

Scanning	LIB.


Safety

RoHS

SPECIFICATION FOR APPROVAL

• CUSTOMER : LG Electronics inc.

• ITEM : Power Supply Unit.

• P/NO

Model Name	Customer	Supplier
LGP32-12P	EAY62769501	PSLC-L251A

• DATE : 2013.11.15

• Revision : 2.1

• Remark : MP (PCB REV 2.0)

Producing District : Yantai Shandong, China (중국 연태)
(생산지)

★ Safety Standard Parts [안전규격부품 List]

Power Cord, Power Plug, X/Y-Capacitor, Power Switch, Fuse, SMPS Trans, Stand-By Trans, Photo coupler, Insulation(절연) Resistor, Discharge(방전) Resistor, Fusing Resistor, FBT.CPT, CPT Socket, DY, D-Coil, Line Filter, PCB Material, Front / Back-cover Material Relay(1-2차간), Varistor, Adapter

★ EMC Standard Parts [전자규격 부품 List]

Power Plug, Line Filter, X-Capacitor, Y-Capacitor, SMPS Trans, Tuner, Saw-Filter, Shield Case, Oscillator, Pattern Change

★ Green [유해물질 확인사항]

This item must meet the standards of LG Electronics for six major substances as designated by RoHS for control.

(Cd: 10ppm under, Pb/Hg/Cr+6/PBB/PBDE: 100 ppm under)



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Documentation For

Approval

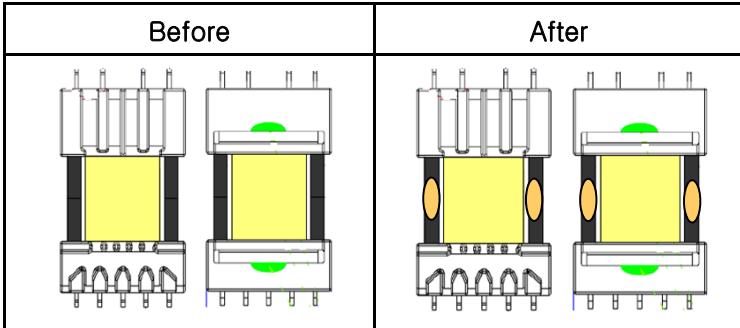
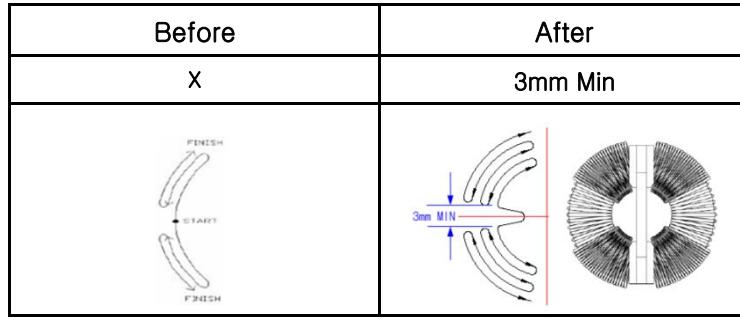
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Written	Checked	Approved
		

Contents

NO.	A table of contents	Page
1	Documentation of Approval	1~2
2	Contents	3
3	Revision History	4~5
4	CTQ Management & Model Marking	6
5	Specification 1. INTRODUCTION 2. SPECIFICATION 2.1 Input Requirements 2.2 Power Output Characteristics 2.3 Environment Requirement 2.4 Dielectric Strength Voltage and Insulation Resistance 2.5 Burn-in 2.6 Interface 2.7 Product Safety 2.8 Construction 2.9 Function of protection 2.10 Sound Noise Characteristics. 2.11 Connector Specification 2.12 PCB Dimension. 2.13 Apply to Eyelet point. 2.14 Electrical Characteristics 2.15 Mechanical Characteristics	7~17
6	Schematic Diagram	18~19
7	Block Diagram	20~21
8	Parts List	22~29
9	Process Marking	30~31
10	PCB Layout	32~36
11	Safety Parts	37~40
12	Mechanical Drawing	41~43
13	Packing Drawing	44~49
14	Bar-code Label Drawing	50~51
15	Labeling Point	52~53
16	Workmanship Point	54~57
17	Manufacturing Process (Flow-Chart)	58~61
18	* Appendix A1. POWER Check list A2. Warranty letter	62~73

Revision History

Rev No.	Contents	Date of Approval	Checked	Remark
0.1	Apply to PV (PCB REV 1.0) PCB P/No. : EAX64604501 (1.5) PV Edition.	12.04.30	J.J.Park	
1.0	Apply to MP (PCB REV 1.0) PCB P/No. : EAX64604501 (1.5) MP Edition.	12.06.07	J.J.Park	
1.1	Apply to MP (PCB REV 1.0) PCB P/No. : EAX64604501 (1.5) 1. Apply STBY Trans (12S-LS01) which has additional bonding points to improve noise. - Maker : FEELUX - Location : T501 - Bonding points : Top side of core junction Bottom side of core junction  MP Edition.	12.06.29	J.J.Park	
1.2	Apply to MP (PCB REV 1.0) PCB P/No. : EAX64604501 (1.5) 1. Reinforce Line Filter Spec. - Item : LLF-124, 28mH 1) Secure a split winding distance 	12.09.10	J.J.Park	

Rev No.	Contents	Date of Approval	Checked	Remark																																										
1.2	<p>Apply to MP (PCB REV 1.0) PCB P/No. : EAX64604501 (1.5)</p> <p>2) Change Impedance</p> <p>- Before</p> <table border="1"> <thead> <tr> <th></th><th>0.15MHz</th><th>0.45MHz</th><th>1MHz</th><th>5MHz</th><th>10MHz</th><th>30MHz</th></tr> </thead> <tbody> <tr> <td>FREQUENCY (MHz)</td><td>0.15</td><td>0.45</td><td>1</td><td>5</td><td>10</td><td>30</td></tr> <tr> <td>IMPEDANCE (KΩ)</td><td>16.0</td><td>24.0</td><td>7.0</td><td>0.5</td><td>0.1</td><td>0.01</td></tr> </tbody> </table> <p>- After</p> <table border="1"> <thead> <tr> <th></th><th>0.15MHz</th><th>0.45MHz</th><th>1MHz</th><th>5MHz</th><th>10MHz</th><th>30MHz</th></tr> </thead> <tbody> <tr> <td>FREQUENCY (MHz)</td><td>0.15</td><td>0.45</td><td>1</td><td>5</td><td>10</td><td>30</td></tr> <tr> <td>IMPEDANCE (KΩ)</td><td>16.0</td><td>32.0</td><td>11.0</td><td>0.5</td><td>0.1</td><td>0.1</td></tr> </tbody> </table> <p>MP Edition.</p>		0.15MHz	0.45MHz	1MHz	5MHz	10MHz	30MHz	FREQUENCY (MHz)	0.15	0.45	1	5	10	30	IMPEDANCE (KΩ)	16.0	24.0	7.0	0.5	0.1	0.01		0.15MHz	0.45MHz	1MHz	5MHz	10MHz	30MHz	FREQUENCY (MHz)	0.15	0.45	1	5	10	30	IMPEDANCE (KΩ)	16.0	32.0	11.0	0.5	0.1	0.1	12.09.10	J.J.Park	
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2.0	<p>Apply to MP (PCB REV 2.0) PCB P/No. : EAX64604501(1.7)</p> <p>1. Change the type of PFC Output Diode</p> <p>- Location : D603</p> <p>- Axial type → TO-220 type</p> <p>MP Edition.</p>	12.10.18	J.J.Park																																											
2.1	<p>Apply to MP (PCB REV 2.0) PCB P/No. : EAX64604501(1.7)</p> <p>1. L6599AD change assembly site and material</p> <p>As is ; Before Change</p> <ul style="list-style-type: none"> I. Old Assembly site : Amkor in Philippines → "B" marking II. Labels : Assembled in Philippines III. Old Wire : Au <p>To be ; After Change</p> <ul style="list-style-type: none"> I. New Assembly site Shenzhen in China → "K" marking II. Labels : Assembled in China III. New Wire : Copper(Cu) <p>2. 4M Change Process</p> <p>1)Responsibility of 4M Change ; LGE 2)Running Change ; Yes 3)Goods of Stock ; no rework</p>	13.11.15	K.T.Chi																																											

CTQ Management

No.	Contents	Page
1	2.1.1 Power Factor	7
2	2.2 Power Output Characteristics	8
3	2.2.1. Stand by Power Consumption	8

Specification

1. INTRODUCTION

1.1 Scope

This approval is the description related to every electrical and structural specifications and reliability For Power Supply Unit used on LGE LCD TV.

1.2 Customers product related items

Product : Power Supply Unit

Part code : EAY62769501

1.3 Product name

Product name : LGP32-12P

Revision code : 2.1

2. SPECIFICATION

2.1 Input Requirements

Nominal Input Voltage	AC 100V to AC 240V
Input Voltage Variation	AC 90V to AC 264V
Input Current	Under 2.5Arms . (at 100Vac & Nominal Load) Under 1.5Arms . (at 240Vac & Nominal Load)
Nominal Frequency	50 / 60 Hz
Frequency Variation Range	47 Hz to 63 Hz
Phase	Single
Leakage Current	0.7mA_peak. (100Vac ~ 240Vac)
Surge Immunity	± 4KV / 1000ns / 0° to 360°
Hold-up Time	More than 20ms at 100Vac and maximum output load.
Lightning Surge	2KA Normal, Common Mode
Inrush Current	80A zero-peak max at cold start and any specified line, load, temperature conditions.

2.1.1 Power Factor

over than 0.9 at 90 – 264Vac & max load condition

2.2 Power Output Characteristics

Output	Voltage Variable range [V]	Rated Current (Min, Max) [Amean]	Voltage Regulation [V]	Ripple Voltage [mVp_p]
3.5V (STBY)	3.325V ~ 3.675V	0.30W Under (15mA)	-	-
		1.2A (0.001~1.2A) (ON condition)	± 5%	250 mVp_p
12V	11.4V ~ 12.6V	1.5A (0.5~1.5A)	± 5%	350 mVp_p
24V	22.8V ~ 25.2V	3.7A (0.07~3.7A)	± 5%	500 mVp_p

* On Condition : In a moment of Power_ON Signal activated, the current of 3.5V output should be limited within 40mA(Max) at LCD TV condition for stability.

Do not turn "Power_ON" Signal on at the load condition of 3.5V output, more than 40mA.

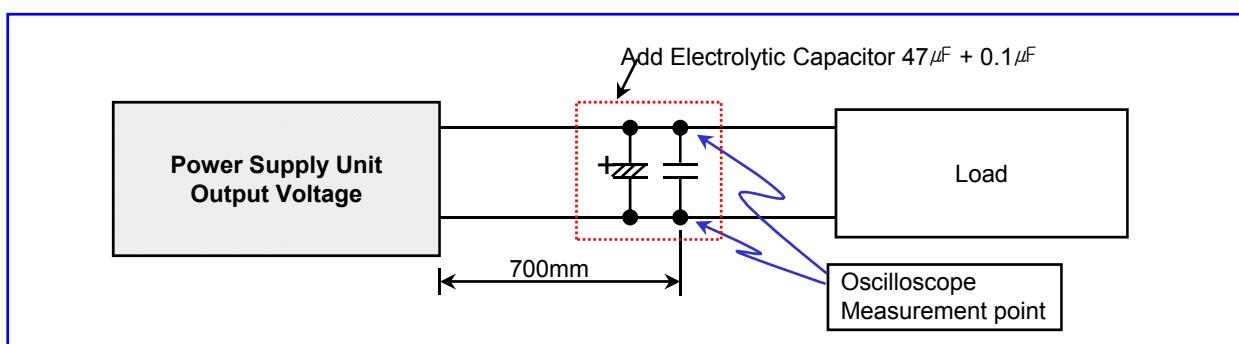
* Total regulation for each output circuit includes the results of input voltage variation, load variation, warm-up drift and temperature change.

* The following instruments shall be used for measuring ripple noise.

1. Probe having impedance ratio of 1:1.

2. Oscilloscope having frequency characteristic of 100MHz or more.

- Test Point : power output each pin



※ Ripple and noise are measured at the end of output cable which are added a 0.1uF ceramic capacitor and 47uF electrolytic capacitor. (connected parallel)

2.2.1 Stand By Power Consumption

Output Voltage	3.5V (STBY)	12V	24V
Load [A]	0.015	Don't Care (Power-Off)	
Wattage [W]	Less than 0.30W Under (230Vac / 50Hz)		

2.3 Environment Requirement

Operating Temperature Range	-10 °C to 40 °C (60 °C:No Hardware Failure, TV SET Condition)
Operating Humidity Range	30 to 85 %
Storage Temperature Range	-25 to 85 deg.
Storage humidity Range	5 to 90 %
MTBF (Mean Time Between Failure)	50,000 hour
Cooling Condition	Natural Air
Shock	<p>98 m/s²</p> <p>Shock test consists of pivoting the power supply, from one edge of its bottom side, on a flat surface (such as wood having thickness of 10mm or more) and allowing the opposite edge to fall from a height of 50mm to this surface.</p> <p>The test is performed three times on each edge of the bottom side of the power supply</p>

2.4 Dielectric Strength Voltage and Insulation Resistance



Dielectric Strength Voltage	AC 3KV or DC 4240V 1 Min 10 mA (Test SPEC) AC 3.6KV 1Sec 10mA (PSU Mass Production) Between Primary and All Secondary Circuits.
Insulation Resistance	Insulation resistance shall be more than 8M ohm (at DC 500V) Between Primary Live, Neutral line and Secondary.

* Above tests are performed at room temperature in non-condensing atmospheric conditions

* Frame grounds are connected to secondary circuits.

2.5 Burn-in

More than 2 hours at 45 °C(±5 °C), Normal input voltage.
AC on/off must be test 1 time after burn-in.
80% Load of specification.

2.6 Interface

Appellation	Explanation	Signal Direction	Action
POWER ON	Vcc Circuit ON/OFF	Input	Hi : Vcc ON Low : Vcc OFF

2.7 Product Safety



Safety Standards to be applied	Design to meet the requirements as follows UL60065, UL60950, IEC60065 and 60950
EMI/RFI Standards to be applied	Design to meet the requirements as follows FCC and EN55020, EN55013 Class B with 4dB minimum margin.

2.8 Construction

Weight	Less than 320g
Unit Size	200(W) X 155(L) X 25.6(H)

2.9 Function of protection

Protection	Output Circuit	Trip Point		Notes
		Min	Max	
Over Current	STBY 3.5V	2.4A	4.5A	Auto Re-start
	12V	4.0A	16.0A	Latch
	24V	5.5A	9.0A	Latch
Short Circuit	STBY 3.5V	-	-	Auto Re-start
	12V	-	-	Latch
	24V	-	-	Latch

- * This Power Supply has above-mentioned protections.
- * Short circuit protection between different output terminals is not considered.
- * Trip point for over voltage indicates the operating point when the output voltage slowly increases.
- * The conditions of Over Current measurement
Multi output(3.5V,12V,24V) is nominal load state except an over current measurement.

2.10 Sound Noise Characteristics.

PSU Noise Specification

22.5 dB(a) / 20.0 Pa 2.0E-5 Pa

(1/1 octave, A-weighting, to 1khz ~ 16khz Total overall)

Measure Location : Anechoic Room

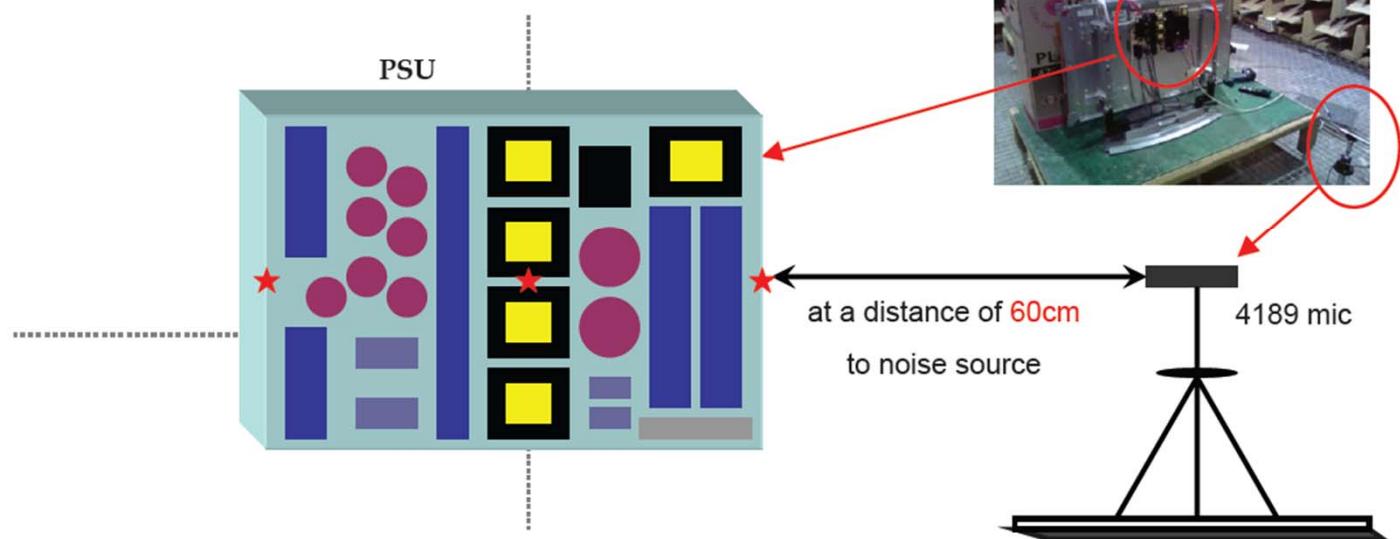
Measure Condition : At a distance of 60cm mic

Full white pattern, at AC 110V/220V

The max specification

(measure 3 points, at PSU center and left & right on the side)

PSU NOISE MEASURE POINT



2.11 Connector Specification

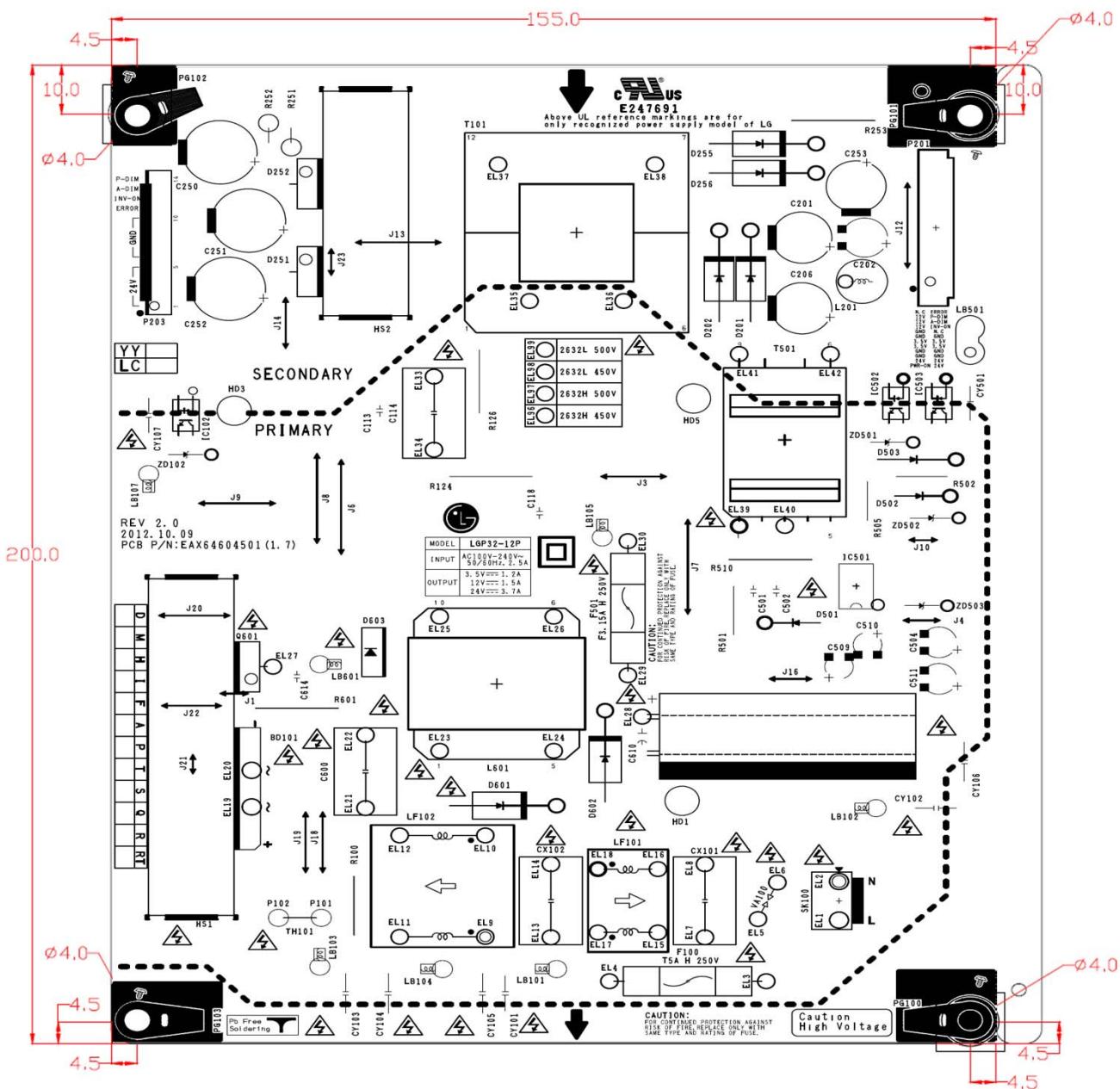
2.11.1 Connectors Usage

SK100	
Type : YW396-03AV	
Maker : YEON-HO / JST	
Pin No.	Signal
1	NEUTRAL
2	N.C
3	LINE

