

TV CONTROL BOARD SPECIFICATION

MODEL: T.MS3393.72

Part Number: MST-13010811

REV: A0

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CONTENT

ITEM	PAGE
1.GENERAL DESCRIPTION	2
2.FUNCTION LAYOUT	2
3.FEATURES	3
4.PCB DIMENSIONS	6
5.SCHEMATIC OF IR & KEY BOARD	7
6.INTERFACE DEFINITION	7
7.CONFIGURATION & GENERAL PRECAUTIONS	10
APPENDIX: ANOTHER STRUCTURE	11

REVISION HISTORY

VERSION	DATE	BOARD ID	PAGE	DESCRIPTION	AUTHOR
A0	2013.01.08	T.MS3393.72 A12526	All	First issued.	Miki

1. GENERAL DESCRIPTION

T.MS3393.72 is suitable for North America market. It can support more than 26 inch panels which resolution is up to 1920×1080.

T.MS3393.72 is a control board of LED TV. It can drive 60Hz polarizing panels.

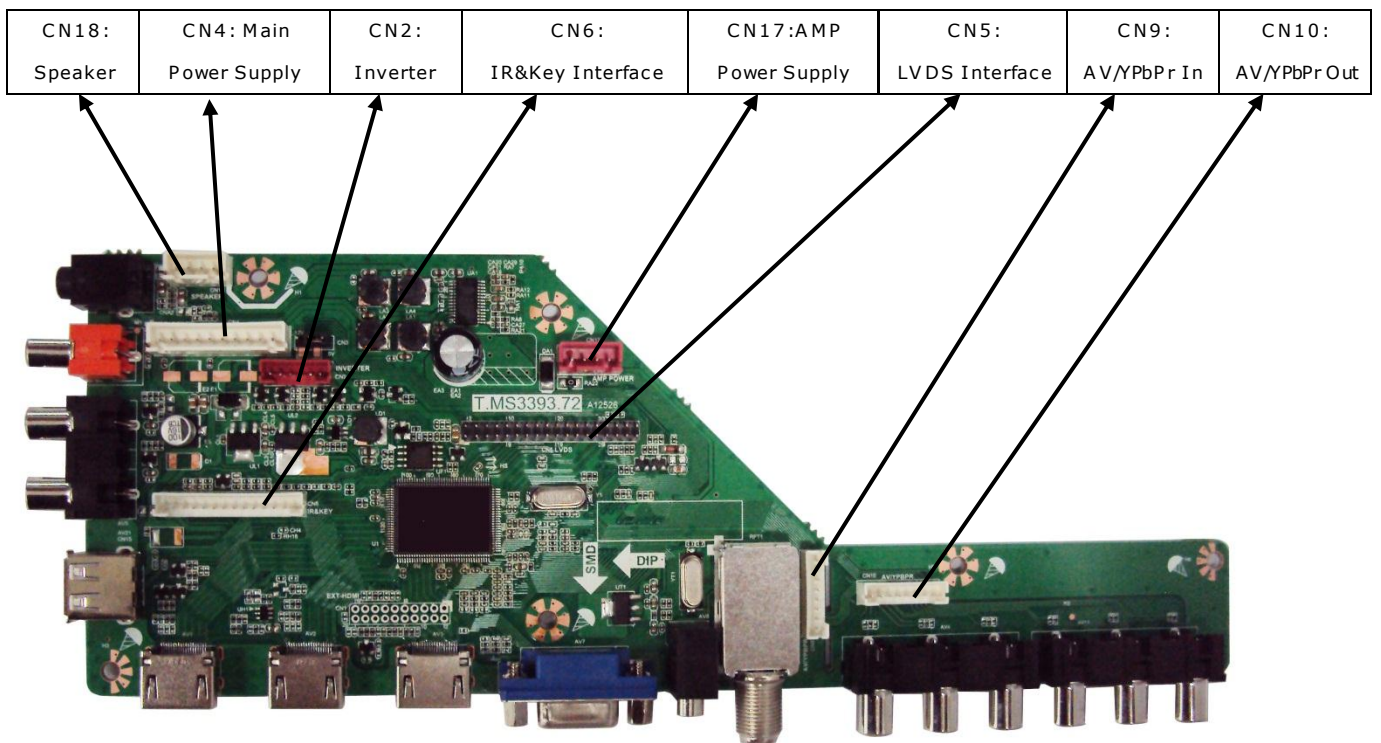
T.MS3393.72's USB slot can be used for updating software and playing MP3 and JPEG. The HDMI2 support MHL function,

