

LED TV CONTROL BOARD SPECIFICATION

MODEL : CV3393BL-G-20

Approved by Cultraview		Approved by Customer	
AUTHOR :	WP.WU	Comments :	
CHECKED BY :		CHECKED BY :	
APPROVED BY :		APPROVED BY:	
DATE:	2015.06.26	DATE:	
Company's seal:			

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1. CHANGE THE LIST OF UPGRADES

Version	Description	Page	redaction	Checked	Date
V1.0	First Release	ALL	WP.WU		Jun.26, 2015

2. GENERAL DESCRIPTION

This product is digital & analogue TV board, can receive the NTSC analogue television and the ATSC digital television. Apply to the North American ATSC high-definition TV market.

- TV supports ATSC (meet the performance requirements of A74), NTSC, Clear QAM (meet the performance requirements of ITU-J83).
- Supports USB 2.0 Multimedia Player; supports audio and video play; supports picture browse.
- Supports USB update.
- Analogue and digital HD port input signal largest support 1080P
- The largest support various TFT-LCD 1920x1080 resolutions module.
- HDMI 1.3/1.4 Compliant; HDCP 1.2 Compliant.
- Supports MHL; Supports ARC.
- 3-D video decoding and Chroma separation
- 3-D motion adaptive video de-interlacers with edge-oriented adaptive algorithm for smooth low-angle edges
- 3-D video noise reduction
- Supports Closed Caption (analog CC 608/ analog CC 708/digital CC 608/ digital CC 708), V-chip and SCTE.
- Supports BTSC/A2/EIA-J demodulation
- Supports digital audio format decoding: MPEG-1, MPEG2-2(Layer I/II), Dolby Digital(AC-3)
- Automatic 3:2 pull-down & 2:2 pull-down detection and recovery
- MStar 5rd Generation Advanced Color Engine (MStarACE-5) automatic picture enhancement
- Reliable EMC and ESD handle

3. FEATURES

PANEL	Type	TFT-LCD
	Resolution	Max. 1920X1080
	Interface	Single/ Double LVDS
ATV	Input Impedance	75Ω
	Video System	NTSC
	Sound System	M, J, 4.43. BTSC/A2
DTV	Input Impedance	75Ω
	Bandwidth	6MHz
	Modulation	ATSC:8VSB QAM:64QAM, 256QAM
	Video System	MPEG 2 MP@HL
	Sound System	MPEG 1/ layer 1/AC-3
PC	Sync	H: 30-75KHz V: 56-75Hz
	Video Level	0.7Vp-p@75ohm
	MODE	Max 1920X1080@60Hz
AV	Color system	PAL/NTSC/SECAM
	Video Level	1Vp-p@75ohm
	Audio Level	500mV rms
YPbPr	Video Level	Y:1Vp-p@75ohm,PbPr:0.7Vp-p@75ohm
	Audio Level	500mVrms
	Format	480i, 480p, 576i, 576p, 720p, 1080i, 1080p
HDMI	Video Level	Standard TMDS
	Format	480i, 480p, 576i, 576p, 720p, 1080i, 1080p
Keyboard	Power/Menu/Source/ Up/ Down/ Left/ Right	
OSD Language	English/ French/ Spanish	
Audio Amplifier	2 X3W @ 4ohm THD<10%	
Power input	DC +12V	
Standby	< 0.3W(Main Board Only)	