P203	
Type : 20010WS-14000	
Maker : YEON-HO	
Pin No.	Signal
1	24V
2	24V
3	24V
4	24V
5	24V
6	GND
7	GND
8	GND
9	GND
10	GND
11	ERROR
12	INV-ON/OFF
13	A-DIM
14	P-DIM

P201			
Type : SMW200-24CF / FM20020-24SB			
Maker : YEON-HO			
Pin No.	Signal	Pin No.	Signal
1	POWER-ON	2	24V
3	24V	4	24V
5	GND	6	GND
7	GND	8	GND
9	3.5V	10	3.5V
11	3.5V	12	3.5V
13	GND	14	GND
15	GND	16	N.C
17	12V	18	INV-ON/OFF
19	12V	20	A-DIM
21	12V	22	P-DIM
23	N.C	24	ERROR

2.12 PCB Dimension.



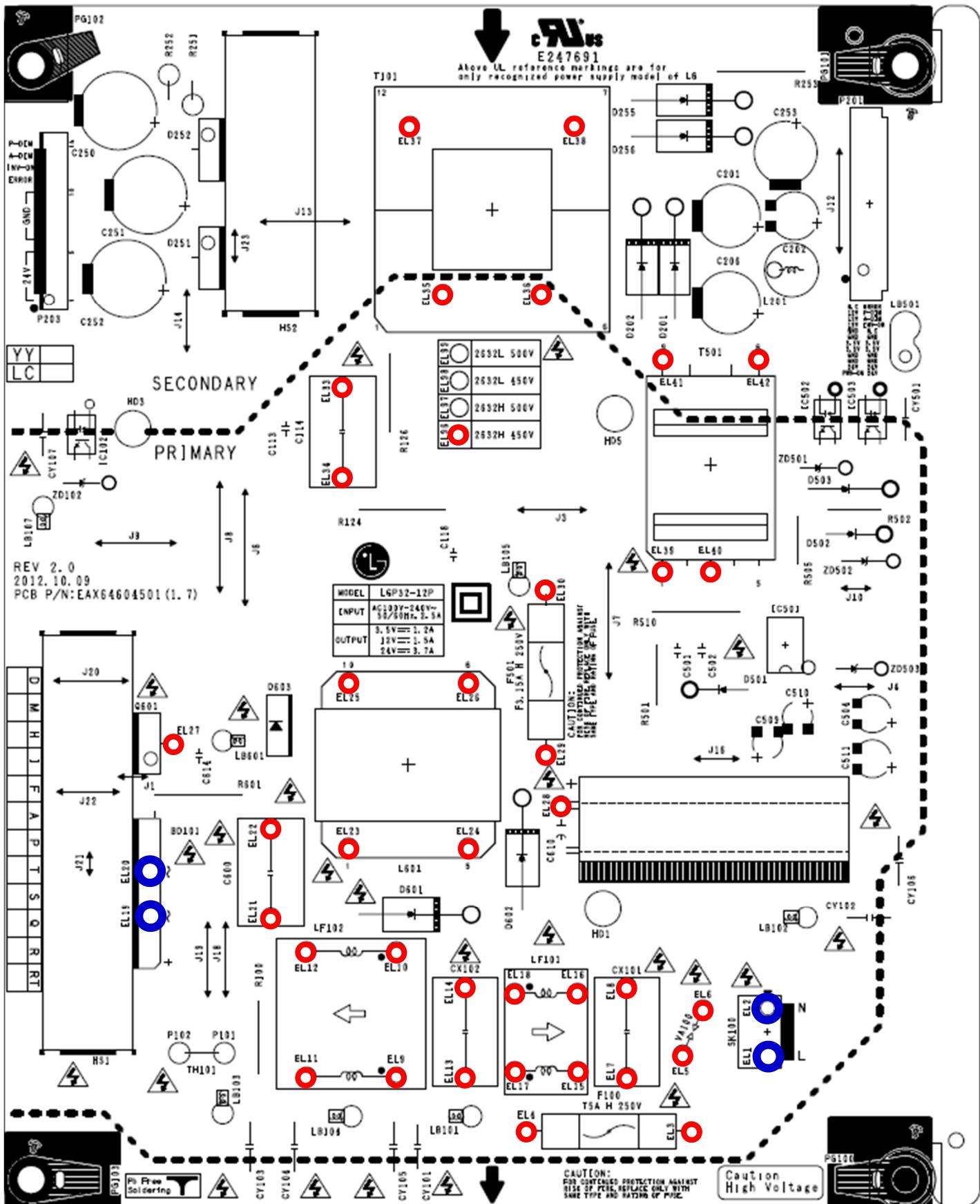
A technical drawing of a rectangular component. The top horizontal dimension is labeled "MAX 21.0 mm". The left vertical dimension is labeled "6.5 mm". The right vertical dimension is labeled "1.6 mm".

- 1) Power board PCB : 155mm X 200mm X 1.6(T)mm
 - 2) Component Height : Typ 21 mm (± 2 mm, Max 23 mm)
 - 3) Lead Cutting : Max 3.0mm (except HD Max 6.5mm)
 - 4) PCB Material : FR-1 KB,DS,L,R-8700 CTI-600

2.13 Apply to the Eyelet point. (LGP32-12P)

Apply to the Eyelet point 2.0Φ : EL1,EL2,EL19,EL20 (4EA)

Apply to the small Eyelet point 1.6Φ : EL3,EL4,EL5,EL6,EL7,EL8,EL9,EL10,EL11,EL12,EL13,EL14,EL15,EL16, EL17,EL18,EL21,EL22,EL23,EL24,EL25,EL26,EL27,EL28,EL29,EL30,EL33, EL34,EL35,EL36,EL37,EL38,EL39,EL40,EL41,EL42,EL96 (37EA)



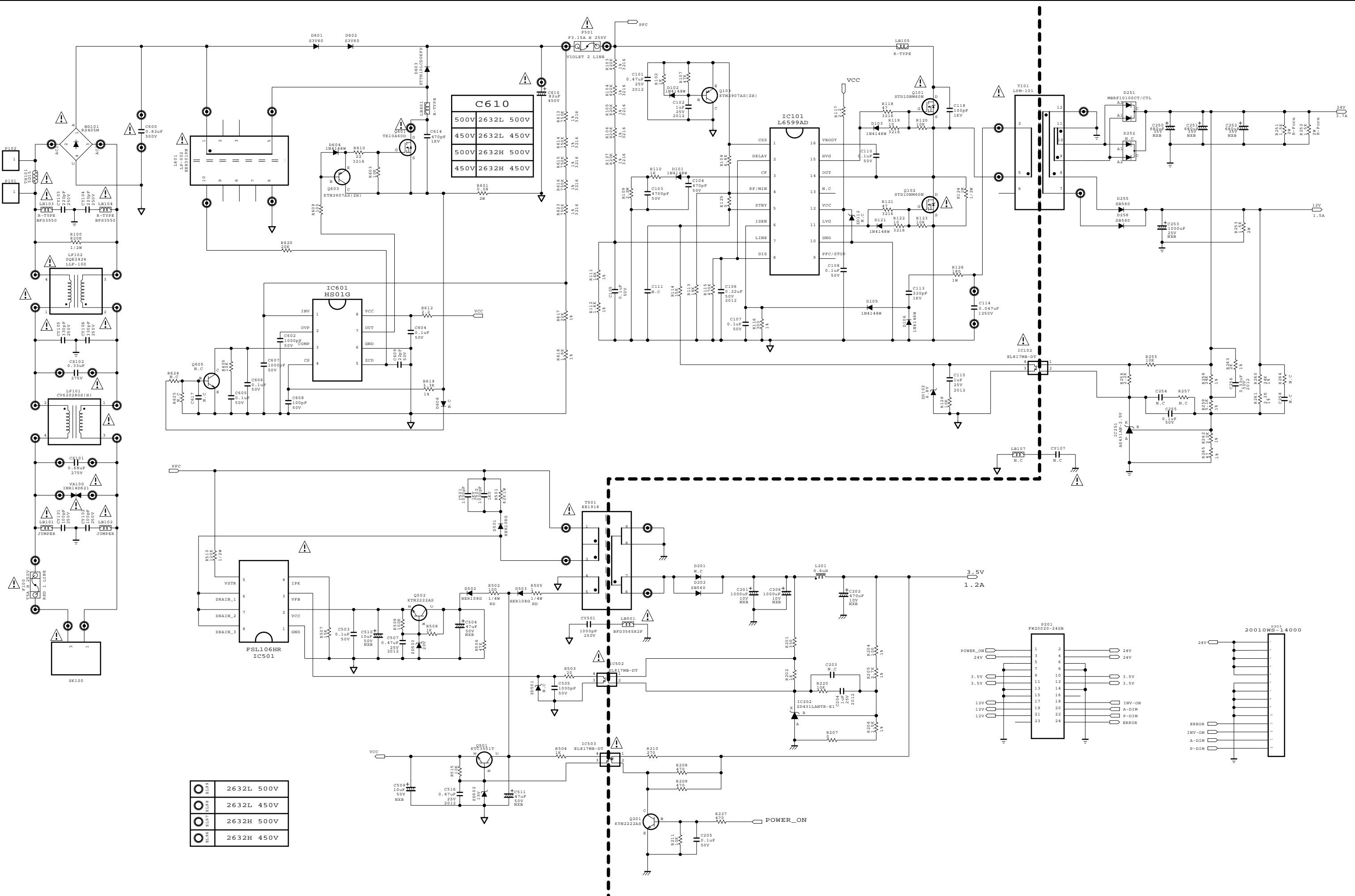
2.14 Electrical Characteristics

No.	Test Item	Test method																		
1	Intermittent Operation stability Test	The switching regulator shall ON/OFF for 20,000 time at an Interval of 10 sec at maximum load, after that electrical Characteristics shall be satisfied.																		
2	Low temperature operation	The switching regulator is left at the operating guarantee Minimum temperature for 2 hours without applying electricity. After that power shall be turned on, and then the electrical Characteristics shall be satisfied.																		
3	Low temperature Storage test Leave At low temperature	The switching regulator is left at minimum storage Temperature for 96 hours or more. Then the switching regulator is left at a room temperature and humidity for 1 hour or more, after that electrical characteristics shall be satisfied.																		
4	Heat cycle storage test	<p>The switching regulator is 10 consecutive temperature cycle that shown below is performed and then leave them at room temperature and humidity for 1 hour or more.</p> <p>After that, electrical characteristics shall be satisfied.</p> <table border="1"> <thead> <tr> <th>Time</th><th>Temperature</th></tr> </thead> <tbody> <tr> <td>30 minutes</td><td>25 °C</td></tr> <tr> <td>30 minutes</td><td>25 °C -> -20 °C</td></tr> <tr> <td>60 minutes</td><td>Minimum storage temperature (-20 °C)</td></tr> <tr> <td>30 minutes</td><td>-20 °C -> 25 °C</td></tr> <tr> <td>30 minutes</td><td>25 °C</td></tr> <tr> <td>30 minutes</td><td>25 °C -> 70 °C</td></tr> <tr> <td>60 minutes</td><td>Maximum storage temperature (70 °C)</td></tr> <tr> <td>30 minutes</td><td>70 °C -> 25 °C</td></tr> </tbody> </table>	Time	Temperature	30 minutes	25 °C	30 minutes	25 °C -> -20 °C	60 minutes	Minimum storage temperature (-20 °C)	30 minutes	-20 °C -> 25 °C	30 minutes	25 °C	30 minutes	25 °C -> 70 °C	60 minutes	Maximum storage temperature (70 °C)	30 minutes	70 °C -> 25 °C
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5	Heat shock test	<p>Heat shock test performed under following conditions without applying electricity and then leave them at room temperature and humidity for 1 hour or more.</p> <p>After that, electrical characteristics shall be satisfied.</p> <p>Condition : -45 °C(30minutes), 120 °C(30minutes), Switching time : Less than 5 minutes, 200 cycles.</p>																		

2.15 Mechanical Characteristics

No.	Test Item	Test method
1	Appearance	<p>There shall be no contaminant or dirt on the switching regulator which has adverse effect on electrical characteristics.</p> <p>There shall be no excessive unevenness or scratches on the plated or painted surface.</p>
2	Vibration	<p>While applying electricity : Vibration frequency : 5 ~ 100Hz Acceleration : 4.9 m/s² Vibration in X,Y,Z direction for 30 minutes</p> <p>While applying electricity : Vibration frequency : 5 ~ 100Hz Acceleration : 14.7 m/s² Vibration in X,Y,Z direction for 30 minutes</p> <p>After that electrical characteristics shall be satisfied. There shall be no damage to appearance and construction.</p>
3	Shock	<p>Shock : 98 m/s²</p> <p>On the oak more than 10mm thickness with the flat face, raise the one side for 50mm, and it carries out each side free fall for three sides.</p> <p>There shall be no damage to appearance and construction.</p>

Schematic Diagram



The SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION, FIRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SYMBOL MARK OF THE SCHEMATIC.

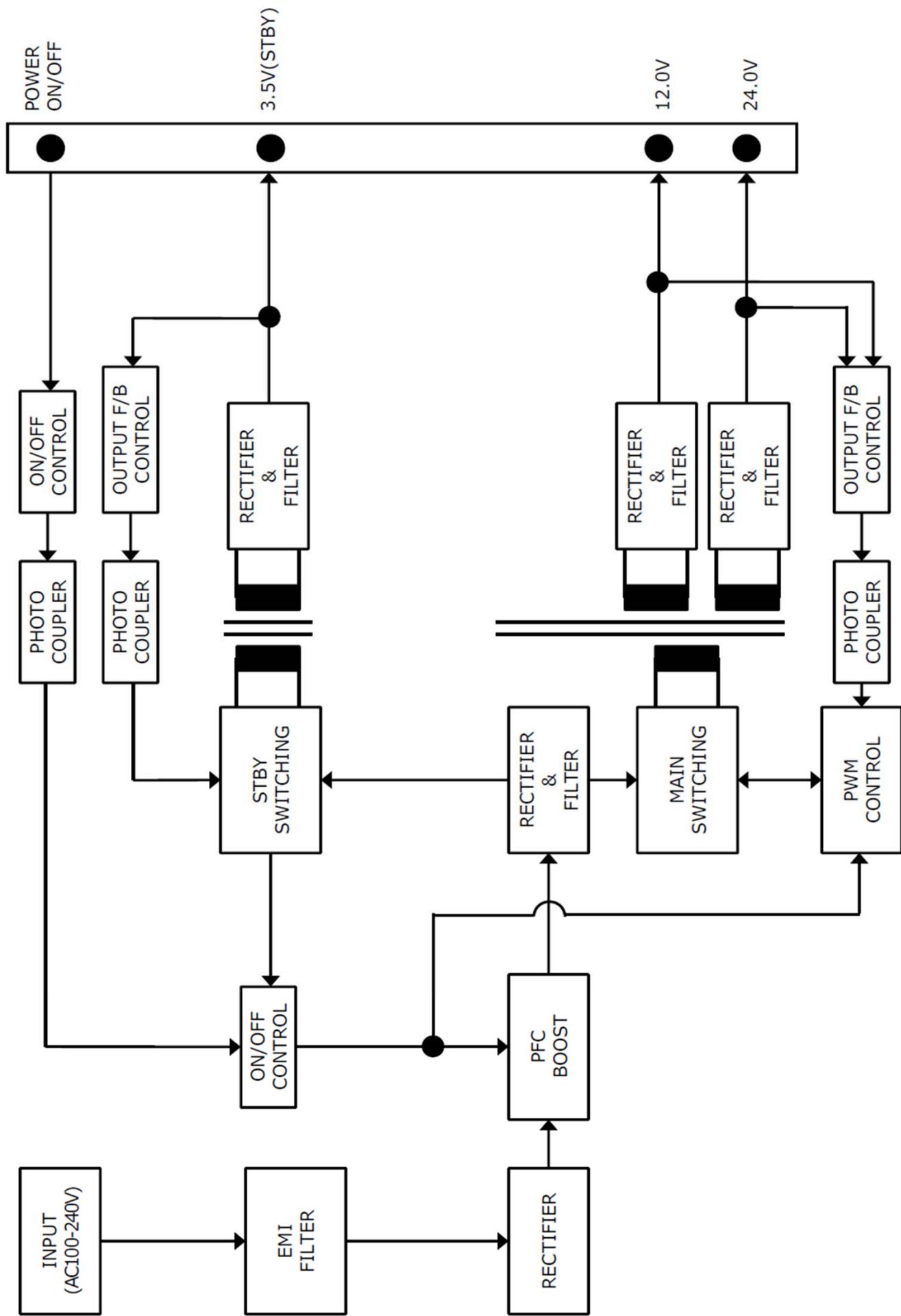
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REV 2.0

MODEL	LGP32-12P	DATE	2012.10.09
BLOCK	POWER	SHEET	1 / 1

Block Diagram



Parts List

NO.	L/V	Q'ty	UNIT	LOCATION	SPECIFICATION	DESCRIPTION	MAKER
1	MI			HS1	BRIDGE DIODE/PFC ASS'Y	HEAT SINK ASS'Y	
2	MI	1	EA	HS1	LGP32-12P HS1 69X15X18.3 (except Lug)	HEAT SINK	CHENG CHIA MINGXUE YAOFENG BAOCHENG INNO D&C Huapeng Guo Tai Yuwon NRT Sejin
3	MI	1	EA	BD101	TS4B05G-26 600V 4A RS405M 600V 4A TS4B05G 600V 4A KBJ406G 600V 4A	DIODE	TSC RECTRON DACHANG LITEON
4	MI	1	EA	Q601	KF12N60F 600V 12A TO-220FP TK10A60D 600V 10A TO-220FP MDF11N60 600V 11A TO-220FP STF10NM60N 600V 10A TO-220FP	FET	KEC TOSHIBA MAGNACHIP STMICRO
5	MI	2	EA	FOR BD101,Q601	BHM Screw, (M3.0 * 8.0L)	SCREW	SeoulMetal ASEABolt SunghoMetal 首屋尔金属 Avico RUIYOU DongHaiGang HUYUMACHINERY DELIKANG
6	MI	0.02	GR	FOR BD101,Q601	HC300 OKC-5500 G746 YG6111 DS-323 AK100 KD-3	SILICON GREASE	CHANGAMLS OKONG SHINETSU MOMENTIVE DowCorning DongyangSilicon ServeOne Sunnico TAIZbond ShinWei Sanchenchemicals
7	MI			HS2	MULTI DIODE ASS'Y	HEAT SINK ASS'Y	
8	MI	1	EA	HS2	LGP32-12P HS2 46X15X18.3 (except Lug)	HEAT SINK	CHENG CHIA MINGXUE YAOFENG BAOCHENG INNO D&C Huapeng Guo Tai Yuwon NRT Sejin
9	MI	1	EA	D251	FMEN-210A 100V 10A TO-220FP MBRF10100CT(L) 100V 10A TO-220FP MBRF10U100CT 100V 10A TO-220FP	DIODE	SANKEN SENSITRON KEC
10	MI	1	EA	FOR D251	BHM Screw, (M3.0 * 6.0L)	SCREW	SeoulMetal ASEABolt SunghoMetal 首屋尔金属 Avico RUIYOU DongHaiGang HUYUMACHINERY DELIKANG
11	MI	0.02	GR	FOR D251	HC300 OKC-5500 G746 YG6111 DS-323 AK100 KD-3	SILICON GREASE	CHANGAMLS OKONG SHINETSU MOMENTIVE DowCorning DongyangSilicon ServeOne Sunnico TAIZbond ShinWei Sanchenchemicals
12	MI&AI				LGP32-12P MI&AI COMPONENTS	MI&AI ASS'Y	
13	MI	1	EA	C610	KMF 82uF 450V M P7.5 LB Φ18X31.5 SK 82uF 450V M P7.5 ZB Φ18X32	CAPACITOR,ALUMINUM	SAMYOUNG SUSCON
14	MI AI	2	EA	CY101,CY102	CD 100pF 250V K P10 105°C NK 100pF 250V K P10 105°C DA 100pF 250V K P10 105°C CT81 100pF 250V K P10 105°C	CAPACITOR, CERAMIC	TDK APEX INTEC DONGIL ELEC. YINADON
15	MI AI	2	EA	CY103,CY104	CD 220pF 250V K P10 105°C NK 220pF 250V K P10 105°C DA 220pF 250V K P10 105°C CT81 220pF 250V K P10 105°C	CAPACITOR,CERAMIC	TDK APEX INTEC DONGIL ELEC. YINADON