2. FUNCTION LAYOUT

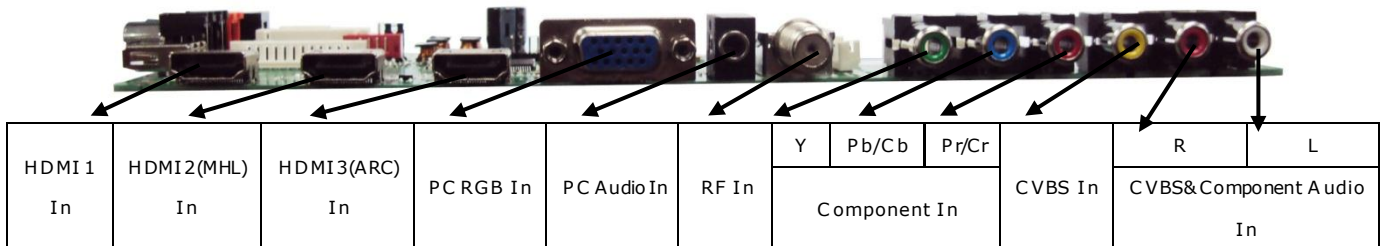
Pictures are for reference only, specific to prevail in kind.

The optional connectors and terminals are marked with “*”.

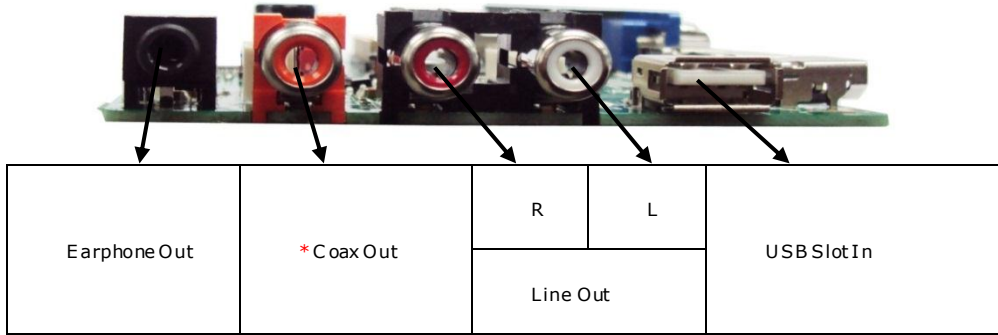
TOP VIEW OF T.MS3393.72



FRONT VIEW OF T.MS3393.72



SIDE VIEW OF T.MS3393.72



3. FEATURES

CHIPSET	MSD3393LU		
MARKET AREA	North America		
OSD LANGUAGE	Option: English, French, Spanish		
PANEL	Panel Type	LED	
	Interface	Single/Dual LVDS	
	Resolution	Up to 1920x1080	
TV INPUT	NTSC	Tuner receiving range	CH2~CH69 AIR CH1~CH135 CABLE
		Input impedance	75Ω
		Video System	NTSC
		Sound System	M
			MTS
		CC	608CC
	ATSC	Tuner receiving range	CH2~CH69 AIR CH1~CH135 CABLE
		Input impedance	75Ω
		C/N	≅ 16dB (Air)
			≅ 28dB (Cable)
		Channel bandwidth	6MHz
		Modulation	8VSB 64QAM 256QAM(J.83B)
		Video System	MPEG-2MP@HL
		Sound System	AC-3
Basic Functions	EPG, 708CC, Advanced V-CHIP,EAS		
VIDEO INPUT	PC-RGB	Format	Up to 1920x1080@60Hz
	CVBS	Video System	PAL/NTSC
		Video level	1.0 Vp-p +/-5%
	Component	480i, 480p, 720p, 1080i, 1080p	
HDMI	480i, 480p, 720p, 1080i, 1080p		

AUDIO INPUT	PC-RGB	Earphone input	0.2 – 1.5 Vrms
	CVBS	L/R RCA input	0.2 – 1.5 Vrms
	Component	L/R RCA input	0.2 – 1.5 Vrms
AUDIO OUTPUT	Frequency response	100Hz-15KHz @±3dB (1KHz 0dB reference signal)	
	Max Output power	2×8W(8Ω) THD+N<10%@1KHz Power Supply: 12V ,Audio Input: 0.5V _{RMS}	
POWER	Requirement	12V/5V/5VSB	
	To Panel	5V, 12V	
	Management	Standby Power Consumption < 0.2W(Board Only)	
COMB FILTER	3D		
DEINTERLACE	3D		
KEY FUNCTION	TV/AV, MENU, VOL+, VOL-, CH+, CH-, POWER		
EXPANSIBLE FUNCTIONS	--		
Note: Licenses involved in specifications above are supposed to be obtained by customers themselves.			

