

SERVICE MANUAL

MODEL : 79 And 89 Series

(SOURTION MST182VG)

CONTENTS

SAFETY PRECAUTION

SPECIFICATION

BLOCK DIAGRAM

CIRCUIT DIAGRAM

FACTORY MODE&ADJUSTMENT

UPGRADE SOFTWARE

TROUBLE SHOOTING

APPENDIX

This manual is the latest at the time of printing, and does not include the modification which may be made after the printing, by the constant improvement of product.

IMPORTANT SAFETY INSTRUCTIONS



This symbol indicates " dangerous voltage " inside the product that presents a risk of electric shock or personal injury.

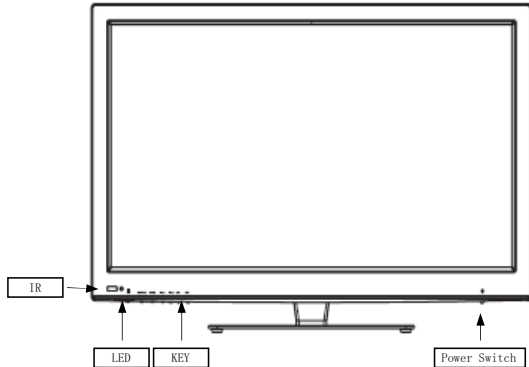
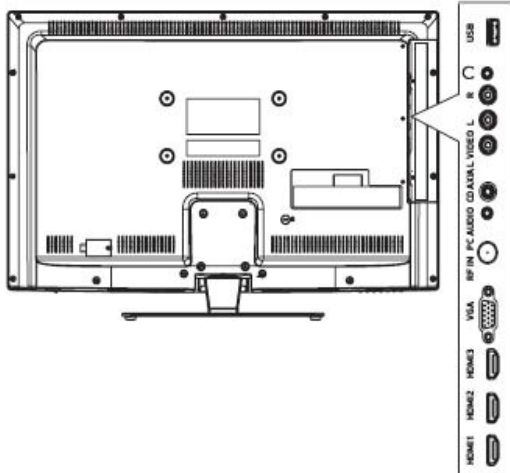


This symbol indicates important instructions accompanying the product.

Please read this manual carefully before using this product.

- Before connecting the AC power cord ,make sure the voltage designation of the LCD TV corresponds to the local electrical supply .
If you are unsure of your power supply , ask your local power company .
- Never insert anything metallic into the cabinet openings of the liquid crystal display LCD TV/monitor; otherwise it may create the danger of electric shock.
- To avoid electric shock, Never touch the inside of the LCD TV/monitor .
Only a qualified technician should open the case of the LCD TV/monitor.
- Never use your LCD TV/monitor if the power cord has been damaged .
Do not allow anything to rest on the power cord, and keep the cord away from place where people can trip over it .
- Be sure to hold the plug, not the cord, when disconnecting the power cord from an electric socket.
- Openings in the LCD TV/monitor cabinet are provided for ventilation.
To prevent overheating, these openings should not be blocked or covered. Also, avoid using the LCD TV/monitor on a bed ,sofa ,rug, or other soft surface. Doing so may block the ventilation openings in the bottom of the cabinet. If you put the LCD TV/monitor in a bookcase or some other enclosed space, be sure to provide adequate ventilation.
- Do not expose the LCD TV/monitor to extreme temperature conditions or to extreme humidity conditions.
- The apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids.

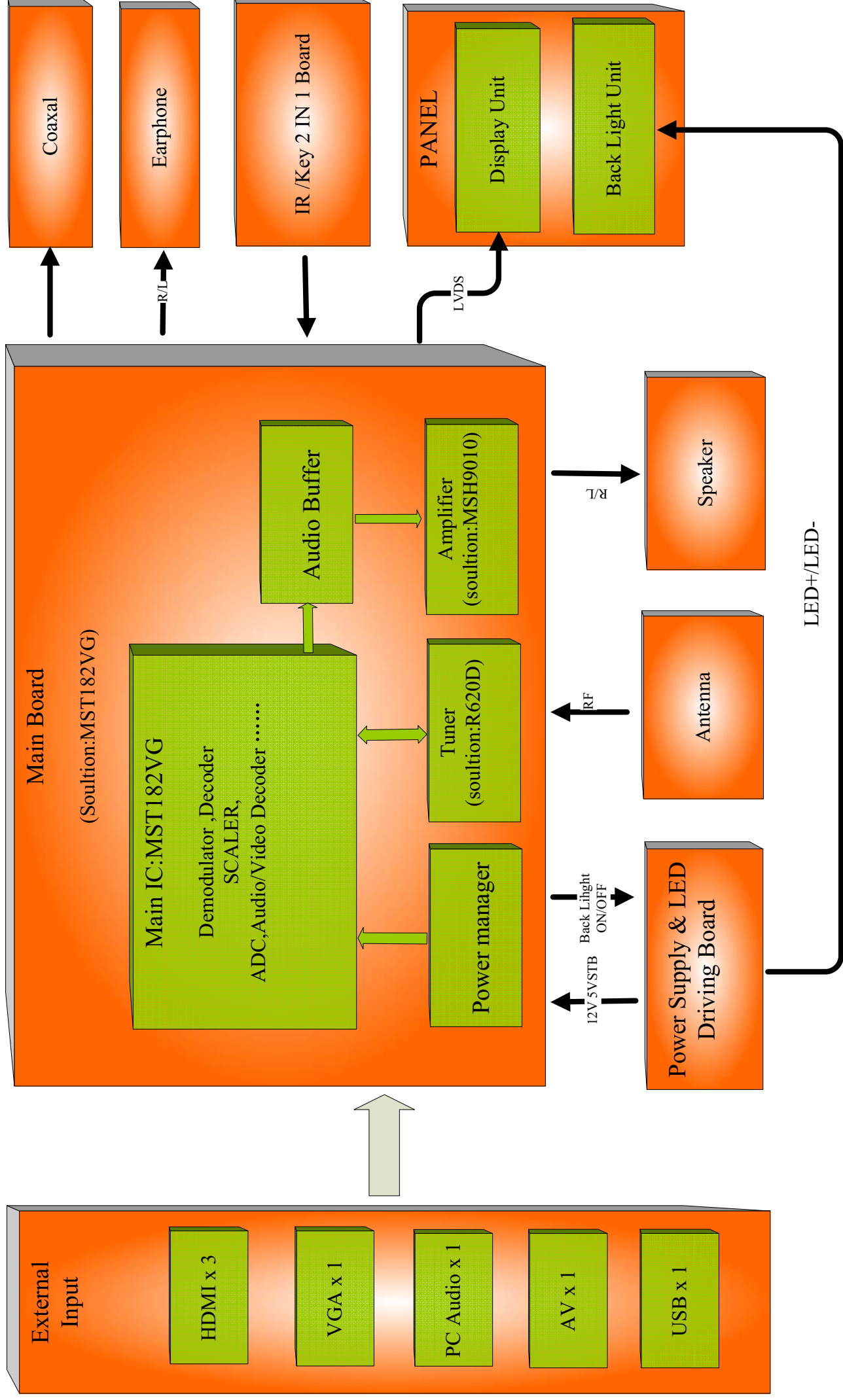
Product Specification

Display	Modle	LEM3279 LEM3289	LEM3279F LEM3289F	LEM4079F	LEM4289F LEM4289F
	Dimension (cm)	82	82	99	107
	Driver Element	A-si TFT active matrix			
	Aspect Ratio	16:9			
	Viewing Angle (°)	176x176		178x178	
	Resolution	1366x768	1920x1080	1920x1080	1920x1080
	Response time (ms)	8	6,5	8	8
	Brightness (cd/m2)	300	300	350	350
	Contrast	1500:1	4000:1	5000:01:00	5000:1
	Display Colors	16,7 M			
Front Panel Viewing					
	KEY STANDBY,SOURCE, MENU, CH+/CH-, VOL +/-				
LED Indicators		Standby :Red On:Green			
Back Panel Viewing					
Terminals	Image In	TV 75ohm Aerial			X 1
		HDMI			X 3
		RCA Jack(CVBS) -Yellow			X 1
	Audio In	RCA Audio (L/R) Jack - White/Red			X 1
		φ3.5 Stereo Jack			X 1
	VGA In	D-sub 15 Pin VGA Connector			X 1
	USB	USB2.0 Host			X 1
	COAX Output	RCA Jack (Black)			X 1
Audio Output	φ3.5 Earphone Jack			X 1	

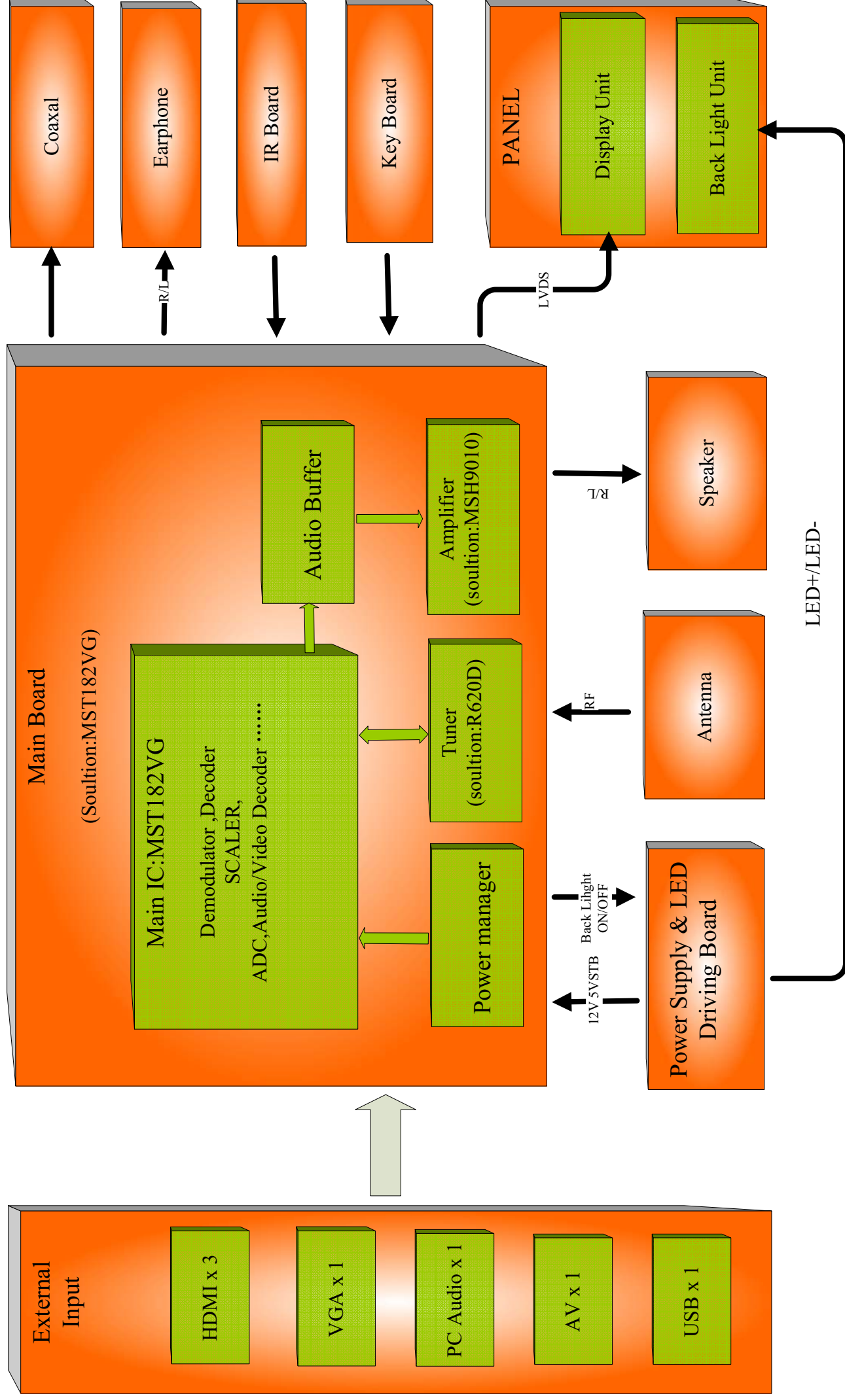
Audio	Output Power (1 KHz 10% THD)			2X8W
	NICAM / STEREO			Yes
	Bass			Yes
	Treble			Yes
	Balance			Yes
OSD Language	Russian , English			
Color Systems	Video Inputs PAL, SECAM, NTSC 3.58, NTSC 4.43, PAL60			
Supported Resolutions	Video Inputs	VGA	1366x768	1920x1080
		HDMI	DVI-HDMI: RGB/60 Hz 640x480 800x600 1024x768 HDMI-HDMI: YUV/50 Hz 576p 720p 1080i 1080p; YUV/60 Hz 480i 480p 720p 1080i 1080p	
energy consumption	Input voltage (V, Hz)			~100-240, 50/60
	Power Consumption (W)			65 50 70 80
Protection class	against electric shock			II
Temperature requirements	Operating (° C)			+5...+35
	Storage and Transportation (°			-20...+45
Requirements for humidity	Operation (%)			10-80 (no condensation)
	Storage and Transport (%)			5-95 (no condensation)
Remote Control				
	Color			Black
	Batteries			1.5V AAA X2
	Customer Code			09F6