16	MI AI	2	EA	CY105,CY106	CD 330pF 250V K P10 105°C NK 330pF 250V K P10 105°C DA 330pF 250V K P10 105°C CT81 330pF 250V K P10 105°C	CAPACITOR,CERAMIC	TDK APEX INTEC DONGIL ELEC. YINADON
17	MI AI	1	EA	CY501	CD 1000pF 250V M P10 105°C NK 1000pF 250V M P10 105°C DA 1000pF 250V M P10 105°C CT81 1000pF 250V M P10 105°C	CAPACITOR, CERAMIC	TDK APEX INTEC DONGIL ELEC. YINADON
18	MI	1	EA	C114	PCMP 384 0.047uF 1250V J P15 SPK 0.047uF 1250V J P15 (S/C 3.4)	CAPACITOR, FILM	PILKOR LUMEN(MECO)
19	MI	1	EA	CX102	MPX 0.33uF 275V P15 PCX2 337 0.33uF 275V P15 CTX 0.33uF 275V P15	CAPACITOR, FILM	EUROTRONIC PILKOR CHENG TUNG
20	MI	1	EA	CX101	MPX 0.68uF 275V P15 PCX2 337 0.68uF 275V P15 CTX 0.68uF 275V P15	CAPACITOR, FILM	EUROTRONIC PILKOR CHENG TUNG
21	MI	1	EA	C600	MPHB 0.82uF 500V P15 CTH 0.82uF 500V J P15 PCMP 372 0.82uF 500V P15	CAPACITOR, FILM	EUROTRONIC CHENG TUNG PILKOR
22	MI	2	EA	D601,D602	S3V60 600V 3.5A P20/P15 IN5408G 1KV 3A P20 30PDA60 600V 3A P20	DIODE	SHINDENGEN TSC NI
23	MI	1	EA	D603	STTH10LCD06 600V 10A TO-220FP BYV29FX-600 600V 9A TO-220FP	DIODE	STM NXP
24	MI	3	EA	D202,D255,D256	SB560 60V 5A P20 SR560 60V 5A P20 SB560 60V 5A P20	DIODE	SENSITRON DACHANG LITEON
25	MI	1	EA	F501	F3.15A H 250V 216 VIOLET(2-LINE) F3.15A H 250V 50CF VIOLET(2-LINE)	FUSE	LITTEL FUSE DAIN
26	MI	1	EA	F100	T5A H 250V 215 RED(1-LINE) T5A H 250V 50CT RED(1-LINE)	FUSE	LITTEL FUSE DAIN
27	MI	4	EA	PG100,PG101,PG102,PG103	JS-12-75-04 SPCC 0.4T	GND REINFORCE	SAMSUNG JS ST TELECOM DIHUA HUAKANG KANGYAUNG
28	MI	3	EA	IC102,IC502,IC503	EL817MB(DT) LTV817M-BN	IC	EVERLIGHT LITEON
29	MI	1	EA	IC501	FSL106HR	IC	FAIRCHILD
30	MI	1	EA	L201	0.6uH Φ9*15 P=6mm	INDUCTOR, COIL	FEELUX NAMYANG SOOJUNG CLOVER TAICHANG LIENCHANG JIANGSU CHANNEL ON(DADON)
31	MI	1	EA	LF101	CV620280S LLF-124 LLF-124	LINE FILTER	TNC FEELUX DONGYANG(KYUNGIN)
32	MI	1	EA	LF102	LLF-100 (SQE2424 7.7mH)	LINE FILTER	DONGYANG Telecom (KYUNGIN) FEELUX CLOVER HI-TECH
33	MI	1	EA	TH101	DSC5D15 MSSB 5Ω 6A Φ15 MF72-5D15 5Ω 6A Φ15 WTR15D5 5Ω 6A Φ15	NTC THERMISTOR	DSC NSE WMEC
34	MI	1	EA	L601	LP-002 (EER3019 250uH)	TRANSFORMER	JIANGSU CHANNEL(DADON) FEELUX DONGYANG TELECOM(KYUNGIN) LIENCHANG SOOJUNG CLOVER HI-TECH
35	MI	1	EA	T101	LPM-101 (EER3435 1.4mH)	TRANSFORMER	JIANGSU CHANNEL(DADON) FEELUX DONGYANG TELECOM(KYUNGIN) LIENCHANG SOOJUNG CLOVER HI-TECH
36	MI	1	EA	T501	12S-LS01(EE1918 1.1mH)	TRANSFORMER	JIANGSU CHANNEL(DADON) FEELUX DONGYANG TELECOM(KYUNGIN) LIENCHANG SOOJUNG CLOVER HI-TECH
37	MI	1	EA	VA100	INR14D621K-CAP 620V Φ14 TUBE SVC621D-14ATW 620V Φ14 TUBE WMR14D621 620V Φ14 TUBE 14D-621K 620V Φ14 TUBE	VARISTOR	AMOTECH SAMWHA WMEC NFC
38	MI	1	EA	P203	20010WS-14000 14PIN WHITE B14B-PH-K-S(LF)(SN)	WAFER	YEONHO JST
39	MI	1	EA	P201	FW20020-24SB SMW200-24CF (B) 24PIN WHITE	WAFER	FOOSUNG TECH YEONHO
40	MI	1	EA	SK100	YW396-03AV B2P3-VH(LF)(SN)	CONNECTOR	YEONHO JST
41	MI ETC	2	EA	HD1,HD5	MEG41613005 16.2L 94V-0	SUPPORTER	RICHTECH DIHUA GIN LIAN

42	SMT			LGP32-12P SMT COMPONENTS	SMT ASSEMBLY	
43	SMT	1	EA	C609 22 pF 50V J 1608 COG	CAPACITOR,CHIP	PILKOR YAGEO TDK SAMWHA HEC MURATA
44	SMT	1	EA	C608 100pF 50V J 1608 COG	CAPACITOR,CHIP	PILKOR YAGEO TDK SAMWHA HEC MURATA
45	SMT	1	EA	C104 470 pF 50V J 1608 COG	CAPACITOR,CHIP	PILKOR YAGEO TDK SAMWHA HEC MURATA
46	SMT	3	EA	C505,C602,C607 1000pF 50V K 1608 X7R	CAPACITOR,CHIP	PILKOR YAGEO TDK SAMWHA HEC MURATA
47	SMT	1	EA	C103 4700pF 50V K 1608 X7R	CAPACITOR,CHIP	PILKOR YAGEO TDK SAMWHA HEC MURATA
48	SMT	10	EA	C105,C107,C108,C110,C205, C255,C503,C604,C605,C606 0.1uF 50V K 1608 X7R	CAPACITOR,CHIP	PILKOR YAGEO TDK SAMWHA HEC MURATA
49	SMT	1	EA	C106 0.22uF 50V K 2012 X7R	CAPACITOR,CHIP	PILKOR YAGEO TDK SAMWHA HEC MURATA
50	SMT	1	EA	C256 0.33uF 50V K 2012 X7R	CAPACITOR,CHIP	PILKOR YAGEO TDK SAMWHA HEC MURATA
51	SMT	3	EA	C101,C507,C516 0.47uF 25V K 2012 X7R	CAPACITOR,CHIP	PILKOR YAGEO TDK SAMWHA HEC MURATA
52	SMT	3	EA	C102,C115,C204 1uF 25V K 2012 X7R	CAPACITOR,CHIP	TDK MURATA
53	SMT	7	EA	D101,D102,D103,D105,D106, D121,D604 1N4148W 100V 150mA SOD-123 1N4148W 100V 150mA SOD-123 MMSD4148T1G 100V 200mA SOD-123 1N4148W 100V 150mA SOD-123	DIODE	DIODES RECTRON ONSEMI DACHANG
54	SMT	2	EA	Q101,Q102 STD10NM60N 600V 8A DPACK IPD60R750E6 600V 5.7A DPAK TK7P60V 600V 7A DPAK FCD7N60 600V 7A DPAK	FET	STMICRO INFINEON TOSHIBA FAIRCHILD
55	SMT	1	EA	IC251 AS431AN 2.5V ±0.5% SOT-23 SNF431BS 2.5V ±0.5% SOT-23 KIA431BM, 2.5V±0.5%, SOT-23	IC	BCD AUK KEC
56	SMT	1	EA	IC202 AZ431LANTR-E1 1.24V ±0.5% SOT-23 SJ432BS 1.24V ±0.5% SOT-23 TLV431BSN1T1G 1.24V ±0.5% SOT-23	IC	BCD AUK ONSEMI
57	SMT	1	EA	IC101 L6599AD SO-16N	IC	STMICRO
58	SMT	1	EA	IC601 SCY99102BDR2G, HS01G, SO-8	IC	onsemi
59	SMT	2	EA	R125,R207 0 Ω J 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
60	SMT	2	EA	R117,R612 2.2 Ω J 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
61	SMT	1	EA	R503 20 Ω J 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
62	SMT	1	EA	R609 100 Ω J 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN

63	SMT	1	EA	R210	270 Ω J 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
64	SMT	1	EA	R201	330 Ω J 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
65	SMT	3	EA	R208,R209,R227	470 Ω J 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
66	SMT	5	EA	R102,R110,R202,R504,R508	1 KΩ J 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
67	SMT	1	EA	R256	2.2K Ω J 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
68	SMT	1	EA	R108	6.8 KΩ J 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
69	SMT	9	EA	R120,R123,R128,R211,R220, R255,R515,R603,R605	10 KΩ J 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
70	SMT	2	EA	R114, R507	15 KΩ J 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
71	SMT	1	EA	R113	18 KΩ J 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
72	SMT	1	EA	R620	20 KΩ J 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
73	SMT	2	EA	R107,R506	47 KΩ J 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
74	SMT	1	EA	R509	100 KΩ J 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
75	SMT	1	EA	R115	470 KΩ J 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
76	SMT	1	EA	R109	2.2 MΩ J 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
77	SMT	1	EA	R265	47 Ω F 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
78	SMT	1	EA	R204	100 Ω F 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
79	SMT	1	EA	R116	300 Ω F 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN

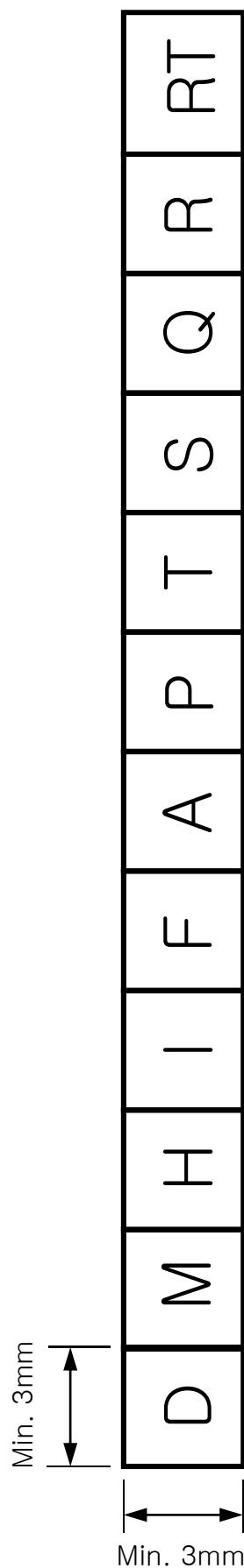
80	SMT	1	EA	R206	1.5 KΩ F 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
81	SMT	1	EA	R112	1.6 KΩ F 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
82	SMT	1	EA	R618	1.8 KΩ F 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
83	SMT	1	EA	R263	2 KΩ F 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
84	SMT	2	EA	R261,R262	2.2 KΩ F 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
85	SMT	1	EA	R205	2.7 KΩ F 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
86	SMT	1	EA	R619	3.3 KΩ F 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
87	SMT	1	EA	R259	5.1 KΩ F 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
88	SMT	1	EA	R111	16 KΩ F 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
89	SMT	1	EA	R617	22KΩ F 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
90	SMT	2	EA	R258,R260	24 KΩ F 1608	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
91	SMT	2	EA	R119,R122	10 Ω J 3216	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
92	SMT	1	EA	R610	22 Ω J 3216	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
93	SMT	2	EA	R118,R121	47 Ω J 3216	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
94	SMT	5	EA	R613,R614,R615,R616,R623	750 KΩ F 3216	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
95	SMT	5	EA	R103,R104,R105,R106,R127	820KΩ F 3216	RESISTOR, CHIP	YAGEO UNIOHM SAMSUNG PILKOR TZAIYUAN
96	SMT	2	EA	Q201,Q502	KST2222A 40V 600mA SOT-23 NPN KTN2222AS 40V 600mA SOT-23 NPN MMBT2222ALT 40V 600mA SOT-23 NPN PMBT2222A 40V 600mA SOT-23 NPN SBT2222A 40V 600mA SOT-23 NPN	TRANSISTOR	FAIRCHILD KEC ONSEMI NXP AUK
97	SMT	2	EA	Q103,Q603	KST2907A -60V -600mA SOT-23 PNP KTN2907AS -60V -600mA SOT-23 PNP MMBT2907ALT -60V -600mA SOT-23 PNP PMBT2907A -60V -600mA SOT-23 PNP SBT2907A -60V 600mA SOT-23 PNP	TRANSISTOR	FAIRCHILD KEC ONSEMI NXP AUK
98	SMT	1	EA	Q501	KTC3551T 80V 1A TSM NPN BCW66GLT1G 45V 800mA SOT-23 NPN	TRANSISTOR	KEC ONSEMI
99	SMT	0.4	GR		HT-130A-106 HT-130D-7 LOCTITE 3609 NE8800T IR-180F	BOND	HITECH KOREA HITECH KOREA LECTITE FUJI SOMAR

100	AI			LGP32-12P AI COMPONENTS	AI ASSEMBLY		
101	AI	2	EA	C509,C510 NXB 10uF 50V M P5 Φ5X11 SG 10uF 50V M P5 Φ5X11	CAPACITOR,ALUMINUM	SAMYOUNG SUSCON	
102	AI	2	EA	C201,C206 NXB 1000uF 10V M P5 Φ10X16 SG 1000uF 10V M P5 Φ10X16	CAPACITOR,ALUMINUM	SAMYOUNG SUSCON	
103	AI	1	EA	C253 NXB 1000uF 25V M P5 Φ10X20 SG 1000uF 25V M P5 Φ10X20	CAPACITOR,ALUMINUM	SAMYOUNG SUSCON	
104	AI	3	EA	C250,C251,C252 NXB 680uF 35V M P5 Φ10X20 SG 680uF 35V M P5 Φ10X20	CAPACITOR,ALUMINUM	SAMYOUNG SUSCON	
105	AI	1	EA	C202 NXB 470uF 10V M P5 Φ8X11.5 SG 470uF 10V M P5 Φ8X12	CAPACITOR,ALUMINUM	SAMYOUNG SUSCON	
106	AI	2	EA	C504,C511 NXB 47uF 50V M P5 Φ6.3X11 SG 47uF 50V M P5 Φ6.3X11	CAPACITOR,ALUMINUM	SAMYOUNG SUSCON	
107	AI	2	EA	C501,C502 DG 1000pF 1KV K P5 125°C CT81 1000pF 1KV K P5 125°C CK 1000pF 1KV K P5 125°C CK45 1000pF 1KV K P5 125°C	CAPACITOR,CERAMIC	APEX INTEC YINADON DONGIL ELEC. TDK	
108	AI	1	EA	C118 DG 100pF 1KV K P5 125°C CT81 100pF 1KV K P5 125°C CK 100pF 1KV K P5 125°C CK45 100pF 1KV K P5 125°C	CAPACITOR,CERAMIC	APEX INTEC YINADON DONGIL ELEC. TDK	
109	AI	1	EA	C113 DG 220pF 1KV K P5 125°C CT81 220pF 1KV K P5 125°C CK 220pF 1KV K P5 125°C CK45 220pF 1KV K P5 125°C	CAPACITOR,CERAMIC	APEX INTEC YINADON DONGIL ELEC. TDK	
110	AI	1	EA	C614 DG 470pF 1KV K P5 125°C CT81 470pF 1KV K P5 125°C CK 470pF 1KV K P5 125°C CK45 470pF 1KV K P5 125°C	CAPACITOR,CERAMIC	APEX INTEC YINADON DONGIL ELEC. TDK	
111	AI	3	EA	D501,D502,D503 HER108G 1KV 1A DO-41 UF1007 1KV 1A DO-41 UF4007 1KV 1A DO-41 UF4007 1KV 1A DO-41	DIODE	RECTRON DIODES TSC DACHANG	
112	AI	1	EA	ZD102 1N5235 6.8V DO-35 1N5235B 6.8V DO-35 MTZJ6.8B 6.8V DO-34 GDZJ6.8C 6.8V DO-35	DIODE, ZENER	RECTRON VISHAY ROHM WILLAS	
113	AI	1	EA	ZD502 1N5245 15V DO-35 1N5245B 15V DO-35 MTZJ15B 15V DO-34 GDZJ16A 15V DO-35	DIODE, ZENER	RECTRON VISHAY ROHM WILLAS	
114	AI	1	EA	ZD503 1N5250 20V DO-35 1N5250B 20V DO-35 MTZJ20B 20V DO-34 GDZJ20C 20V DO-35	DIODE, ZENER	RECTRON VISHAY ROHM WILLAS	
115	AI	37	EA	EL3,EL4,EL5,EL6,EL7, EL8,EL9,EL10,EL11,EL12, EL13,EL14,EL15,EL16,EL17, EL18,EL21,EL22,EL23,EL24, EL25,EL26,EL27,EL28,EL29, EL30,EL33,EL34,EL35,EL36, EL37,EL38,EL39,EL40,EL41, EL42,EL96	1.6x3.0	EYELET	SAMSUNGJS DOSUNG DAERIN HUAKANG DELIKANG
116	AI	4	EA	EL1,EL2,EL19,EL20	2.0 * 3.0	EYELET	SAMSUNGJS DOSUNG DAERIN HUAKANG DELIKANG
117	AI	2	EA	P101,P102 SSJS236-6-3 (7.4*2.36mm)	GT PIN	SAMSUNGJS DOSUNG DAERIN DIHUA HUAKANG DELIKANG KANGYAUNG	
118	AI	4	EA	LB103,LB104,LB105,LB601 BFS3550R2F SINGLE RADIAL SER3550050BA SINGLE RADIAL	INDUCTOR, BEAD FILTER LEAD	SAMWHA SCC	
119	AI	1	EA	LB501 BFD3565R2F DUAL RADIAL SER3550090BA DUAL RADIAL	INDUCTOR, BEAD FILTER LEAD	SAMWHA SCC	
120	AI	20	EA	J1,J3,J4,J6,J7, J8,J9,J10,J12,J13, J14,J16,J18,J19,J20, J21,J22,J23,LB101,LB102	Φ0.6	JUMPER WIRE	TPI DAEALEAD DIELEC TZAIYUAN UNIOHM YEONHEE-TECH
121	AI	1	EA	R100 MSR37 820kΩ 1/2W J SURGE PRC 820kΩ 1/2W J SURGE	RESISTOR, FIXED CARBON COMPOSITION	PILKOR SMART	
122	AI	1	EA	R124 MSR37 1MΩ 1/2W J SURGE PRC 1MΩ 1/2W J SURGE	RESISTOR, FIXED CARBON COMPOSITION	PILKOR SMART	
123	AI	1	EA	R601 PRN 0.08Ω 2W J SMALL P20mm WWR 0.08Ω 2W J SMALL P20mm (non-inductive) WNPS 0.08Ω 2W J SMALL P20	RESISTOR, WIRE WOUND	SMART PILKOR ABCO	
124	AI	1	EA	R502 CRS 100Ω 1/4W J RDM94 100Ω 1/4W J CF 100Ω 1/4W J	RESISTOR, FIXED CARBON FILM	ABCO SMART TZAI YUAN	
125	AI	1	EA	R505 CRS 1Ω 1/4W J RDM94 1Ω 1/4W J CF 1Ω 1/4W J	RESISTOR, FIXED CARBON FILM	ABCO SMART TZAI YUAN	
126	AI	1	EA	R510 CRS 120kΩ 1/2W J RDM92 120kΩ 1/2W J CF 120kΩ 1/2W J	RESISTOR, FIXED CARBON COMPOSITION	ABCO SMART TZAIYUAN	
127	AI	2	EA	R251,R252 MORS 1.5kΩ 2W J SMALL R-TYPE RSD1.5kΩ 2W J SMALL R-TYPE PR02 1.5kΩ 2W J SMALL R-TYPE MOF2WS 1.5kΩ 2W J SMALL R-TYPE	RESISTOR, METAL OXIDE FILM	ABCO SMART PILKOR TZAIYUAN	
128	AI	1	EA	R253 MORS 1.5kΩ 2W J SMALL RSD 1.5kΩ 2W J SMALL PR02 1.5kΩ 2W J SMALL MOF2WS 1.5kΩ 2W J SMALL	RESISTOR, METAL OXIDE FILM	ABCO SMART PILKOR TZAIYUAN	