MULTI MEDIA (MUSIC/PHOTO) PLAYBACK FORMAT

Multimedia Categories	File Extension	Decoder	Notes
Music	*.mp3	MPEG1 Audio LAYERIII (Not corresponding MP3 Pro)	Sampling Frequency [KHz] : 32/ 44.1/ 48 Bit Rate [kbit/s]: 32/40/48/56/64/80/96/112/128/ 160/192/224/256/320/VBR
Photo	*.jpg/.jpeg	Progressive JPEG	Max Resolution: 1024×768
		Baseline JPEG	Max Resolution: 8192×8192

Note: Licenses involved in specifications above are supposed to be obtained by customers themselves.

SUBSTITUTABLE PRIMARY MATERIALS

The table is for reference only, the actual item is the standard.

NAME	TYPE	BRAND	BACKUP TYPE	BACKUP BRAND
TUNER	MXL601	Maxlinear	--	--
AMPLIFIER	TPA3110D	TI	--	--
FLASH	GD25Q16BSIG	GIGA	W25Q16DVSSIG	Winbond

ELECTRICAL CHARACTERISTICS & REQUIREMENTS

Power Supply Mode	Symbol	Voltage Range	Max Current	Ripple Voltage @25℃	Startup Time	Rise Time
12V/5V/5VSB (Built-In)	12V	12V±10%	2000mA	120mV _{p-p}	≤100ms	≤50ms
	5V	5V~5.25V	1500mA	50mV _{p-p}	≤100ms	≤50ms
	5VSB	5V~5.25V	500mA	50mV _{p-p}	--	≤50ms

Note1: The current of panel, USB, inverter and extension modules are not included in max current.
Note2: The current of MHL standby charge is not included in max current.

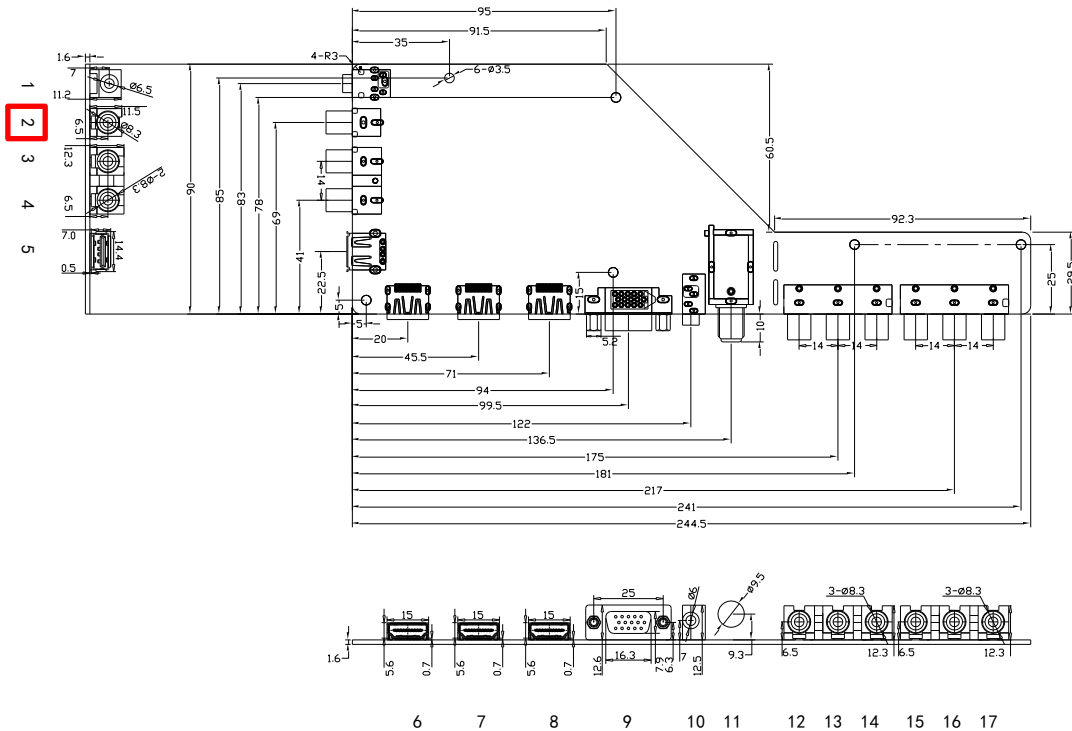
4. PCB DIMENSIONS

The size of T.MS3393.72 is 244.5mm(L)*90mm(W)*18mm(H).