Note: Specifications are subject to change without notice

Block Diagram for 79 Series

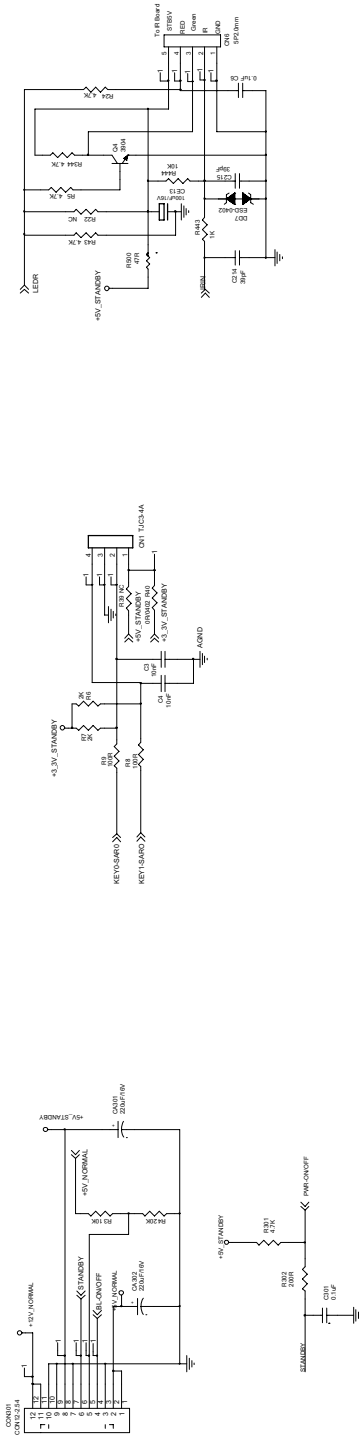


Block Diagram for 89 Series

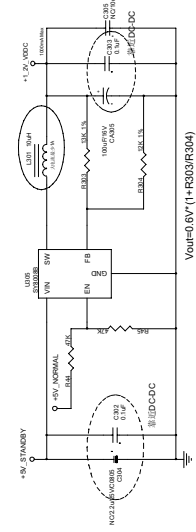


Circuit Diagram for Main Board

电源输入

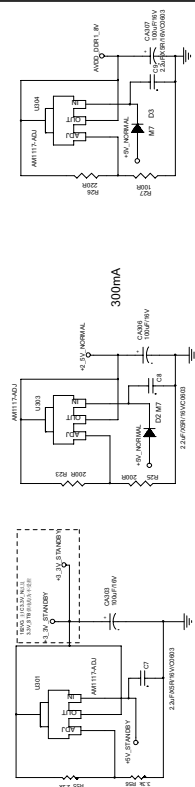


1.2VDC-DC

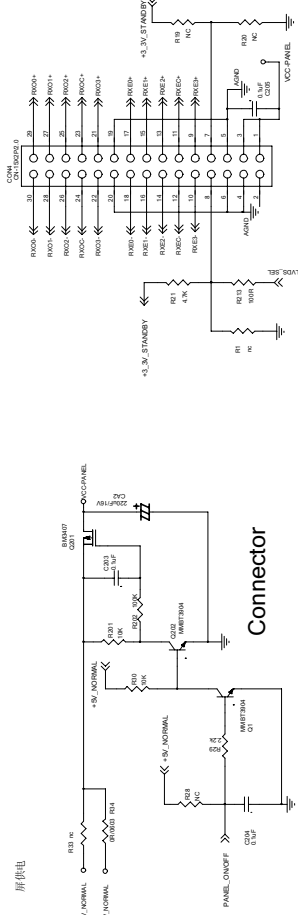


LDO

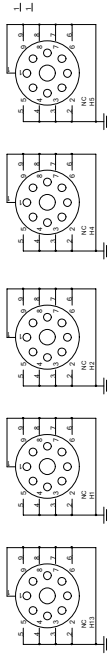
+5V供电, 1.9A输出? 那么耗散功率多大?
US为片内供电电路, MST6M182VG内存类型为DDR2 US上
要焊接AMS1117-1.8, 输出为1.8V, L7不焊接。



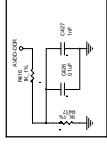
屏供电



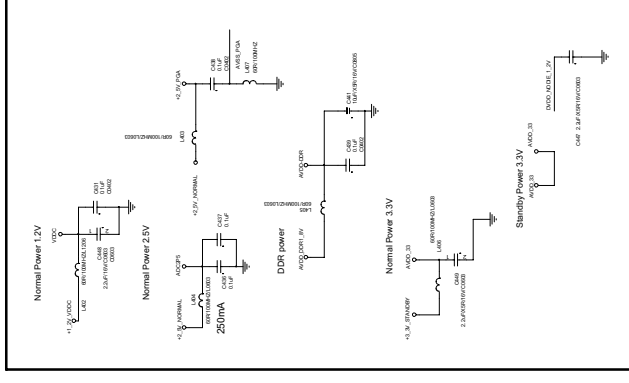
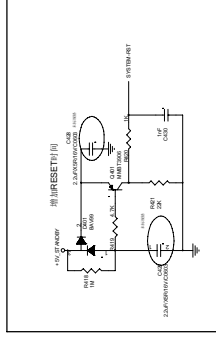
Connector



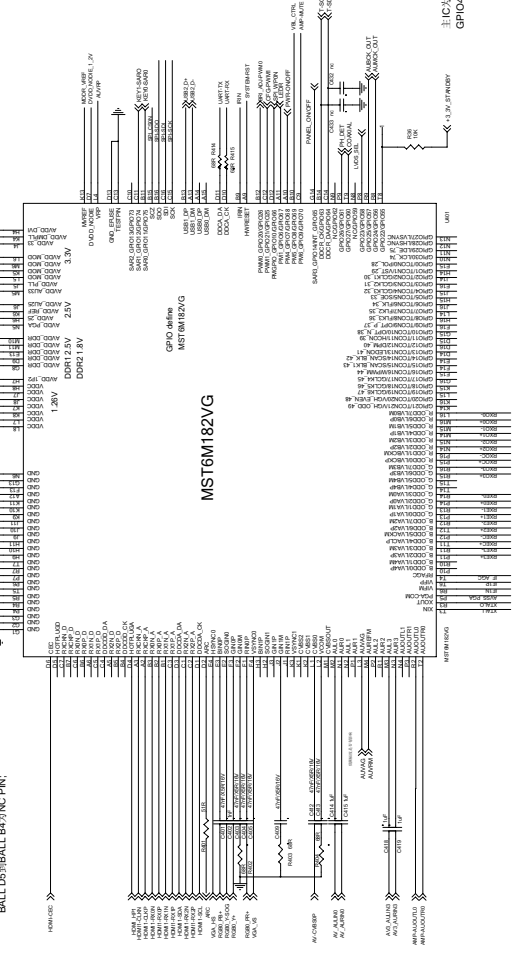
DDR2 VREF



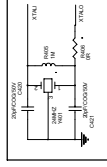
RESET CIRCUIT



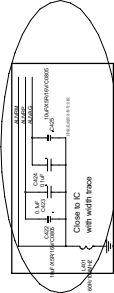
主IC:MST6M182VGH,
R104、R106、C144外置。



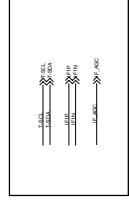
主IC:MST6M182VGH,
GPIO(BALL N8)(GPIO7(BALL N9))为NC PIN.



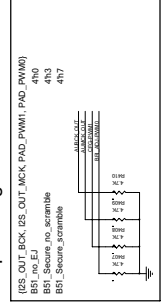
Audio



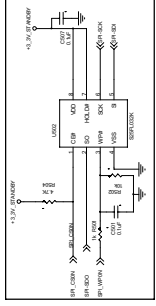
Tuner



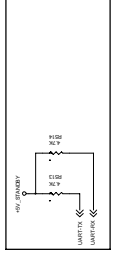
Chip Config

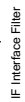
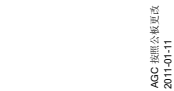


