

Scanning	LIB.

Safety

RoHS

SPECIFICATION FOR APPROVAL

• CUSTOMER : LG Electronics inc.

• ITEM : Power Supply Unit.

• P/NO

Model Name	Customer	Supplier
LGP42-13PL1	EAY62810501	LGP42-13PL1

• DATE : 2013. 08. 07

• Revision : 3.3

• Remark : MP (PCB REV 3.0)

Producing District : **HWASUNG,KOREA** (한국 화성)

(생산지) **QINGDAO,CHINA** (중국 청도)

★ 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)



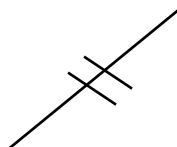
YUYANG DNU

YUYANG DNU CO., LTD

488-1, YULAM-LI, PALTAN-MYEON, HWASUNG-SI, KYONGGI-DO, KOREA
Tel : +82-31-350-7696, Fax : +82-31-350-7595

Documentation For Approval

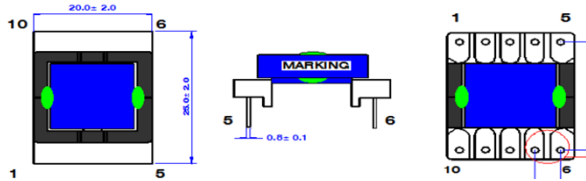
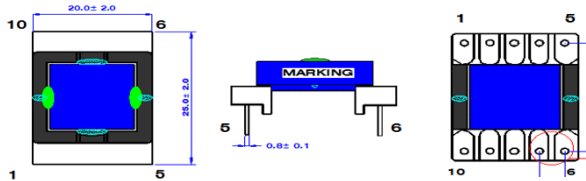
Model Name	Customer	Supplier
LGP42-13PL1	EAY62810501	LGP42-13PL1

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	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	22~28
9	Process Marking	29~30
10	PCB Layout	31~35
11	Safety Parts	36~38
12	Mechanical Drawing	39~43
13	Packing Drawing	44~50
14	Bar-code Label Drawing	51~52
15	Labeling Point	53~54
16	Workmanship Point	55~56
17	Manufacturing Process (Flow-Chart)	57~59
18	* Appendix 1. Power Check list 2. Warranty letter	60~71

Revision History

Rev No.	Contents	Date of Approval	Checked	Remark
0.1	Apply to PV (PCB REV 0.2) PCB P/No : EAX64905301(1.6) PV 1st Edition.	12.10.19	J.H.Shin	
0.2	Apply to PV (PCB REV 0.21) PCB P/No : EAX64905301(1.7) Temperature improvement : HS3 SIZE(32*15*18.3) -> HS3(66*15*18.3) after change Q201 DPAK -> TO-220FP , HS3 assembly Q201 : change components FQPF11P06 (Fairchild), AP9575AGI(APEC) PV 2nd Edition.	12.11.13	J.H.Shin	
0.3	Apply to PV (PCB REV 0.22) PCB P/No : EAX64905301(1.8) PV 3rd Edition.	12.11.26	J.H.Shin	
1.0	Apply to MP (PCB REV 1.0) PCB P/No : EAX64905301(2.0) MP 1st Edition. -Add UL Mark	12.12.07	J.H.Shin	
1.1	Apply to MP (PCB REV 1.0) PCB P/No : EAX64905301(2.0) 1. Improve Audio Noise : Change Bonding position & Side Bond Material - Item : 13S-DD04 - Location : L801 1) Before : Silicon bond 4 Point + Center Bond  2) After : Silicon bond 2 Point + Side bond 6 Point (Three bond 1401)  Apply Time : March 15, 2013 MP Edition.	13.03.15	N.S.LEE	

Revision History

Rev No.	Contents	Date of Approval	Checked	Remark
1.2	Apply to MP (PCB REV 1.0) PCB P/No : EAX64905301(2.0) 1. Add FLUX IONELEC ILF-710 -. Improve operating efficiency 2. Arrange components vendors of cooperation partner -. Arrange application components vendor of Part List. -. Request by LG Task Division. Apply Time : April 12, 2013 MP Edition.	13.04.12	N.S.LEE	
3.0	Apply to MP (PCB REV 3.0) PCB P/No : EAX64905301(2.3) 1. Change PCB -. Improve operating efficiency -. Improve the faulty of Diode Formming -. Secure the separation distance 2. Improve MAP3202 ESD Failure -. Changed Resistor (R801 1kΩ J 1608→ R801 kΩ J 3216) Apply Time : May 16, 2013 MP Edition.	13.05.16	N.S.LEE	
3.1	Apply to MP (PCB REV 3.0) PCB P/No : EAX64905301(2.3) 1. Improve EL-Cap Ripple Current Margin -. Changed EL-Cap (C204,C214 47uF 200V NFK → C204,C214 68uF 160V NFK) Apply Time : June 30, 2013 MP Edition.	13.05.24	N.S.LEE	
3.2	Apply to MP (PCB REV 3.0) PCB P/No : EAX64905301(2.3) 1. Changed aging Test time -. 2 hours→ 1hours Apply Time : Aug 15, 2013 MP Edition.	13.07.11	N.S.LEE	
3.3	Apply to MP (PCB REV 3.0) PCB P/No : EAX64905301(2.3) 1. Change Structure of In let Socket to Assemble Cover Apply Time : Aug 15, 2013 MP Edition.	13.08.07	N.S.LEE	

CTQ Management

No.	Contents	Page
1	2.2 Power Output Characteristics	8
2	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 42 inch LGE LED TV.

1.2 Customers product related items

Product : Power Supply Unit

Part code : EAY62810501

1.3 Product name

Product name : LGP42-13PL1

Revision code : 3.2

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 2.0Arms . (at 100Vac & Nominal Load) Under 1.0Arms . (at 240Vac & Nominal Load)
Nominal Frequency	50 / 60 Hz
Frequency Variation Range	47 Hz to 63 Hz
Phase	Single
Leakage Current	0.35mA_peak. (100Vac ~ 240Vac)
Surge Immunity	$\pm$ 4kV / 1000ns / 0° to 360°
Hold-up Time	More than 20ms at 100Vac and maximum output load ※When it doesn't meet 20ms hold up time, 1. PSU restarts. 2. No hardware failure.(All components)
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 0.4 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	0.3W Under (15mA)	-	-
		1.4A (0.2~1.4A) (ON condition)	± 5%	250 mVp_p
12V	11.4V ~ 12.6V	1.4A (0.2~1.4A)	± 5%	350 mVp_p
24V	21.6V ~ 27.0V	0.6A (0.1~0.6A)	± 10%	500 mVp_p
LED B+	141.8~ 164.3V	0.341A (0.323~0.358A)	± 5%	-

* 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.

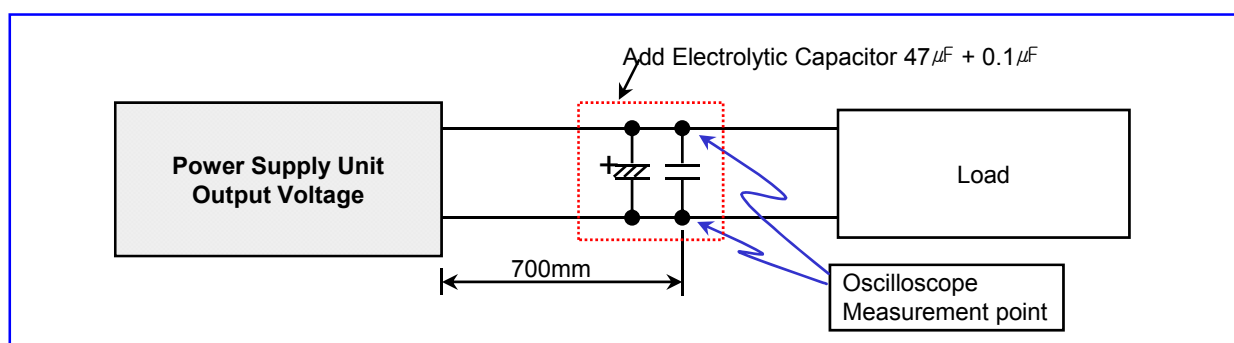
* Total regulation for each output circuit includes the results of input voltage variation, load variation, warm-up drift and temperature change.

