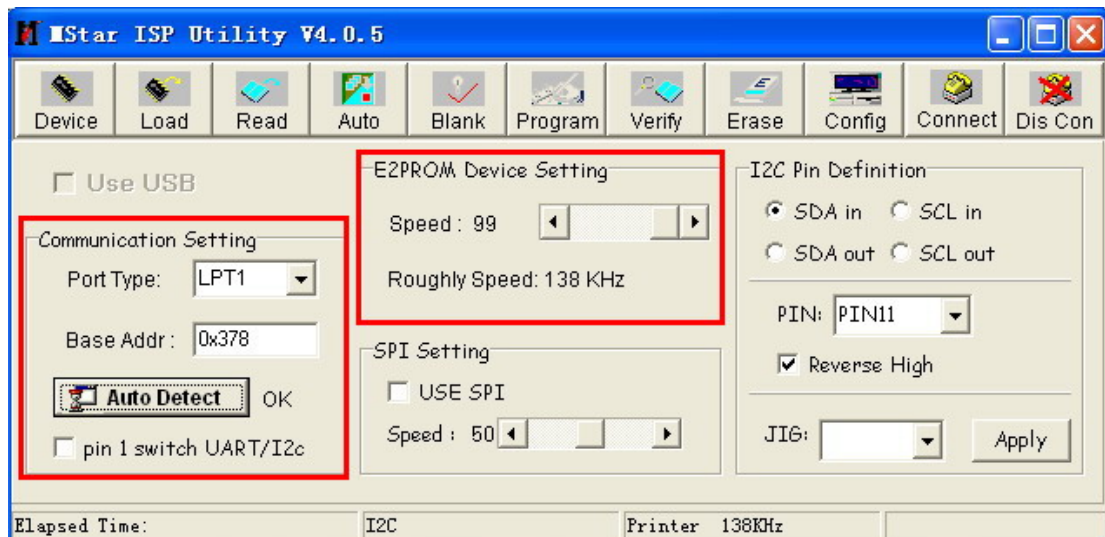
1) Open the update tools--Mstar ISP Utility



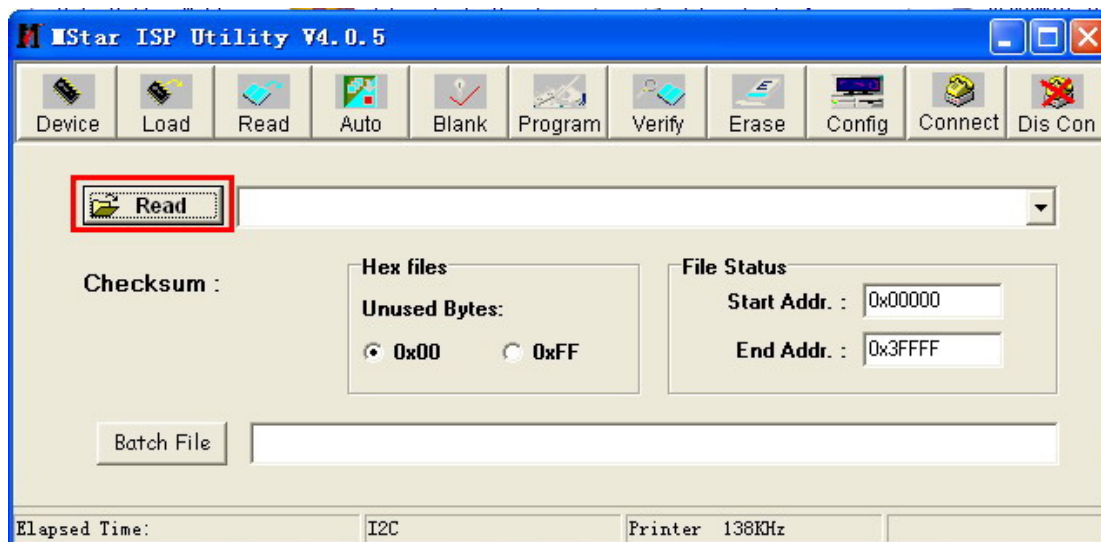
2) Click "Device" button and double click select correctly type(For TSUMV26 chassis select Pm25LV040 normally)