129	AI	1	EA	R126	MORS 180Ω 1W J SMALL RSD 180Ω 1W J SMALL PR01 180Ω 1W J SMALL MOF1WS 180Ω 1W J SMALL	RESISTOR, METAL OXIDE FILM	ABCO SMART PILKOR TZAIYUAN
130	AI	1	EA	R501	MORS 62KΩ 1W J SMALL RSD 62KΩ 1W J SMALL PR01 62KΩ 1W J SMALL MOF1WS 62KΩ 1W J SMALL	RESISTOR, METAL OXIDE FILM	ABCO SMART PILKOR TZAIYUAN
131	AI	1	EA	PCB	EAX64604501 LGP26-12P/LGP32-12P 1.6T FR-1, KB, DS, L, R-8700 CTI-600	PCB	DONGMYUNG CIR. SHANGHAI WANZHENG SHENG KUANG(WEI JUN) NEW TRIUNION TIANJIN DEA DUCK HUIHO HSIANG KUO SAMHAN HT CIRCUIT(QINGDAO) TIAN FENG Duck sung TIS KOREA kyosha Wellbest
132	ETC				SUBSIDIARY MATERIALS		
133	ETC	0.072	EA		Box (155W*200L*22H)	BOX	WUJIANG ZHENLONG SUZHOU JIADELONG KUNSHAN KUNHONG Taili Packing Huaxing Packing 승산 제일판지 华兴包装 Dongju
134	ETC	1	EA		Air Vinyl 470*225	Air Vinyl	DUCKIN S&P JAEIL QXBW CHUMDAN A-TEK KUNSHANKUNHONG LIYUANG Serveone 科林电子 Ekasurya Trimitra KELIN
135	ETC	1	EA		BARCODE LABEL (40*8)	BAR CODE	SUNJIN. HANA. AIT SERVEONE WUJIANG SUNGLING GUNGGAOQI ZHI XIN
136	ETC	0.006	Kg		EF-9301(g) ILF-714(kg) TF328-2(Kg) EC-19S-8 CS-9111LF	FLUX	ALPHA ION ELEC TONGFANG 동화다무라 정솔
137	ETC	0.008	Kg		HSE-11 B20 BAR (SN:99%,AG:0.3%,CU:0.7%) SN:99%, AG:0.3%, CU:0.7% SAC0307 A+ SN:99%, AG:0.3%, CU:0.7% YW9-0307 SN:99%, AG:0.3%, CU:0.7% M35E-BAR SN:99%, AG:0.3%, CU:0.7%	SOLDER BAR	HEESUNG METAL SEOUL ALLOYSMETAL DYFENCO YUNNAN TIN SOLNET
138	ETC	0.0003	Kg		HSE-11 B20 WIRE (SN:99%,AG:0.3%,CU:0.7%) SN:99%, AG:0.3%, CU:0.7% SAC0307 A+ SN:99%, AG:0.3%, CU:0.7% YW9-0307 SN:99%, AG:0.3%, CU:0.7% M35E-BAR SN:99%, AG:0.3%, CU:0.7%	SOLDER WIRE	HEESUNG METAL SEOUL ALLOYSMETAL DYFENCO YUNNAN TIN SOLNET
139	ETC	21	GR		H-828W OKE-410 QS9112 RTV SS7945W TSE3854DS-W BN707 RTV KE402RTV ES 2044H & 2S2482W UB-5601 EA-4100 DS818	BOND	OKONG OKONG KCC KCC MOMENTIVE BONIC SHINETSU CANADA U-BOND DOW CORNING 동양실리콘
140	ETC	0.0000385	BUK		Ribbon Black R300,60mm*300M(FOR WHITE POLY)	Ribbon	Ricoh Thermal Transfer Ribbon Serve One
141	ETC	0.0000245	BUK		Ribbon Black Wax 110mmx300m, K104 (For paper label)	Ribbon	Ricoh Thermal Transfer Ribbon ITW Serve One
142	ETC	0.043	PAC		TAPE OPP 50*50K	TAPE OPP	Serve One 덕성하이텍 QingDao Nengneng Chiyoda
143	ETC	0.143	EA		LABEL ART PAPER(100*46)	LABEL	瀚盛彩纳 Kodasindo Serve One 한성Color Serve One 금성 FA PT.Space Indonesia

Process Marking

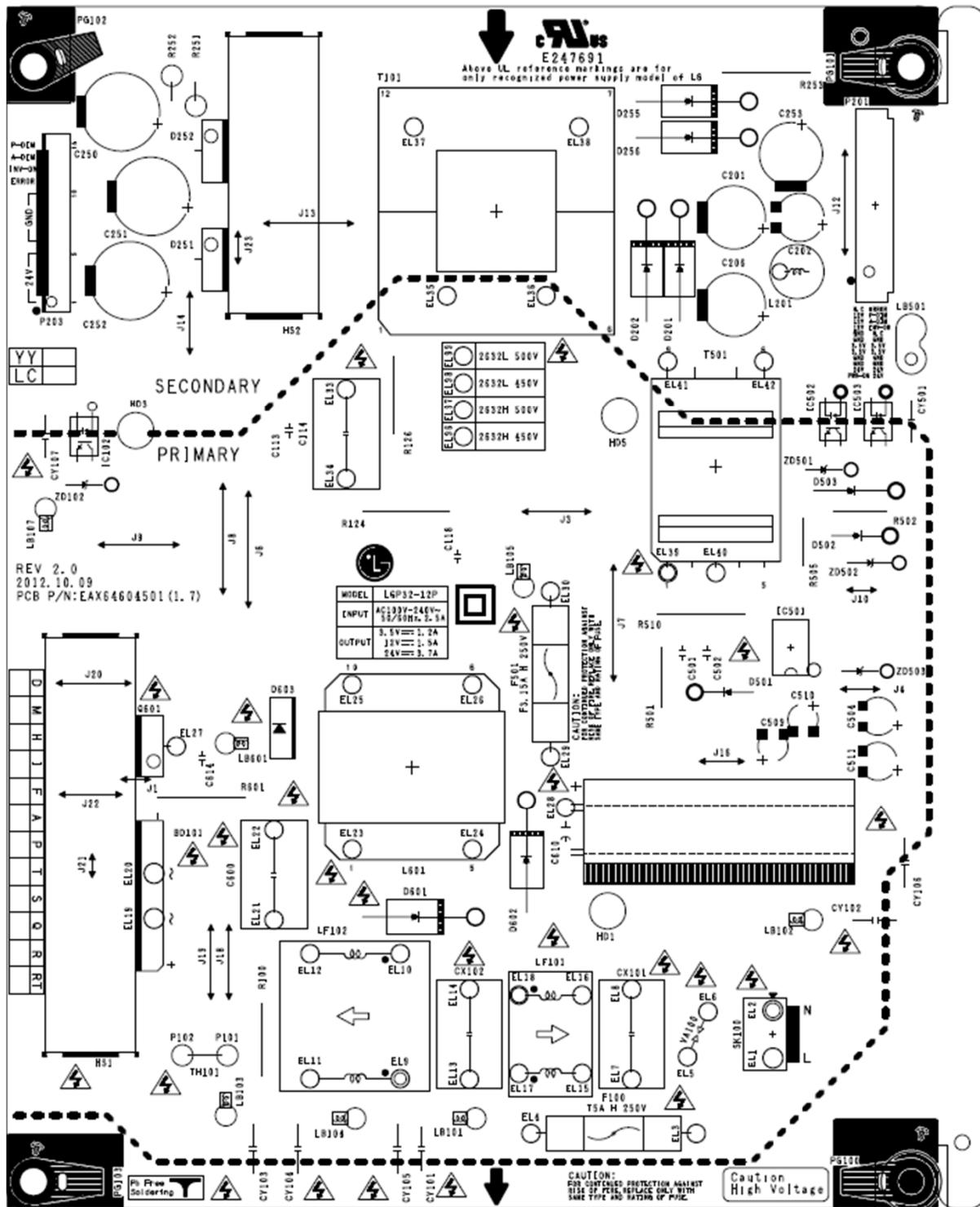
공정표시 MARK (PCB SILK)



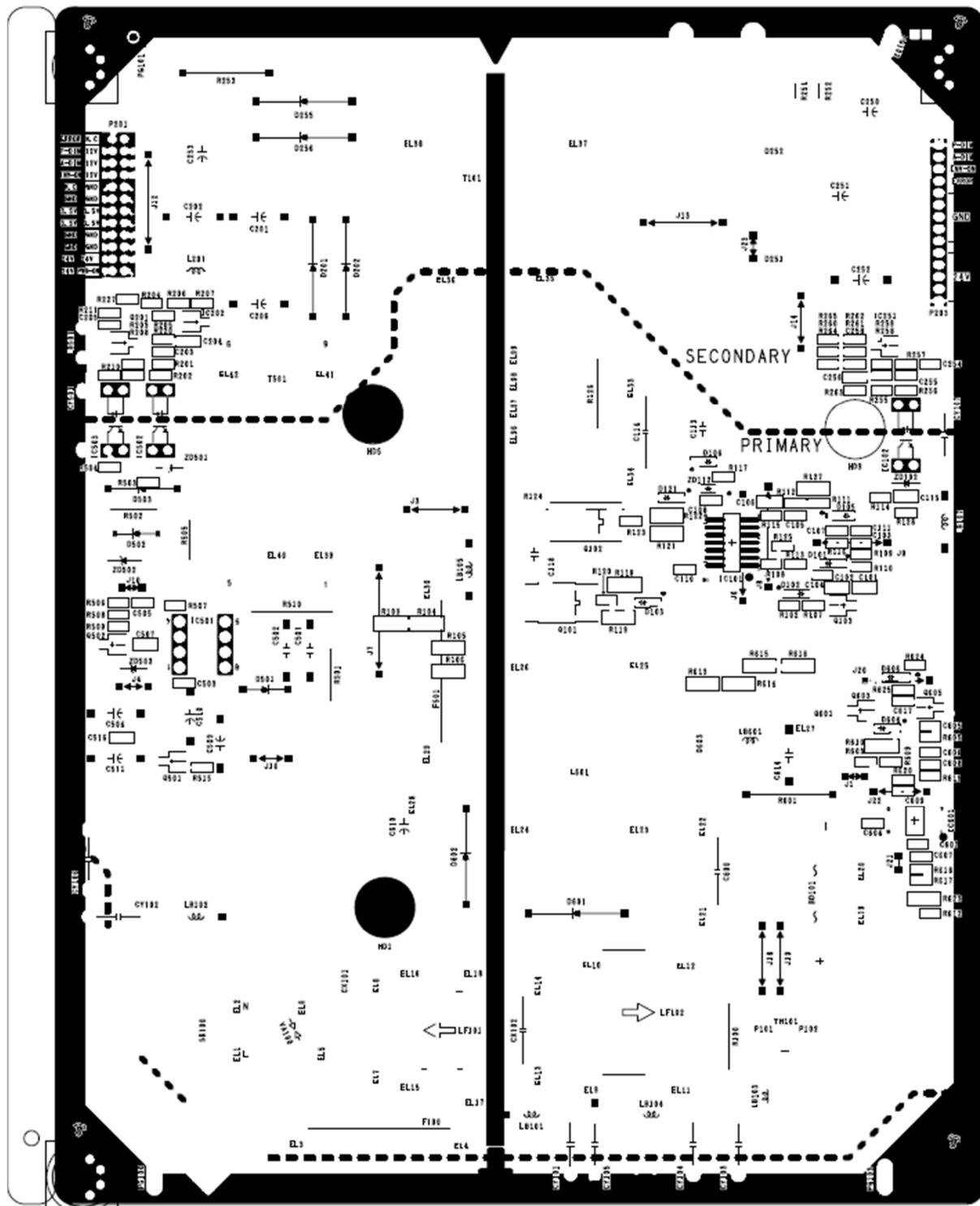
D : 자상
 M : SMD
 H : 수상 침출
 I : ICT
 F : 1차 성능
 A : AGING
 P : HI-POT
 T : 최종 검사 (ATE)
 S : SET 검사
 Q : QC 검사
 R : 품량 수리
 RT : 양산 보증 시험

PCB Layout

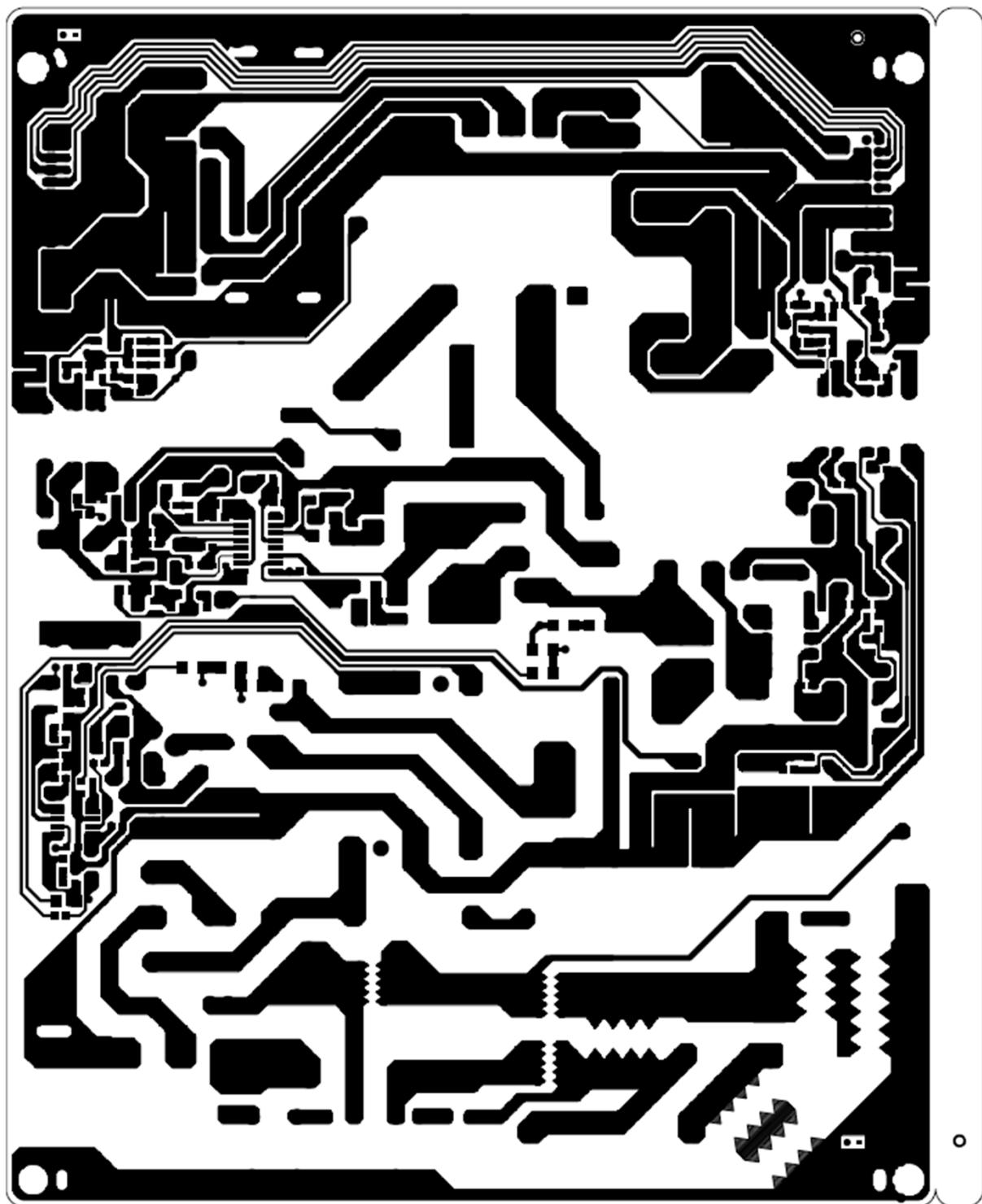
Top Silk



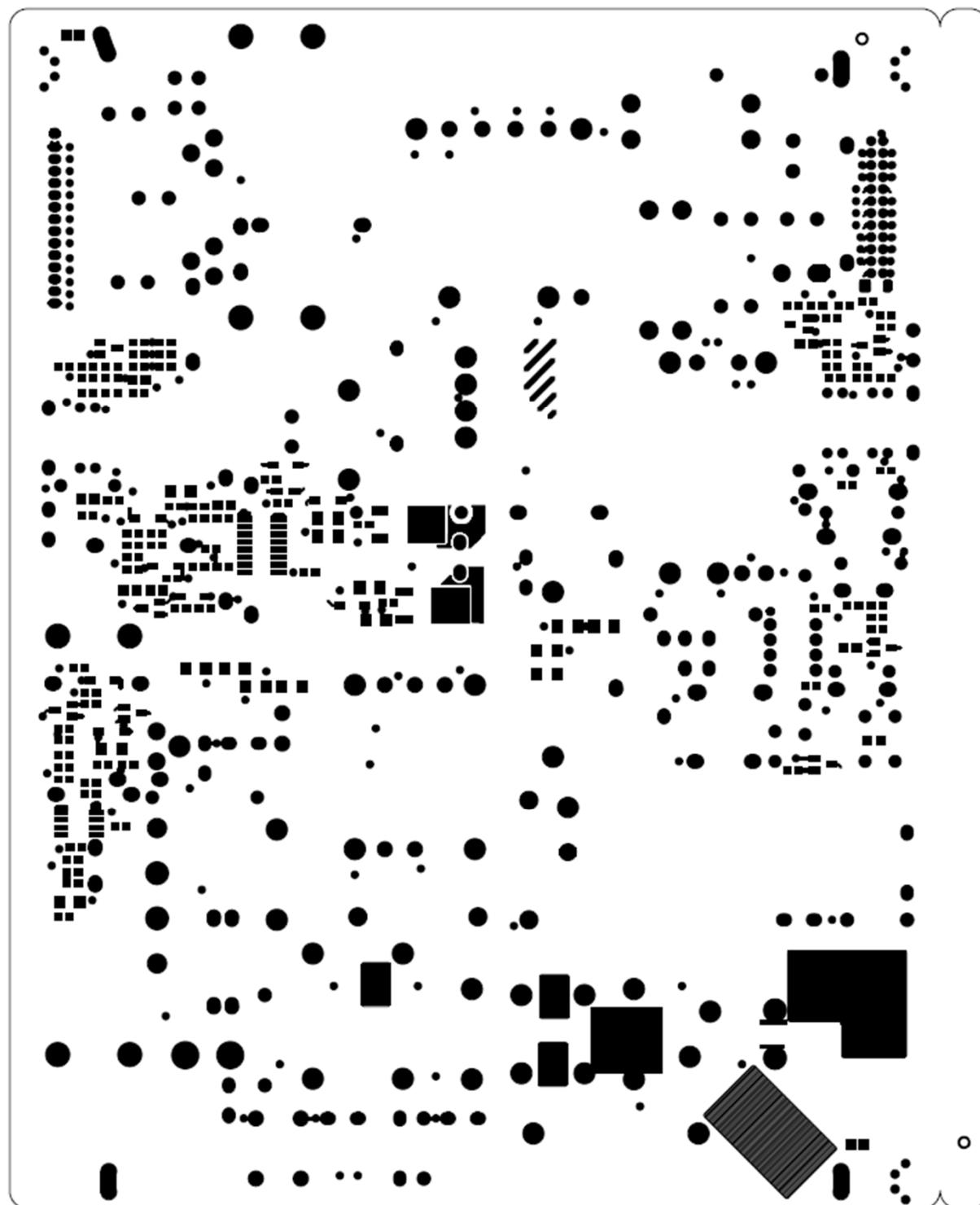
Bottom Silk



Bottom Pattern



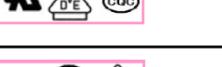
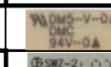
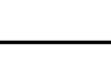
Bottom Solder mask