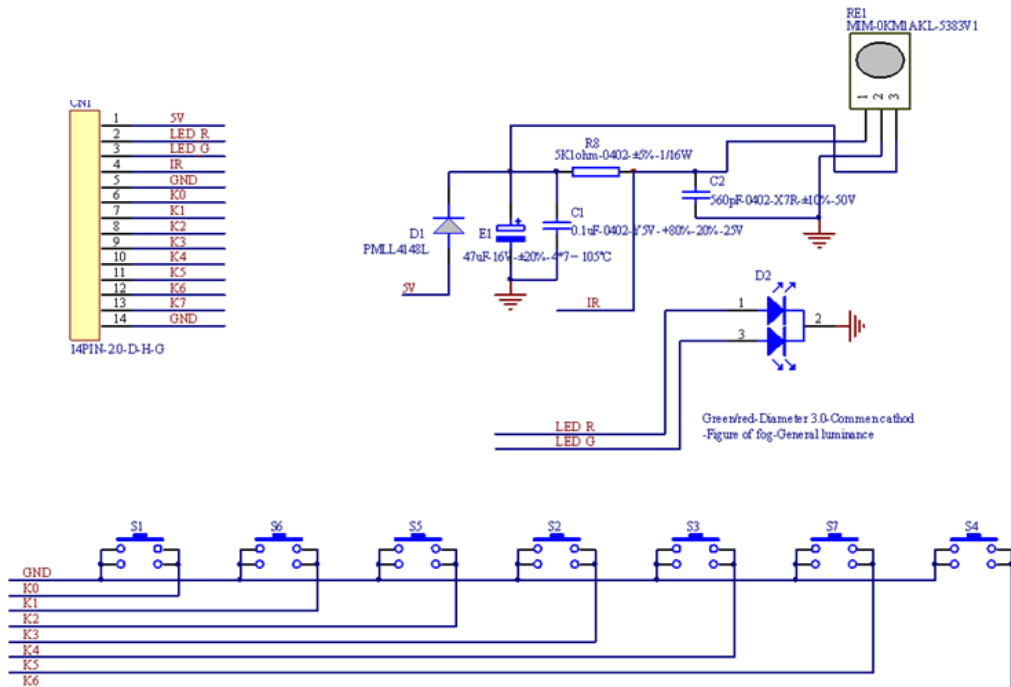
Note: For No.2 in the picture below, the coax terminal can be compatible with optical terminal. Details can be found in appendix.

With COAX Out

Ver.	V1.0
NO.	Description
1	EARPHONE OUT
2	COAX OUT
3	LINE ROUT
4	LINE LOUT
5	USB IN
6	HDMI 1
7	HDMI 2 (MHL)
8	HDMI 3 (ARC)
9	VGA IN
10	PC AUDIO IN
11	RF IN
12	YPbPr-Y
13	YPbPr-PB IN
14	YPbPr-PR IN
15	CVBS IN
16	CVBS/YPBPR RIN
17	CVBS/YPBPR LIN



5.SCHEMATICS OF IR BOARD & KEY BOARD



6. INTERFACE DEFINITION

The optional connectors are marked with "*".