SERIAL FLASH

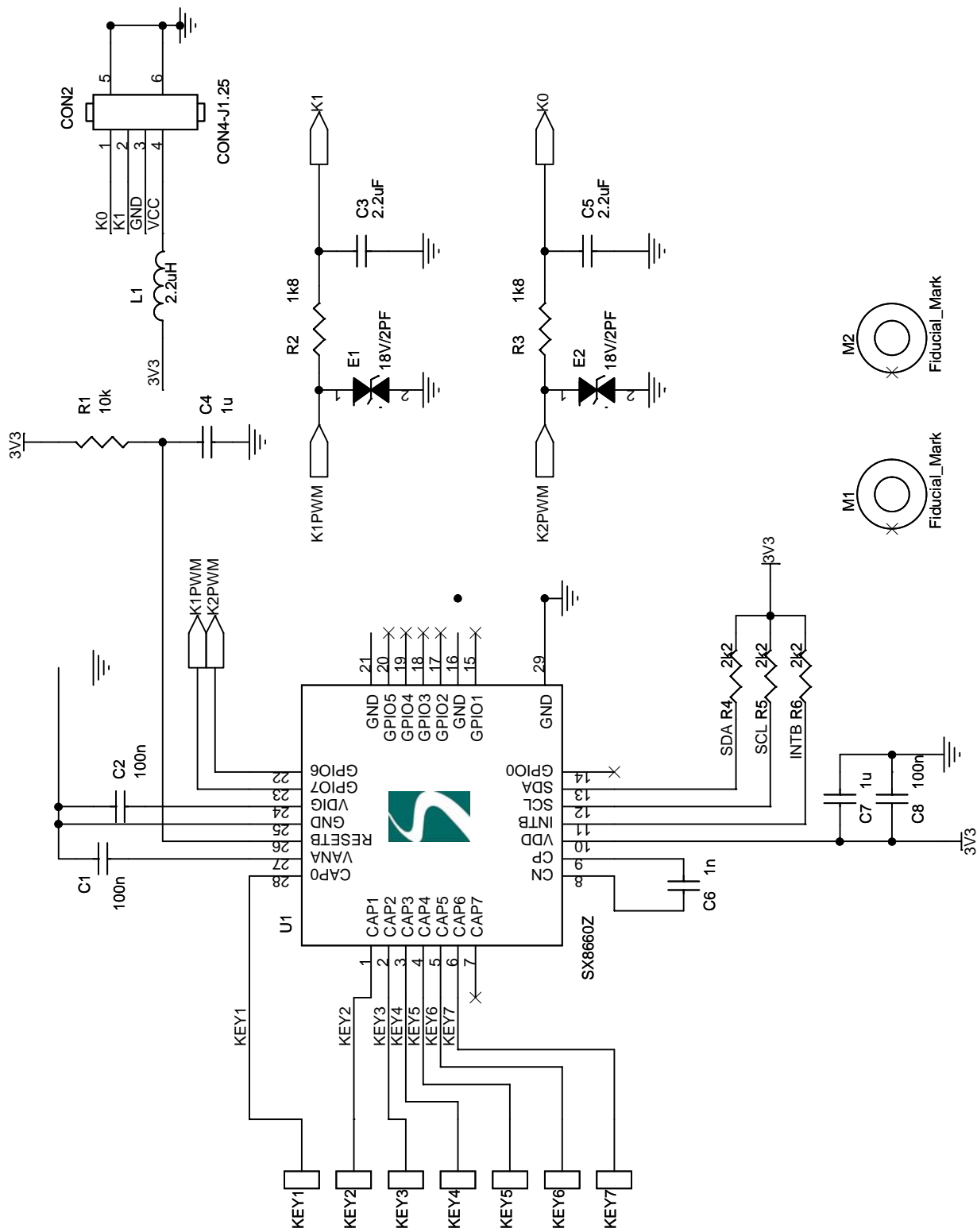


Debug port





Circuit Diagram for Touch Key Board



A

3

4

5

A

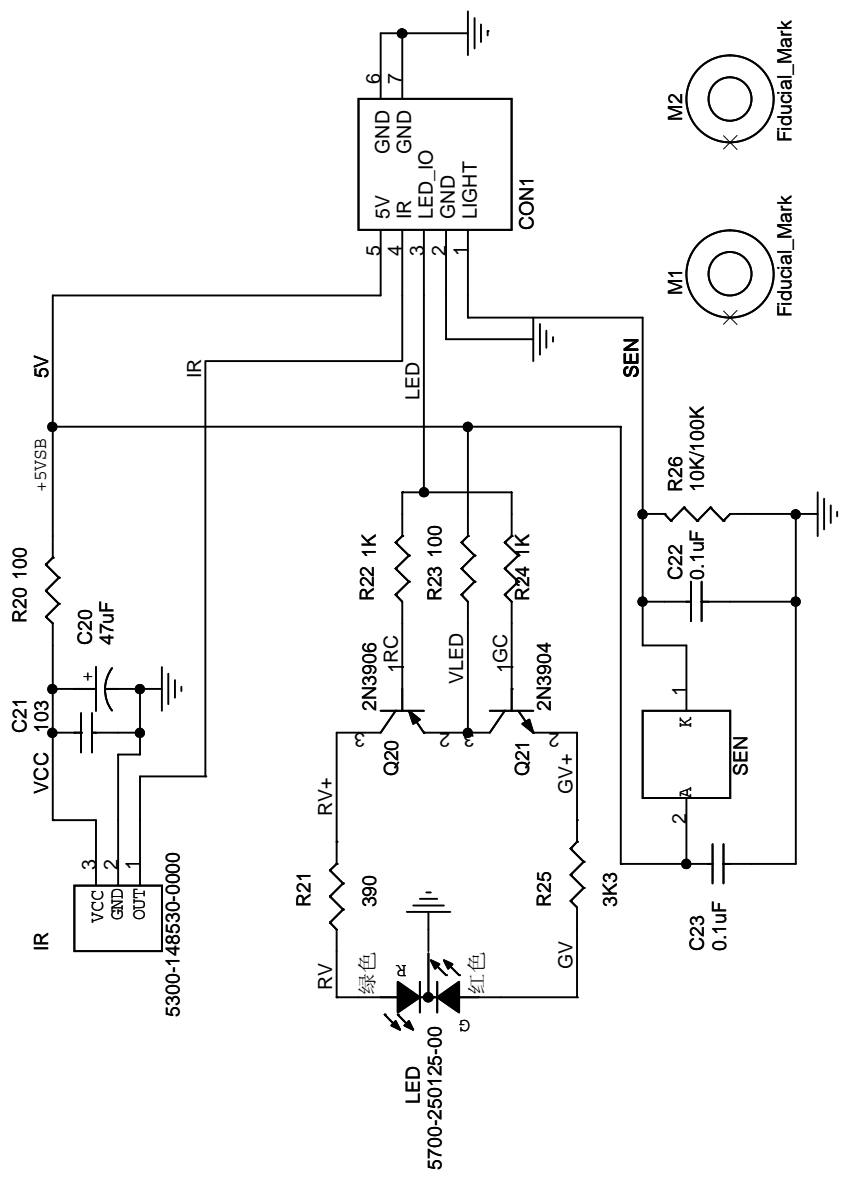
B

▲

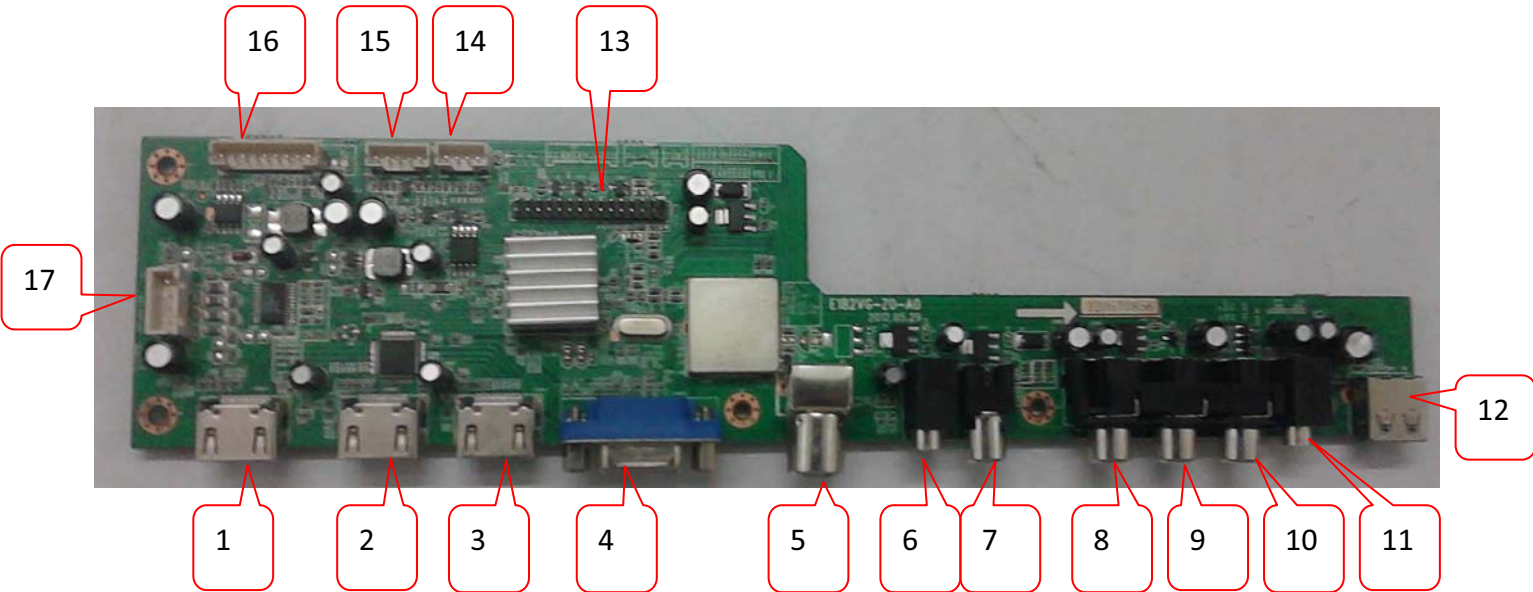
C

D

Circuit Diagram for IR Board



Circuit Diagram for Touch Key Board



N0	Ref	Description	N0	Ref	Description
1	CON803	HDMI 1 Input	10	J12	Right Audio Input
2	CON803	HDMI 2 Input	11	J14	Headphone output
3	CON803	HDMI 3 Input	12	CN7	USB 2.0 jack
4	CON7	VGA Input	13	CON4	LVDS Output
5	J11	RF Input	14	CN1	Key Board Jack
6	J1	PC Audio Input	15	CN6	IR Board Jack
7	J2	Coaxial Output	16	COM301	Power Supply Jack
8	J12	Video Input	17	CON901	Speaker Jack
9	J12	Left Audio Input			

★CN301(9PIN2.0) Power Supply jack

NO.	Definition	Description
1	12v	12V Power Supply
2	GND	Ground
3	BL0	Black-Light ON/OFF Control
4	5v	5V Power Supply
5	5v	5V Power Supply
6	GND	Ground

★CON901(4PIN2.54) Speaker jack

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

★ CN1:(4PIN2.0) Key jack

NO.	Definition	Description
1	K1	Key 1 (ADC Input)
2	GND	GND
3	K2	Key 2 (ADC Input)
4	VCC	3.3V 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

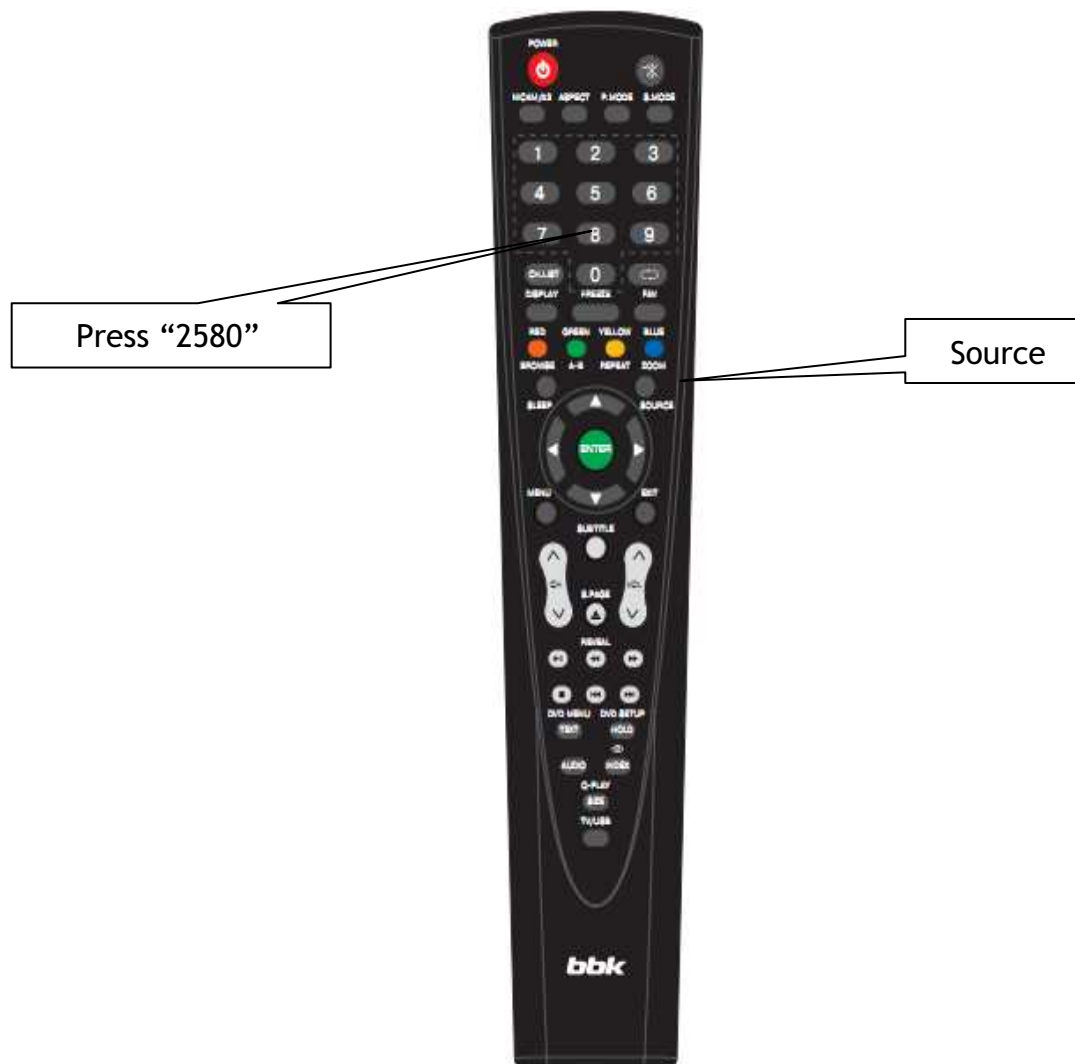
★CON4: LVDS Interface

NO.	Definition	Description
1	LCD-VDD	Power for Panel
2	LCD-VDD	Power for Panel
3	LCD-VDD	Power for Panel
4	GND	GND
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

FACTORY MODE AND ADJUSTMENT

1) How to enter service mode

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



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: Auto 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:

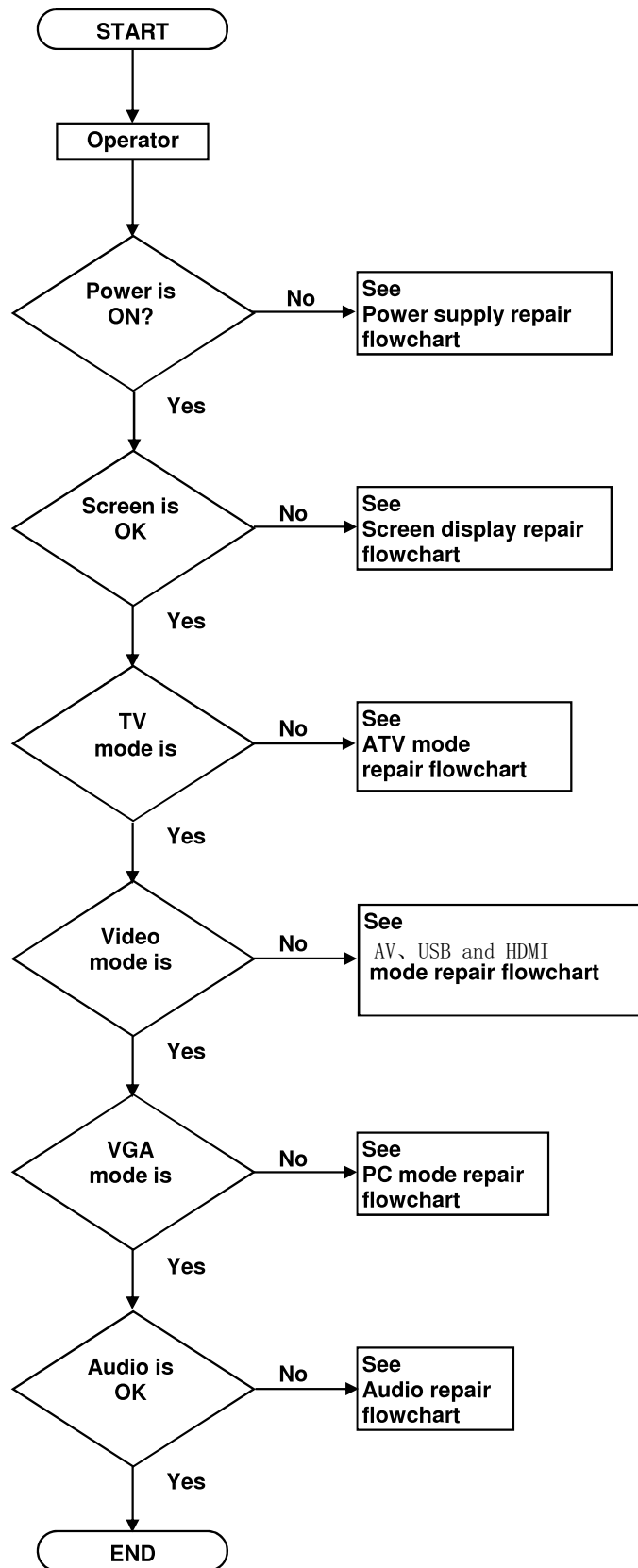
1. color temperature adjusting:in different source the white balance can be adjust separated.the details as below:
 - 1) DVD&YpbPr source use same group color temperature value.
 - 2) TV&Scart source use same group color temperature value.
 - 3) VGA&HDMI source use separated color temperature value.
2. Auto Config:please change source to VGA mode and with grey scale pattern then enter service mode to do this item.

Main Board Software upgrade

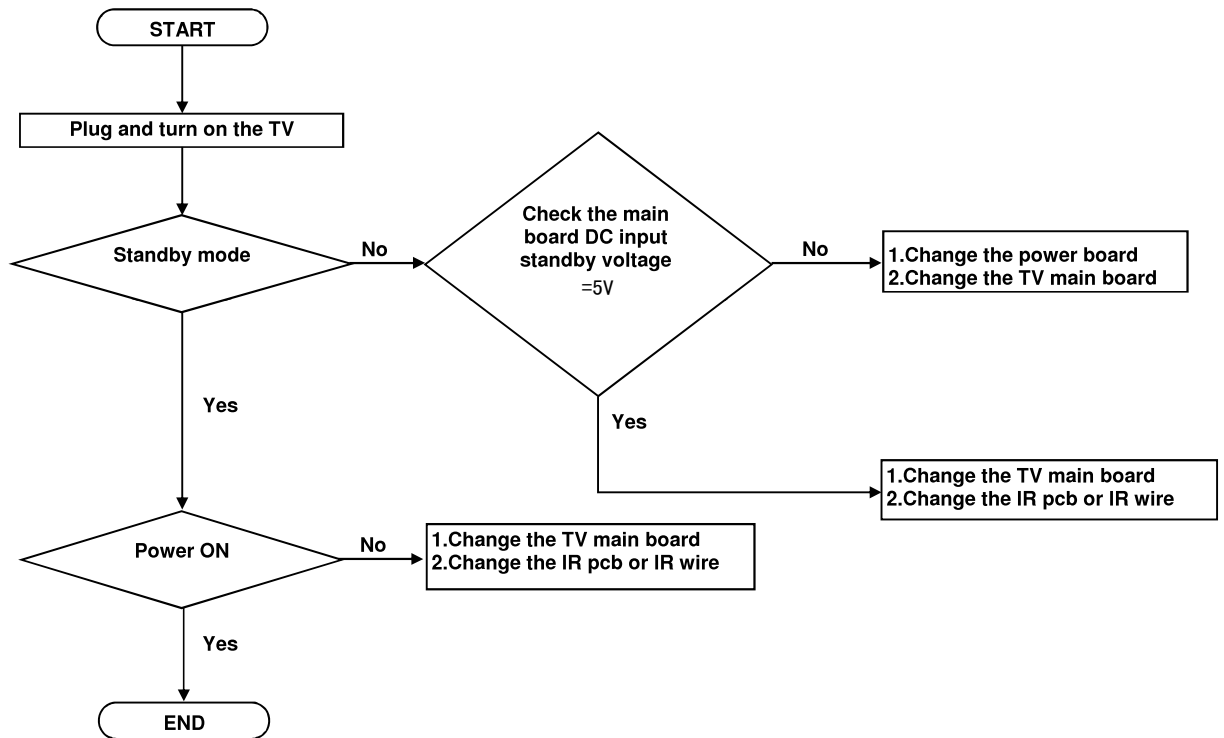
- 1 Please burn the software to USB device. Noted please, software name have to be MERGE182.bin.
- 2 Power on TV, and switch source to ATV.
- 3 Insert USB device to TV, then screen will display a message window to inform you upgrade TV or not. Press" LEFT" direction button to upgrade
- 4 It will cost 40 seconds to upgrade. In this process, please don't unplug USB device, don't power off TV.