4. PRESET MODE FOR USB

USB FORMAT MODE

	File Exit.	Codec		Remark
		Video	Audio	
Media	.avi	Xvid,MPEG-2,MPEG-4, H.264, (Divx Need license)	MP3 WMA AAC	The Max Resolution And Frame Rate:1080p@30fps Max Data Rate: 20 Mbps
	.mp4	MPEG-2,MPEG-4,H.264 (Divx Need license)	MP2 PCM	
	.mpg	MPEG-1,MPEG-2	(AC3 Need license)	
	.mkv / .mov	MPEG-1/2/4,H.264, (Divx Need license)	(DTS Need license)	
	.dat	MPEG-1	MP2 (AC3 Need license)	The Max Resolution:352×288 Max Data Rate: 20 Mbps
	.vob	MPEG-2	(DTS Need license)	The Max Resolution:720×576 Max Data Rate: 20 Mbps
	.rm/ .rmvb	RV8,RV9, RV10	COOK	The Max Resolution And Frame Rate:1080p@30fps Max Data Rate: 10 Mbps
PHOTO	.jpg	Progressive JPEG		Max Resolution: 1024×768
	.jpeg	Baseline JPEG		Max Resolution: 15360×8640
	.bmg	----		Max Resolution: 9600×6400 Pixel Depth: 1/4/8/16/24/32 bpp
	.png	Non-Interlaced		Max Resolution: 9600×6400
		Interlaced		Max Resolution: 1200×800
MUSIC	.mp3	---	MP3	Sample Rate: 32K~48KHz
	.wma	---	WMA	Bit Rate: 32K~320Kbps Channel: Mono/Stereo
	.m4a / .aac	---	AAC	Sample Rate: 8K~48KHz Bit Rate: 24K~384Kbps

				Channel: Mono/Stereo
TEXT	.txt	ANSI/UNICODE GB/UTF8		File Size:Max 1MB

Note:

1)This product includes the following optional patented technologies : **Dolby, DTS, DIVX, SRS** , etc. If you need to use these patented, please provide the patent license to us, so that the product can meet your requirements . (此产品包括如下可选的专利技术: DOLBY、DTS、DIVX、SRS 等, 如您需要开通这些功能, 请提前提供相关专利许可给到我司, 以便产品能满足您的要求。)

2) Support hard disk, the maximum storage capacity is **400G**

3) Folder in support of the greatest depth is **30**

5) Only support single audio channel audio format and dual-audio channel audio format

Operation Instructions

Hi Speed FS, FAT32, FAT16, NTFS(NTFS compressed file is not supported

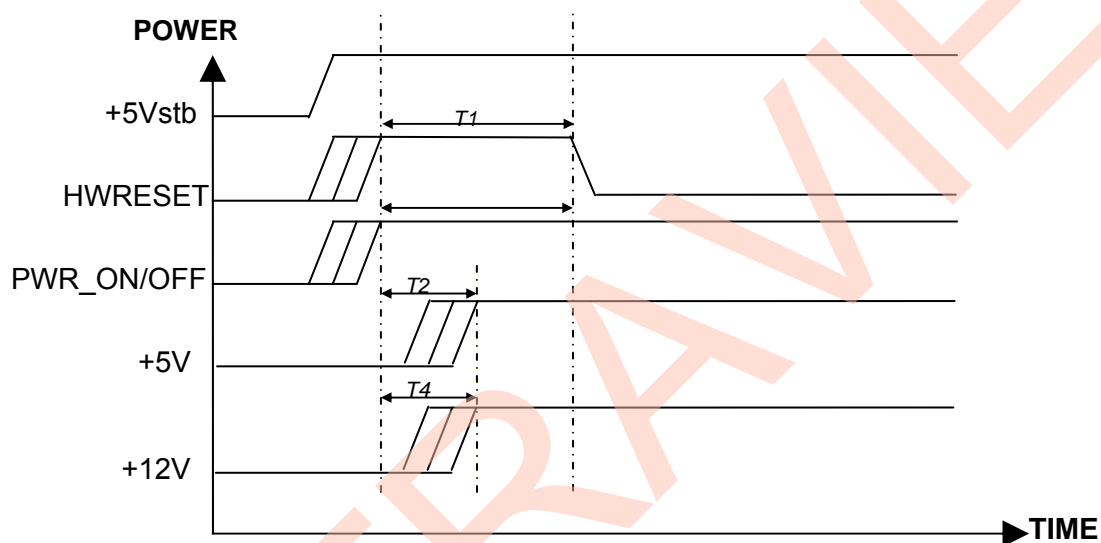
5. ENVIRONMENTAL CONDITION

Input Electrical Characteristics

Power	Symbol	Range	Max Current	Ripple
DC +12V	+12V	+12V--+12.5V	3A	100mVp-p

The current of panel, Inverter and extension modules are not included in max current.