Safety Parts

Object/part No.	Manufacturer / Trademark	Type / Model	Value / Rating	Parts Marking (實物)	standard	mark(s) of conformity1)
AC input connector, (SK100)	Yeon Ho JST	YW396 series VH series	250V / 7.5A 250V / 7A		IEC 60065	 
Fuse, (F100)	Littelfuse Inc.	215 Series	T5A H / 250V	LF.T5AH250VP	IEC 60127-1	     
	WALTER FUSE	TSC		TSC5A250V(P)	IEC 60127	     
	Dainfuse	50CT		T5AH250V	IEC 60127	    
	CONQUE	UDA / UDA-A		UDA T5A H 250V	IEC 60127-3-5	    
Fuse, (F501)	Littelfuse Inc.	216.XXXX	F3.15A H / 250V	LF.F3.15AH250VP	IEC 60127-1	     
	WALTER FUSE	FSC		FSC3.15A250V(P)	IEC 60127	    
	Dainfuse	50CF		F3.15AH250V	IEC 60127	    
	CONQUE	UBM-A		UBM-A 3.15A 250V	IEC 60127-2-1	    
Line Filter, (LF102)	DONGYANG TELECOM	LLF-100	Rated 130°C	LLF-100	IEC 60065	Test in appliance
	FEELUX					
	SOOJUNG					
	Clover hi-tech Co., Ltd.					
	JIANGSU TAICHANG ELECTRONICS Co.,LTD.					
Line Filter, (LF101)	FEELUX	LLF-124	Rated 130°C	LLF-124	IEC 60065	Test in appliance
	SOOJUNG	LLF-124		LLF-124		
	DONGYANG TELECOM	LLF-124		LLF-124		
	TNC	CV620280SH(HF)		620280S3		
Varistor, (VA100)	Samwha	SVC621D-14	620V, Min.	SVC621-14	IEC61051-2	     
	Amotech Co., Ltd.	INR 14D621		INR 140621		
	Xiamen Wanming Electronics Co.,Ltd	WMR14D621		WMR 140621K		
	Thinking Industrial Co. Ltd.	TVR14621		TVR14621		
	New Future Company	NFC 14D-621K 0-F		NFC 14 621K		
Bridge Diode, (BD101)	Rectron	RS405M	Min. 600V / 4A	RS405M	E94233	Test in appliance
	TSC	TS4B05G		TS4B05G	E96005	
	SHINDENGEN	D3SBA60		D3SBA60	E142422	
	Lite-on	KBJ406G		KBJ406G	E95060	
	GULF	GSIB460		GSIB460		
	DACHANG	TS4B05G		TS4B05G	E96005	
X-cap. (CX101,CX102)	Pilkor	PCX2 337	275V (CX101= 0.68μF CX102= 0.33μF)	PCX2 337	IEC 60384-14 UL1414	     
	SUNIL Electronics Ind.Co.,Ltd.	4360		4360	E199061/ E311052 IEC 60384-14-2'nd edition	     
	SUNGHO	CMPP		CMPP	IEC 60384-14 UL1414/UL1283	     
	Okaya	LE		LE	IEC 60384-14 UL1414	   
	EUROPTRONIC	MPX		MPX	E199061/ E311052 IEC 60384-14-2'nd edition	    
	CHENG TUNG	CTX		CTX	IEC 60384-14 UL1414	   

Thermistor. (TH101)	DSC	DSC 50-15	50hm at 25 ° C	DSC 50-15	IEC 60065	
	Xiamen Wanming Electronics Co.,Ltd	WTR 150050		WTR 150050		
	JIANGSU XINGSHUN ELECTRONICS CO., LTD	502-15		502-15		
	NANJING SHIHEG ELECTRONICS CO., LTD	MF72 5015		MF72 5015		
Elec.Cap., (C610) LGP32-12P	SAMYOUNG	KMF	450V / Max 82uf / 105°C	KMF450V82uF	IEC 60950-1	Test in appliance
	SUSCON	SK		SK450V82uF		
	SAMMHA	LT		LT450V82uF		
	LELON	RGA		RGA450V82uF		
Switching TR, (Q601) LGP32-12P	KEC	KF12N60F	Min. 600V / Min 10A	KF12N60F	IEC 60950-1	Test in appliance
	TOSHIBA	TK10A60D		K10A60D		
	STM	STF10NM60N		10NM60N		
	MAGNACHIP	MDF11N60		13NM60N		
Switching TR, (Q101,Q102) LGP32-12P	INFINEON	IPD60R750E6	Min. 600V / Min 5.7A (OPACK)	IPD60R750E6	IEC 60950-1	Test in appliance
	STM	STD10NM60N		10NM60N		
	TOSHIBA	TK7P60V		TK7P60V		
	FAIRCHILD	FCD7N60		FCD7N60		
Flyback IC, (IC501)	FAIRCHILD	FSL106HR	Min. 650 V / Min 0.7A	FSL106HR	IEC 60950-1	Test in appliance
Y Cap., (CY101,CY102)	Kunshan Wansheng	Y1 / CT7	Min 250V / (CY101=100pF, CY102=100pF)	CT7 101K	IEC 60384-14	
	Apex intec	Y1 / NK		NK101K		
	DONG IL	Y1 / DA		DA101k		
	YINANDON	Y1 / CT81		CT81 101K		
	SAMMHA	Y1 / SD		SD101K		
	JYA-NAY	Y1 / JN		JN101K		
	GUANGDONG SOUTH HONGMING	Y1 / F		F101K		
	TDK	Y1 / CD		CD101K		
Y Cap., (CY103,CY104)	Kunshan Wansheng	Y1 / CT7	Min 250V / (CY103=220pF, CY104=220pF)	CT7 221K	IEC 60384-14	
	Apex intec	Y1 / NK		NK221K		
	DONG IL	Y1 / DA		DA221k		
	YINANDON	Y1 / CT81		CT81 221K		
	SAMMHA	Y1 / SD		SD221K		
	JYA-NAY	Y1 / JN		JN221K		
	GUANGDONG SOUTH HONGMING	Y1 / F		F221K		
	TDK	Y1 / CD		CD221K		
Y Cap., (CY105,CY106)	Kunshan Wansheng	Y1 / CT7	Min 250V / (CY105=330pF, CY106=330pF)	CT7 331K	IEC 60384-14	
	Apex intec	Y1 / NK		NK331K		
	DONG IL	Y1 / DA		DA331k		
	YINANDON	Y1 / CT81		CT81 331K		
	SAMMHA	Y1 / SD		SD331K		
	JYA-NAY	Y1 / JN		JN331K		
	GUANGDONG SOUTH HONGMING	Y1 / F		F331K		
	TDK	Y1 / CD		CD331K		
Bridging Cap., (CY501)	Kunshan Wansheng	Y1 / CT7	Min 250V / 1000pF	CT7 102M	IEC 60384-14	
	Apex intec	Y1 / NK		NK102M		
	DONG IL	Y1 / DA		DA102M		
	YINANDON	Y1 / CT81		CT81 102M		
	SAMMHA	Y1 / SD		SD102M		
	JYA-NAY	Y1 / JN		JN102M		
	GUANGDONG SOUTH HONGMING	Y1 / F		F102M		
	TDK	Y1 / CD		CD102M		
PFC Coil,(L601)	SOOJUNG	LP-002	Rated 130°C	LP-002	IEC 60065	Test in appliance
	Nam Yang Electronics Co., Ltd.					
	DONG YANG TELECOM CO., LTD					
	FEELUX					
	Clover hi-tech Co., Ltd.					
	JIANGSU CHANNELON ELECTRONIC GROUP					
	LIENCHANG					

Switching Transformer, (T101)	SOOJUNG Nam Yang Electronics Co., Ltd. DONG YANG TELECOM CO., LTD(韓.KYUNGIN) FEELUX Clover hi-tech Co., Ltd. LIENCHANG JIANGSU CHANNELON ELECTRONIC GROUP	LPM-101	Class B	LPM-101	IEC 60950-1	Test in appliance
Switching Transformer, (T501)	SOOJUNG BUJEON DONG YANG TELECOM CO., LTD JIANGSU CHANNELON ELECTRONIC GROUP TDK FEELUX JIANGSU TAICHANG ELECTRONICS CO., LTD. Clover hi-tech Co., Ltd. LIENCHANG	12S-LS01	Class B	12S-LS01	IEC 60950-1	Test in appliance
Opto-coupler, (IC102, IC502, IC503)	Everlight	EL817	>0.4mm / Rated 6000Vac	EL817 817BN	IEC 60065 UL 1577	 
	Lite-on					
Discharge Resistor, (R100)	Smart	PRC	1/2W, 820Kohm, 5%		IEC 60065	  
	UNIROYAL ELECTRONICS INDUSTRY CO., LTD	MGROW2J****A10				
	Pilkor	SR37, MSR37				
Capacitor (C600)	Pilkor	PCMP	0.82uF / 500V	820n J 500V 372 MKP MPHB 824J 500V 824J 500V BMPP CTH 824J 500V	IEC60384-1	UL
	EUROPTRONIC	MPHB				
	Sung-Ho	BMPP				
	CHENG TUNG	CTH				
Capacitor (C114)	Pilkor	PCMP	0.047uF / 1250V	47n J 1250V 384 MMKP SPK 1250V 473J PPD473J1250VP15	IEC60384-1	UL
	LUMEN	SPK				
	CHENG TUNG	PPD				
	Sung-Ho	BNPS				
PCB	DONGMYUNG CIR.	DM5-V-0	94V-0			             
	SHANGHAI WANZHENG	SWZ-2	94V-0			
	SHENG KHUANG(WEI JUN)	03VO-C 03VO	94V-0			
	SHANGHAI AREX	02VO	94V-0			
	NEW TRIUNION	TU-3	94V-0			
	CHIN POON	E5	94V-0			
	TIANJIN DEA DUCK	DC-1 DC-2	94V-0			
	HUIHO	4B-5	94V-0			
	HSIANG KUO	07VO	94V-0			
	SAMHAN	SH7	94V-0			
	HT CIRCUIT(QINGDAO)	1994V0	94V-0			
	WONKYUNG	WK-1	94V-0			
	TIAN FENG	TU-1	94V-0			
	Duck sung	DS8-V-0	94V-0			
	TIS KOREA	TIS-3	94V-0			
	kyosha	2294V-0	94V-0			
	kyosha	S4594V-0	94V-0			
	Wellbest	MTV0-01	94V-0			
	CHANGZHOU HATHONG	CCE-V0	94V-0			

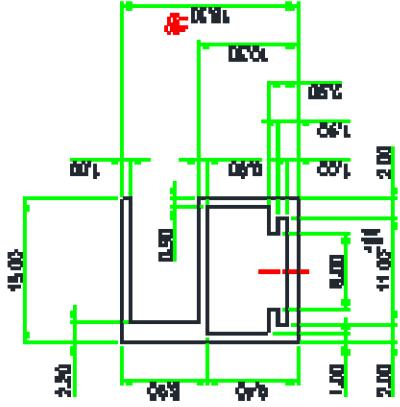
1) an asterisk indicates a mark which assures the agreed level of surveillance

Remarks: *) Large volume capacitors exceeding volume 1750mm³

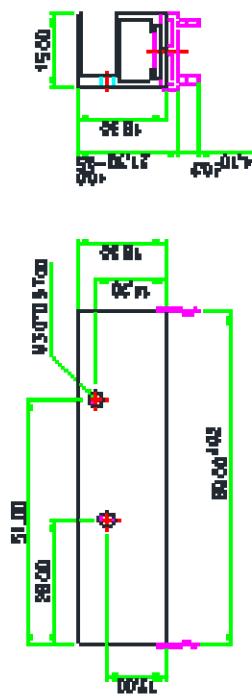
Mechanical Drawing

“**אָמֵן**” – מושג שמשמעותו אמון ואמון. אמונתך בהנָּתָן – מושג שמשמעותו נטול כל גורם של סיכון או רủיה. אמונתך בהנָּתָן – מושג שמשמעותו נטול כל גורם של סיכון או רủיה.

**Erljudning Drottning
låttexte 2:1**



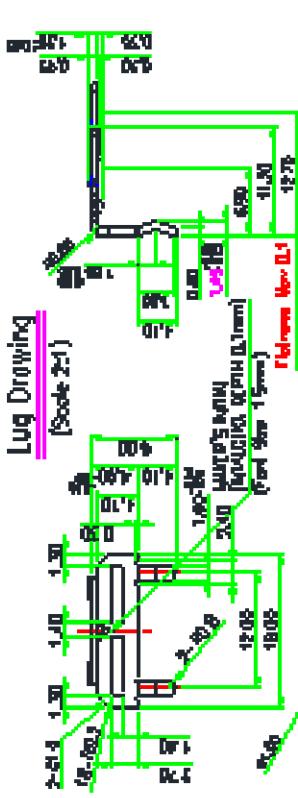
Assistive Drawing



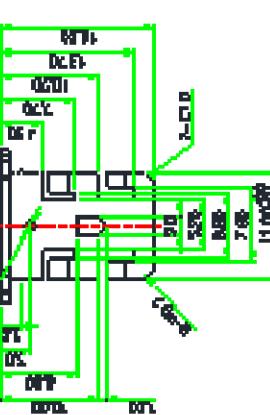
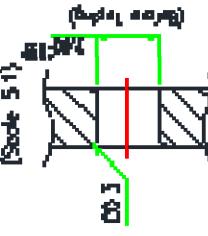
WOLE

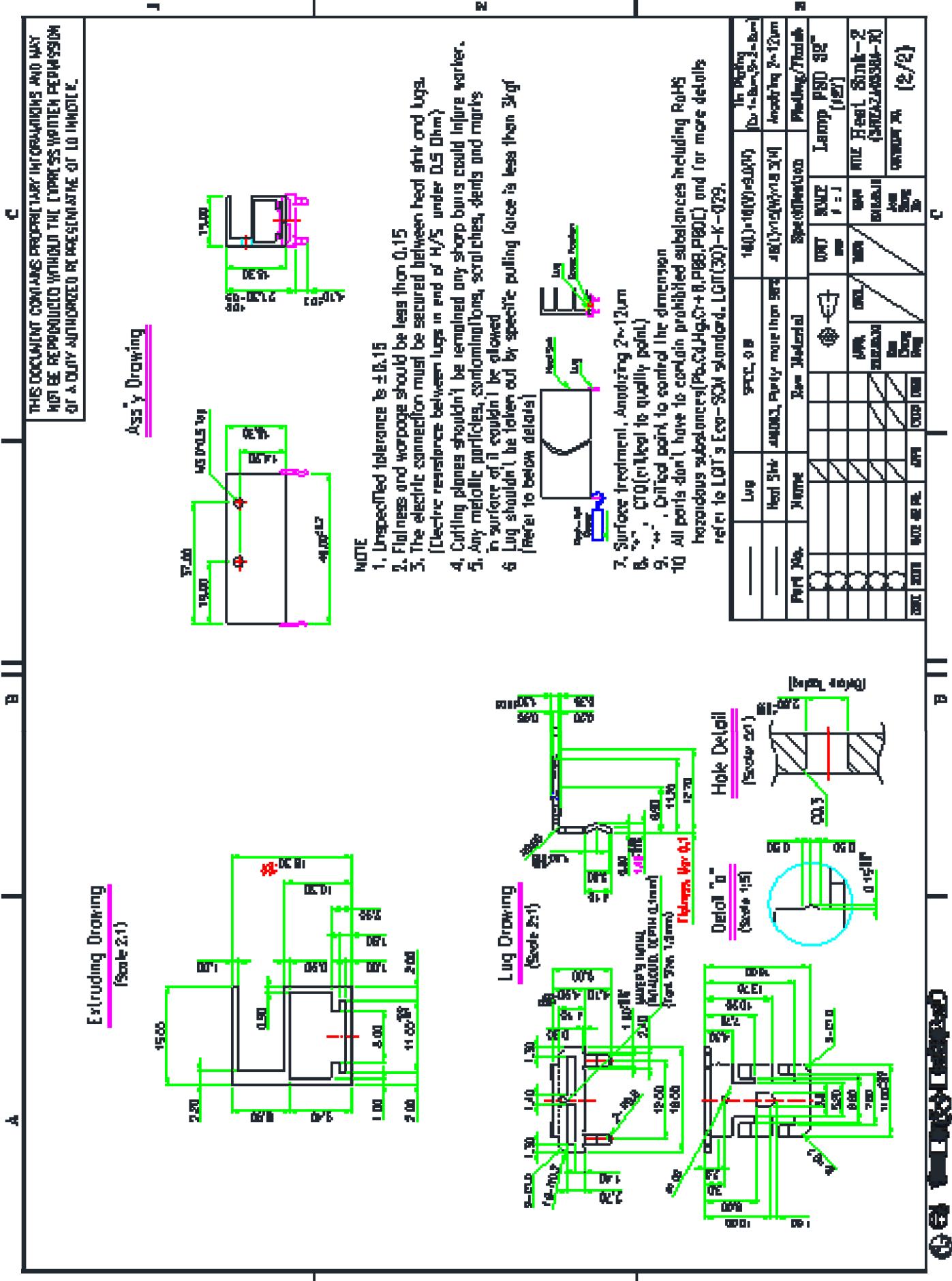
1. Unspecified tolerance ± 0.15
 2. Flatness of top surface should be less than 0.15
 3. The electric connector must be secured between heat sink and PCB [Leave some clearance between lug in end of H/S under PCB]
 4. Outling dimension must be remained and other burrs could injure worker.
 5. Any misprint, punctuation, specification, scribbles, defects and marks
will be rejected
 6. All dimensions in the drawing are in mm.