TROUBLE SHOOTING

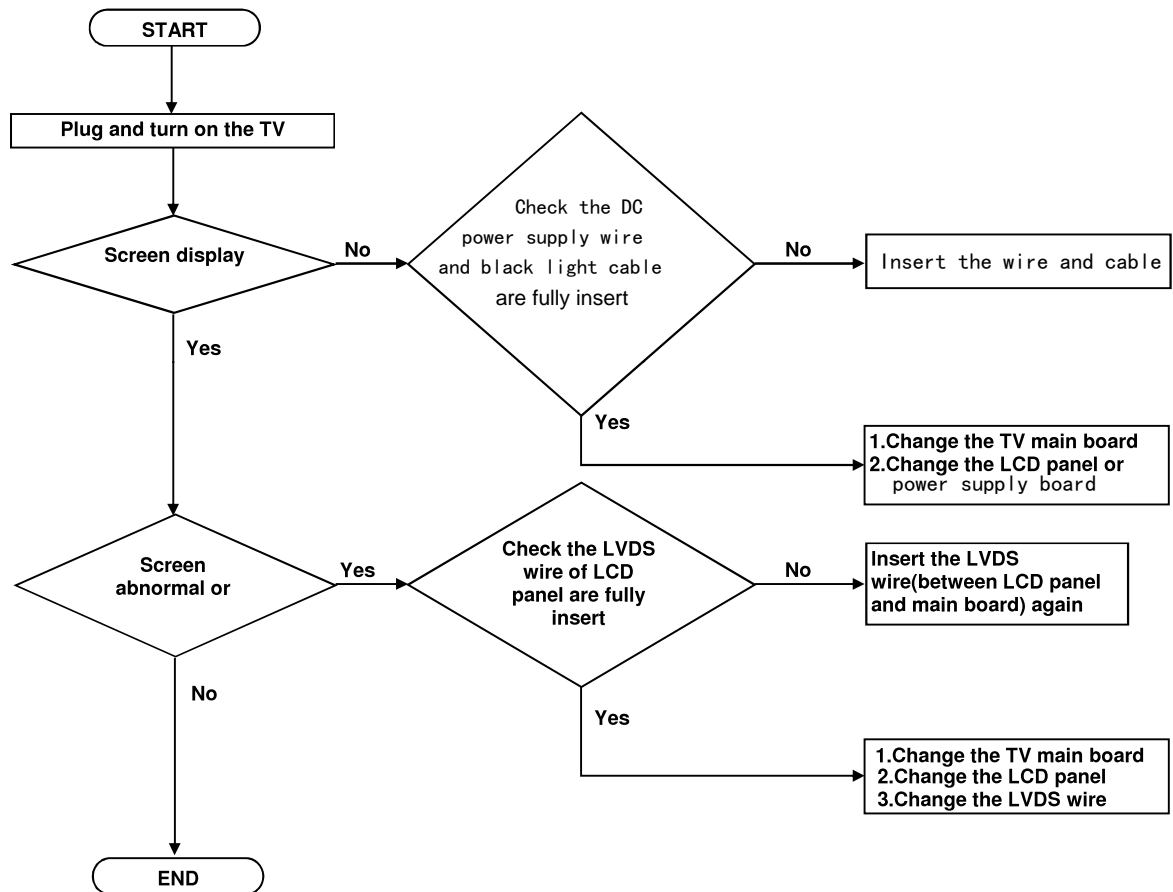
TV Fault finding tree



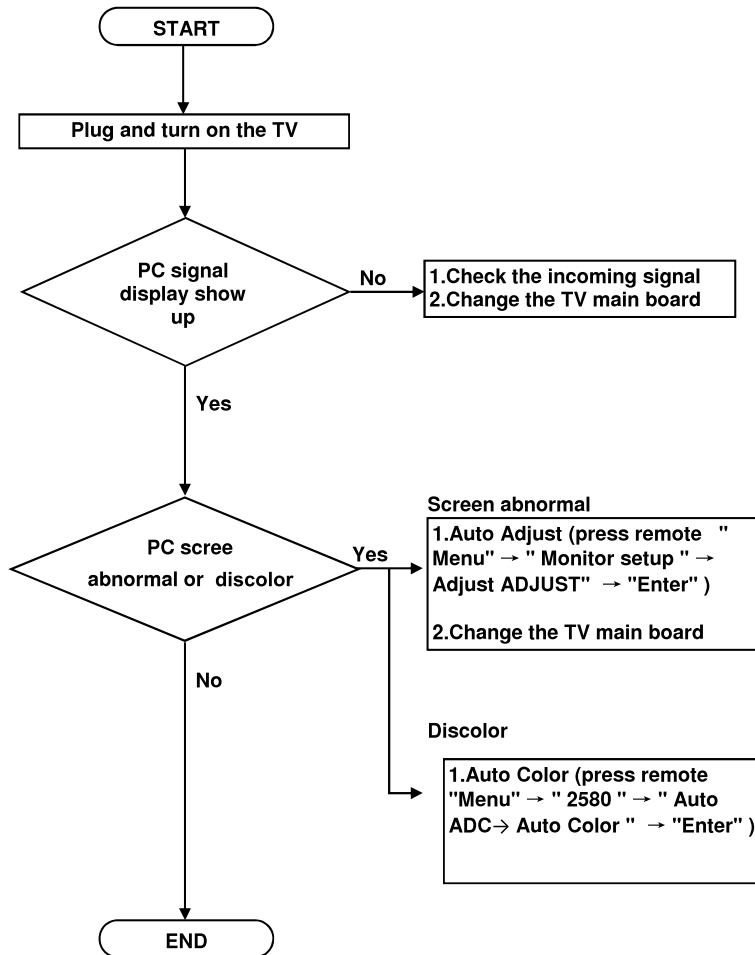
Power supply repair flowchart



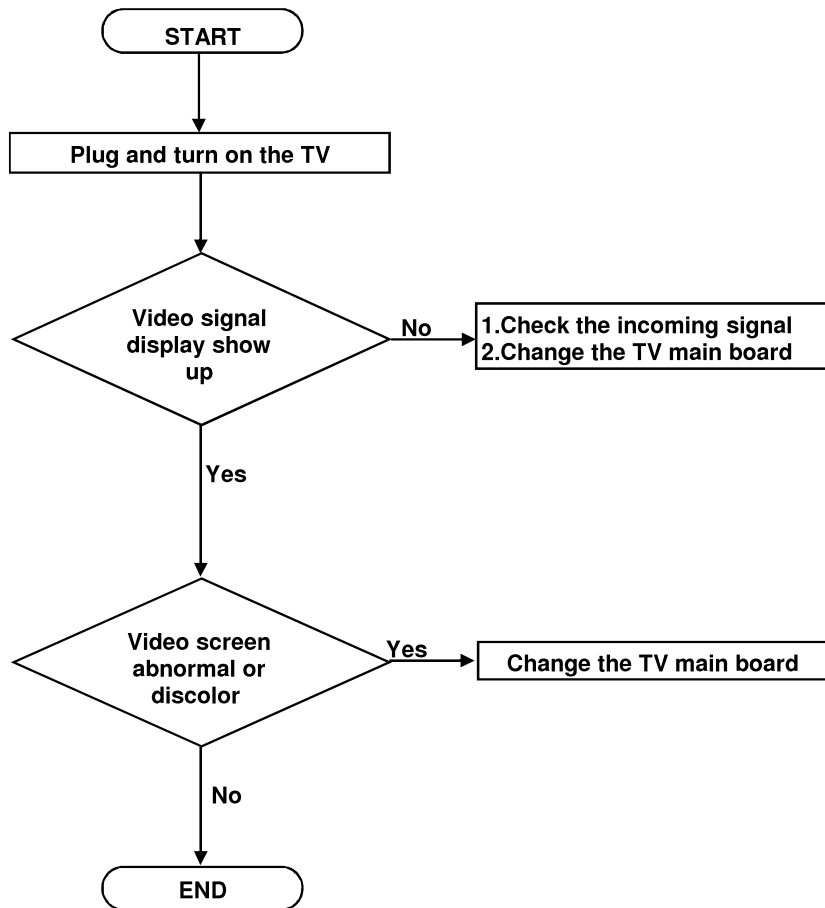
Screen Display repair flowchart



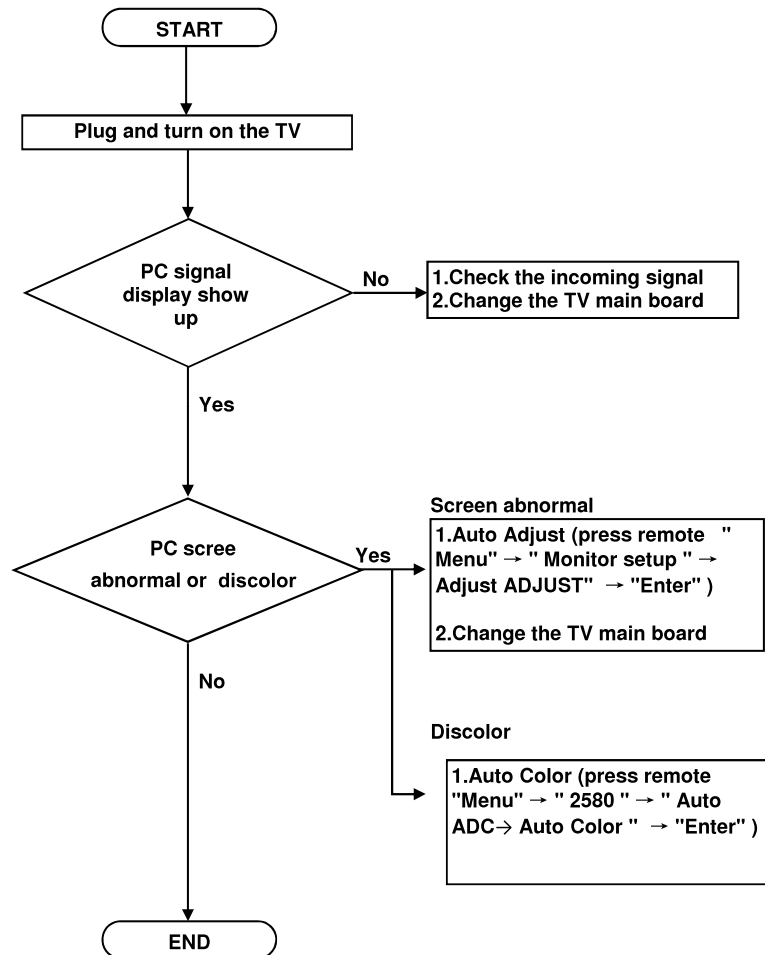
PC mode repair flowchart



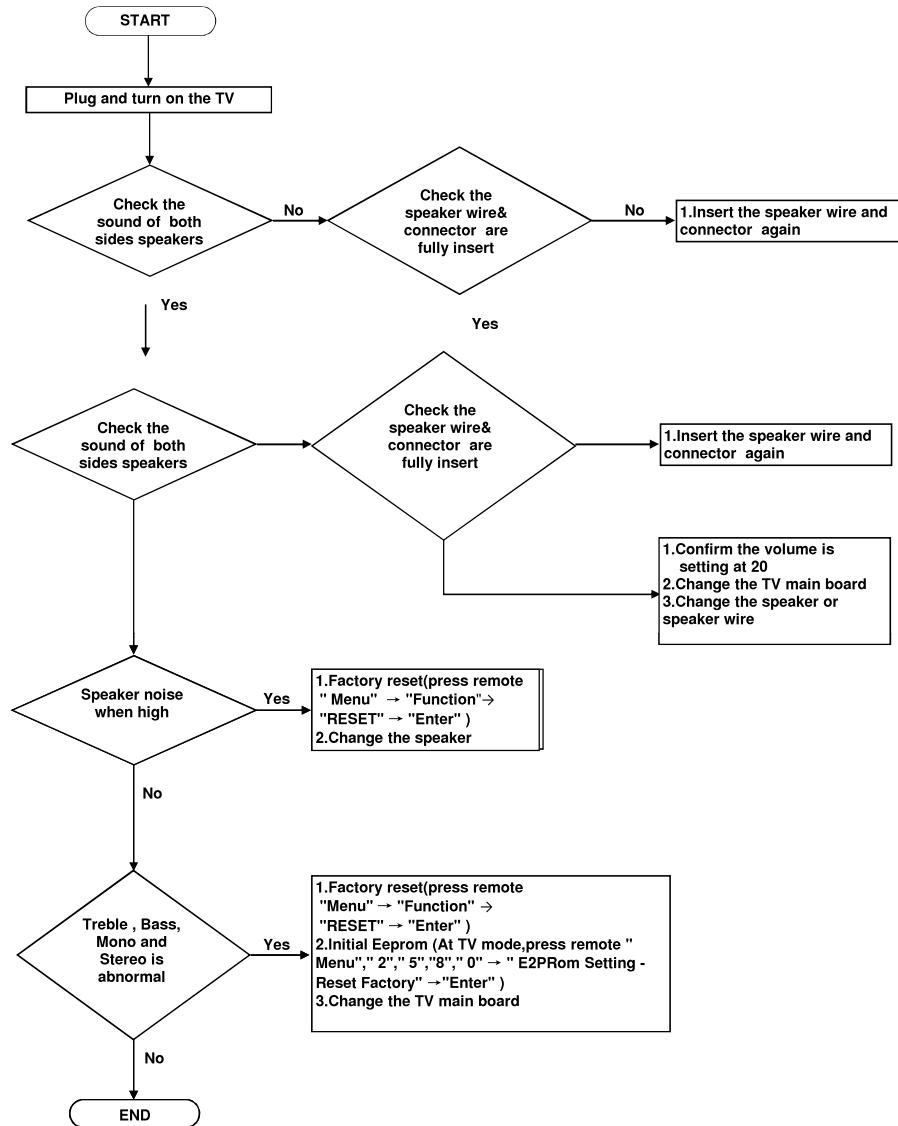
AV, USB and HDMI mode repair flowchart



PC mode repair flowchart

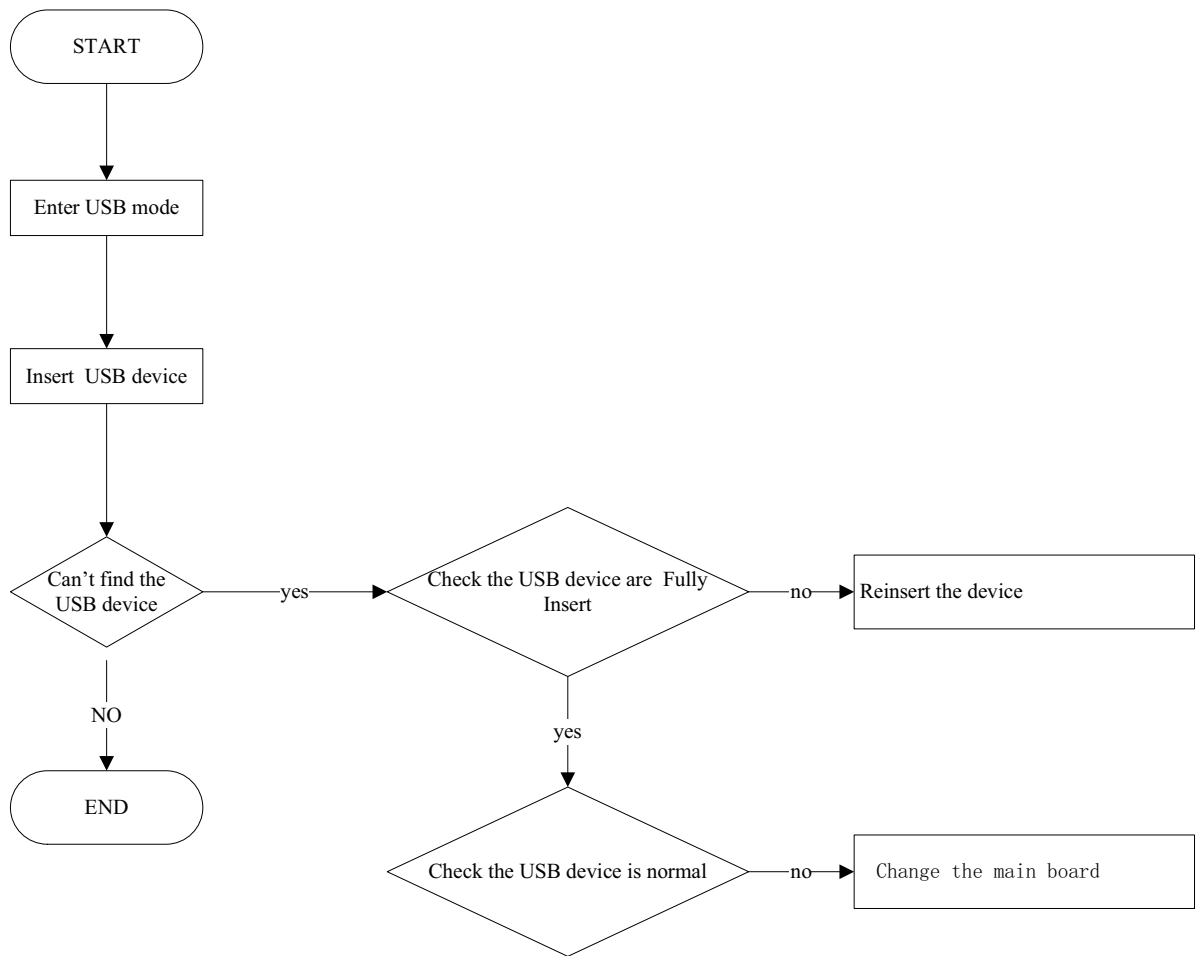


Audio repair flowchart



REMARK : After Default Setting , PC mode must " Auto Color"(press remote " Menu" → "2580" → "Auto ADC" → "Auto Color" → "Enter")

USB Repair Flowchart



APPENDIX

32 Inch Power Supply Board Specefication

客 户
(CUSTOMER)

产 品 型 号
(DESCRIPTION)

32” LED LIPS 电源

公 司 料 号
(PART NO)

版 本
(VERSION NO)

VER00.00

日 期
(DATE)

2012-3-7

设计确认 (DESIGN VALIDATION)		
拟制 (DESCRIBED)	审核 (CHECKED)	批准 (APPROVED)

深圳创维-RGB 电子有限公司
SHENZHEN SKYWORTH-RGB ELECTRONICS CO.,LTD.
地址:深圳市宝安区石岩镇塘头工业区创维工业园
ADD: Skyworth Science Industrial Park,Tangtou Industrial Zone,Shiyan
Town,Baoan District,Shenzhen,China.
电话 (TEL): 0755-29689333 传真 (FAX): 0755-29689332
邮编 (POSTCODE): 518108
网址 (NET): <http://www.skyworth.com>

目 录(Contents)

修订记录 (Revision History)	3
1. 概述 (General Description)	4
2. 电气规格 (Electrical Specification)	4
2.1 输入特性 (Input Electrical Characteristics)	4
2.2 输出特性 (Output Electrical Characteristics)	4
2.2.1 输出电压电流调整率 (Output Voltage & Current Regulation)	4
2.2.2 输出纹波和噪声 (DC Output Ripple & Noise)	4
2.2.3 输出动态响应 (Output Transient Response)	5
2.2.4 输出保持时间 (DC Output Hold-Up Time)	5
2.2.5 输出上升时间 (DC Output Voltage Rise Time)	5
2.3 遥控功能 (Remote On/Off Control)	5
2.4 保护功能 (Protection)	6
2.4.1 输出过压保护 (DC Output Over Voltage Protection)	6
2.4.2 输出过流保护 (DC Output Over current Protection)	6
2.4.3 输出短路保护 (DC Output Short Circuit Protection)	6
2.4.4 保护功能复位 (Reset After Shutdown)	7
2.5 时序 (Power Sequence)	7
2.6 背光部分 (Backlight Part)	8
2.6.1 背光输入特性 (Backlight Input Electrical Characteristics)	8
2.6.2 背光输出特性 (Backlight Output Electrical Characteristics)	8
2.6.3 LED 背光配屏时序 (Power Sequence For LED Driver)	8
2.7 匹配注意事项 (Match Notes)	10
3. 电气测试 (Electrical Test)	10
3.1 开路短路测验 (Open Short-circuit Test)	10
3.2 注意事项 (Wariness Item)	10
4. 绝缘性能 (Isolation)	10
5. 安全标准 (Safety Standard)	11
6. 电磁兼容性 (EMC)	11
6.1 电磁干扰 (EMI)	11
6.2 电磁敏感度 (EMS)	11
7. 环境要求 (Environmental Requirement)	11
8. 连接器脚位定义 (Pin Connection)	12
9. 机械特性 (Mechanical Characteristic)	12
9.1 物理尺寸 (Physical Dimension)	12
9.2 重量 (Weight)	12
9.3 安装尺寸 (Mounting Dimension)	12
10. 包装、运输、贮存 (Packaging, Transport, Storage)	13
10.1 包装 (Packaging)	13
10.2 运输 (Transport)	13
10.3 贮存 (Storage)	13

修 订 记 录

(Revision History)

日 期 (Date)	修订版本 (Revision)	描 述 (Description)	备 注 (Remark)

1. 概述 (General Description)

该电源适用于 32" LED 电视机。对 32 寸屏，提供 4 通道，每通道标称电流值为 130mA；对 32 寸机芯，提供+5V/+12V/+24 供电，额定电流值分别为+24V/2.0A、+12V/2.0A、+5V/0.5A。

(This power supply is suitable for 32" LED TV. For 32" LED panel, supplies 4 channels, each channel nominal current value is 130mA; for 32" movement, supplies +5V/+12V/+24 power, rated current value +24V/2.0A、+12V/2.0A、+5V/0.5A.)

2. 电气规格 (Electrical Specification)

2.1 输入特性 (Input Electrical Characteristics)

输入电压 (Input Voltage Range)	90Vac to 264Vac
标称输入电压 (Normal Voltage Range)	100Vac to 240Vac
满载输入电流 (Max Input AC Current)	2Amax at 90VAC input & full load condition
效率(满载) (Efficiency(full load))	82%min @ 115Vac, Full Load
频率范围 (Frequency Range)	50Hz/60Hz \pm 5%
浪涌电流 (冷启动) (Inrush Current (cold start))	50A _{typ} peak, 120Vac; 100A _{typ} peak, 220Vac
谐波电流 (Harmonic Current)	Meet GB17625.1-1998/IEC61000-3-2 class D
功率因数(满载) (Power Factor(full load))	/
泄漏电流 (Leakage Current)	Less Than 0.75mA, 230Vac input