* Maximum input Wattage Rating : Under 85W

* 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 0.3W Under (230Vac / 50Hz)		

2.3 Environment Requirement

Operating Temperature Range	-10℃ to 40℃ (60℃: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 %
Power board Storage Condition	Temperature 40℃, Humidity 90%
MTBF (Mean Time Between Failure)	50,000 hour
Cooling Condition	Natural Air
Shock	98 m/s ² Shock test consists of pivoting the power supply, from one edge of it's 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. The test is performed three times on each edge of the bottom side of the power supply

2.4 Dielectric Strength Voltage and Insulation Resistance



Dielectric Strength Voltage	AC 1.5KV or DC 2,121V 1 Min 10 mA (Test SPEC) AC 1.8KV 1 Sec 10 mA (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 1 hours at 45℃(±5℃), 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	High : Vcc ON Low : Vcc OFF

2.7 Product Safety



Safety Standards to be applied	Design to meet the requirements as follows UL60950, IEC60950, 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 400g
Unit Size (typ.)	159(W) X 195(D) X 26.1(H)

2.9 Function of protection

Protection	Output Circuit	Trip point		Notes
		Min	Max	
Over Current	STBY 3.5V	2.0A	15.0A	Auto Re-start
	12V	1.8A	6.0A	Auto Re-start
	24V	1.0A	7.0A	Auto Re-start
Short Circuit	STBY 3.5V	-	-	Auto Re-start
	12V	-	-	Auto Re-start
	24V	-	-	Auto Re-start

- * 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.μ Pa 2.0E-5 Pa

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

Measure Location : Anechoic Room

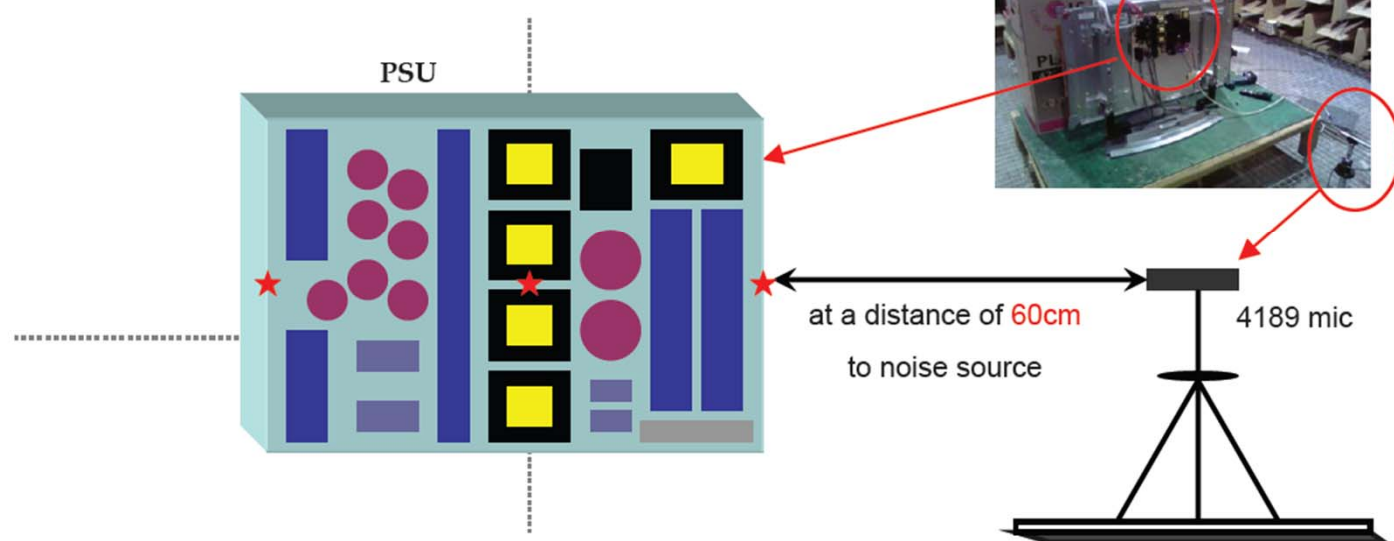
Measure Condition : At a distance of 60cm mic

Full white pattern, at AC 110V/220V

The max specification

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

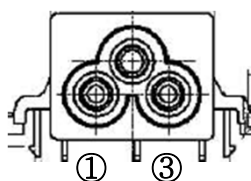
PSU NOISE MEASURE POINT



2.11 Connector Specification

2.11.1 Connectors Usage

SK100 DONGIL TECH (DAC-18C3M1)	
Pin No.	Assignment
1	LIVE
2	GND
3	NEUTRAL



P801 YEONHO (SMAW200A-H07AA2)	
Pin No.	Assignment
1	LED-
2	Remove
3	N.C
4	Remove
5	N.C
6	Remove
7	LED+

P201 YEONHO (SMAW200-H18S2)			
Pin No.	Assignment	Pin No.	Assignment
1	Power on	2	DRV-ON
3	3.5V	4	PDIM #1
5	3.5V	6	N.C
7	GND	8	GND
9	24V	10	24V
11	GND	12	GND
13	12V	14	12V
15	12V	16	N.C
17	GND	18	GND

1) Power board PCB : 159mm × 195mm × 1.6(T)mm
 2) Component height : Max 22.0mm (Except LF101, LF103 , T101 : Max 23.0mm)
 3) Lead Cutting : Max 2.5mm
 4) PCB Material : FR-1 KB,DS,L,R-8700 CTI-600



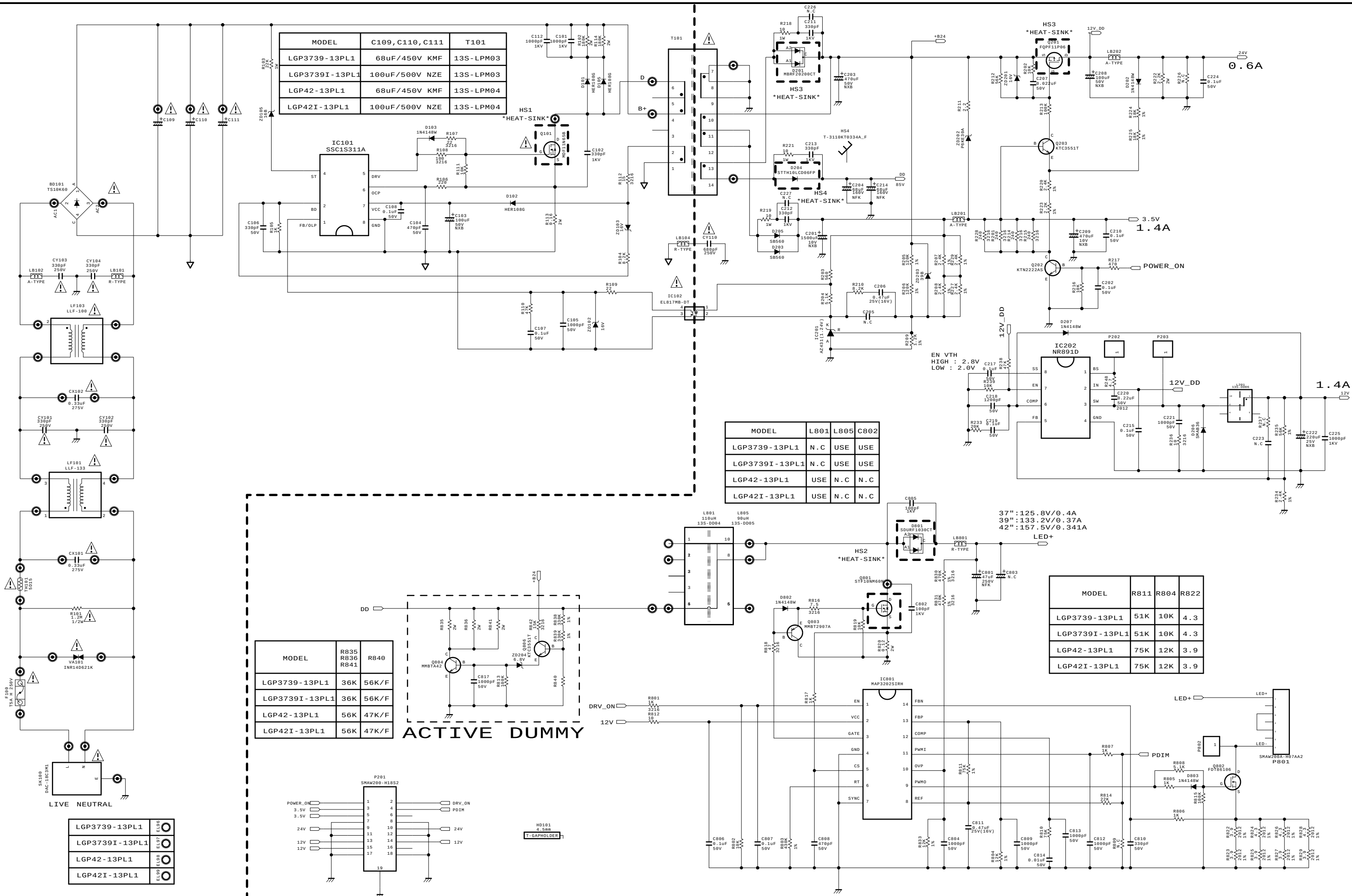
2.14 Electrical Characteristics

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	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. After that, electrical characteristics shall be satisfied. <table><tr><th>Time</th><th>Temperature</th></tr><tr><td>30 minutes</td><td>25℃</td></tr><tr><td>30 minutes</td><td>25℃ -> -20℃</td></tr><tr><td>60 minutes</td><td>Minimum storage temperature (-20℃)</td></tr><tr><td>30 minutes</td><td>-20℃ -> 25℃</td></tr><tr><td>30 minutes</td><td>25℃</td></tr><tr><td>30 minutes</td><td>25℃ -> 70℃</td></tr><tr><td>60 minutes</td><td>Maximum storage temperature (70℃)</td></tr><tr><td>30 minutes</td><td>70℃ -> 25℃</td></tr></table>	Time	Temperature	30 minutes	25℃	30 minutes	25℃ -> -20℃	60 minutes	Minimum storage temperature (-20℃)	30 minutes	-20℃ -> 25℃	30 minutes	25℃	30 minutes	25℃ -> 70℃	60 minutes	Maximum storage temperature (70℃)	30 minutes	70℃ -> 25℃
Time	Temperature																			
30 minutes	25℃																			
30 minutes	25℃ -> -20℃																			
60 minutes	Minimum storage temperature (-20℃)																			
30 minutes	-20℃ -> 25℃																			
30 minutes	25℃																			
30 minutes	25℃ -> 70℃																			
60 minutes	Maximum storage temperature (70℃)																			
30 minutes	70℃ -> 25℃																			
5	Heat shock test	Heat shock test performed under following conditions without applying electricity and then leave them at room temperature and humidity for 1 hour or more. After that, electrical characteristics shall be satisfied. Condition : -45℃(30minutes), 120℃(30minutes), Switching time : Less than 5 minutes, 200 cycles.																		