Power Up Timing



alternation	DESCRIPTION	Min	Type	Max	Unit
T1	Hardware Reste Width	10	200	/	ms
T2	Pwr_on/off t_{setup} TO +5V t_{setup}	/	/	190	ms
T3	Pwr_on/off t_{setup} TO +12V t_{setup}	/	/	190	ms

6. SUBSTITUTABLE PRIMARY MATERIALS

General materials

Including SMT capacitors, SMT resistors, diodes, transistors, MOSFET, connectors, common inductance, electrolytic capacitor, PCB etc., and having no obvious changes in appearance or color. Our company has two or three alternative suppliers with these materials, maybe we will alternative use these materials for follow-up mass production due to delivery time, stock or other reasons. We no longer notice your company the alternative materials used. If necessary, you can apply for using related materials (mention as above) in samples stage.

(Note: The alternative materials which have been accepted by our materials confirmation department and PP will enter our system.)

Key materials

Including crystals, LDO , DC-DC, Amplifier, Audio & Video switch, and having obvious changes in appearance and color of general materials, Our company has two or three alternative suppliers with these materials (See following table for detail), maybe we will alternative use these materials for follow-up mass production due to delivery time, stock or other reasons. We will notice your company the alternative materials used in written form. If necessary, you can apply for using related materials (mention as above) in samples stage.

Name	Main Type	Brand	Backup Type	Brand
LDO	BCD1117	BCD	BM1117	BM
			BL1117	BL
Crystal	24MHz +-20PPM 20PF HC 49US	RS	24MHz +-20PPM 20PF HC 49US	TKD
			24MHz +-20PPM 20PF HC 49US	TJ
	16MHz +-10PPM 20PF HC 49US	RS	16MHz +-10PPM 20PF HC 49US	TKD
			16MHz +-10PPM 20PF HC 49US	TJ

Core materials

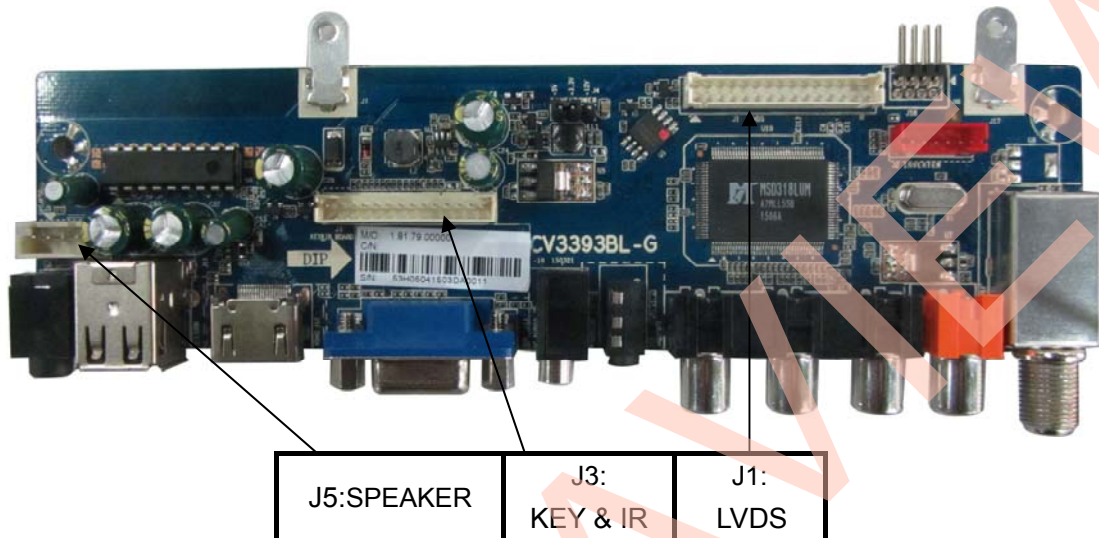
Including FLASH, TUNER, and the materials related to change software. Our company has two or three alternative suppliers with these materials (See following table for detail), maybe we will alternative use these materials for follow-up mass production due to delivery time, stock or other reasons. We will notice your company in written form and we must get your company confirm whether accept before using the alternative materials.