输入保险 (Input Fuse)	T3. 15AH/250Vac
待机功耗 (Standby Power Loss)	\leq 0.5W, 240Vac input, 40mA Load

2.2 输出特性 (Output Electrical Characteristics)

2.2.1 输出电压电流调整率 (Output Voltage , Current & Regulation)

输出电压 (Output Voltage)	调整率 (Regulation)	最小电流 (Min. current)	额定电流 (Rated Current)	峰值电流 (Peak Current)
+24V	+24V \pm 5%	0.1A	2.0A	3.0A *
+12V	+12V \pm 5%	0.1A	2.0A	3.5A *
+5V	+5V \pm 5%	0.02A	0.5A	1.0A*

注:峰值电流的测试是在其它输出为额定负载时测试，且脉宽小于 100 毫秒。(The peak current should be test at other of dc output at Rated load ,And the peak current pulse width within 100ms.)

2.2.2 输出纹波和噪声 (DC Output Ripple & Noise)

输出电压 (Output Voltage)	输出纹波和噪声 (Ripple & Noise Max)	备注 (Remark)
+24V	$\leq 240\text{mVp-p}@25^{\circ}\text{C}$;	1) 示波器须设置在 20 兆赫兹带宽。Measurements shall be made with an oscilloscope with 20MHz bandwidth. 2) 输出须并联 0.1uF 的陶瓷电容和 10uF 的电解电容来模拟负载。Outputs shall be bypassed at the connector with a 0.1uF ceramic capacitor and a 10uF electrolytic capacitor to simulate system loading.
+12V	$\leq 120\text{mVp-p}@25^{\circ}\text{C}$;	
+5V	$\leq 100\text{mVp-p}@25^{\circ}\text{C}$;	

2.2.3 输出动态响应 (Output Transient Response)

电压误差范围 (Voltage Tolerance Limit)	转换速率 (Slew Rate)	负载变化 (Load Change)	备注 (Remark)
+12V/+24V/+5.0V $\pm 5\%$	0.2A/uS	Min. to 50% load and 50% to Max load	以 50~100Hz 的频率跳变负载来测试。Transient response measurements shall be made with a load changing repetition rate of 50Hz to 100Hz.
+12V/+24V/+5.0V $\pm 10\%$	0.2A/uS	Min. load to Max load	

2.2.4 输出保持时间 (DC Output Hold-Up Time)

输出电压 (Output Voltage)	110V 交流输入 (110V AC Input)	220V 交流输入 (220V AC Input)	备注 (Remark)
+24V	$\geq 10\text{ mS}$	$\geq 10\text{ mS}$	所有输出带满载。All output go fully load.
+12V	$\geq 10\text{ mS}$	$\geq 10\text{ mS}$	
+5V	$\geq 10\text{ mS}$	$\geq 10\text{ mS}$	

2.2.5 输出上升时间 (DC Output Voltage Rise Time)

输出电压 (Output Voltage)	110V 交流输入(满载) (110V AC Input & Full Load)	220V 交流输入(满载) (220V AC Input & Full Load)	备注 (Remark)
+24V	$\leq 120\text{ mS}$	$\leq 120\text{ mS}$	输出从 10%上升到 90% 的时间。The output voltages shall rise from 10% to 90% of their output voltage.
+12V	$\leq 120\text{ mS}$	$\leq 120\text{ mS}$	
+5V	$\leq 120\text{ mS}$	$\leq 120\text{ mS}$	

2.3 遥控功能 (Remote On/Off Control)

ON/OFF 电平超过 2.5V 时, 电源输出正常。

The power supply DC outputs (Without +5V) shall be enable with a high-level which more

than 2.5V.

5.0V 上电就存在。

The +5V is on whenever the AC power is present.

On/Off 信号 (On/Off Signal)	最小值 (Min)	典型值 (Type)	最大值 (Max)	输出 (Outputs)
高电平 (High)	2.5	—	5.0	Output
低电平 (Low)	—	—	0.8	Unable
悬空 (Open)	—	—	—	Unable

ON/OFF 信号分压电路图 (Circuit Block Diagram Of The On/Off):

2.4 保护功能 (Protection)

2.4.1 输出过压保护 (DC output Over Voltage Protection)

输出电压 (Output Voltage)	过压保护值 (Max. Over Voltage)	动作 (Comments)	备注 (Remark)
+24V	27-31V	Hiccup 尝试重复启动	应该在最大交流输入电压 264 伏和轻载、空载下测试。The power supply shall be test at max AC voltage (264Vac) and min load or no load.
+12V	13-15V	Hiccup 尝试重复启动	
+5.0V	6.0-7.0V	Hiccup 尝试重复启动	

2.4.2 输出过流保护 (DC Output Over Current Protection)

输出电压 (Output Voltage)	过流保护值 (Over Current)	动作 (Comments)	备注 (Remark)
+24V	$\geq 3.5A_{typ}$	Hiccup 尝试重复启动	过流保护测试是在其它额定负载时测试。The over current protection should be test at other of dc output at Rated load .
+12V	$\geq 5.1A_{typ}$	Hiccup 尝试重复启动	
+5.0V	$\geq 2.9A_{typ}$	Hiccup 尝试重复启动	

2.4.3 输出短路保护 (DC Output Short Circuit Protection)

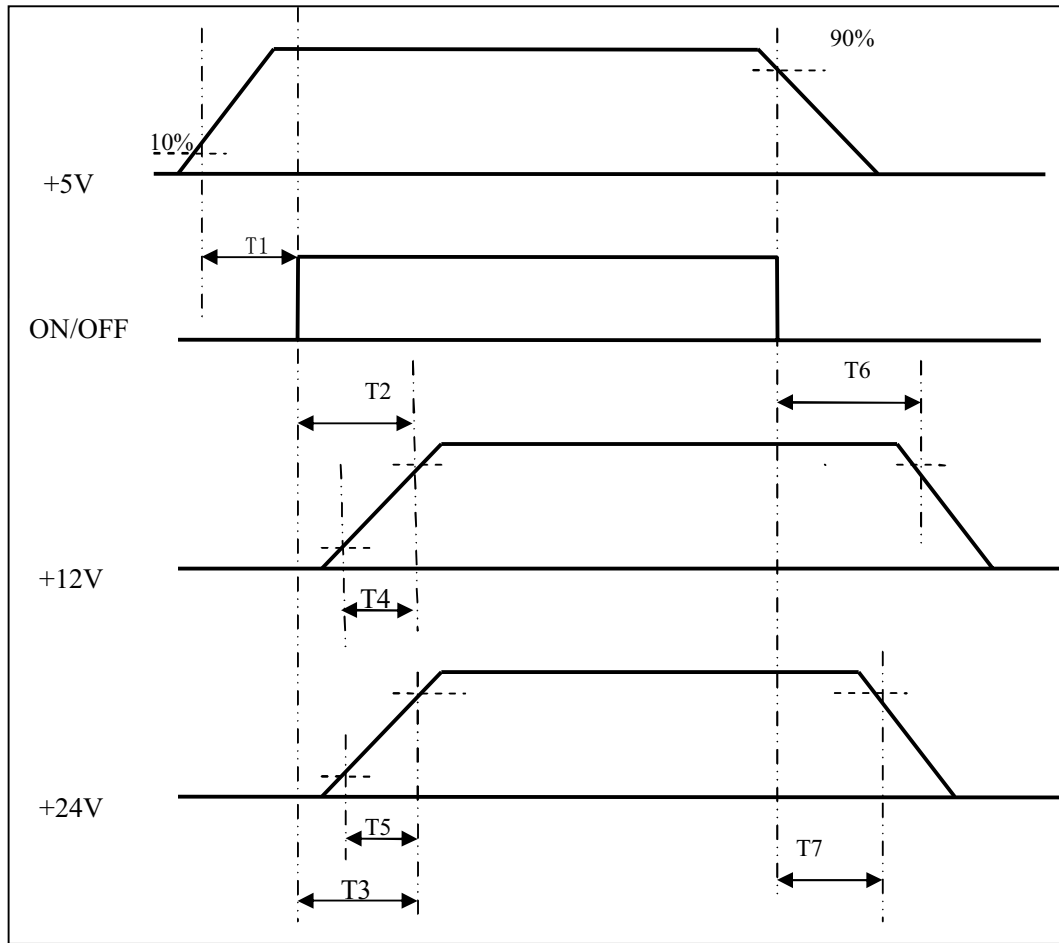
输出电压 (Output Voltage)	动作 (Comments)	备注 (Remark)
+24V	Hiccup 尝试重复启动	短路保护测试是在其它额定负载时测试。The Short Circuit protection should be test at another output at rated load .
+12V	Hiccup 尝试重复启动	
+5.0V	Hiccup 尝试重复启动	

2.4.4 保护功能复位 (Reset After Shutdown)

电源保护后自锁，AC 需要复位后电源重新正常工作。

After power supply enter into shutdown, The power supply will rework after AC reset.