2.15 Mechanical Characteristics

No.	Test Item	Test method
1	Appearance	There shall be no contaminant or dirt on the switching regulator which has adverse effect on electrical characteristics. There shall be no excessive unevenness or scratches on the plated or painted surface.
2	Vibration	While applying electricity : Vibration frequency : 5 ~ 100Hz Acceleration : 4.9 m/s² Vibration in X,Y,Z direction for 30 minutes While applying electricity : Vibration frequency : 5 ~ 100Hz Acceleration : 14.7 m/s² Vibration in X,Y,Z direction for 30 minutes After that electrical characteristics shall be satisfied. There shall be no damage to appearance and construction.
3	Shock	Shock : 98 m/s² 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. There shall be no damage to appearance and construction.

Schematic Diagram



MODEL	C109, C110, C111	T101
LGP3739-13PL1	68uF/450V KMF	13S-LPM03
LGP3739I-13PL1	100uF/500V NZE	13S-LPM03
LGP42-13PL1	68uF/450V KMF	13S-LPM04
LGP42I-13PL1	100uF/500V NZE	13S-LPM04

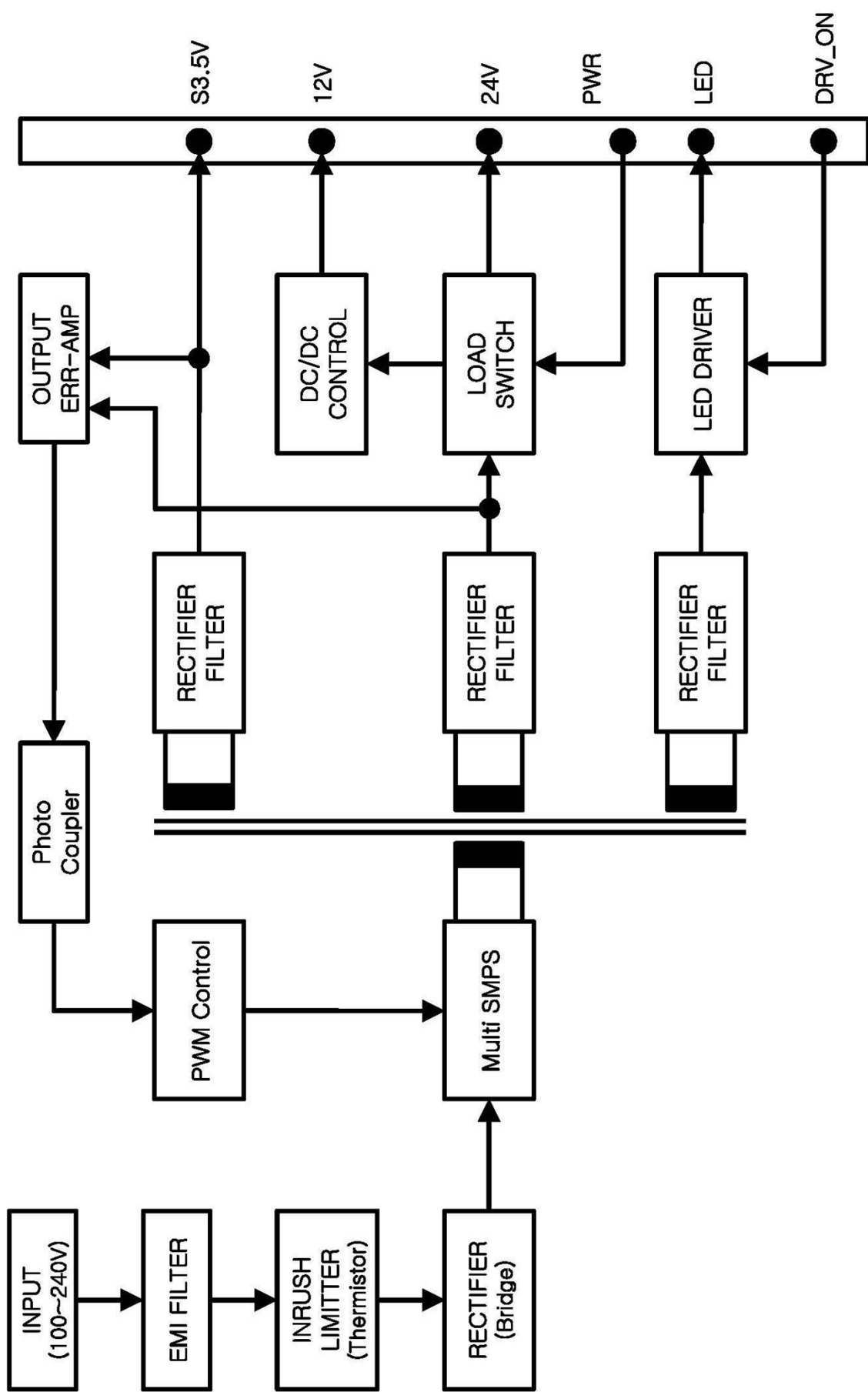
MODEL	L801	L805	C802
LGP3739-13PL1	N.C	USE	USE
LGP3739I-13PL1	N.C	USE	USE
LGP42-13PL1	USE	N.C	N.C
LGP42I-13PL1	USE	N.C	N.C

MODEL	R835 R836 R841	R840
LGP3739-13PL1	36K	56K/F
LGP3739I-13PL1	36K	56K/F
LGP42-13PL1	56K	47K/F
LGP42I-13PL1	56K	47K/F

MODEL	R811	R804	R822
LGP3739-13PL1	51K	10K	4.3
LGP3739I-13PL1	51K	10K	4.3
LGP42-13PL1	75K	12K	3.9
LGP42I-13PL1	75K	12K	3.9

THE ⚠ SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE 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.

Block Diagram



Parts List

LGP42-13PL1(EAY62810501)

						PCB REV 3.0	2013. 05. 23		
NO.	L/V	Q'ty	UNIT	LOCATION	SPECIFICATION	DESCRIPTION	MAKER	신규 부품 여부	신규부품 승인 여부
	MI				FET ASS'Y	HEAT SINK ASS'Y			YY
1	MI	1	EA	HS1	HS1(43*25*18.3)	HEAT SINK	YUWON NRT HUAGUANG		
2	MI	1	EA	Q101	MDF11N65B 650V 12A TO-220F TK8A65D 650V 8A TO-220F	FET	MAGNACHIP TOSHIBA	O O	O O
3	MI	1	EA	FOR Q101	M/S S/W + Φ3.0 7L SILVER PLATE HEAD M/S S/W + Φ3.0 8L PAN HEAD	SCREW	JUNGWOO TANJIN METAL		
4	MI	0.01	GR	FOR Q101	HC300 OKC-5500	SILICON GREASE	CHANG AMLS OKONG		
	MI				FET/DIODE ASS'Y	HEAT SINK ASS'Y			
5	MI	1	EA	HS2	HS2(30*15*18.3)	HEAT SINK	YUWON NRT HUAGUANG		
6	MI	1	EA	Q801	STF10NM60N 650V 10A TO-220FP TK10A60D 600V 10A TO-220F IPA60R600E6 600V 7.3A TO-220FP	FET	STM TOSHIBA INFINION		
7	MI	1	EA	D801	SDURF1030CT 300V 10A ITO-220AB U10A3CIC 300V 10A TO-220IS SFF1005G 300V 10A ITO-220AB	DIODE	SENSITRON KEC TSC	O O O	O O O
8	MI	2	EA	FOR Q801,D801	M/S S/W + Φ3.0 7L SILVER PLATE HEAD M/S S/W + Φ3.0 8L PAN HEAD	SCREW	JUNGWOO TANJIN METAL		
9	MI	0.02	GR	FOR Q801,D801	HC300 OKC-5500	SILICON GREASE	CHANG AMLS OKONG		
	MI				FET/DIODE ASS'Y	HEAT SINK ASS'Y			
5	MI	1	EA	HS3	HS3(66*15*18.3)	HEAT SINK	YUWON NRT HUAGUANG		
6	MI	1	EA	D201	MBRF20200CT 200V 20A ITO-220AB MBRF20U200CT 200V 20A TO-220IS MBRF20200CT 200V 20A ITO-220AB	DIODE	SENSITRON KEC TSC	O	O
7	MI	1	EA	Q201	FQPF11P06 -60V -8.6A TO-220F AP9575AGI -60 -15A TO-220CFM	FET	FAIRCHILD APEC	O O	O O
8	MI	2	EA	FOR D201,Q201	M/S S/W + Φ3.0 7L SILVER PLATE HEAD M/S S/W + Φ3.0 8L PAN HEAD	SCREW	JUNGWOO TANJIN METAL		
9	MI	0.02	GR	FOR D201,Q201	HC300 OKC-5500	SILICON GREASE	CHANG AMLS OKONG		
	MI				DIODE ASS'Y	HEAT SINK ASS'Y			
10	MI	1	EA	HS4	HS4(15*11*21)	HEAT SINK	YUWON NRT HUAGUANG		
11	MI	1	EA	D204	STTH10LCD06 600V 10A TO-220F BYV29FX-600 600V 9A TO-220F	DIODE	STM NXP		
12	MI	1	EA	FOR D204	M/S S/W + Φ3.0 7L SILVER PLATE HEAD M/S S/W + Φ3.0 8L PAN HEAD	SCREW	JUNGWOO TANJIN METAL		