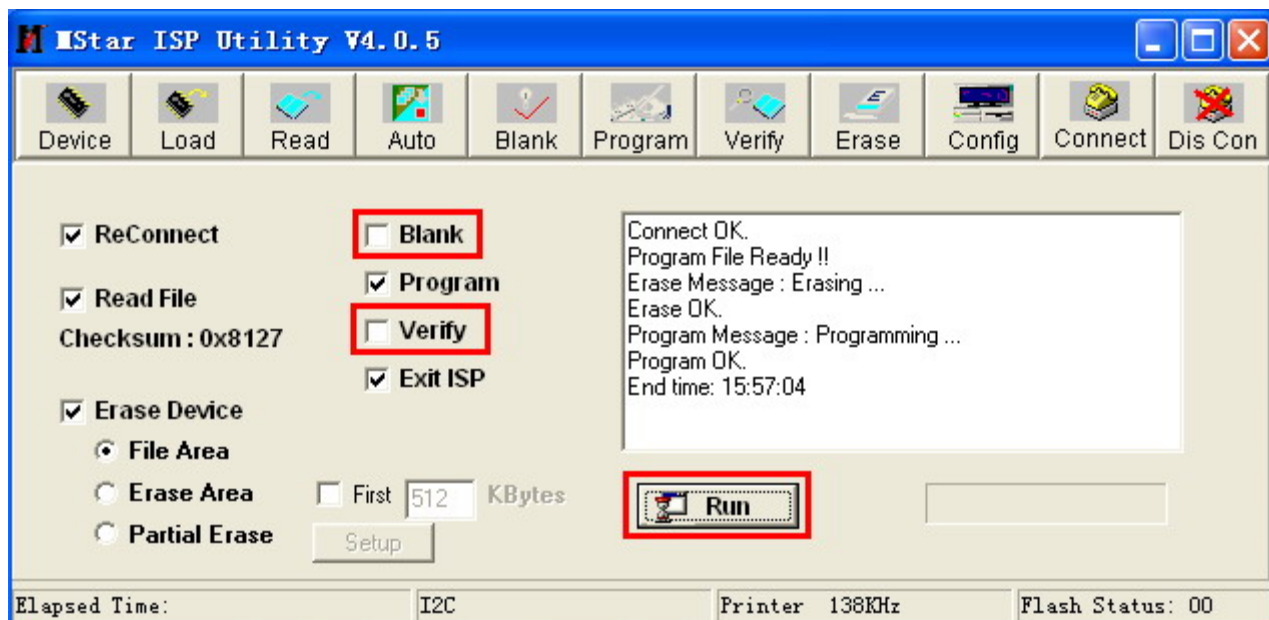
3) Click "Config" button and click "Auto Detect" button confirm that the PC and ISP tool connect properly. Adjust the LPT port speed to 138K, in order to speed up update process.



4) Click "Read" button then select the binary file of firmware.



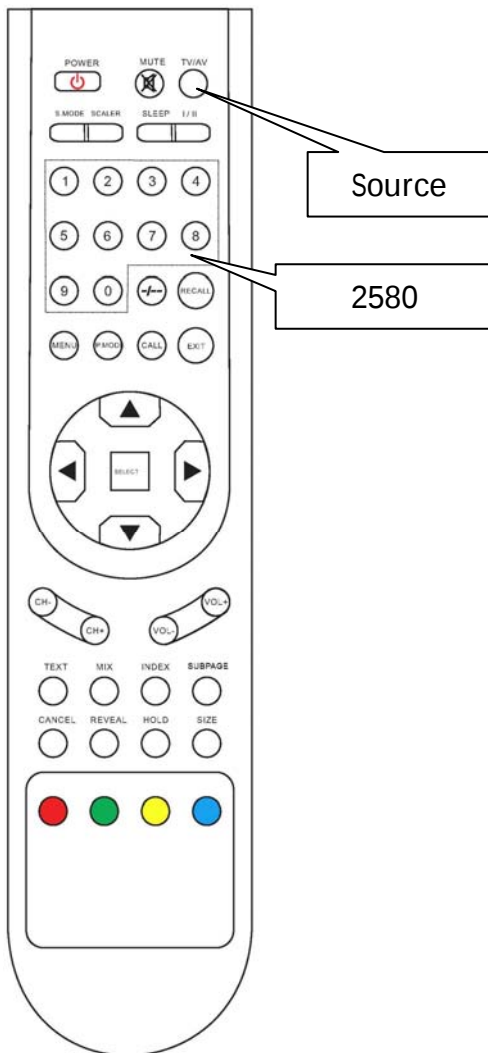
5) Click “Auto” button and remove the marker of “Blank” and “Verify” items. Then click “Run”, after several seconds the update process will be finish.



10, Service mode description

1) How to enter service mode

Press “Source” button on the remote control, then press “2580”, the service menu will be displayed as below.



2) Service mode description

Color Temp: select a color temperature mode that you want to adjust;

R Gain: red gain for white balance adjusting;

G Gain: green gain for white balance adjusting;

B Gain: blue gain for white balance adjusting;

R Offset: red offset for white balance adjusting;

G Gain: green offset for white balance adjusting;

B Gain: blue offset for white balance adjusting;

Aging: to turn on or off aging mode, optional setting: On Off;

Auto config: Autos adjust ADC channel difference, only available in VGA mode;

EEprom clear: reset EEPROM data to default value, all users' program and setting will be lost;

Panel: select different panel for factory;

TTX language: select Teletext language, optional setting: West East Russia;
DVD source set: to turn on or off DVD source in the user menu, optional setting: On Off;
Hotel mode: to turn on or off hotel mode, optional setting: On Off;
Key mode: to turn on or off local keyboard, optional setting: On Off;
Power on: to setting the power on source, optional setting: TV Other;
Power mode: to setting the power on mode, optional setting: Force on Memory standby;
Volume: to setting the max sound volume when hotel mode is active;
AGC: to setting tuner's RF AGC value;

Notes:

1, color temperature adjusting: in different source the white balance can be adjusted separately. the details as below:

- 1) DVD&YpbPr source use same group color temperature value.**
- 2) TV&Scart source use same group color temperature value.**
- 3) VGA&HDMI source use separated color temperature value.**

2, Auto Config: please change source to VGA mode and with grey scale pattern then enter service mode to do this item.