2.5 时序 (Power Sequence)



项目 (Item)	参数值 (Value)	单位 (Unit)	备注 (Remark)
T1	-	ms	
T2	-	ms	
T3	-	ms	
T4	-	ms	
T5	-	ms	
T6	-	ms	
T7	-	ms	

2.6 背光部分 (Backlight Part)

2.6.1 背光输入特性 (Backlight Input Electrical Characteristics)

参数 (Parameter)	符号 (Symbol)	最小值 (Min)	典型值 (Type)	最大值 (Max)	单位 (Unit)	备注 (Remark)
输入电压 (Input Voltage)	Vin	22.5	25	27.5	V	
输入电流 (Input Current)	Iin	-	1.5	1.8	A	
输入功率 (Input Power)	Pin		37.5	49.5	W	

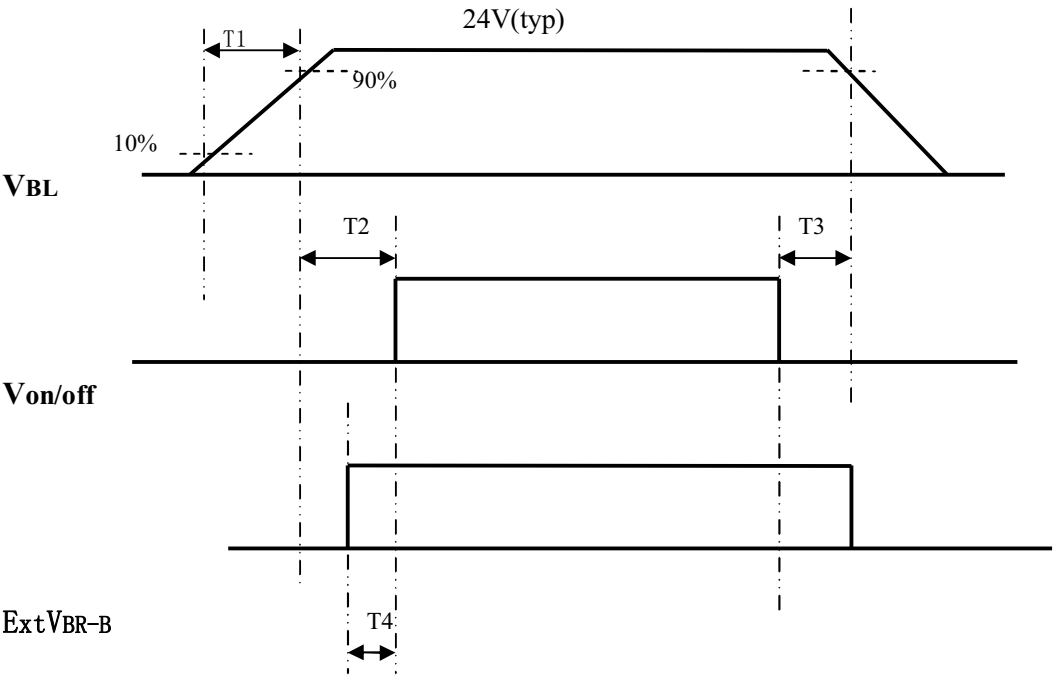
开关电压 (On/Off Voltage)	Von/off	-	0	0.8	V	Off State
		2.5	3.3	5.0		On State
模拟调光 (Analog Dimming)						正调光
						负调光
PWM 调光 (PWM Dimming)	Vadj	2.5	-	5	V	高电平
		0	-	0.8		低电平
占空比 (Duty Cycle)		5%	-	100%		
PWM 调光频率 (Frequency)	PAL	100	-	200	HZ	
	NTSC	100	-	200		
效率 (Efficiency)	Eff	85	-	-	%	

2.6.2 背光输出特性 (Backlight Output Electrical Characteristics)

参数 (Parameter)	符号 (Symbol)	最小值 (Min)	典型值 (Type)	最大值 (Max)	单位 (Unit)	备注 (Remark)
LED 电流(亮)(LED Current (Bright))	Ibri	120	-	130	mA	
LED 电流(暗)(LED Current (dark))	Idar	-	-	-		
LED 工作电压 (LED Voltage)	Vp	62	-	68	Vrms	
开路电压 (Open Voltage)	Vs	-	-	-		

注：RL= light-bar resistance

2.6.3 LED 背光配屏时序 (Power Sequence For LED Driver)



项目 (Item)	参数值 (Value)	单位 (Unit)	备注 (Remark)
T1	≥ 5	MS	
T2	≥ 500	MS	
T3	≥ 500	MS	
T4	-	MS	

2.6.1 背光输入特性 (Backlight Input Electrical Characteristics) *(CCFL)

参数 (Parameter)	符号 (Symbol)	最小值 (Min)	典型值 (Type)	最大值 (Max)	单位 (Unit)	
输入电压 (Input Voltage)						
输入电流 (Input Current)						
输入功率 (Input Power)						
模拟调光 (Analog Dimming)						正调光
						负调光
PWM 调光 (PWM Dimming)						高电平
						低电平
占空比 (Duty Cycle)						
PWM调光频率 (Frequency)	PAL					
	NTSC					
背光开关电压 (Inverter On)						
灯开路保护 (Open Lamp Protection)						

2.6.2 背光输出特性 (Backlight Output Electrical Characteristics)

项目 (Item)	符号 (Symbol)	测试条件 (Test Condition)	数值 (Value)			单位 (Unit)
			最小值 (Min)	典型值 (Typ)	最大值 (Max)	
输出电流 (Output Current)						
输出电压 (Output Voltage)						
点 燃 电 压 (Lamp StartingVoltage)						
工作频率 (Operating Frequency)						
效率 (Efficiency)						

2.7 匹配注意事项 (Match Notes)

待机+24V 不掉电 (+24V Standby without power off)

3. 电气测试 (Electrical Test)

3.1 开路短路测验 (Open Short-circuit Test)

高压输出, 任开路或短路一组输出, 电路需处保护状态, 无输出。

High-voltage output, either open or short circuit a set of output, the circuit need to protect the state office, no output

3.2 注意事项 (Wariness Item)

本产品工作中产生 2000V_{P-P} 左右的高压, 装配、调试、维修过程中应注意安全。测高压请用 1000:1 的探头。

This product is produced 2000VP-P work around high-pressure, assembly, commissioning and maintenance process should pay attention to safety. Please use a 1000:1 high voltage test probe

4. 绝缘性能 (Isolation)

4.1 绝缘阻抗 (Insulation Resistance)

输入对输出 (Input To Output)	DC500V 50M Ω min (At Room Temperature)
输入对地 (Input To FG)	DC500V 50M Ω min (At Room Temperature)
输出对地 (Output To FG)	Non Isolated

4.2 绝缘耐压 (Insulation Withstand Voltage)

输入对输出 (Input To Output)	3000Vac 50Hz 1minute $\leq 10\text{mA}$
输入对地 (Input To FG)	3000Vac 50Hz 1minute $\leq 10\text{mA}$
输出对地 (Output To FG)	Non Isolated

注: 交流地和输出负极要断开。 Open FG and Output return.

5. 安全标准 (Safety Standard)

电源安全性满足下列标准:

The power supply shall compliance with the following Criterion:

- 1) GB4943-1995/GB8898-2001
- 2) EN60950/EN60065

6. 电磁兼容性(EMC)

6.1 电磁骚扰发射 (EMI)

传导发射 (Conduction Emission)	Meet: GB13837-2003, CLASS B EN55022, CLASS B CISPR13:2001	需配合整机通过此规则。 The power board should be assembled in product to test for passing the regulations
辐射发射 (Radiated Emission)		

6.2 电磁敏感度 (EMS)

静电放电抗扰度 (ESD)	GB17626. 2-1998/IEC61000-4-2 Lever 3
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电快速瞬变脉冲群抗扰度 (EFT)	GB17626. 4-1998/IEC61000-4-4 Lever 3
浪涌抗扰度 (SURGE)	GB17626. 5-1998/IEC61000-4-5 Lever 3
电压跌落 (DIP)	GB17626. 11-1998/IEC61000-4-11 Class B/C

7. 环境要求 (Environmental Requirement)

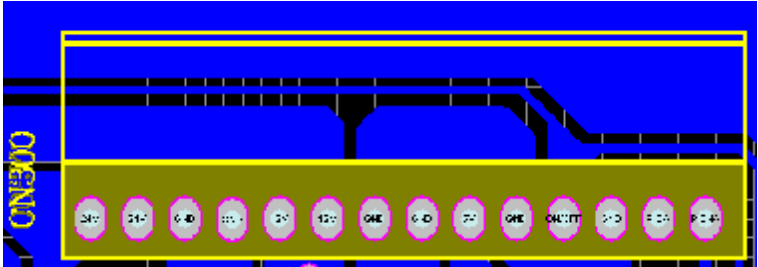
环境温度 (Temperature)	工作温度 (Operating) : -0℃ to +40℃
	存储温度 (Store) : -20℃ to +55℃
环境湿度 (Humidity)	工作 (Operating) : From 20%to90% relative humidity (non-condensing
	存储 (Store) : From 10 to 95% relative humidity (non-condensing)
海拔高度 (Altitude)	工作 (Operating): to10,000 ft
	存储 (Store) : to 20,000ft
冲击耐受 (Impact)	49m/s ² (5G), 11ms, once each X, Y and Z axis
振动耐受 (Vibration)	10-55Hz, 19.6m/s ² (2G), 20minutes each along X, Y and Z axis
冷却方式 (Cooling Method)	风道自然冷却 Ventilation cooling .
大气压力 (Atmospheric Pressure)	86—106 KPa

8. 连接器脚位定义 (Pin Connection)

CN300 14 位 2.5mm 间距单排弯插 (2.5mm Pitch Single Row 14 Pins Right-angle)

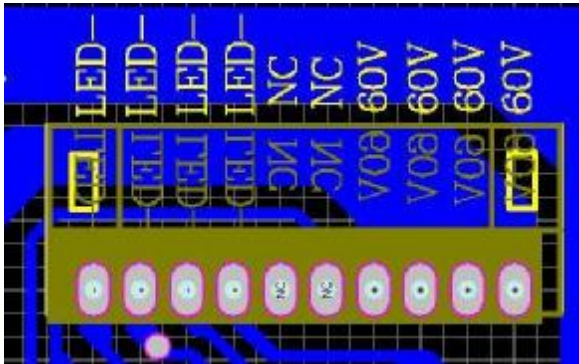
序号 (NO.)	符号 (Symbol)	描述 (Description)
1	+24V	+24V OUTPUT
2	+24V	+24V OUTPUT
3	GND	GND
4	GND	GND
5	+12V	+12V OUTPUT
6	+12V	+12V OUTPUT
7	GND	GND
8	GND	GND
9	NC	NC

10	GND	GND
11	NC	NC
12	GND	GND
13	ADJ	BL_ADJUST
14	ENA	BL_ON/OFF



CN400 10 位 2.0mm 间距单排弯插 (2.0mm Pitch Single Row 10 Pins Right-angle)

序号 (NO.)	符号 (Symbol)	描述 (Description)
1	LED-	LED-
2	LED-	LED-
3	LED-	LED-
4	LED-	LED-
5	NC	NC
6	NC	NC
7	60V	LED+
8	60V	LED+
9	60V	LED+
10	60V	LED+



机械特性 (Mechanical Characteristic)

9.1 物理尺寸 (Physical Dimension)

200*222*12.5mm(长 L *宽 W * 高 H)

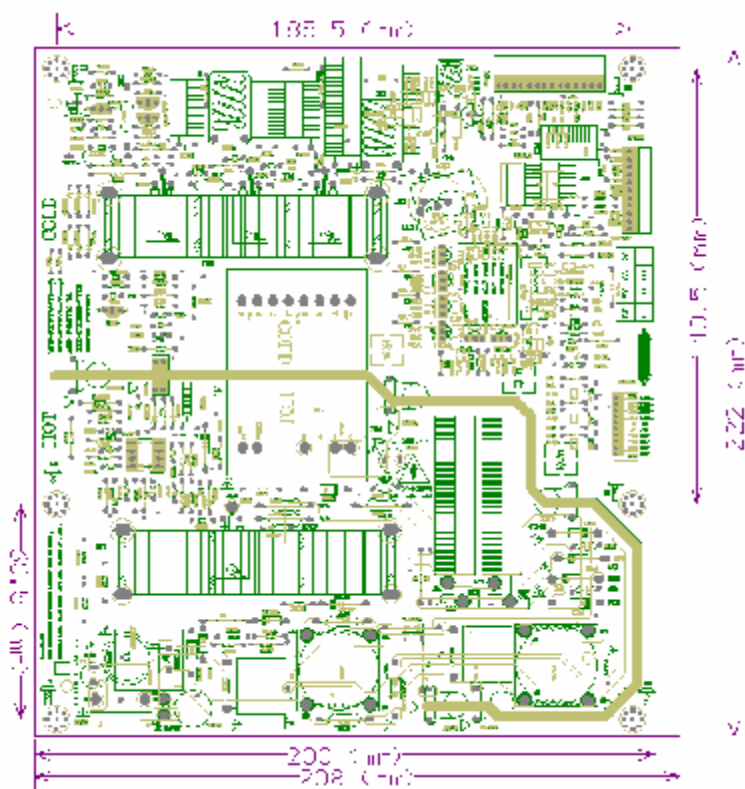
9.2 重量 (Weight)

* 360±30g

9.3 安装尺寸 (Mounting Dimension)

PCB 板面限高 12.5mm，焊脚高 2mm。

The PCB board surface height limit is 12.5mm, weld foot height is 2mm.