13	MI	0.01	GR	FOR D204	HC300 OKC-5500	SILICON GREASE	CHANG AMLS OKONG		
	MI				LGP42-13PL1 MI COMPONENTS	MI ASS'Y			
14	MI	1	EA	BD101	TS10K60 600V 10A KBJ1006G 600V 10A D10XB60 600V 10A D10XB60 600V 10A	DIODE	TSC LITEON DACHANG SHINDENGEN	O	O
15	MI	3	EA	C109,C110,C111	KMF 68uF 450V M RB P7.5 Φ18X31.5 SK 68uF 450V M RB P7.5 Φ18X30	CAPACITOR, ALUMINUM	SAMYOUNG SUSCON		
16	MI	2	EA	CX101,CX102	PCX2 337 0.33uF 275V P15 MPX 0.33uF 275V P15	CAPACITOR, FILM	PILKOR EUROPTRONIC		
17	MI	2	EA	D203,D205	SB560 60V 5A P20 SB560 60V 5A P20	DIODE	DACHANG LITEON		
18	MI	1	EA	F100	T5A H 250V 215 RED(1-LINE) T5A H 250V 50CT RED(1-LINE)	FUSE, TIME LAG	LITTELFUSE Dainfuse		
19	MI	1	EA	IC102	EL817MB(DT) LTV817M-BN	IC-SHUNT REGULATOR	EVERLIGHT LITEON		
20	MI	1	EA	TH101	DSC5D15 5Ω 8A Φ15 IN, OUT FORMING MF72-5D15 5Ω 7A Φ15 OUT FORMING WTR15D5 5Ω 8A Φ15 OUT FORMING	THERMISTOR	DSC NSE Xiamen Wanming		
21	MI	1	EA	IC202	NR891D DIP-8	IC-DC DC	SANKEN	O	O
22	MI	1	EA	PG101	JS-12-75-04 SPCC 0.4T GND PIN	GND REINFORCE	SAMSUNG JS		
23	MI	1	EA	L201	13S-DD06 EE1614	CHOKE	FEELUX JIANGSU CHANNELON	O O	O O
24	MI	1	EA	L801	13S-DD04 110uH EFD2020	CHOKE	FEELUX JIANGSU CHANNELON	O O	O O
25	MI	1	EA	LF101	LLF-133 18mH LLF-133 18mH CV625180SH(HF) 18mH LSD025180 18mH	LINE FILTER	FEELUX JIANGSU CHANNELON TNC DONGIL TECH	O O O O	O O O O
26	MI	1	EA	LF103	LLF-100, 7.7mH SQ2424	LINE FILTER	FEELUX JIANGSU CHANNELON SOOJUNG	O	O
27	MI	1	EA	T101	13S-LPM04 240uH EED4020	TRANSFORMER	FEELUX JIANGSU CHANNELON	O O	O O
28	MI	1	EA	VA101	INR14D621K-CAP 620V Φ14 TUBE WMR14D621K 620V Φ14 TUBE SVC621D-14ATW7 620V Φ14 TUBE NFC14D621KO037WC 620V Φ14 TUBE	VARISTOR	AMOTECH Xiamen Wanming SAMWHA NFC		
29	MI	1	EA	SK100	DAC-18C3M1C BLACK	AC SOCKET	DONGIL TECH	O	O
30	MI	1	EA	P201	SMAW200-H18S2 18PIN WHITE	WAFER	YEONHO	O	O
31	MI	1	EA	P801	SMAW200A-H07AA2 4PIN WHITE	WAFER	YEONHO	O	O
	SMT				LGP42-13PL1 SMD COMPONENT	SMT ASS'Y			
32	SMT	2	EA	C106,C810	330pF 50V J 1608 COG	CAPACITOR, CHIP	MURATA SAMWHA TDK YAGEO		
33	SMT	2	EA	C104,C808	470pF 50V J 1608 COG	CAPACITOR, CHIP	MURATA SAMWHA TDK YAGEO		
34	SMT	7	EA	C105,C221,C804,C809,C812, C813,C817	1000pF 50V K 1608 X7R	CAPACITOR, CHIP	MURATA SAMWHA TDK YAGEO		
35	SMT	1	EA	C218	1200pF 50V K 1608 X7R	CAPACITOR, CHIP	MURATA SAMWHA TDK YAGEO		
36	SMT	1	EA	C814	0.010uF 50V K 1608 X7R	CAPACITOR, CHIP	MURATA SAMWHA TDK YAGEO		
37	SMT	10	EA	C107,C108,C202,C210,C215, C217,C219,C224,C806,C807	0.1uF 50V K 1608 X7R	CAPACITOR, CHIP	MURATA SAMWHA TDK YAGEO		
38	SMT	2	EA	C206,C811	0.47uF 16V K 1608 X7R / 0.47uF 25V K 1608 X7R	CAPACITOR, CHIP	MURATA SAMWHA TDK YAGEO		

39	SMT	1	EA	C207	0.022uF 50V K 1608 X7R	CAPACITOR, CHIP	MURATA SAMWHA TDK YAGEO		
40	SMT	1	EA	C220	0.22uF 50V K 2012 X7R	CAPACITOR, CHIP	MURATA SAMWHA TDK YAGEO		
41	SMT	5	EA	D103,D202,D207,D802,D803	1N4148W 100V 150mA SOD-123 1N4148W 100V 150mA SOD-123 MMSD4148T1 100V 200mA SOD-123 SDS4148G 100V 150mA SOD-123 1N4148W 100V 150mA SOD-123	DIODE	RECTRON DIODES ONSEMI AUK TSC		
42	SMT	1	EA	D206	SMAB36 60V 3A B360A 60V 3A	DIODE	KEC DIODES	O O O	O O O
43	SMT	1	EA	ZD204	BZT52C6V8S 6.8V SOD-323 MMSZ5235BS 6.8V SOD-323 MM3Z6V8ST1G 6.8V SOD-323 BZT52C6V8S 6.8V SOD-323 KDZ6.8V 6.8V SOD-323	DIODE, ZENER	DIODES RECTRON ONSEMI TSC KEC	O	O
44	SMT	1	EA	ZD203	BZT52C39S 39V SOD-323 MMSZ5259BS 39V SOD-323 MM3Z39VST1G 39V SOD-323 BZT52C39S 39V SOD-323 UDZV39B 39V SOD-323	DIODE, ZENER	DIODES RECTRON ONSEMI TSC ROHM	O	O
46	SMT	1	EA	Q802	PF610BL 100V 0.9A SOT-223 STN4NF20L 200V 1A SOT-223 MDHT4N20Y 200V 0.85A SOT-223	FET	NIKO-SEM STM MAGNACHIP	O	O
47	SMT	2	EA	Q203,Q806	BCW66GLT SOT-23 NPN KTC3551T 80V 1A TSM NPN 2SC5865 SOT-23 NPN	TRANSISTOR	ONSEMI KEC ROHM		
48	SMT	1	EA	Q202	MMBT2222A 40V 600mA SOT-23 NPN KTN2222AS 40V 600mA SOT-23 NPN SBT2222A 40V 600mA SOT-23 NPN MMBT2222A 40V 600mA SOT-23 NPN	TRANSISTOR	ONSEMI KEC AUK TSC	O	O
49	SMT	1	EA	Q803	MMBT2907A -60V -600mA SOT-23 PNP KTN2907AS -60V -600mA SOT-23 PNP SBT2907A -60V -600mA SOT-23 PNP MMBT2907A -60V -600mA SOT-23 PNP	TRANSISTOR	ONSEMI KEC AUK TSC	O	O
50	SMT	1	EA	Q804	MMBTA42 300V 0.5A SOT-23 NPN MMBTA42 300V 0.5A SOT-23 NPN	TRANSISTOR	KEC ONSEMI		
51	SMT	1	EA	IC101	SSC1S311A, SOIC-7	IC	SANKEN		
52	SMT	1	EA	IC801	MAP3202SIRH, SOIC-14	IC	MAGNACHIP	O	O
53	SMT	1	EA	IC201	SJ432BS 1.24V ±0.5% SOT-23 AZ431LANTR-E1 1.24V±0.5% SOT-23	IC	AUK BCD		
54	SMT	1	EA	R211	2.2Ω J 1608	RESISTOR, CHIP	PILKOR YAGEO		
55	SMT	1	EA	R248	4.7Ω J 1608	RESISTOR, CHIP	PILKOR YAGEO		
56	SMT	1	EA	R812	10Ω J 1608	RESISTOR, CHIP	PILKOR YAGEO		
57	SMT	1	EA	R109	22Ω J 1608	RESISTOR, CHIP	PILKOR YAGEO		
58	SMT	1	EA	R106	220Ω J 1608	RESISTOR, CHIP	PILKOR YAGEO		
59	SMT	1	EA	R217	470Ω J 1608	RESISTOR, CHIP	PILKOR YAGEO		
60	SMT	1	EA	R203	560Ω J 1608	RESISTOR, CHIP	PILKOR YAGEO		
61	SMT	5	EA	R105,R805,R806,R807,R817	1KΩ J 1608	RESISTOR, CHIP	PILKOR YAGEO		
62	SMT	2	EA	R204,R808	5.1KΩ J 1608	RESISTOR, CHIP	PILKOR YAGEO		
63	SMT	2	EA	R104,R210	8.2KΩ J 1608	RESISTOR, CHIP	PILKOR YAGEO		
64	SMT	6	EA	R111,R202,R216,R239,R802, R819	10KΩ J 1608	RESISTOR, CHIP	PILKOR YAGEO		
65	SMT	1	EA	R233	20KΩ J 1608	RESISTOR, CHIP	PILKOR YAGEO		