Lug Drawing

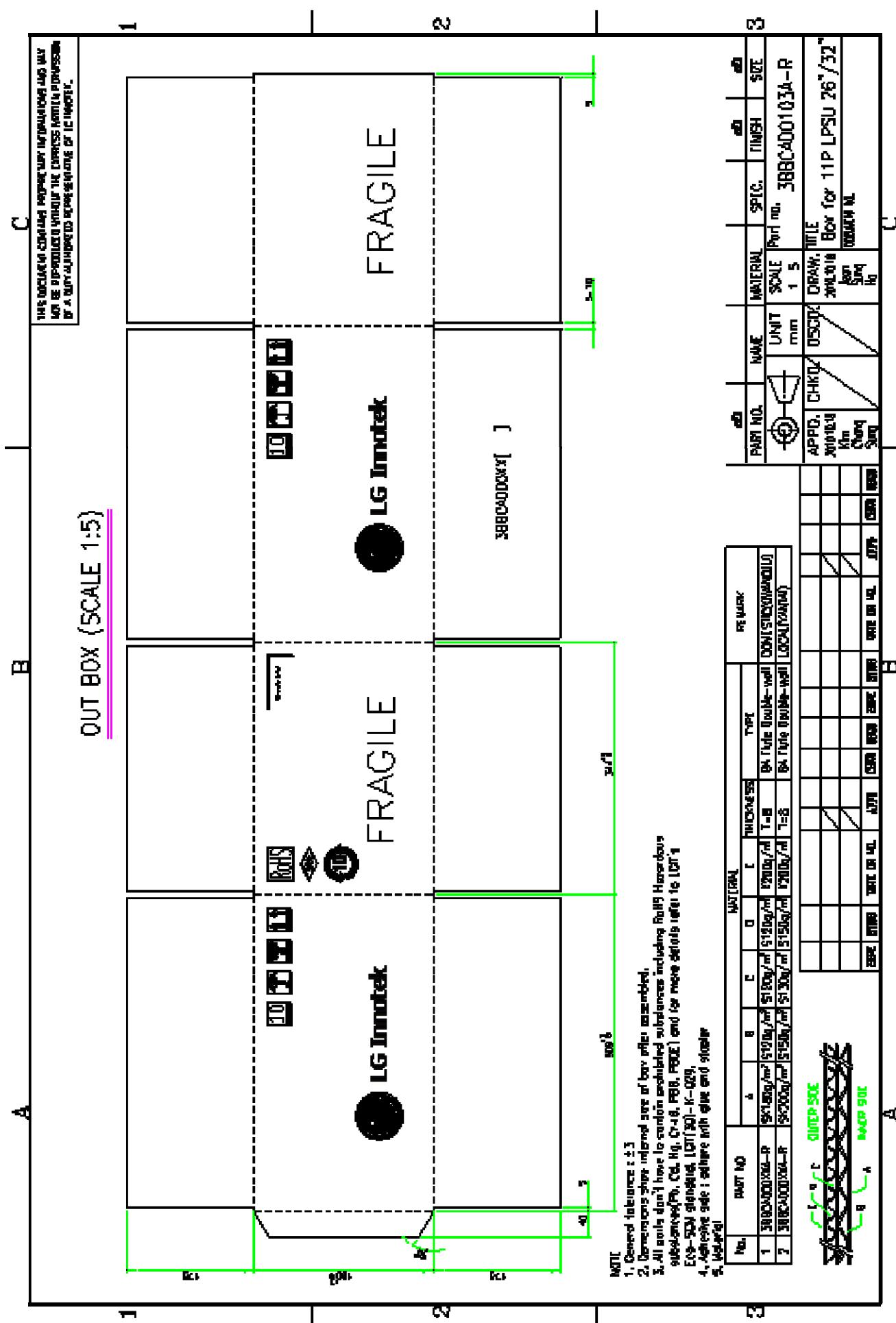


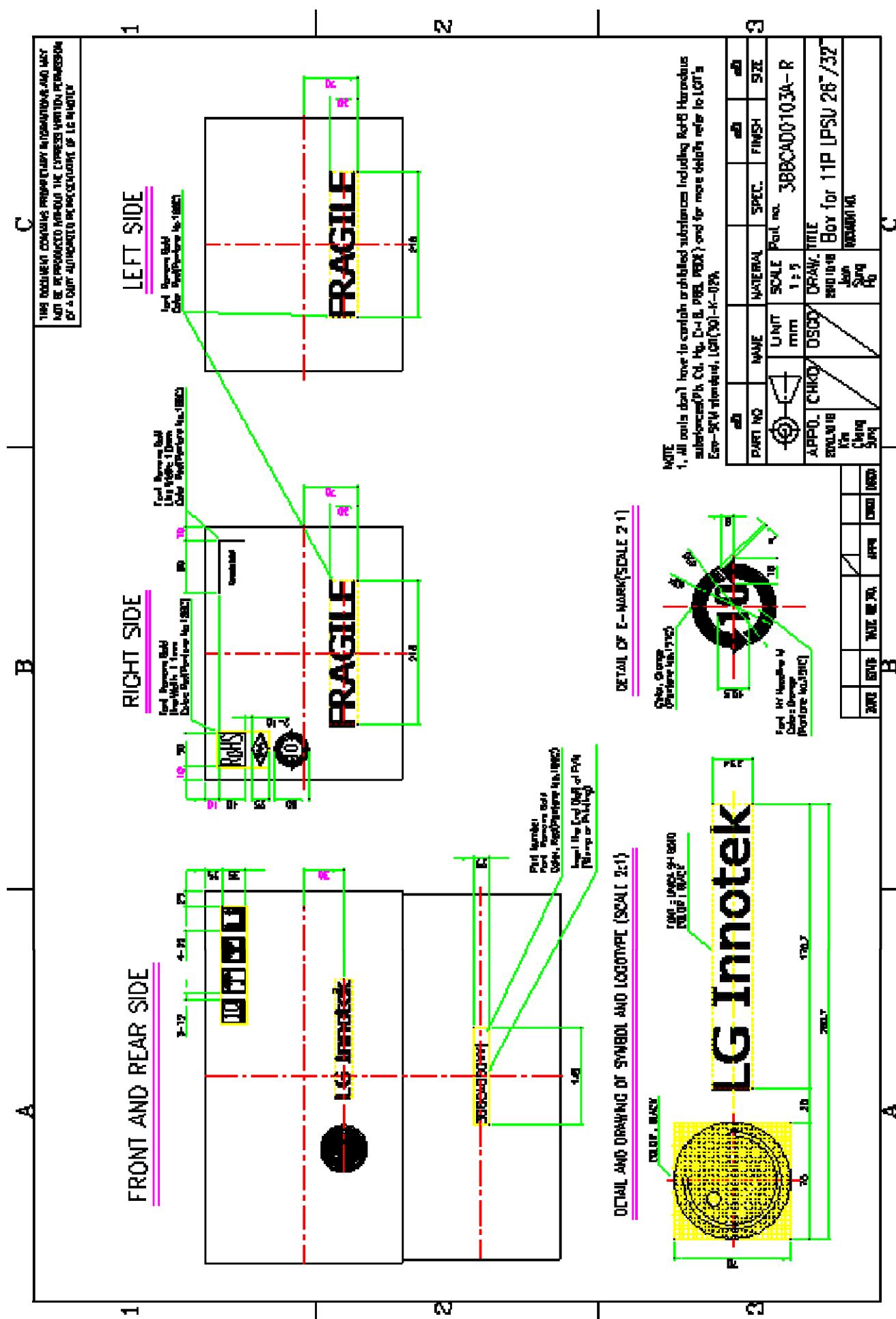
110 ፳፻፲፭

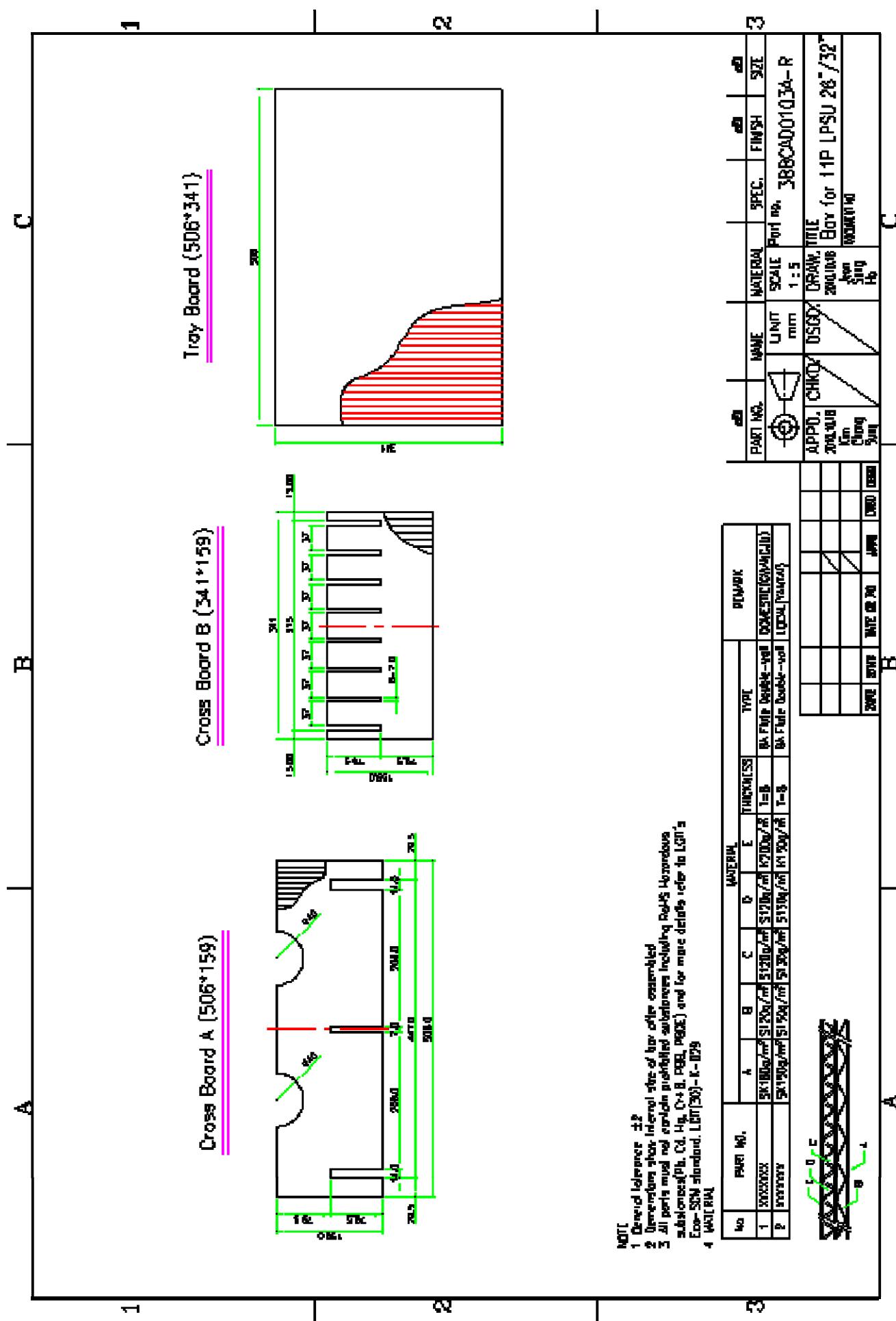


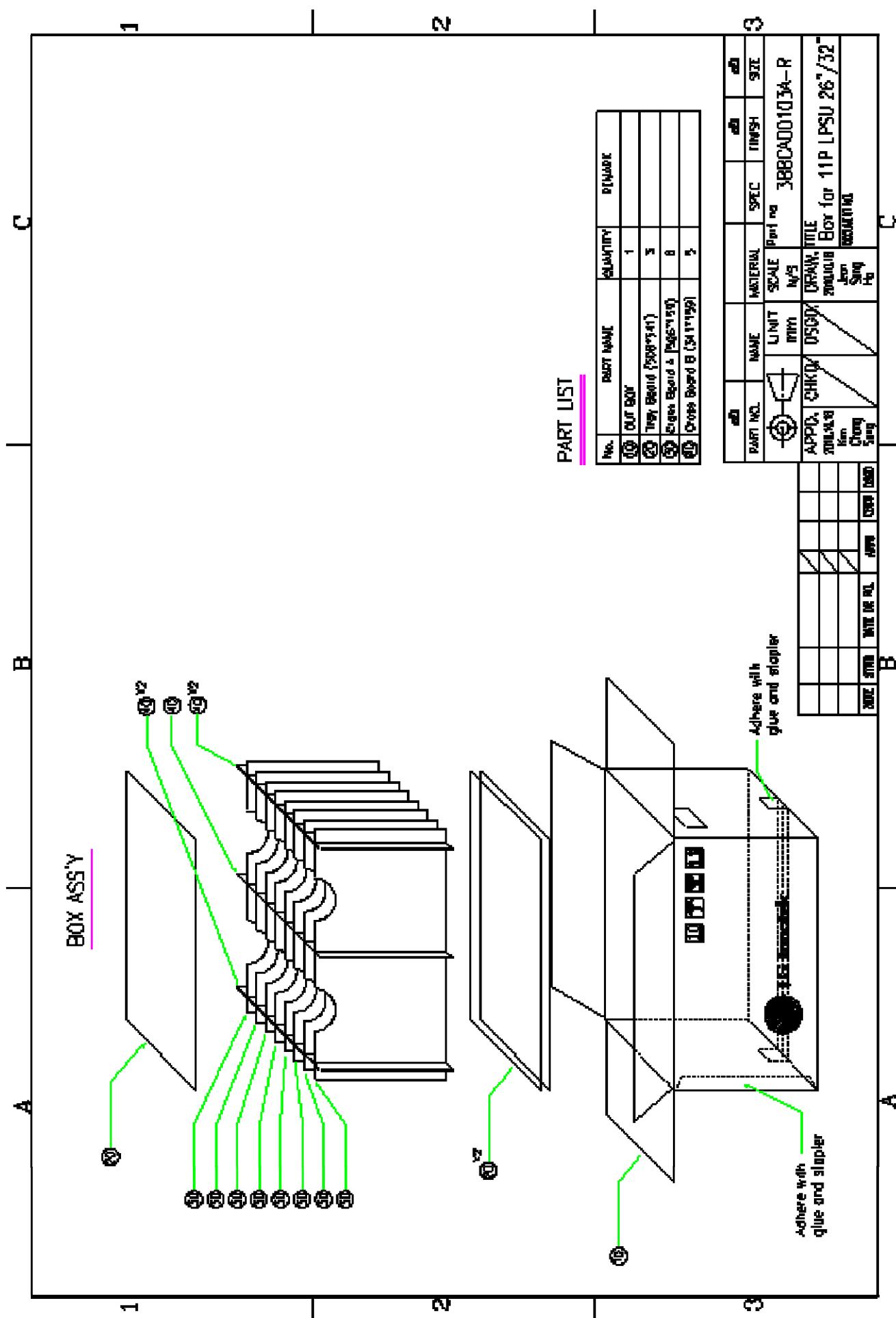


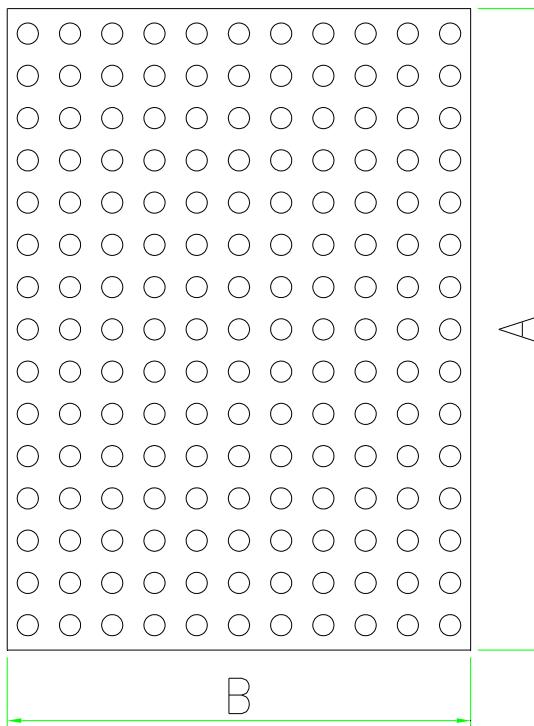
Packing Drawing











NOTE

1. Material : LDPE
2. General tolerance : $^{+5}_{-5}$
3. COLOR : PINK
4. Antistatic finishing
5. Surface Resistance : $10^6 \sim 10^{11}$ Ohm/SQ
6. All parts must not contain prohibited substances including RoHS hazardous substances (Pb, Cd, Hg, Cr+6, PBB, PBDE) and for more details refer to LGIT's Eco-SCM standard, LGIT (30)-K-029.

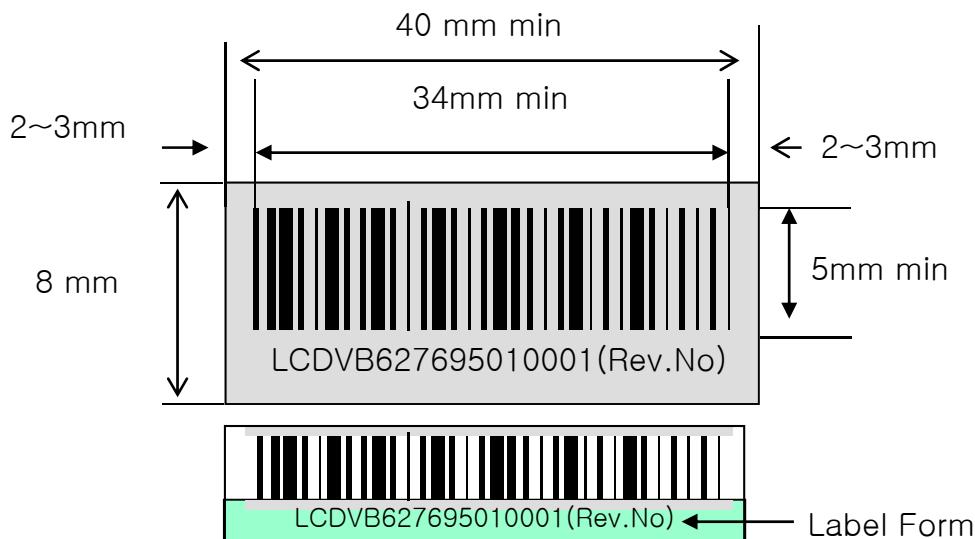
Part NO.	Thickness	"A"	"B"	Application Model	LGIT PCB Part Number
A	4 ± 1.5	470	225	LPSU 26"/32"(200L*155W*22H)	3EBDB0001A-R
B	4 ± 1.5	720	180	LPSU 37"(246L*155W*22H)	3EBDB0002A-R

PART NO.	NAME	MATERIAL	SPEC.		FINISH	SIZE
					UNIT mm	SCALE NS
			APPD. 10.10.15	CHKD. Kim Chang Sung	DSGD.	DRAW. 10.10.15 Jeon Sung Ho
ZONE	SYMB	DATE OR NO.	APPD	CHKD	DSGD	TITLE Air Vinyl for 11P DOCUMENT NO. _____

LG Innotek Co., Ltd.

Bar-Code Label Drawing

LGP32-12P (EAY62769501)



* Bar Code Size는 그림의 size가 최소size이며, 업체 기준 및 PCB공간에 따라 변경 할 수 있으나,
그림의 size보다 줄일 수는 없음.

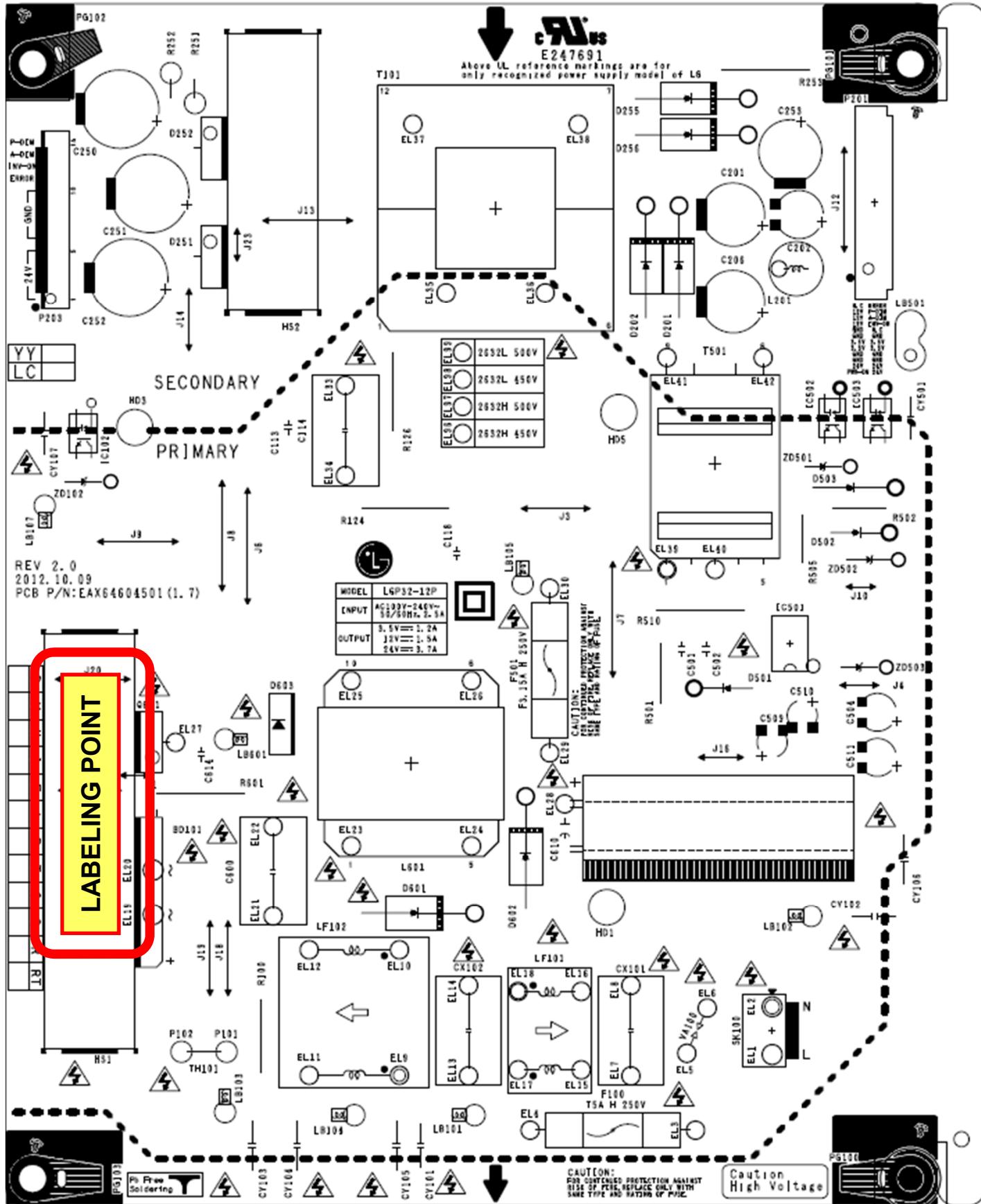
Code	Barcode Specification	Remark
Manufacturing code	L (L : LGIT)	
Manufacturing Year	C (A : 2010, B : 2011, C : 2012, ...)	
Manufacturing Month	2 (1,2,3,... 10:O, 11:N, 12:D)	
Manufacturing Date	1 (1~9,... A:10, B:11, C:12, ...X:31)	except : I,O
Manufacturing Line	A~D : Gwangju , E~N / 0~9 : Yantai , O~V : Indonesia , X~Z : Poland	
LG Part No.	62769501 (EAY62769501)	
Serial. No.	0001 (10Digit, 0001~9999)	
Rev. No	Approval Sheet Revision Number	
Barcode type : 93 code Barcode length : 17 digit Label size : 8 X 36 mm (minimize)		

* BARCODE PRINTING : DO NOT ERASE, WHEN RUB BY HAND.