(安装示意图)

9. 包装、运输、贮存(Packaging, Transport, Storage)

10.1 包装 (Packaging)

包装箱上有产品名称、型号、标识、质量部门的检验合格证、制造日期等。

Box on the product name, model, identification, quality inspection department certification, the date of manufacture and so on.

10.2 运输 (Transport)

适应于车、船、飞机运输，运输中应遮蓬、防晒、文明装卸。

Adapted to cars, boats, aircraft transport, transportation should be awning, sunscreen, civilization loading and unloading.

10.3 贮存 (Storage)

产品未使用时应存放在包装箱内，仓库环境温度为-40℃—55℃，相对湿度为 10%—95%，仓库内不允许有有害气体，易燃，易爆的产品及有腐蚀性的化学物品，并且无强烈的机械振动，冲击和强磁场作用，包装箱应垫离地至少 20cm 高，距离墙壁、热源、窗口或空气入口至少 50cm，在本规定条件下的贮存期一般为 3 个月，超过 3 个月应重新进行检验。

Products should be stored in a box is not used within a warehouse environment temperature -40 ℃ -55 ℃, relative humidity of 10% -95%, the warehouse does not allow any harmful gases, flammable, explosive and corrosive products chemicals, and no strong mechanical vibration, shock and strong magnetic field, boxes should be at least 20cm high from the ground mat from the walls, heat, windows or air intake of at least 50cm, in the current provision under the conditions of the storage period is generally two year, more than two years should be re-tested.

39 Inch Power Supply Board Specification

SPECIFICATION	
FOR MODEL NO	P39EQL
SWITCHING POWER SUPPLY	
39 inch	
VERSION 1.0	
< Mar 14. 2012>	

DESCRIPTION	SPECIFICATION FOR SWITCHING POWER SUPPLY		
MODEL NO.	168P- P39EQL-W0		
APPROVED BY	CHECKED BY	DESIGNED BY	PREPARED BY

39 inch
SWITCHING POWER SUPPLY

Spec. Rev. 规格书版本	Sample Rev. 样板确认	Date 日期	Description 描述	Safety by 安规确认	Mechanical by 结构确认	Electrical by 电气确认
REV1.0						

Section 目录

1. Power supply overview 电源性能指标
 - 1.1 Input Electrical Characteristics Overview (输入特性)
 - 1.2 Output Electrical Characteristics Overview (输出特性)
 - 1.2.1 Output Voltage ,Current & Regulation. (输出电压电流调整率)
 - 1.2.2 DC Output Ripple & Noise. (输出纹波和噪声)
 - 1.2.3 Output Transient Response. (输出动态响应)
 - 1.2.4 DC Output Hold-Up Time. (输出保持时间)
 - 1.2.4 DC Output Overshoot At Turn On & Turn Off. (输出超调)
 - 1.2.6 DC output voltage rise time (输出上升时间)
 - 1.3 Remote On/Off Control: (遥控功能)
 - 1.4 Protection: (保护功能)
 - 1.4.1 DC output Over Voltage Protection. (输出过压保护)
 - 1.4.2 DC Output Short Circuit Protection. (输出短路保护)
 - 1.4.3 Reset After Shutdown. (保护功能复位)
2. Isolation 绝缘性能
3. Safety 安全规格
4. EMC 电磁兼容性
 - 4.1 EMI (电磁干扰)
 - 4.2 EMS (电磁抗扰)
5. Environmental Requirement 环境
 - 5.1 Temperature (环境温度)
 - 5.2 Humidity (环境湿度)
 - 5.3 Altitude (海拔高度)
 - 5.4 Cooling Method (冷却方式)
 - 5.5 Vibration (振动耐受)
 - 5.6 Impact (冲击耐受)
6. Dimension (物理尺寸)
7. Weight (重量)
8. Pin Connection (连接器脚位定义)
9. Power Supply mounting (安装尺寸)

1. Power Supply Overview 电性能指标:

1.1 Table 1 Input Electrical Characteristics Overview (输入特性)

Input voltage range 输入电压	90Vac to 264Vac
Normal voltage range 标称输入	100Vac to 240Vac
Frequency range 频率范围	50Hz/60Hz \pm 5%
Max input ac current 满载输入电流	1.5Amax at 90VAC input & full load condition
Inrush current (cold start) 浪涌电流	50Atyp peak, 120Vac; 100Atyp peak, 220Vac
Efficiency(full load) 效率	82%min @ 115Vac, Full Load
Harmonic current 谐波电流	Meet GB17625.1-1998/IEC61000-3-2 class D
Leakage Current 泄漏电流	Less Than 0.75mA, 230Vac input
Standby Power Loss 待机功耗	\leq 0.5W, 240Vac input, +5V Load 40mA
Input Fuse 输入保险	T3. 15AL/250Vac

1.2 Output Electrical Characteristics Overview (输出特性)

1.2.1 Table 2 Output Voltage ,Current & Regulation. (输出调整率)

Output Voltage 输出电压	Regulation 调整率	Min. current 最小电流	Rated current 额定电流	Peak current 峰值电流
+24V	+24V \pm 10%	0.1A	2.0A	3.0A *
+12V	+12V \pm 5%	0.1A	2.0A	3.0A *
+5V	+5V \pm 5%	0.1A	0.5A	1.0A*

Note:* pulse width within 100ms 脉宽小于 100 毫秒。

1.2.2 Table 3 DC Output Ripple & Noise. (输出纹波和噪声)

Output Voltage	Ripple & Noise (Max.)
+24V	240mVp-p@25°C ; 350mVp-p@-10°C
+12V	120mVp-p@25°C ; 200mVp-p@-10°C
+5V	100mVp-p@25°C ; 200mVp-p@-10°C ;

Note: 1) Measurements shall be made with an oscilloscope with 20MHz bandwidth.

示波器带宽须设置在 20 兆赫兹。

2) Outputs shall be bypassed at the connector with a 0.1uF ceramic capacitor and a 10uF electrolytic capacitor to simulate system loading.

电源输出端并联 0.1uF 的陶瓷电容和 10uF 的电解电容来模拟负载测试。

1.2.3 Output Transient Response. (输出动态响应)

Table 4. Test condition.测试条件

Voltage Tolerance Limit	Slew Rate	Load Change
+12V/+24V/+5.0V \pm 5%	0.2A/uS	Min. to 50% load and 50% to Max load
+12V/+24V/+5.0V \pm 10%	0.2A/uS	Min. load to Max load

Note: Transient response measurements shall be made with a load changing repetition rate of 50Hz to 10kHz. 以 50~10KHz 的频率跳变负载来测试。

1.2.4 Table 5 DC Output Hold-Up Time. (输出保持时间)

Output Voltage	120Vac input	220Vac input
+24V	≥ 10 mS	≥ 10 mS
+12V	≥ 10 mS	≥ 10 mS
+5V	≥ 10 mS	≥ 10 mS

Note: All of dc output at full load. 所有输出带满载。

1.2.5 Table 6 DC Output Overshoot At Turn On & Turn Off. (输出超调)

Output Channel	Output (V)	Over shoot voltage (V) 超调电压	
		Turn on 开机	Turn off 关机
+24V	+24V	10%	10%
+12V	+ 12V	10%	10%
+5V	+5. 0V	10%	10%

Note: All of dc output current from Min. to Max. 测试时负载范围：最小到最大。

1.2.6 Table 7 DC output voltage rise time (输出上升时间)

Output Voltage	120Vac input &Full Load	220Vac input &Full Load
+24V	≤ 120 mS	≤ 120 mS
+12V	≤ 120 mS	≤ 120 mS
+5V	≤ 120 mS	≤ 120 mS

Note: The output voltages shall rise from 10% to 90% of their output voltage.

输出从 10%上升到 90%的时间。

1.3 On/Off Control: (ON/OFF 控制)

The power supply DC outputs (Without +5Vsb) shall be enable with a high-level which more than 2.5V.
ON/OFF 电平超过 2.5V 时,电源输出正常。

. The +5Vsb is on whenever the AC power is present.

5. 0Vsb 上电就存在。

Table 8.

Ps-on Signal	Comments	Outputs
Ps-on- high	$\geq 2.5V$	Output
Ps-on- low	$\leq 0.5V$	Anable
Ps-on-open	--	Anable

1.4 Protection: (保护功能)

1.4.1 Table 9 DC output Over Voltage Protection. (输出过压保护)

Output Voltage	Max. Over Voltage	Comments
+24V	26.4-31.2V	关机锁定
+12V	13.2-15.6V	关机锁定

Note: The power supply shall be test at max AC voltage (265Vac) and min load or no load.

应该在最大交流输入电压 265 伏和轻载、空载下测试。

1.4.2 Table 11 DC Output Short Circuit Protection. (输出短路保护)

Output Voltage	Comments
+24V	Hiccup 尝试重复启动
+12V	Hiccup 尝试重复启动
+5.0V	Hiccup 尝试重复启动

1.4.3 Reset After Shutdown. (保护功能复位)

Recycle the ps-on signal, the power supply will restart after the fault removed.

故障去除后, 关掉 Ps-on 信号再打开, 电源即可恢复。

2. Isolation (绝缘性能)

2.1 Table 12 (绝缘阻抗)

Input To Output	DC500V 4M Ω min (at room temperature)
Input To FG	DC500V 4M Ω min (at room temperature)
Output To FG	Non Isolated

Note:

2.2 Table 13 （绝缘耐压）

Input To Output	3000Vac 50Hz 1minute $\leq 10\text{mA}$
Input To FG	3000Vac 50Hz 1minute $\leq 10\text{mA}$
Output To FG	Non Isolated

Note: Open FG and Output return. 交流地和输出负极要断开。

3. Safety （安全规格）

The power supply shall compliance with the following Criterion:

电源安全性满足下列标准

- 1) UL60950
- 2) EN60950
- 3) GB4943-1995
- 4) GB8898-2001

4. EMC （电磁兼容性）

4.1 EMI （电磁干扰）

The power supply shall compliance with the following Criterion:

电源电磁干扰满足下列规则:

1) Conduction Emission : （传导干扰度）

*EN55022, CLASS B

*GB9254, CLASS B

*FCC PART15 CLASS B

2) Radiated Emission : （辐射干扰度）

*EN55022, CLASS B

*GB9254, CLASS B

*FCC PART15 CLASS B

整机测试时, 建议交流输入线套 μ 值 850 磁环 3TS

4.2 EMS （电磁抗扰）

The power supply shall compliance with the following Criterion:

电源电磁抗扰满足下列规则:

1) ESD （静电抗扰度）

*GB17626.2-1998/IEC61000-4-2

2) EFT （脉冲群抗扰度）

*GB17626.4-1998/IEC61000-4-4 3KV

3) Surge (雷击浪涌)

*GB17626.5-1998/IEC61000-4-5 2KV (差模) / 4KV (共模)

4) DIP (电压跌落)

*GB17626.5-1998/IEC61000-4-11

5. Environmental Requirement (工作环境)

5.1 Temperature (环境温度)

* Operating: 0℃ to +45℃.

* Store: -20℃ to +80℃.

5.2 Humidity (环境湿度)

* Operating: From 10%to90% relative humidity (non-condensing).

* Store: From 5 to 95% relative humidity (non-condensing).

5.3 Altitude (海拔高度)

* Operating: to10,000 ft.

* Store: to 20,000ft.

5.4 Cooling Method (冷却方式)

* Ventilation cooling . 自然冷却

5.5 Vibration (振动耐受)

* 10-55Hz, 49.0m/s² (5G), 3minutes period, 60minutes each along X, Y and Z axis.

5.6 Impact (冲击耐受)

* 196.1m/s² (20G),11ms, once each X, Y and Z axis.

6. Dimension (物理尺寸)

* 200mm X 155mm X 13mm (长 L *宽 W * 高 H).