◆ CN18 (4PIN/2.54): SPEAKER CONNECTOR

NO.	SYMBOL	DESCRIPTION
1	RO-	Audio Right Channel Output-
2	RO+	Audio Right Channel Output+
3	LO-	Audio Left Channel Output-
4	LO+	Audio Left Channel Output+

◆ CN17(4PIN/2.54): AMP POWER SUPPLY CONNECTOR

NO.	SYMBOL	DESCRIPTION
1	GND	Ground
2	GND	
3	VCC	DC Power Supply
4	VCC	

◆ **CN6(14PIN/2.0): IR& KEY BOARD CONNECTOR**

NO.	SYMBOL	DESCRIPTION
1	GND	Ground
2	K7	Key7(Reserved)
3	K6	Key6
4	K5	Key5
5	K4	Key4
6	K3	Key3
7	K2	Key2
8	K1	Key1
9	K0	Key0
10	GND	Ground
11	IR	IR Receiver
12	GRN	Green Indicator
13	RED	Red Indicator
14	5V	+5V DC Power Supply

◆ **CN5(2×18PIN/2.0): LVDS INTERFACE CONNECTOR**

NO.	SYMBOL	DESCRIPTION
1	VCC_Panel	Power Supply for Panel
2	VCC_Panel	
3	VCC_Panel	
4	GND	Ground
5	GND	
6	GND	
7	RX00-	LVDS ODD 0- Signal
8	RX00+	LVDS ODD 0+ Signal
9	RX01-	LVDS ODD 1- Signal
10	RX01+	LVDS ODD 1+ Signal
11	RX02-	LVDS ODD 2- Signal
12	RX02+	LVDS ODD 2+ Signal
13	GND	Ground
14	GND	
15	RXOC-	LVDS ODD Clock- Signal
16	RXOC+	LVDS ODD Clock+ Signal
17	RX03-	LVDS ODD 3- Signal
18	RX03+	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

NO.	SYMBOL	DESCRIPTION
23	RXE2-	LVDS EVEN 2- Signal
24	RXE2+	LVDS EVEN 2+ Signal
25	GND	Ground
26	GND	
27	RXEC-	LVDS EVEN Clock- Signal
28	RXEC+	LVDS EVEN Clock+ Signal
29	RXE3-	LVDS EVEN 3- Signal
30	RXE3+	LVDS EVEN 3+ Signal
31	GND	Ground
32	GND	
33	CON1	CON1
34	CON2	CON2
35	M_SCL	M_SCL
36	M_SDA	M_SDA

◆ CN4(10PIN/2.54): MAIN POWER SUPPLY CONNECTOR

NO.	SYMBOL	DESCRIPTION
1	12V	+12V DC Power Supply
2	GND	Ground
3	5V	+5V DC Power Supply
4	5V	
5	P5V	+5V Power Supply for Panel
6	P5V	
7	GND	Ground
8	GND	
9	PON	Power On/Off
10	5VSB	+5V Power Supply when Standby

◆ CN2(6PIN/2.0): INVERTER CONNECTOR

NO.	SYMBOL	DESCRIPTION
1	GND	Ground
2	GND	
3	ADJ	Brightness Adjustment for Panel
4	BLO	Back-Light ON/OFF Control for Panel
5	12V	+12V DC Power Supply
6	12V	

◆ **CN9(6PIN/2.0): AV/YPBPR INPUT CONNECTOR**

NO.	SYMBOL	DESCRIPTION
1	L	Left
2	R	Right
3	CVBS	CVBS Input
4	GND	Ground
5	GND	
6	Y	External Component-Y Input

◆ **CN10(6PIN/2.0): AV/YPBPR OUTPUT CONNECTOR**

NO.	SYMBOL	DESCRIPTION
1	L	Left
2	R	Right
3	CVBS	CVBS Output
4	GND	Ground
5	GND	
6	Y	External Component-Y Output

7 . CONFIGURATION & GENERAL PRECAUTIONS

- **Relative humidity: ≤ 80%.**
- **Storage temperature: -10~60°C.**
- **Operation temperature: 0~40°C.**
- **Protect the board from static electricity in case of damage to the IC.**
- **Keep the board away from conductor when it is working.**
- **Don't push or pull the connectors when the board is working.**
- **Don't press, distort or disassemble the board.**
- **Clean the board with soft dry cloth when it's dirty.**
- **Don't wire in the board to power supply before panel is correctly connected.**

APPENDIX: ANOTHER STRUCTURE

With OPTICAL Out

Ver.	V1.0
NO.	Description
1	EARPHONE OUT
2	OPTICAL OUT
3	LINE ROUT
4	LINE LOU
5	USB IN
6	HDMI 1
7	HDMI 2 (MHL)
8	HDMI 3 (ARC)
9	VGA IN
10	PC AUDIO IN
11	RF IN
12	YPbPr-Y
13	YPbPr-PB IN
14	YPbPr-PR IN
15	CVBS IN
16	CVBS/YPBPR RIN
17	CVBS/YPBPR LIN