Name	Main Type	Brand	BackupType	Brand
Chipset	MSD318LUM	MST	--	--
FLASH	GD25Q32	GD	EN25Q32	EON
			W25Q32	WINBOND
			MX25L32	MXIC
TUNER	MXL661	MXL	\	\

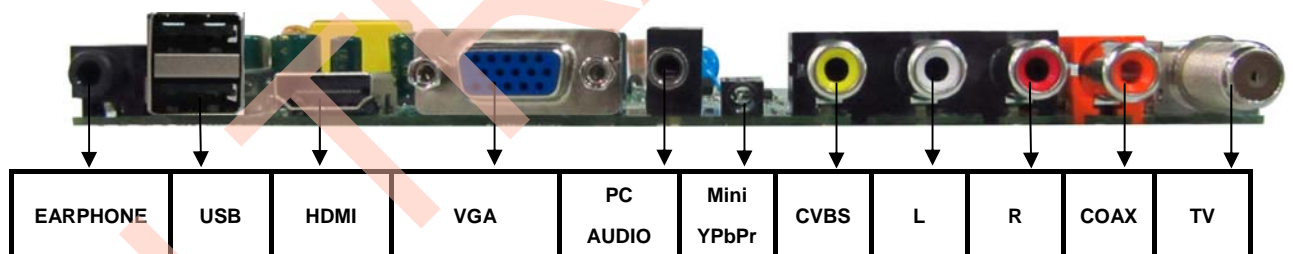
7. PICTURE

LED Board Type:

TOP VIEW



FRONT VIEW (前视图)

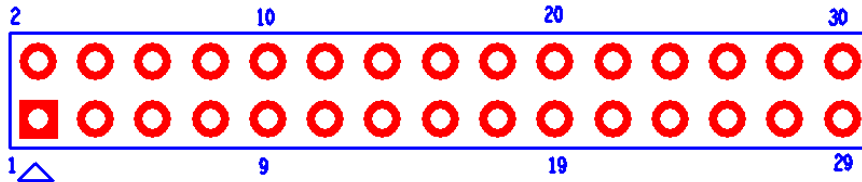


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8. INTERFACE DEFINITION

All jack recognize the square pad as first pin.

J1. (2×15PIN/2.0):LVDS INTERFACE(LVDS 接口)



NO.	SYMBOL	DESCRIPTION
1	VCC	Power Supply For Panel
2	VCC	
3	VCC	
4	GND	Ground
5	GND	Ground
6	GND	Ground
7	RXO0-	LVDS ODD 0- Signal
8	RXO0+	LVDS ODD 0+ Signal
9	RXO1-	LVDS ODD 1- Signal
10	RXO1+	LVDS ODD 1+ Signal
11	RXO2-	LVDS ODD 2- Signal
12	RXO2+	LVDS ODD 2+ Signal
13	GND	Ground
14	GND	Ground
15	RXOC-	LVDS ODD Clock- Signal
16	RXOC+	LVDS ODD Clock + Signal
17	RXO3-	LVDS ODD 3- Signal
18	RXO3+	LVDS ODD 3+ Signal
19	RXE0-	LVDS EVEN 0- Signal
20	RXE0+	LVDS EVEN 0+ Signal
21	RXE1-	LVDS EVEN 1- Signal
22	RXE1+	LVDS EVEN 1+ Signal
23	RXE2-	LVDS EVEN 2- Signal
24	RXE2+	LVDS EVEN 2+ Signal
25	GND	Ground
26	GND	Ground
27	RXEC-	LVDS EVEN Clock- Signal
28	RXEC+	LVDS EVEN Clock + Signal
29	RXE3-	LVDS EVEN 3- Signal
30	RXE3+	LVDS EVEN 3+ Signal

J3. (14PIN/2.0):KEY&IR BOARD CONNECTOR(按键和遥控接口)