7. Weight (重量)

* 360±30g

8. Pin Connection (连接器脚位定义)

Table 14 Pin-CN300 Connection And Function

NO.	Pin Connection	Function
1	24V/12V	+24V DC OUTPUT
2	24V/12V	+24V DC OUTPUT
3	GND	GND
4	GND	GND
5	12V	+12V DC OUTPUT
6	12V	+12V DC OUTPUT
7	GND	GND
8	GND	GND
9	5VSB	+5VSB DC OUTPUT
10	GND	GND
11	ON/OFF	POWER_ON/OFF
12	GND	GND
13	ADJ	BL_ADJUST
14	ENA	BL_ON/OFF

Note: CN300 TYPE : 2.5mm

Table 15 CN200 Connection And Function

NO.	Pin Connection	Function
1	24V	+24VDC OUTPUT
2	24V	+24VDC OUTPUT
3	24V	+24VDC OUTPUT
4	24V	+24VDC OUTPUT
5	24V	+24VDC OUTPUT
6	GND	GND
7	GND	GND
8	GND	GND
9	GND	GND
10	GND	GND
11	NC	NC
12	ADJ	BL_ADJUST
13	ENA	BL_ON/OFF

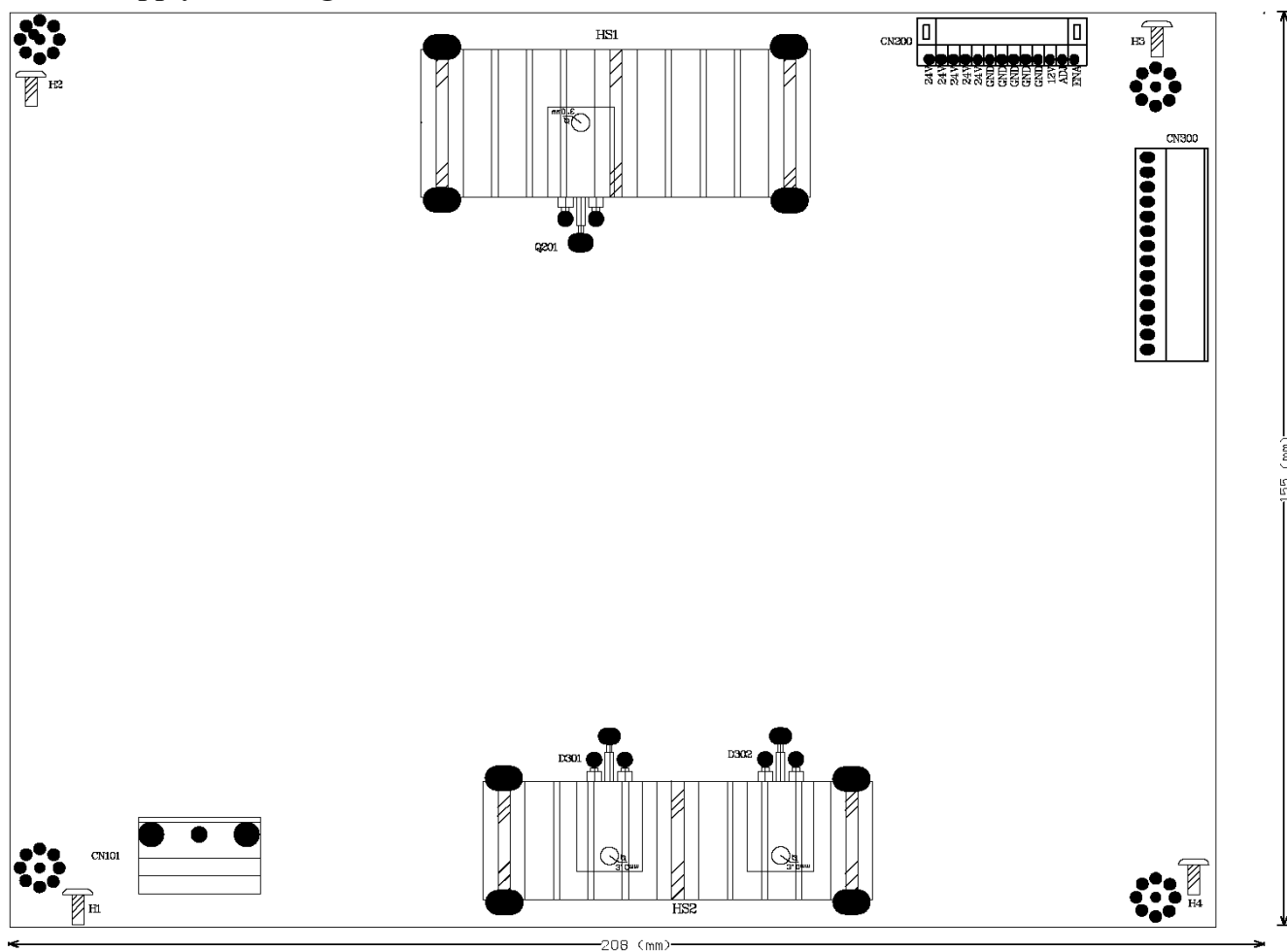
Note: CN200 -- JST VA CONNEETION, TYPE : 2.0mm

Table 16 CN101 Connection And Function

NO.	Pin Connection	Function
1	AC-L	AC INPUT LINE
2	NC	NC
3	AC-N	AC INPUT NUTURE

Note: CN101 TYPE : WAFER 7.92MM 3PIN

9. Power Supply Mounting (安装尺寸)



4 2 Inch Power Supply Board Specification

SPECIFICATION	
FOR MODEL NO	42E65
SWITCHING POWER SUPPLY	
42 inch (168P-P42EWB-W0)	
VERSION 1.0	
<2012-2-27>	

DESCRIPTION	SPECIFICATION FOR SWITCHING POWER SUPPLY		
MODEL NO.	168P- P42EWB-W0		
APPROVED BY	CHECKED BY	DESIGNED BY	PREPARED BY

42 inch
SWITCHING POWER SUPPLY

Spec. Rev. 规格书版本	Sample Rev. 样板确认	Date 日期	Description 描述	Safety by 安规确认	Mechanical by 结构确认	Electrical by 电气确认
REV1.0						

Section 目录

1. Power supply overview 电源性能指标
 - 1.1 Input Electrical Characteristics Overview (输入特性)
 - 1.2 Output Electrical Characteristics Overview (输出特性)
 - 1.2.1 Output Voltage ,Current & Regulation. (输出电压电流调整率)
 - 1.2.2 DC Output Ripple & Noise. (输出纹波和噪声)
 - 1.2.3 Output Transient Response. (输出动态响应)
 - 1.2.4 DC Output Hold-Up Time. (输出保持时间)
 - 1.2.4 DC Output Overshoot At Turn On & Turn Off. (输出超调)
 - 1.2.6 DC output voltage rise time (输出上升时间)
 - 1.3 Remote On/Off Control: (遥控功能)
 - 1.4 Protection: (保护功能)
 - 1.4.1 DC output Over Voltage Protection. (输出过压保护)
 - 1.4.2 DC Output Over current Protection. (输出过流保护)
 - 1.4.3 DC Output Short Circuit Protection. (输出短路保护)
 - 1.4.4 Reset After Shutdown. (保护功能复位)
2. Isolation 绝缘性能
3. Safety 安全规格
4. EMC 电磁兼容性
 - 4.1 EMI (电磁干扰)
 - 4.2 EMS (电磁抗扰)
5. Environmental Requirement 环境
 - 5.1 Temperature (环境温度)
 - 5.2 Humidity (环境湿度)
 - 5.3 Altitude (海拔高度)
 - 5.4 Cooling Method (冷却方式)
 - 5.5 Vibration (振动耐受)
 - 5.6 Impact (冲击耐受)
6. Dimension (物理尺寸)
7. Weight (重量)
8. Pin Connection (连接器脚位定义)
9. Power Supply mounting (安装尺寸)

1. Power Supply Overview 电性能指标:

1.1 Table 1 Input Electrical Characteristics Overview (输入特性)

Input voltage range 输入电压	100Vac to 264Vac
Normal voltage range 标称输入	110Vac to 240Vac
Frequency range 频率范围	50Hz/60Hz \pm 5%
Max input ac current 满载输入电流	1.7Amax at 110VAC input & full load condition
Inrush current (cold start) 浪涌电流	70Atyp peak, 120Vac; 70Atyp peak, 220Vac
Efficiency(full load) 效率	80%min @ 100Vac, Full Load
Leakage Current 泄漏电流	Less Than 0.75mA, 230Vac input
Standby Power Loss 待机功耗	\leq 1W, 240Vac input, 5V/40mA Load
Input Fuse 输入保险	T3. 15A L/250Vac

1.2 Output Electrical Characteristics Overview (输出特性)

1.2.1 Table 2 Output Voltage ,Current & Regulation. (输出调整率)

Output Voltage 输出电压	Regulation 调整率	Min. current 最小电流	Rated current 额定电流	Peak current 峰值电流
+24V	+24V \pm 10%	0.1A	3.5A	4A *
+12V	+12V \pm 10%	0.1A	2.5.A	3A *
+5V	+5V \pm 10%	0.1A	1A	1.2A*

Note:* pulse width within 100ms 脉宽小于 100 毫秒。

1.2.2 Table 3 DC Output Ripple & Noise. (输出纹波和噪声)

Output Voltage	Ripple & Noise (Max.)
+24V	480mVp-p@25 $^{\circ}$ C ; 600mVp-p@-10 $^{\circ}$ C
+12V	240mVp-p@25 $^{\circ}$ C ; 400mVp-p@-10 $^{\circ}$ C
+5V	100mVp-p@25 $^{\circ}$ C ; 200mVp-p@-10 $^{\circ}$ C ;

Note: 1) Measurements shall be made with an oscilloscope with 20MHz bandwidth.

示波器带宽须设置在 20 兆赫兹。

2) Outputs shall be bypassed at the connector with a 0.1uF ceramic capacitor and a 10uF electrolytic capacitor to simulate system loading.

电源输出端并联 0.1uF 的陶瓷电容和 10uF 的电解电容来模拟负载测试。

1.2.3 Output Transient Response. (输出动态响应)

Table 4. Test condition.测试条件

Voltage Tolerance Limit	Slew Rate	Load Change
+12V/+24V/+5.0V \pm 10%	0.2A/uS	Min. to 50% load and 50% to Max load
+12V/+24V/+5.0V \pm 10%	0.2A/uS	Min. load to Max load

Note: Transient response measurements shall be made with a load changing repetition rate of 50Hz to 10kHz. 以 50~10KHz 的频率跳变负载来测试。

1.2.4 Table 5 DC Output Hold-Up Time. (输出保持时间)

Output Voltage	120Vac input	220Vac input
+24V	≥ 10 mS	≥ 10 mS
+12V	≥ 10 mS	≥ 10 mS
+5V	≥ 10 mS	≥ 10 mS

Note: All of dc output at full load. 所有输出带满载。

1.2.5 Table 6 DC Output Overshoot At Turn On & Turn Off. (输出超调)

Output Channel	Output (V)	Over shoot voltage (V) 超调电压	
		Turn on 开机	Turn off 关机
+24V	+24V	10%	10%
+12V	+ 12V	10%	10%
+5V	+5. 0V	10%	10%

Note: All of dc output current from Min. to Max. 测试时负载范围: 最小到最大。

1.2.6 Table 7 DC output voltage rise time (输出上升时间)

Output Voltage	120Vac input &Full Load	220Vac input &Full Load
+24V	≤ 120 mS	≤ 120 mS
+12V	≤ 120 mS	≤ 120 mS
+5V	≤ 120 mS	≤ 120 mS

Note: The output voltages shall rise from 10% to 90% of their output voltage.

输出从 10%上升到 90%的时间。

1.3 On/Off Control: (ON/OFF 控制)

The power supply DC outputs (Without +5Vsb) shall be enable with a high-lever which more than 2.V.

ON/OFF 电平超过 2.V 时,电源输出正常。

. The +5Vsb is on whenever the AC power is present.

5. 0Vsb 上电就存在。

Table 8.

Ps-on Signal	Comments	Outputs
Ps-on- high	$\geq 2.V$	Output
Ps-on- low	$\leq 0.5 V$	Unable
Ps-on-open	--	Unable

1.4 Protection: (保护功能)

1.4.1 Table 9 DC output Over Voltage Protection. (输出过压保护)

Output Voltage	Max. Over Voltage	Comments
+24V	26.5-32V	Latch 锁死
+12V	13.3-17V	Latch 锁死
+5.0V	5.55V-6.5V	Hiccup 尝试重复启动

Note: The power supply shall be test at max AC voltage (265Vac) and min load or no load.

应该在最大交流输入电压 265 伏和轻载、空载下测试。

1.4.2 Table 10 DC Output Over current Protection. (输出过流保护)

Output Voltage	Over Current	Comments
+24V	$\geq 4A_{typ}$	Latch 锁死
+12V	$\geq 3A_{typ}$	Latch 锁死
+5.0V	$\geq 1.2A_{typ}$	Hiccup 尝试重复启动

1.4.3 Table 11 DC Output Short Circuit Protection. (输出短路保护)

Output Voltage	Comments
+24V	Latch 锁死
+12V	Latch 锁死
+5.0V	Hiccup 尝试重复启动

1.4.4 Reset After Shutdown. (保护功能复位)

Recycle the ps-on signal or **restarting power source**, the power supply will restart after the fault removed.

故障去除后，关掉 Ps-on 信号再打开，或将电源重新启动即可恢复。

2. Isolation（绝缘性能）

2.1 Table 12（绝缘阻抗）

Input To Output	DC500V 4M Ω min (at room temperature)
Input To FG	DC500V 4M Ω min (at room temperature)
Output To FG	Non Isolated

Note:

2.2 Table 13（绝缘耐压）

Input To Output	3000Vac 50Hz 1minute \leq 10mA
Input To FG	3000Vac 50Hz 1minute \leq 10mA
Output To FG	Non Isolated

Note: Open FG and Output return. 交流地和输出负极要断开。

3. Safety（安全规格）

The power supply shall compliance with the following Criterion:

电源安全性满足下列标准

- 1) IEC60065

4. Environmental Requirement（工作环境）

5.1 Temperature（环境温度）

- * Operating: 0 $^{\circ}$ C to +40 $^{\circ}$ C.
- * Store: -20 $^{\circ}$ C to +80 $^{\circ}$ C.

5.2 Humidity（环境湿度）

- * Operating: From 10%to90% relative humidity (non-condensing).
- * Store: From 5 to 95% relative humidity (non-condensing).

5.3 Altitude（海拔高度）

- * Operating: to10,000 ft.
- * Store: to 20,000ft.

5.4 Cooling Method（冷却方式）

- * Ventilation cooling . 自然冷却

5.5 Vibration（振动耐受）

- * 10-55Hz, 49.0m/s² (5G), 3minutes period, 60minutes each along X, Y and Z axis.

5.6 Impact（冲击耐受）

- * 196.1m/s² (20G),11ms, once each X, Y and Z axis.

5. Dimension （物理尺寸）

* 247.0mm X 164mm (长 L *宽 W).

7. Weight （重量）

350±10g

8. Pin Connection （连接器脚位定义）

Table 14 Pin-CN2 Connection And Function

NO.	Pin Connection	Function
1	ENA	BL_ON/OFF
2	ADJ	BL_ADJUST
3	GND	GND
4	GND	GND
5	GND	GND
6	GND	GND
7	GND	GND
8	GND	GND
9	+24V	+24V OUTPUT
10	+24V	+24V OUTPUT
11	+24V	+24V OUTPUT
12	+24V	+24V OUTPUT
13	+24V	+24V OUTPUT

Note: CN2 TYPE : 2.0mm 13PIN

Table 15 Pin-CN3 Connection And Function

NO.	Pin Connection	Function
1	ENA	BL_ON/OFF
2	ADJ	BL_ADJUST
3	GND	GND
4	STB	on/off
5	GND	GND
6	+5VSB	+5VSB DC OUTPUT

**42 inch
SWITCHING POWER SUPPLY**

7	GND	GND
8	GND	GND
9	+12V	+12V OUTPUT
10	+12V	+12V OUTPUT
11	GND	GND
12	GND	GND
13	+24V	+24V OUTPUT
14	+24V	+24V OUTPUT

Note: CN300 TYPE : 2.5mm

Table 16 CN4 Connection And Function

NO.	Pin Connection	Function
1	AC-L	AC INPUT LINE
2	AC-N	AC INPUT NUTURE

Note: CN4A TYPE : WAFER 7.92MM 3PIN

9. Power Supply Mounting （安装尺寸）