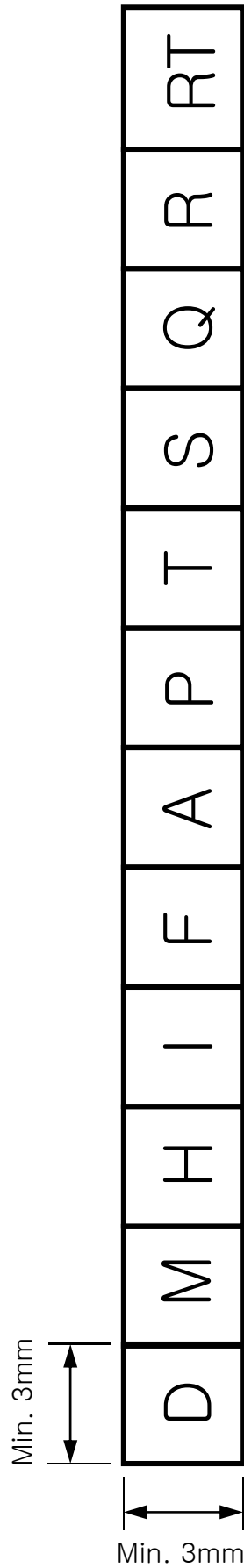
66	SMT	1	EA	R814	22KΩ J 1608	RESISTOR, CHIP	PILKOR YAGEO		
67	SMT	2	EA	R110,R238	47KΩ J 1608	RESISTOR, CHIP	PILKOR YAGEO		
68	SMT	1	EA	R212	56KΩ J 1608	RESISTOR, CHIP	PILKOR YAGEO		
69	SMT	1	EA	R810	75KΩ J 1608	RESISTOR, CHIP	PILKOR YAGEO		
70	SMT	3	EA	R213,R813,R815	100KΩ J 1608	RESISTOR, CHIP	PILKOR YAGEO		
71	SMT	1	EA	R209	1.2KΩ F 1608	RESISTOR, CHIP	PILKOR YAGEO		
72	SMT	1	EA	R223	2.2KΩ F 1608	RESISTOR, CHIP	PILKOR YAGEO		
73	SMT	6	EA	R207,R208,R220,R227,R234,R229	2.4KΩ F 1608	RESISTOR, CHIP	PILKOR YAGEO		
74	SMT	2	EA	R804,R833	12KΩ F 1608	RESISTOR, CHIP	PILKOR YAGEO		
75	SMT	2	EA	R224,R225	18KΩ F 1608	RESISTOR, CHIP	PILKOR YAGEO		
76	SMT	1	E	R840	47KΩ F 1608	RESISTOR, CHIP	PILKOR YAGEO		
77	SMT	1	EA	R235	56KΩ F 1608	RESISTOR, CHIP	PILKOR YAGEO		
78	SMT	1	EA	R811	75KΩ F 1608	RESISTOR, CHIP	PILKOR YAGEO		
79	SMT	2	EA	R205,R206	120KΩ F 1608	RESISTOR, CHIP	PILKOR YAGEO		
80	SMT	2	EA	R838,R839	330KΩ F 1608	RESISTOR, CHIP	PILKOR YAGEO		
81	SMT	1	EA	R803	430KΩ F 1608	RESISTOR, CHIP	PILKOR YAGEO		
82	SMT	5	EA	R822,R823,R825,R827,R829	3.9Ω F 2012	RESISTOR, CHIP	PILKOR YAGEO		
83	SMT	3	EA	R824,R826,R828	4.3Ω F 2012	RESISTOR, CHIP	PILKOR YAGEO		
84	SMT	2	EA	J3,J22	0Ω J 3216	RESISTOR, CHIP	PILKOR YAGEO		
85	SMT	1	EA	R816	7.5Ω J 3216	RESISTOR, CHIP	PILKOR YAGEO		
86	SMT	1	EA	R236	10Ω J 3216	RESISTOR, CHIP	PILKOR YAGEO		
87	SMT	1	EA	R112	15Ω J 3216	RESISTOR, CHIP	PILKOR YAGEO		
88	SMT	1	EA	R107	22Ω J 3216	RESISTOR, CHIP	PILKOR YAGEO		
89	SMT	1	EA	R818	47Ω J 3216	RESISTOR, CHIP	PILKOR YAGEO		
90	SMT	1	EA	R108	100Ω J 3216	RESISTOR, CHIP	PILKOR YAGEO		

91	SMT	4	EA	R201,R214,R215,R228	240Ω J 3216	RESISTOR, CHIP	PILKOR YAGEO		
92	SMT	1	EA	R801	1KΩ J 3216	RESISTOR, CHIP	PILKOR YAGEO		
93	SMT	1	EA	R842	15KΩ J 3216	RESISTOR, CHIP	PILKOR YAGEO		
94	SMT	2	EA	R830,R831	470KΩ F 3216	RESISTOR, CHIP	PILKOR YAGEO		
95	SMT	0.5	GR		HT-130A-106 HT-130D-7	BOND	HITECH KOREA HITECH KOREA		
	AI				LGP42-13PL1 AI COMPONENTS	AI ASS'Y			
96	AI	1	EA	C203	NXB 470uF 50V M P5 Φ12.5X20 SG 470uF 50V M P5 Φ12.5*20	CAPACITOR, ALUMINUM	SAMYOUNG SUSCON		
97	AI	1	EA	C201	NXB 1500uF 10V M P5 Φ10X20 SG 1500uF 10V M P5 Φ10*20	CAPACITOR, ALUMINUM	SAMYOUNG SUSCON		
98	AI	1	EA	C209	NXB 470uF 10V M P5 Φ8X11.5 SG 470uF 10V M P5 Φ8*12	CAPACITOR, ALUMINUM	SAMYOUNG SUSCON		
99	AI	2	EA	C103,C208	NXB 100uF 50V M P5 Φ8X11.5 SG 100uF 50V M P5 Φ8*12	CAPACITOR, ALUMINUM	SAMYOUNG SUSCON		
100	AI	2	EA	C204,C214	NFK 68uF 160V M P5 Φ12.5X20 SE 68uF 160V M P5 Φ12.5X20	CAPACITOR, ALUMINUM	SAMYOUNG SUSCON	O O	O O
101	AI	1	EA	C801	NFK 47uF 250V M P5 Φ12.5X20 SE 47uF 250V M P5 Φ12.5X20	CAPACITOR, ALUMINUM	SAMYOUNG SUSCON	O O	O O
102	AI	1	EA	C222	NXB 220uF 25V M P5 Φ8X11.5 SG 220uF 25V M P5 Φ8*12	CAPACITOR, ALUMINUM	SAMYOUNG SUSCON		
103	AI	4	EA	CY101,CY102,CY103,CY104	NK 330pF 250V K P10 ,Y1 SD 330pF 250V K P10 ,Y1 DA 330pF 250V K P10 ,Y1	CAPACITOR, CERAMIC	APEX INTEC SAMWHA DONGIL ELEC.		
104	AI	1	EA	CY110	NK 680pF 250V K P10, Y1 SD 680pF 250V K P10, Y1 DA 680pF 250V K P10 ,Y1	CAPACITOR, CERAMIC	APEX INTEC SAMWHA DONGIL ELEC.		
105	AI	1	EA	C805	DG 100pF 1KV K P5 125℃ CK 3A 100pF 1KV K P5 125℃ EK R 3A 100pF 1KV K P5 125 ℃	CAPACITOR, CERAMIC	APEX INTEC DONGIL ELEC. SAMWHA		
106	AI	4	EA	C102,C211,C212,C213	DG 330pF 1KV K P5 125℃ CK 3A 330pF 1KV K P5 125℃ EK R 3A 330pF 1KV K P5 125 ℃	CAPACITOR, CERAMIC	APEX INTEC DONGIL ELEC. SAMWHA		
107	AI	3	EA	C101,C112,C225	DG 1000pF 1KV K P5 125℃ CK 3A 1000pF 1KV K P5 125℃ EK R 3A 1000pF 1KV K P5 125 ℃	CAPACITOR, CERAMIC	APEX INTEC DONGIL ELEC. SAMWHA		
108	AI	3	EA	D101,D102,D105	HER108G 1KV 1A DO-41 UF4007 1KV 1A DO-41 UF4007 1KV 1A DO-41	DIODE	RECTRON TSC DACHANG		
109	AI	1	EA	ZD202	P6KE30A 600W DO-15 P6KE30A 600W DO-15	DIODE, ZENER	STM TSC	O O	O O
110	AI	4	EA	ZD102,ZD103,ZD105,ZD201	1N5246B 16V DO-35 1N5246B 16V DO-35	DIODE, ZENER	VISHAY TSC	O	O
111	AI	20	EA	EL3,EL4,EL5,EL6,EL7, EL8,EL9,EL10,EL17,EL22, EL24,EL25,EL26,EL27, EL28,EL29,EL37,EL38,EL51, EL98	1.6X3.0	EYELET	SAMSUNG JS		
112	AI	17	EA	EL1,EL2,EL11,EL12,EL13, EL14,EL15,EL16,EL18,EL19, EL20,EL21,EL30,EL33,EL34, EL35,EL36	2.0X3.0	EYELET	SAMSUNG JS		
113	AI	3	EA	P202,P203,P802	SSJS236-6-3 (6mm Under)	GT PIN	SAMSUNG JS		
114	AI	3	EA	LB101,LB104,LB801	BFS3550R2F SINGLE RADIAL HBRS3550PT SINGLE RADIAL	INDUCTOR, BEAD FILTER LEAD	SAMWHA HANBACK		
115	AI	3	EA	LB102,LB201,LB202	BFS3550A0L SINGLE AXIAL HBAS3550PL SINGLE AXIAL	INDUCTOR, BEAD FILTER LEAD	SAMWHA HANBACK		
116	AI	20	EA	J2,J6,J8,J14,J16, J17,J18,J21,J24,J27, J31,J34,J35,J36,J38, J40,J41,J43,J44,J45	Φ0.6	JUMPER WIRE	TPI		
117	AI	1	EA	R101	MSR37 1.2MΩ 1/2W J SURGE PRC 1.2MΩ 1/2W J SURGE	RESISTOR, FIXED CARBON COMPOSITION	PILKOR SMART		