* Label P/N : 3320KE0008B
 Ribbon Black R300 P/N : 5250KR0011A

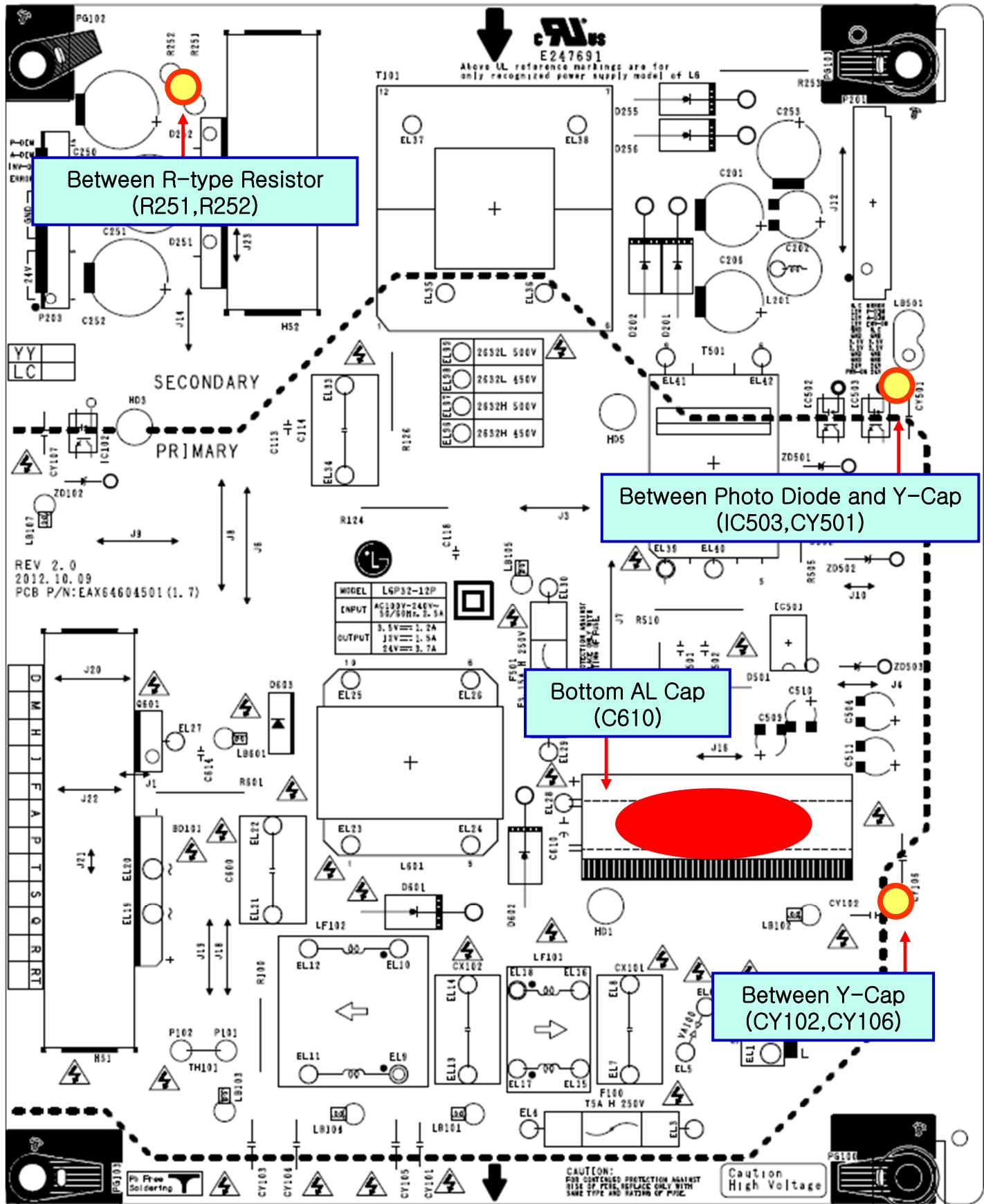
Labeling Point

LABELING POINT

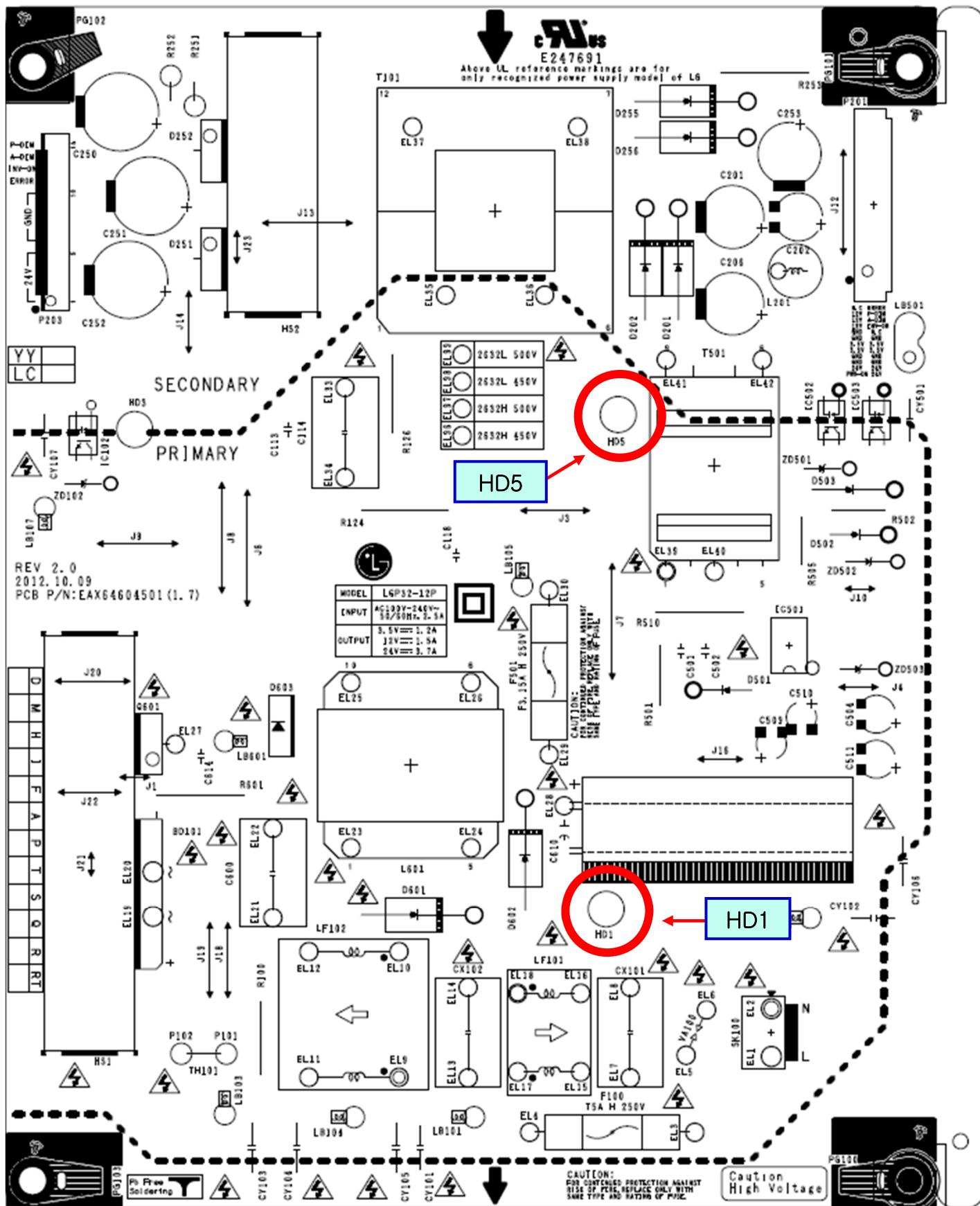


Workmanship Point

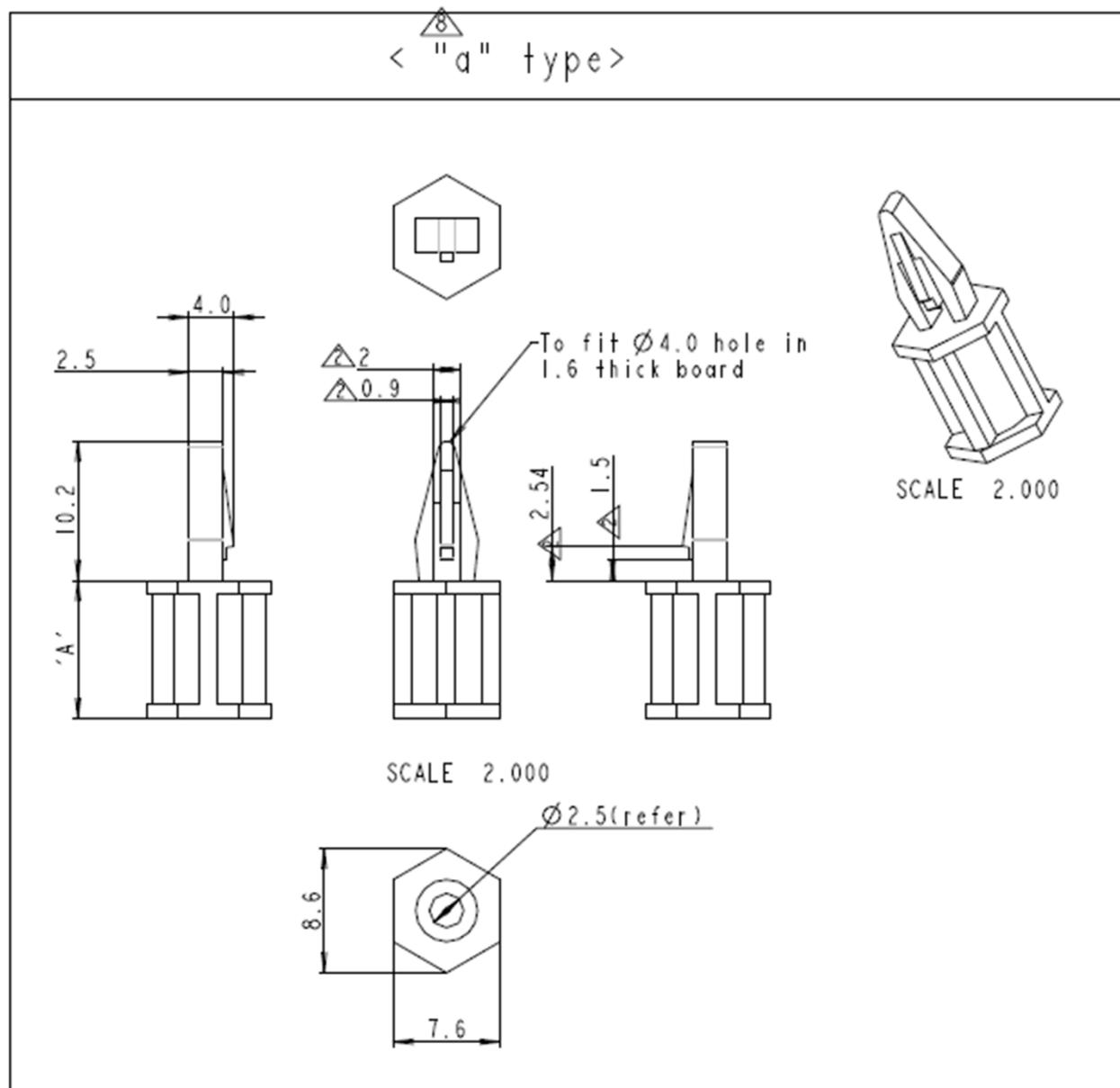
1. Silicone Bonding Point (Component side , Component Bottom)



2. Power Holder



Power Holder Drawing



Manufacturing Process

작업 번호 No.	작업 단계 Process Step	작업 내용 Process Description	MAN (사람) Human	Machine (기계) Machine	Material (자료) Material	4M	
						Method (방법) Method	Tool (도구) Tool
1	[Incoming material] 	제작 모델의 부품부피와 수량을 확인하고 D.O.I. 허가 후 [5]에 이동하자. 라벨프린터, 스크린	작업대, 이동자자, 라벨프린터, 스크린	부품	수량 표기상태, 부번 [6] 상태, 일자 이어답터: 3.0mm ~ 0.1mm	제조장고 오염리스트 물을 채운 관리 리스트	
2	[Extract] 	POB에 Extract GT Pin을 써보	Extract MC	Extract	Programing, 모듈형 쪽인 상이 표지 표지 조정 기종: 3.0mm ~ 0.1mm	일상검표 기종: 3.0mm ~ 0.1mm 초점: 3.0mm ~ 0.1mm 수단일보	
3	[Jump Wire] 	POB에 Jump Wire를 삽입 후 클립장	Jump Wire MC 버나이 퀘리스 각도: 90도	Jump Wire	Cinchring 길이: 55.0~2mm Cinchring 각도: 15~35° 중복: 상이, 미설정을 것	일상검표 부품: 수리모드 수단일보	
4	[Sequence] 	Axial 자제를 순서와 규정에 맞게 Tag로 연결	Sequence MC 버나이 퀘리스	Axial 부품 Sequence	타이핑 카수: 54~55mm 부품: 차운점: 0.2mm 이내 부품: 간격: 5mm	일상검표 기종: 3.0mm ~ 0.1mm	
5	[Axial] 	POB에 Axial 부품을 삽입 후 클립장	Axial MC 버전: 1.0(A0) 각도: 90도 버나이 퀘리스	부품 Sequence	Cinchring 길이: 1.5mm Cinchring 각도: 15~35° 털상: 미설정하지 않을 것	일상검표 기종: 3.0mm ~ 0.1mm 수단일보	
6	[이동 자재] 	POB에 이동 자재를 삽입 후 클립장	M10 MC 버나이 퀘리스	이동 부품	Cinchring 길이: 1.5mm Cinchring 각도: 15~35° 부품: 미설정하지 않을 것	일상검표 기종: 3.0mm ~ 0.1mm 초점: 3.0mm ~ 0.1mm 수단일보	
7	[Radial] 	POB에 Radial 부품을 삽입 후 클립장	Radial MC 버나이 퀘리스 버전: 1.0(A0)	Radial 부품	특이 부품: 브랜, 용접, 단열, 위치 확인 Cinchring 각도: 15~35° POB와 극을 맞추	일상검표 기종: 3.0mm ~ 0.1mm 수단일보	

* Process Symbols : △(Incoming), ○(Working Flow Chart), ◇(Inspection), □(Packing), ▷(Delivery)

작업부호		작업내용		MAN (시립)		Machine (장비)		Material (재료)		Method (방법)	
1	△	[자작 준비]	[자작 준비]	해당 모델의 부품 부번과 수수께끼를 확인하고 Do(체크 후 Tr(체크)]		입고도장 제습함 부품보관대(이동식 바코드 스크린)	부품	수령, 포장선택, 배번, Lot 상태, 일자, LGT PIN Label 확인 BOM(MSD Level)		제조 청그 요청 리스트 별별 출고 관리 리스트	
2	○	[Solder Cream]	Solder Cream 보관 및 사용			냉장고 Thermometer	Amit [LM-40W TM-HPI(L) Sn-Ag0.5-Cu0.5	온도 관리 온도 : 1~10°C -미가봉(나) 생활시 6개월까지 사용 가능 상온차 24개월 상 교반시간 60초 ~ 120초	냉장 온도 관리 Sheet 고리별 사용 이력 관리		
3	○	[Chip Bond]	Chip bond 보관 및 사용			냉장고 Thermometer	Chip Bond	온도 관리 온도 : 1~10°C 상온차 24개월 상 교반시간 60초 ~ 120초	일상점검표 수리일보		
4	○	[본드 인식]	Stencil Mask를 Prebake에 정착하고 그위에 Bond를 투입한 후 PCB를 바닥에 부터 금속 밤이 Squeegee로 침입차리를 쟁취 치에 대해			Mask Bond 인쇄기 Squeegee	Chip Bond	마스크 베이지 Mask 두께 : 3.0T 2012 훌 사이즈 0.8mm 3216 훌 사이즈 1.2mm 침착차량 고열량 : HT-300L 소도 생활시 특약량 : 300g 24마다 양체크 후 보송 : 100g~250g	마스크 일정시 확인 마스크 베이지		
S	M	T						스케줄의 일정과 속도 조정(조건표) 인쇄 상태 확인 Squeegee No. (조건표) 마스크 배착	모듈별 조건표 교대/기증전확인 Sheet Manual 세척 이력 관리 Sheet		
5	○	[Chip Mount]	첨 봉ディング PCB 위에 Chip 장착			Chip Mounter	부품	BOM 도면 확인 자체 교환 Check Mounting 상태 확인 Pick-up 상태 확인 OK, NG Sample로 준비 검증	초점검사일자 MES DA 고대/기증전확인 Sheet 부품 Loss율 기록표 일상점검표		
6	○	[D형 Mount]	첨 봉딩된 PCB 위에 Chip 장착 PCB에 정착된 부품 상의 상태 검사(AOI)			Multi Mounter AOI	부품	BOM 도면 확인 자체 교환 Check Mounting 상태 확인 Pick-up 상태 확인 OK, NG Sample로 준비 검증	초점검사일자 MES DA 고대/기증전확인 Sheet 부품 Loss율 기록표 AI 검사 불량 관리 Sheet 일상점검표		
6	○	[Reflow]	PCB에 부착된 부품을 고정하기 위해 접착제를 경착					생산 모델과 프로그램을 일치 할 것. 프로그램 파일 노드 조건표와 프로그램 파일 최고 온도 : 140도 이하 / 1200온도time : 70~100초	작업지 도서 온도 조건표 파일 일상점검표 고대/기증전확인 Sheet		
6	○							Ohio 접착 강도 1608 : 1.0gf 이상 2012 : 3gf 이상 3216 : 1.5gf 이상	접착 강도 측정 Sheet		

* Process Symbols : △(Incoming), ○ (Working Flow Chart), ◇ (Inspection), □ (Packaging), ▷ (Delivery)