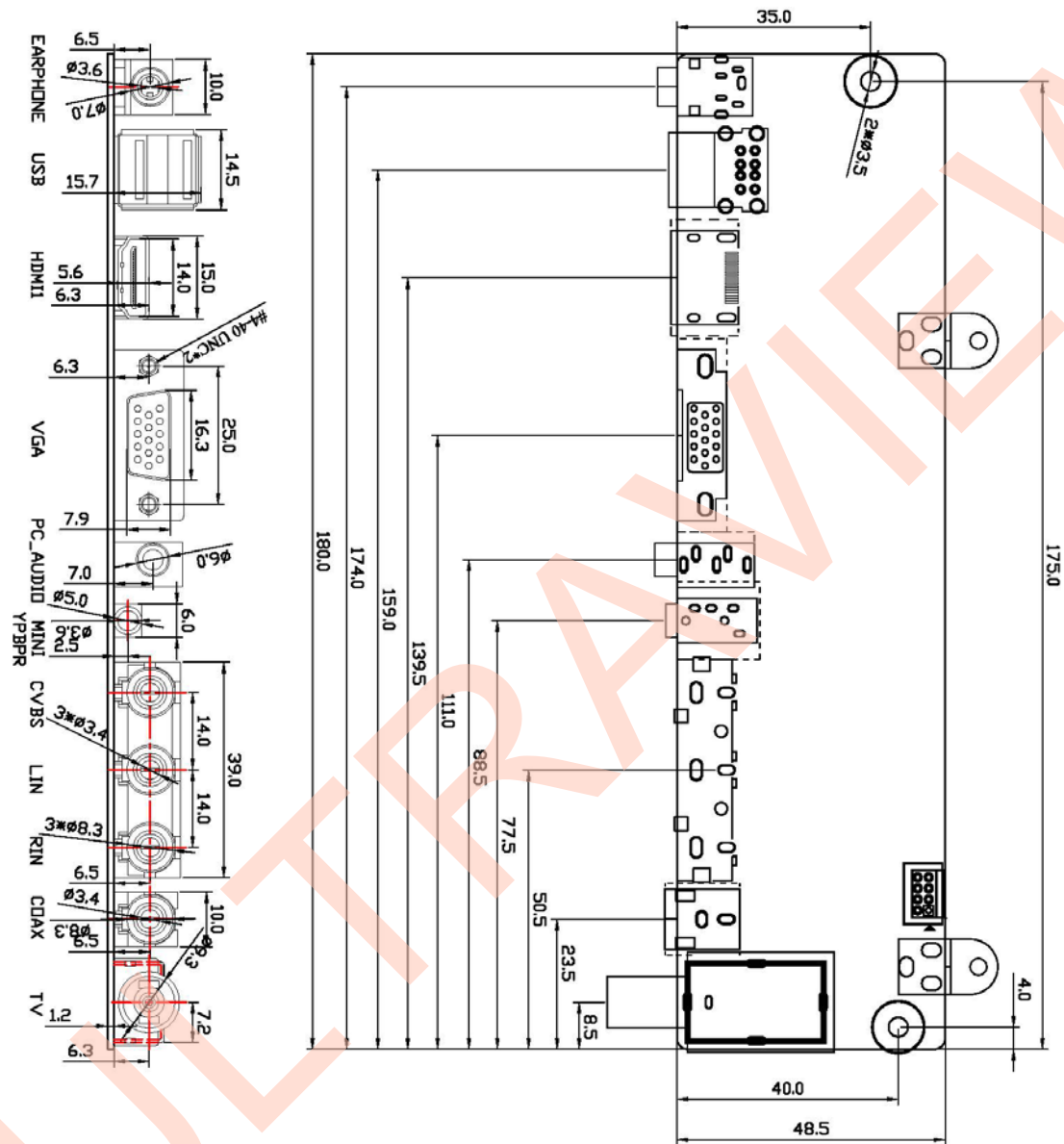
NO.	SYMBOL	DESCRIPTION
1	GND	Ground
2	K7	Key7(Reserved)
3	POWER	POWER KEY (AD1)
4	VOL+	VOL+ KEY
5	VOL-	VOL- KEY
6	INPUT	INPUT KEY (POWER)
7	CH+	CH+ KEY
8	CH-	CH- KEY
9	MENU	MENU KEY (AD0)
10	GND	Ground
11	IR	IR Receiver
12	LED_G	Green Indicator
13	LED_R	Red Indicator
14	+5V	+5V DC Power Supply

J5. (4PIN/2.54):SPEARK CONNECTOR(喇叭接口)

NO.	SYMBOL	DESCRIPTION
1	R+	Audio R+ Channel Output
2	GND	Ground
3	GND	
4	L+	Audio L+Channel Output

9. CONFIGURATION

Board Type (18.5'-23.6')