118	AI	1	EA	R820	WNPS 0.12Ω 2W J SMALL PRN 0.12Ω 2W J SMALL	RESISTOR,WIRE WOUND	ABCO SMART		
119	AI	1	EA	R113	WNPS 0.16Ω 2W J SMALL PRN 0.16Ω 2W J SMALL	RESISTOR,WIRE WOUND	ABCO SMART		
120	AI	3	EA	R218,R219,R221	MORS 10Ω 1W J SMALL RSD01 10Ω 1W J SMALL	RESISTOR, METAL OXIDE FILM	ABCO SMART		
121	AI	1	EA	R103	MORS 22KΩ 1W J SMALL RSD01 22KΩ 1W J SMALL	RESISTOR, METAL OXIDE FILM	ABCO SMART		
122	AI	2	EA	R102,R114	MORS 180KΩ 2W J SMALL RSD02 180KΩ 2W J SMALL	RESISTOR, METAL OXIDE FILM	ABCO SMART		
123	AI	1	EA	R222	MORS 2.2KΩ 2W J SMALL RSD02 2.2KΩ 2W J SMALL	RESISTOR, METAL OXIDE FILM	ABCO SMART		
124	AI	3	EA	R835,R836,R841	MORS 56KΩ 2W J SMALL RSD02 56KΩ 2W J SMALL	RESISTOR, METAL OXIDE FILM	ABCO SMART		
125	AI	1	EA	PCB	LGP42-13PL1 (159X195X1.6T) FR-1 KB,DS,L, 1oz CTI-600	PCB	DUCK SUNG HT CIRCUIT(QINGDAO) DONGMYUNG CIR TIS KOREA		
	ETC			LGP42-13PL1 SUBSIDIARY MATERIALS					
126	ETC	1.00	EA		40X8 NY WHITE 93CODE 19DIGIT	BAR CODE	AIT		
127	ETC	3.0000	GR		H-828W OKE-410	BOND (RTV)	OKONG OKONG		
128	ETC	0.0333	EA		600 X 455 X 247 8t	BOX CARTON	JAEIL QXBW		
129	ETC	0.0667	EA		585 X 440 8t	BOX PAD	JAEIL QXBW		
130	ETC	0.3667	EA		585 X 205 8t	BOX PARTITION	JAEIL QXBW		
131	ETC	0.20	EA		445 X 205 8t	BOX PARTITION	JAEIL QXBW		
132	ETC	1	EA		510 X 170	BUBBLE SHEET	JAEIL QXBW		
133	ETC	25	GR		ILF-714(kg) ILF-710(kg)	FLUX	ION ELEC ION ELEC		
134	ETC	15	GR		HSE-11 B20 BAR (SN:99%,AG:0.3%,CU:0.7%) SN-CU-NI-P (HSE16(P)-B20)	SOLDER BAR	HEESUNG METAL HEESUNG METAL		
135	ETC	5	GR		HSE-11 B20 BAR (SN:99%,AG:0.3%,CU:0.7%) SN-CU-NI-P (HSE16(P)-B20)	SOLDER WIRE	HEESUNG METAL HEESUNG METAL		

Process Marking

공정표시 MARK (PCB SILK)

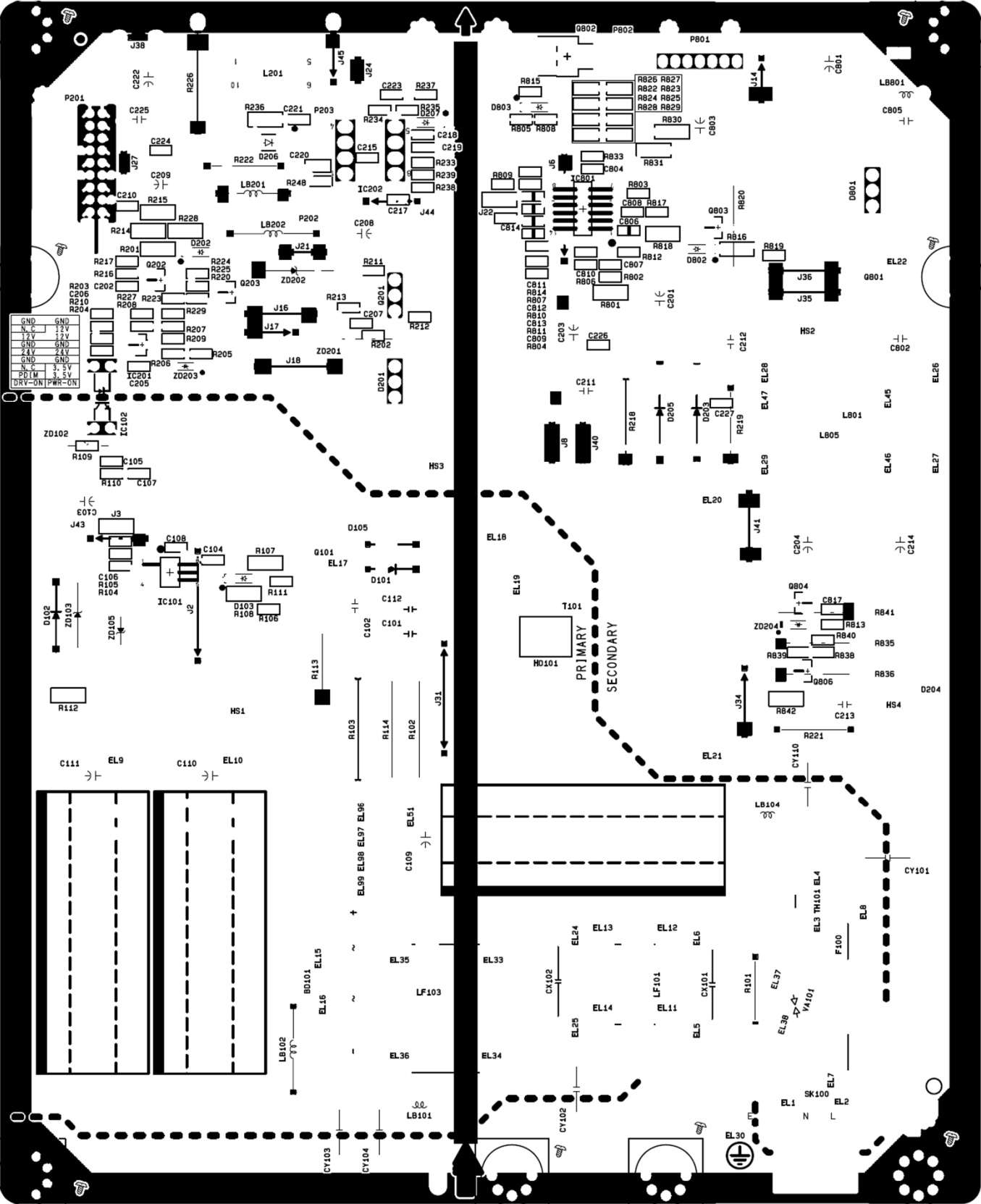


- D : 자삽
- M : SMD
- H : 수삽 최종
- I : ICT
- F : 1차 성능
- A : AGING
- P : HI-POT
- T : 최종 검사 (ATE)
- S : SET 검사
- Q : QC 검사
- R : 불량 수리
- RT : 양산 보증 시험