공정번호	공정 흐름 도	공정 명	작업내용	MAN (사람)	Machine (설비)	Material (재료)	4M		Method (방법)
							인고도장 체험합 부품교대 이동대차	부품	
1	△	[자재 준비]	해당 모델의 부품 부여 및 수령 확인하고 Box 해제 후 Lay Out 상태 확인				수령 표 증명서 부번, Lot 상태, 일자, LGIT/N Label 확인		제조 공정 요청 리스트 설명서 및 출고 관리 리스트
2	○	[Manual Insertion]	비코드 리밸 밸류	PC	Barcode 리밸 프린터 스캐너		리밸 검증	MES 작업지 도서	
3	○	[수납공정]	PCB에 부품 삽입			수납 컨테이너 납품지 그 부풀리세 대부품 대차 마개진 PC 스케이	PCB 평판 확인 부품 삽입 확인 리밸 설치 내 상황 슬리콘 구역 도포 설치	작업지 도서 외관 검사 기준 설정 점검 표 제작지 도서 외관 검사 기준 설정 점검 표 제작지 도서	
4	○	[Flux공정]	PCB 하단에 Flux 분사		Flux MIC 비충전	Flux	Flux 비중: 0.823±0.005 Flux 분포 상태 확인	Flux 점검 표	
5	○	[WaveSoldering 공정]	Soldering	Wave Soldering MIC Solder 사용 공급 Wave Checker	Solder	제품	Preheater온도: 110±10°C Pot 1A: 25±3°C Pot 2A: 25±3°C DPU 체크 -O: 12,000 ppm -Pb: 800 ppm 이하 DPU 관리	Soldering 일상 점검 일지 작업지 도서	
5	○	[Flux 공정]	PCB에 정착된 부품 상태 검사		ICT M/C(AT-01) Fixture PC	제품	인도기 인도기 온도 설정 수정 컨테이너	외관 검사 기준 인도기 온도 30±20°C 누설전류: 10mA 이하	외관 검사 기준 인도기 온도 설정 제작지 도서
6	◇	[Flux 공정]	Soldering 된 제품 납땜 상태 검사 및 수정		Fixture Inline 설비 PC Barcode Scanner	제품	모델명, 프로그램 확인 부품 구격 확인	일상점검 표 제작지 도서 BOM	
7	◇	[통작검사]	제품 통작 검사		Fixture Inline 설비 PC Barcode Scanner	제품	모델명, 공정 확인 Check Sum 확인 제작지 품질 특성 Spec 제작지 품질 OK/NG 확인	MES Program 자동 확인 송수신 체크 특성 Spec 일상점검 표	
8	◇	[내입검사]	제품 내입 검사		Fixture 내입기 Inline 설비	제품	표준 험로 OK/NG 확인 내입 검사 험로	승인원(내입 Spec) 일상점검 표	
9	○	[실리콘도포]	실리콘 도포		Disperser	제품	제품별 도포 위치	작업지 도서 일상점검 표	
10	◇	[Aging공정]	제품 Aging 검사		Aging MIC Select Card 유사부위 Cable	제품	운도 시간 확인 합격 기준 확인	MES 작업지 도서 일상점검 표	외관 검사 기준 작업지 도서
11	◇	[최종외관검사]	제품 외관 검사			제품	외관검사 기준을 참고 하여 검사	MES Program 자동 확인 송수신 체크 특성 Spec 일상점검 표	
12	◇	[특성검사]	제품 특성 검사		Fixture Inline 설비 PC Barcode Scanner	제품	모델명, 공정 확인 제작지 품질 특성 Spec 표준 험로 OK/NG 확인	MES Program 자동 확인 송수신 체크 특성 Spec 일상점검 표	
13	□	[포장]	제품 포장		Barcode Scanner PC	제품 Box 에어비닐	모델명, Barcode 확인	MES 작업지 도서	

Appendix List

No.	Contents
1	POWER Check list
2	Warranty letter

Appendix 1.

POWER CHECK LIST

Revision History		Rev	DATE	REMARK
1	기존 PCB Check Sheet Ver1.9에서 신규 Power Check Sheet Ver1.0 으로 개정 함	1.0	2011.06.02	

Details Check Item		RESULT		REMARK
▶ 부품 LOCATION NO.		OK	NG	
1	Power 1차측 회로 Location No.가 100번대 일 것(Multi 1 차측 포함)	OK		JUMPER는 제외됨.
2	Power 2차측 회로 Location No.가 200번대 일 것(Stand by 2차측, Multi 2차 포함)	OK		JUMPER는 제외됨.
3	Inverter 1차측 회로 Location No.가 300번대 일 것	OK		Inverter 회로 없음.
4	Inverter 2차측 회로(F/B,OVP회로부 포함) Location No.가 400번대 일 것	OK		Inverter 회로 없음.
5	Stand by 1차측은 Location No.가 500번대 일 것	OK		JUMPER는 제외됨.
6	PFC단은 Location No.가 600번대 일 것	OK		JUMPER는 제외됨.
7	MICOM 주위는 Location No.가 700번대 일 것	OK		해당사항 없음
8	LCD : LED Driver 단은 Location No.가 800번대 일 것	OK		LCD 에만 적용함
9	PDP : STBY 1,2차단은 Location No.가 300번대 일 것	OK		PDP 에만 적용함
10	PDP : Va 2차단은 Location No.가 500번대 일 것	OK		PDP 에만 적용함
11	PDP : Vs 2차단은 Location No.가 900번대 일 것	OK		PDP 에만 적용함
12	PDP : Vs,Va 1차단은 Location No.가 800번대 일 것	OK		PDP 에만 적용함
13	CTV : Power Block은 Location No. 800번대 일 것	OK		CTV 에만 적용함
14	Resistor의 회로Location No.는 R***로 시작할 것	OK		
15	Capacitor의 회로Location No.는 C***로 시작할 것	OK		
16	Diode의 회로Location No.는 D***로 시작할 것	OK		
17	Zener Diode의 회로Location No는 ZD***로 시작할 것	OK		
18	Coil의 회로Location No.는 L***로 시작할 것 (PFC 포함)	OK		
19	Transformer의 회로Location No.는 T***로 시작할 것 (Drive Trans 포함)	OK		
20	Bead의 회로Location No.는 LB***로 시작할 것	OK		
21	Fuse의 회로Location No.는 F***로 시작할 것	OK		
22	TR/FET/Thyristor의 회로Location No.는 Q***로 시작할 것	OK		
23	Varistor의 회로Location No.는 VA***로 시작할 것	OK		
24	Volume Resistor의 회로Location No.는 VR***로 시작할 것	OK		해당사항 없음
25	Jumper의 회로Location No.는 J***로 시작할 것	OK		
26	H/S의 회로Location No.는 HS***로 시작할 것	OK		
27	IC의 회로Location No.는 IC***로 시작할 것	OK		2007.04.16 DDC 표준

Details Check Item		RESULT		REMARK
▶ 부품 LOCATION NO.		OK	NG	
28	Connector wafer / Ass'y (Board in type)의 회로 Location No.는 P***로 시작할 것	OK		
29	Eyelet의 회로 Location No.는 EL***로 시작할 것	OK		
30	Gripper의 회로 Location No.는 G***로 시작할 것	OK		해당사항 없음
31	Holder의 회로 Location No.는 HD***로 시작할 것	OK		
32	Thermistor의 회로 Location No는 TH***로 시작할 것	OK		
33	Metal Ground의 회로 Location No.는 PG***로 시작할 것	OK		
34	Line Filter의 회로 Location No.는 LF***로 시작할 것	OK		
35	AC Socket(Inlet)의 회로 Location No.는 SK***로 시작할 것 (AC전원 Docking용 Wafer 포함)	OK		2007.04.16 DDC 표준
36	Photo Coupler의 회로 Location No는 IC***로 시작할 것	OK		2007.04.16 DDC 표준
37	Relay의 회로 Location No.는 RL***로 시작할 것	OK		해당사항 없음
38	Y-Capacitor의 회로 Location No는 CY***로 시작할 것	OK		
39	X-Capacitor의 회로 Location No는 CX***로 시작할 것	OK		
40	Fuseble Resistor의 회로 Location No는 R***로 시작할 것	OK		해당사항 없음
▶ PCB Pattern 간격		OK	NG	
1	Primary ⇌ Secondary(GND, Y-Cap, Photo Coupler) 간격이 Creepage 기준을 만족할 것.(규격Gr. 안전규격 Check List 참조.NOTE 0) (단, Working Voltage가 350V이상일 때 규격 요청 거리에 따른다.)	OK		첨부화일 참조. (Creepage) NOTE 0  Creepage
2	Primary(L,N) ⇌ Safety GND 간격이 3mm 이상일 것 (단, 2심일 경우 6mm 이상 일 것)	OK		
3	Live ⇌ Neutral 간격이 3mm 이상일 것	OK		
4	Primary ⇌ Secondary 부품간 공간 거리는 6mm 이상일 것 (6mm 이하일 경우에는 insulation sheet 추가)	OK		
5	1차측 Main Current loop는 Pattern 두께 3mm 이상일 것 (BD ⇌ 1차 평활 Cap까지 중점 Check)	OK		
6	PFC Coil 밑으로 소신호 Line이 지나가지 말 것. DC는 문제 없음	OK		
7	주 GND(AC 평활 Cap. GND)에서 IC GND 연결 시 Pattern Impedance 를 고려하여 pattern을 분리 할 것.	OK		
8	DIP Type St-By IC 일 경우 고압Pin과 근접Pin 간의 이격거리 확보 할 것. - Drain pin과 인접된 pin은 N.A나 공 pin 일 것.	OK		

Details Check Item		RESULT		REMARK
▶ Component		OK	NG	
1	Surge Test 시 1~2차간 간격이 6.0mm 이상일 것(safety GND와 2차 GND의 구별 주의 (절연 Y-Cap사용) 공간확보 주의, 절연Sheet)	OK		(주) 3심:3.0mm 이상 (내압 test 必) 2심:6.0mm 이상 (Y-cap 포함)
2	전해 Cap(전수) 부품 주위 발열 부품 과 3mm 이상 이격 시킬 것 (공간거리)	OK		
3	1차 평활 전해 Cap 부품 upper 영역은 1mm이상 Bottom 영역은 5mm 이상 이격 시킬 것 (Vertical type Capacitor에 한함) (Note 1)	OK		PSU가 수직 장착 모델에 한함.
4	1차 평활 Cap 3mm 영역 내 아래로 Pattern이 지나가지는 않을 것 (양면 PCB 상측 Pattern에 한함)	OK		
5	높이가 낮은 코어를 사용할 경우 절연 tape를 사용할 것 (PCB와의 이격거리 확보)	OK		1,2차 절연형 Trans에 한함
6	Trans의 경우 300V 기준으로 Barrier 8mm 이상 사용하고 있을 것 (Note 0) (Barrier를 줄이기 위해 Wire에 Tube 사용가능, 규격 GR. 필 확인 사항)	OK		첨부화일 참조. (Creepage) T501 : 3중 절연 Wire 사용. T101 : Bobbin 형상으로 절연 거리 유지됨.
7	AC Inlet의 경우 Yellow – Green wire의 Screw 3.5Φ 이상 일 것. * Y/G wire를 사용하지 않을 경우, PCB Pattern으로만 대응 시엔 200A Test통과할 것 * Safety GND는 독립적으로 GND역 할만 하도록 할 것. UL Test의뢰 * Pattern 대응 시엔 반드시 규격 확인을 할 것	OK		
8	부품에 힘을 가했을 때 1~2차 부품간 6mm 공간 거리 확보할 것. Core 에 절대로 부품이 접촉되면 안됨	OK		
9	Box type Capacitor 사용 시 Forming type이 적용할 것. RTV Bond가 되어 있을 것 (X-capacitor 포함.) 단, PDP Sony 모델에 한함	OK		관계 없음.
10	CORE(Trans류 All 포함) 주위에는 2mm 이상 전 부품을 이격 시킨다. * 유기전압 1kV (peak to peak) 이상 시엔 4mm 이상 (1000:1 Probe 기준)	OK		
11	Inverter Trans와 Metal Frame(shield)과 4mm 이상 이격을 시킨다. (적용이 어려울 경우, 반드시 Insulation sheet 추가한다.)	OK		Inverter 회로 미적용.
12	2차 측 출력 Wafer 는 고정 PIN 추가 TYPE 적용 할 것 (단, LPB 일 경우 Micom Deberging 용 Wafer 는 제외)	OK		

NOTE 0 
Creepage

NOTE 1 
CAPACITOR

Details Check Item		RESULT		REMARK
▶ 필수 Marking 사항		OK	NG	
1	AC Socket, AC입력용 Wafer에 L/N표시는 되어 있을 것. (Docking Type도 L/N 표시(QA 요청), 상,하측 모두 표시) 특히, Socket B/D-in type의 경우, AC socket 자체에 L/N 표기가 되어 있으므로, 반드시 PCB L/N 마킹과 동일한지 확인한다. (Note 3-2)	OK		Fuse 는 Live 단에 위치 할 것
2	Safety GND는 Chassis로 부터 분리될 때 작업자가 확인 가능한 위치일 것. (Note 2) * 추후, PCB 상,하면에 모두 표기, 상세한 내용은 하단의 유첨 파일 참조 요망, 그리고, 반드시 규격에 최종 확인 받을 것.	OK		2심은 제외함
3	Fuse rating(전압,T,전류,H), caution(규격 문구), UL Mark는 입력되어 있을 것 Ex) T5A H 250V 형식으로 표시함 * caution: UL 에 등록되어있는 문구가 그대로 입력되어야 함 (For ~ , Replace ~)	OK		
4	Fuse가 보이는 곳에 위치할 것 (Fuse Marking도 보이는 곳에..)	OK		
5	High Voltage warning mark가 입력되어 있을 것. - Inverter 출력부 : LIPS에 한함 Inverter 출력부 영역 표시하고 Warning mark 추가. - Primary측 Metal.(H/Sink), High Voltage가 open된 곳. (Fuse) : 공통	OK		
6	입력/출력 전압, 전류 Spec표기는 되어 있을 것 (Note 3)	OK		
7	1차측과 2차측 구분하는 Marking 표시할 것. (상측면 / 하측면)	OK		
8	각 부품의 회로No.가 부품에 가려지지 않을 것	OK		
9	Solder pattern에 하측 회로No./부품 형상 등 겹쳐지지 말 것	OK		
10	기구 Dead Space가 고려되어 PCB Marking할 것. PCB 고정용 Metal 영역 표시할 것.	OK		
11	PCB 사양서에 CTI Spec 이 있는지 확인하고, PCB에 마킹 되었는지 확인 할 것. - 표기 값 : 600V 이상 (CTI 600)	OK		
12	Critical Component List 기준으로 회로도에 Caution 마크 넣을 것	OK		
13	PCB에 Screw 마크 넣을 것	OK		

NOTE 2



Safety GND 규정

NOTE 3



Input/Output

NOTE 3-2



B/D-in socket

Details Check Item		RESULT		REMARK
▶ EMI		OK	NG	
1	Lightning Surge가 L/N Test 시 Varistor를 14Φ 620V 이상 사용할 것	OK		
2	Lightning Surge가 L/G, G/N간 : 3KV이상 시 Y-Cap. Y1급 사용할 것	OK		
3	Lightning Surge로 인해 Fuse Dead시만 OK. (대책 : arcing을 방지, Varistor는 Fuse와 가까운 곳에 위치할 것)	OK		
4	GND Arcing pattern Slit은 1.2mm일 것 Arcing Pattern 양단 거리는 safety규정은 최소 3.0mm 이상 일 것 (L/N 사이)	OK		
5	Conducted Emission 측정조건 : 110Vac/220Vac & 50Hz/60Hz TV Model : GND 有/無, Vivid/Standard, HDMI/Antenna	OK		
▶ INVERTER (LIPS에 한함)		OK	NG	
1	Ballaster capacitor 사용할 것	OK		
2	Inverter Trans로부터 주변 4mm 이내에 소신호 AC pattern이 지나갈 시에는 OVP/OLP 등 Worst 상태를 반드시 확인하여 이상이 없을 것 (Feed Back Line 포함) [AC입력으로부터 Inverter에 간섭 되는 noise 를 줄이기 위해 POWER FET의 Heat Sink 를 형상 변경하여 AC 입력부와 Inverter Trans 간 Shield로 사용. (CE 규제사항) - Design 상 고려되어야 함.]	OK		해당사항 없음
3	Inverter 출력부에 적용한 고압 Capacitor의 Lead는 인위적 힘을 가하여도 주변 부품과 Touch 되지 않도록 절연 거리 확보 or Bonding 적용할 것. (특히, 다른 고압 Capacitor의 body와 touch 되지 않도록 할 것)	OK		해당사항 없음
4	Inverter Trans Gripper 및 Eyelet 부위 Size 확인할 것. – Pin 동박 Size : 5.5mm – Pattern Size 확대 : 6mm (단, 32인치 이상 LIPS 에만 적용함)	OK		해당사항 없음
5	고압 Inverter wafer 는 수평 Type 일 것.	OK		해당사항 없음

Details Check Item		RESULT		REMARK
▶ 기타		OK	NG	
1	Fuse 깡통(CAN)Type 을 사용하지 말 것.	OK		
2	Main Board/Power Board(LIPS 포함) 연결 Connector의 Housing과 Wafer의 Maker가 일치할 것. *일치가 안될 경우, Spec. 확인 및 QA 인증 시험이 요구됨.(특히,Board in connector는 Terminal도 확인)	OK		
3	Litz Wire 사용하지 말 것.	OK		USTC
4	PFC Bypass Diode가 적용되어 있을 것. (Note 4)	OK		첨부화일 참조(Bypass)
5	Inrush 제어용 Relay 적용 모델인 경우, Fusing Resistor 적용 확인할 것.(Note 5) (단, Fusing Resister 미적용 시 Relay Open Test 확인 하여, PL 조건 만족할 것)	OK		첨부화일 참조(Relay) Relay 사용 안 함.
6	1차 Control IC의 IC Vcc 정류Cap.은 High Ripple, Low Impedance Cap. 사용할 것.	OK		
7	RN Type (Metal Film Type) Resistor는 100kohm 이상 사용하지 말 것.	OK		08년 6월 26" MNT ND 분 양산 문제 발생. (여러 차례 재발됨)
8	TO-220, TO-3P type FET, Diode, IC 적용 시, Forming type 을 적용했을 때 forming 후 cutting을 하기 때문에 길이가 짧아진다. 따라서 반드시 Heatsink 와 PDM 등록 승인원, 부품 현 물을 3자 확인 후 lead 길이, pitch 확인할 것. (LGEAZ, LGEND 관련하여 사전 협의 필요 LGEND 에서는 forming type 을 전수 원함)	OK		08년 3월 LGEAZ CKD 분 PQ 이전 문제 발생하여 지급 조처 한 이력 있음.
9	PCB하측 lead 길이 special 관리 모델의 경우 (예를 들어 2.0mm 관리 품) H/Sink, wafer, 각종 부품 도면 받아서 lead 길이 check 할 것	OK		
10	Critical Component List 의 부품인 경우 실물에서 형명 마킹 제대로 되어 있는지 확인 할 것	OK		
11	일본향 모델에 사용되는 방전저항은 규격 인증된 Dip Type 저항만 사용 할 것. (단, 일본향 모델에 한 함)	OK		

NOTE 4



Bypass-Diode

NOTE 5



Relay

Details Check Item		RESULT		REMARK
► Attachment		OK	NG	
1	PL check List  LGP32-12P Safety check list			

Appendix 2.

WARRANTY LETTER

Non-use certificate

Description	<input checked="" type="checkbox"/> For approval <input type="checkbox"/> For mass production	Submitting date	2012. 04. 24
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Cooperating suppliers

Company name	LG Innotek	Approval	Person in charge	Head of department
Contact	Tel 062-950-0232	Name	김 인재	김 형 성
e-Mail	jikim@lginnote.com	Signature		

LGE Part No.	EAY62769501	Part production date	
Maker Part No.	PSLC-L251A	Production plant	
Part name	LGP32-12P		

This is to certify that materials used and contained in the products and components that we supply to your company, meet the standards of the checked items listed below.

_____ below _____

- We meet the standards of LG Electronics Display Division for six major substances (Pb, Cd, Cr⁶⁺, Hg, PBBs, PBDEs) as designated by RoHS for control.

* Records are requested if they are parts to be actually installed on the PCB (Printed Circuit Board)

Soldering Type: Flow (Requirement : 260°C/10 sec) Reflow (Requirement : 250°C/10 sec)

1. Maximum heat-resisting temperature : 260 °C 2. Time within actual Peak time : 10 sec.

- Pb-Free Soldering (all solder cream, Bar, Wires included) is available to apply.

Note.

1. All the contents written on these documents must be created on the basis of facts, and cooperating suppliers must submit the data immediately whenever LG Electronics requests.

2. In the case that these documents are used for approval purposes, cooperating suppliers must submit the sample on the request. For the purpose of mass production, it must be submitted at the time of delivering the first product.