NTSC RF Connect is ϕ 9.3mm

The thickness of PCB board: 1.2 mm

Component the tallest altitude: 16.5 mm

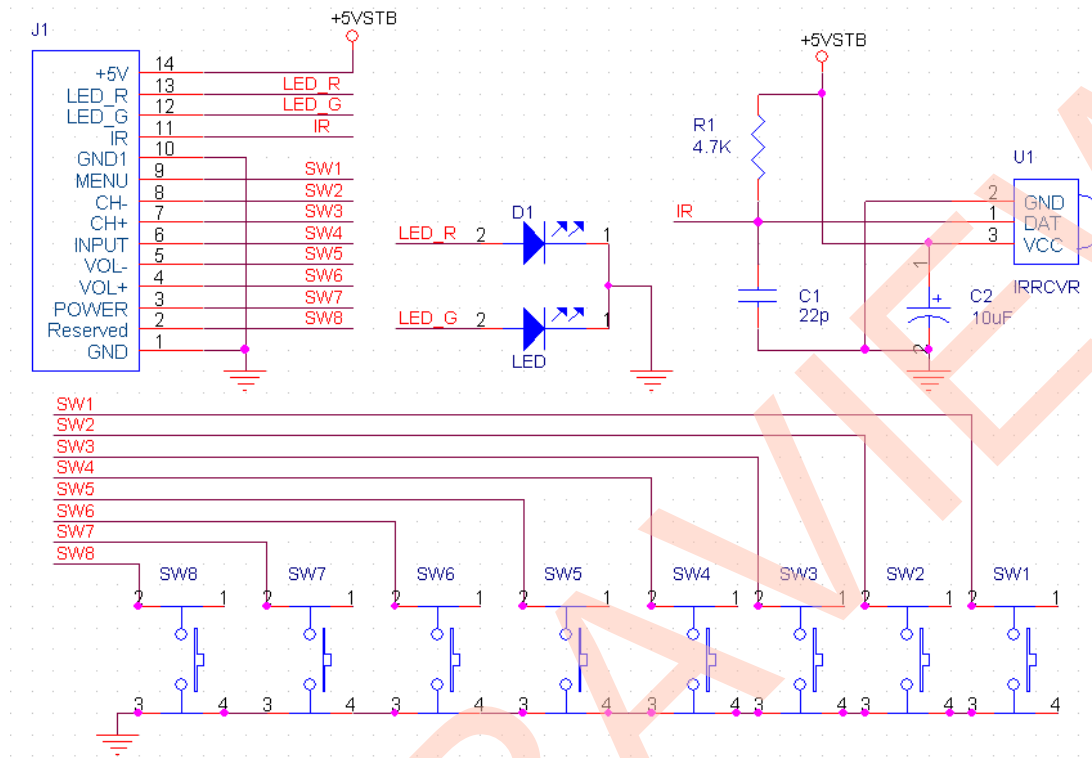
Install diameter inside the bore 5 mm

10. APPLICATION REQUIREMENT

- Relative humidity $\leq 80\%$
- Store temperature $-10\sim+60\text{ }^{\circ}\text{C}$
- Use temperature $0\sim+40\text{ }^{\circ}\text{C}$
- The procedure of the whole machine assembles and transports need to attend ESD transaction.
- When the whole set assemble, it can down pack or side pack, but don't make the board transform or distort, don't be subjected to heavy pressure.
- The hole of each port does not be opened too small, especially the HDMI port hole, avoid the whole set morphing to cause the extrusion of port when installing.
- The hole of RGB socket is recommended the situation of not using the screw stationary on the RGB socket to fix on the structure board.
- The connected wire which between the other boards and this board can't be leaded too long, or affect performance and image quality.
- The whole set inner wires matching reasonable, each connected wire try to not directly cross the PCB board, especially cross over from the main IC, avoid affect the whole set EMC performance.
- In order to obtain better EMC effect of the whole set, we suggest the LVDS twisted pair wire between the main board and panel must be tied up well and try to use shielding wire. If it's possible, try to put on the magnetic belt ring on the wire which near the board terminal.
- The HDMI and HDCP on the main board are all passed the related certifications, but we just provide testing certification of the inner usage standard. If you need to use legal HDMI and HDCP, please apply related association as formal member by yourself
- There is ROHS identification on the board and package, the board match ROHS standard.

11. EXCURSUS

Keyboard and remote definition



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