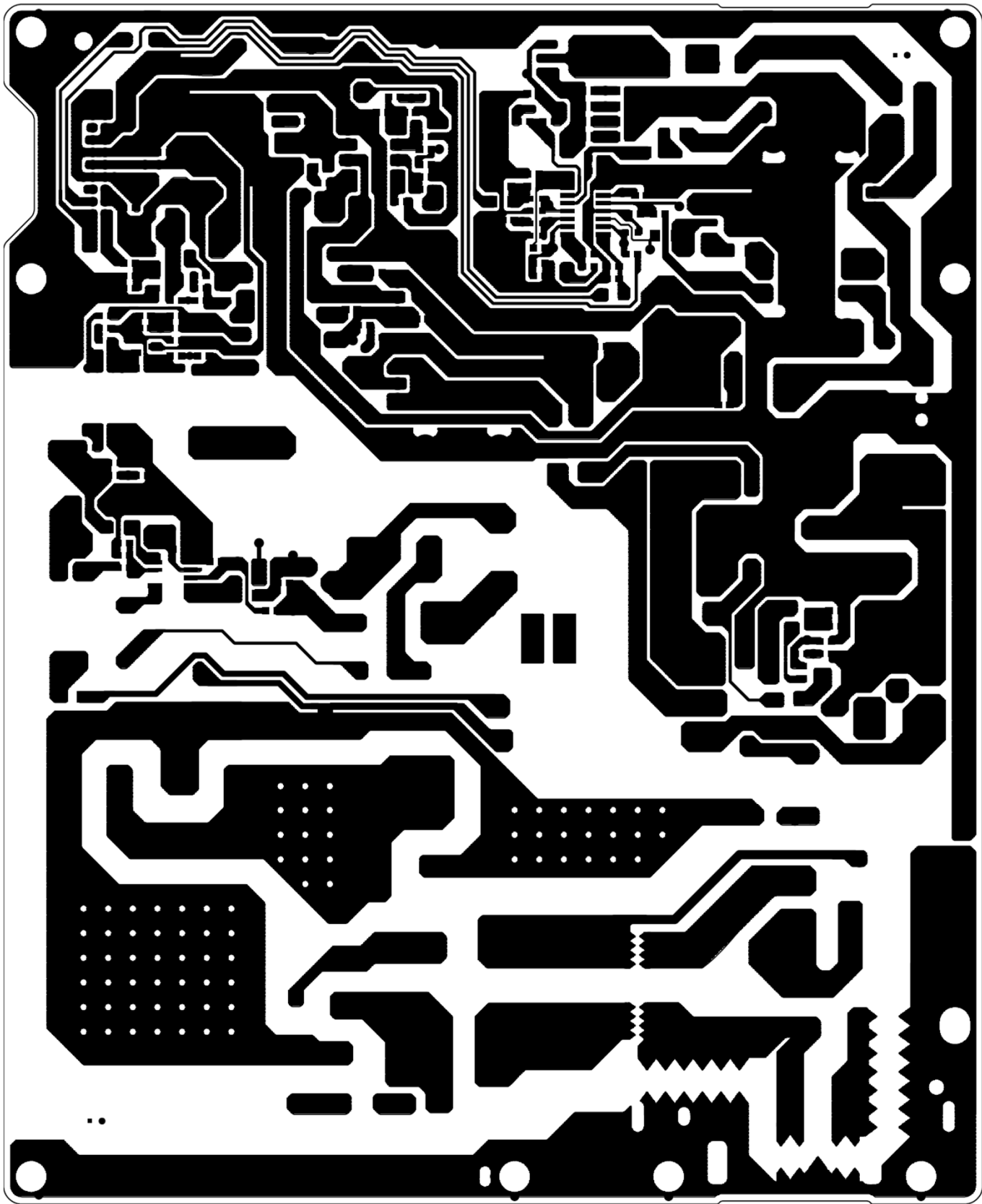
PCB Layout

PCB layout for a power supply unit. The layout includes various components such as capacitors (C201, C202, C203, C204, C205, C206, C207, C208, C209, C210, C211, C212, C213, C214, C215, C216, C217, C218, C219, C220, C221, C222, C223, C224, C225, C226, C227, C228, C229, C230, C231, C232, C233, C234, C235, C236, C237, C238, C239, C240, C241, C242, C243, C244, C245, C246, C247, C248, C249, C250, C251, C252, C253, C254, C255, C256, C257, C258, C259, C260, C261, C262, C263, C264, C265, C266, C267, C268, C269, C270, C271, C272, C273, C274, C275, C276, C277, C278, C279, C280, C281, C282, C283, C284, C285, C286, C287, C288, C289, C290, C291, C292, C293, C294, C295, C296, C297, C298, C299, C300, C301, C302, C303, C304, C305, C306, C307, C308, C309, C310, C311, C312, C313, C314, C315, C316, C317, C318, C319, C320, C321, C322, C323, C324, C325, C326, C327, C328, C329, C330, C331, C332, C333, C334, C335, C336, C337, C338, C339, C340, C341, C342, C343, C344, C345, C346, C347, C348, C349, C350, C351, C352, C353, C354, C355, C356, C357, C358, C359, C360, C361, C362, C363, C364, C365, C366, C367, C368, C369, C370, C371, C372, C373, C374, C375, C376, C377, C378, C379, C380, C381, C382, C383, C384, C385, C386, C387, C388, C389, C390, C391, C392, C393, C394, C395, C396, C397, C398, C399, C400, C401, C402, C403, C404, C405, C406, C407, C408, C409, C410, C411, C412, C413, C414, C415, C416, C417, C418, C419, C420, C421, C422, C423, C424, C425, C426, C427, C428, C429, C430, C431, C432, C433, C434, C435, C436, C437, C438, C439, C440, C441, C442, C443, C444, C445, C446, C447, C448, C449, C450, C451, C452, C453, C454, C455, C456, C457, C458, C459, C460, C461, C462, C463, C464, C465, C466, C467, C468, C469, C470, C471, C472, C473, C474, C475, C476, C477, C478, C479, C480, C481, C482, C483, C484, C485, C486, C487, C488, C489, C490, C491, C492, C493, C494, C495, C496, C497, C498, C499, C500, C501, C502, C503, C504, C505, C506, C507, C508, C509, C510, C511, C512, C513, C514, C515, C516, C517, C518, C519, C520, C521, C522, C523, C524, C525, C526, C527, C528, C529, C530, C531, C532, C533, C534, C535, C536, C537, C538, C539, C540, C541, C542, C543, C544, C545, C546, C547, C548, C549, C550, C551, C552, C553, C554, C555, C556, C557, C558, C559, C560, C561, C562, C563, C564, C565, C566, C567, C568, C569, C570, C571, C572, C573, C574, C575, C576, C577, C578, C579, C580, C581, C582, C583, C584, C585, C586, C587, C588, C589, C590, C591, C592, C593, C594, C595, C596, C597, C598, C599, C600, C601, C602, C603, C604, C605, C606, C607, C608, C609, C610, C611, C612, C613, C614, C615, C616, C617, C618, C619, C620, C621, C622, C623, C624, C625, C626, C627, C628, C629, C630, C631, C632, C633, C634, C635, C636, C637, C638, C639, C640, C641, C642, C643, C644, C645, C646, C647, C648, C649, C650, C651, C652, C653, C654, C655, C656, C657, C658, C659, C660, C661, C662, C663, C664, C665, C666, C667, C668, C669, C670, C671, C672, C673, C674, C675, C676, C677, C678, C679, C680, C681, C682, C683, C684, C685, C686, C687, C688, C689, C690, C691, C692, C693, C694, C695, C696, C697, C698, C699, C700, C701, C702, C703, C704, C705, C706, C707, C708, C709, C710, C711, C712, C713, C714, C715, C716, C717, C718, C719, C720, C721, C722, C723, C724, C725, C726, C727, C728, C729, C730, C731, C732, C733, C734, C735, C736, C737, C738, C739, C740, C741, C742, C743, C744, C745, C746, C747, C748, C749, C750, C751, C752, C753, C754, C755, C756, C757, C758, C759, C760, C761, C762, C763, C764, C765, C766, C767, C768, C769, C770, C771, C772, C773, C774, C775, C776, C777, C778, C779, C780, C781, C782, C783, C784, C785, C786, C787, C788, C789, C790, C791, C792, C793, C794, C795, C796, C797, C798, C799, C800, C801, C802, C803, C804, C805, C806, C807, C808, C809, C810, C811, C812, C813, C814, C815, C816, C817, C818, C819, C820, C821, C822, C823, C824, C825, C826, C827, C828, C829, C830, C831, C832, C833, C834, C835, C836, C837, C838, C839, C840, C841, C842, C843, C844, C845, C846, C847, C848, C849, C850, C851, C852, C853, C854, C855, C856, C857, C858, C859, C860, C861, C862, C863, C864, C865, C866, C867, C868, C869, C870, C871, C872, C873, C874, C875, C876, C877, C878, C879, C880, C881, C882, C883, C884, C885, C886, C887, C888, C889, C890, C891, C892, C893, C894, C895, C896, C897, C898, C899, C900, C901, C902, C903, C904, C905, C906, C907, C908, C909, C910, C911, C912, C913, C914, C915, C916, C917, C918, C919, C920, C921, C922, C923, C924, C925, C926, C927, C928, C929, C930, C931, C932, C933, C934, C935, C936, C937, C938, C939, C940, C941, C942, C943, C944, C945, C946, C947, C948, C949, C950, C951, C952, C953, C954, C955, C956, C957, C958, C959, C960, C961, C962, C963, C964, C965, C966, C967, C968, C969, C970, C971, C972, C973, C974, C975, C976, C977, C978, C979, C980, C981, C982, C983, C984, C985, C986, C987, C988, C989, C990, C991, C992, C993, C994, C995, C

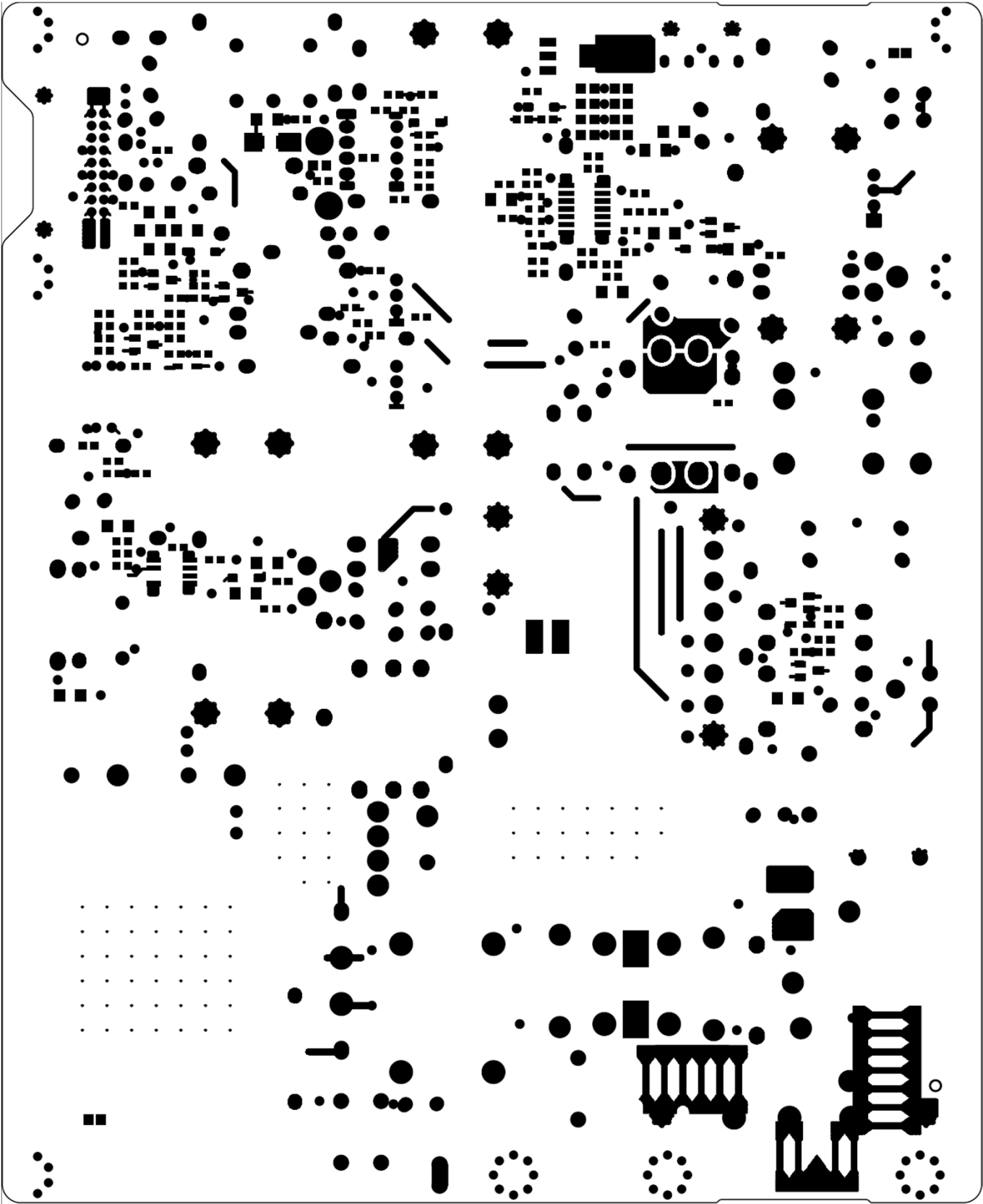
Bottom Silk



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)	Dongil Tech	DAC-18C3M1	250V / 2.5A	DAC-18C3M1	IEC 60320-1	
Fuse, (F100)	Littelfuse Inc.	215 Series	T5A H / 250V	LF.T5AH250VP	IEC 60127-2	
	WALTER FUSE	TSC		TSC5A250V(P)	IEC 60127	
	BUSSMANN	S505		T5AH250V	IEC 60127-2	
	Dainfuse	50CT		T5AH 250V	IEC 60127	
	CONQUIRE	UDA-A		UDA-A T5A H 250V	IEC 60127-3-5	
Line Filter, (LF101)	TMC	CV825180SH(HF)	Rated 130℃	825180 S3	IEC 60085	Test in appliance
	Dongil Tech	LSD025180		025180		
	FEELUX					
	ZHONGTAI					
	JIANGSU CHANNELON ELECTRONIC GROUP	LLF-133		LLF-133		
	SOOJUNG					
Base material of Linefilter (LF101)	DONG YANG TELECOM CO., LTD					
	MOMENTIVE SPECIALTY CHEMICALS GMBH	PF 2736	V-0, 150℃		UL, E81040	UL
Alt	Chang Chun Plastics Co., Ltd	T375HF, T375J	V-0, 150℃		UL, E50481	UL
Alt	LG CHEMICAL LTD	LUPON GP-2306F	V-0, 140℃		UL, E87171	UL
Alt	NAN YA PLASTICS CORP PLASTICS 4TH DIV	1403G3, 1403G6	V-0, 130℃		UL, E130155	UL
Alt	SAMYANG CORPORATION	1500GN-30	V-0 130℃		UL, E121254	UL
Alt	Rhodia Engineering plastics	A 50H1	V-0, 130℃		UL, E44716	UL
Alt	Sabic Innovative Plastics japan LLC	420SE0	V-0, 130℃		UL, E45587	UL
Alt	TORAY INDUSTRIES INC	A604 E604	V-0, 130℃		UL, E41797	UL
Alt	POLY PLASTICS CO., LTD	1140A66	V-0, 130℃		UL, E109088	UL
Alt	SK CHEMICALS CO., LTD	Ecotran 1040G	V-0, 130℃		UL, E215901	UL
Line Filter, (LF103)	FEELUX		Rated 130℃	LLF-100	IEC 60085	Test in appliance
	JIANGSU CHANNELON ELECTRONIC GROUP					
	SOOJUNG					
	JIANGSU TAICHANG ELECTRONICS Co., LTD.	LLF-100				
	ZHONGTAI					
	DONG YANG TELECOM CO., LTD					
Base material of Linefilter (LF103)	MOMENTIVE SPECIALTY CHEMICALS GMBH	PF 2736	V-0, 150℃		UL, E81040	UL
	Chang Chun Plastics Co., Ltd	T375HF, T375J	V-0, 150℃		UL, E50481	UL
Alt	LG CHEMICAL LTD	LUPON GP-2306F	V-0, 140℃		UL, E87171	UL
Alt	NAN YA PLASTICS CORP PLASTICS 4TH DIV	1403G3, 1403G6	V-0, 130℃		UL, E130155	UL
Alt	SAMYANG CORPORATION	1500GN-30	V-0 130℃		UL, E121254	UL
Alt	Toray Industrial INC	A604 E604	V-0 200℃		UL E41797	UL
Varistor, (VA101)	Samtha	SVC621D-14A	Climatic category: 40/085/21 Maximum continuous voltage:385Va.c. Current pulse rating: 6 kV/3 kA	SVC 621-14	CECC 42000 CECC 42200 CECC 42201 IEC 60065 Clause 14.12 and IEC 60950-1 Annex Q	
	Amotech Co., Ltd.	1NR 14D621K	Climatic category: 40/85/56 Maximum continuous voltage: 385Va.c. Current pulse rating: 6 kV/3 kA	1NR 14D621	CECC42000/A1 CECC42200/A1 CECC 42201-001 IEC 61051-1 IEC 61051-2 IEC 61051-2-2 IEC 60065 Clause 14.12 and IEC 60950-1 Annex Q	
	Xiamen Wanning Electronics Co.,Ltd	WNR14D621K	Climatic category: 40/85/56 Maximum continuous voltage: 750Va.c. Current pulse rating: 6 kV/3 kA	WNR 14D621K	IEC 61051-1 IEC 61051-2 IEC 61051-2-2 IEC 60950-1 Annex Q	
	Guangxi New Future Information Industry Co.,Ltd	NFC 14D621K	Climatic category: 40/085/21 Maximum continuous voltage:385Va.c. Current pulse rating: 6 kV/3 kA	NFC 14D621K	IEC 61051-1 IEC 61051-2 IEC 61051-2-2 IEC 60950-1 Annex Q	
Bridge Diode, (BD101)	Lite-on	EBJ1006G	Min 600V / 10A	EBJ1006G		Test in appliance
	DACHANG	D10XB60		D10XB60		
	TSC	TS10K60		TS10K60	E96005	
	GULF	G10XB60		G10XB60		
	RECTRON	RS1007M		RS1007M		
	SHINDENGEN	D10XB60		D10XB60	E142422	
X-cap. (CX101, CX102)	Pilkor	PCX2 337	Min 275V~ / (CX101= Max 0.33uF, CX102= Max 0.33uF)	PCX2 337 MRP	IEC 60384-14 UL1414	
	Okaya	LE		LE	IEC 60384-14 UL1414	
	EUROPTRONIC	MPX		MPX	E109061/ E311052 IEC 60384-14-3'nd edition	
	CHEUNG TUNG	CTX		CTX	IEC 60384-14 UL1414	
Thermistor, (TH101)	DSC	DSC 5D-15	5ohm at 25 ° C	DSC 5D-15		
	Xiamen Wanning Electronics Co.,Ltd	WTR15D050M		WTR15D050		
	JIANGSU XINGSHUN ELECTRONICS CO., LTD	5D2-15		5D2-15	IEC 60085	
	Smart	ICL-5W		ICL-05 5R00MSMT		
	NANJING SHIHENG ELECTRONICS CO., LTD	NF72-5D15		NF72 5D15		
Elec.Cap. (C109, C110, C111)	SAMYOUNG	EMF	450V / Max 68uF / 105℃	EMF450V68uF	IEC 60950-1	Test in appliance (EAY62810501)
	SUSCON	SK		SK450V68uF		
	SAMYOUNG	NZE	500V / Max 100uF / 105℃	NZE500V100uF	IEC 60950-1	Test in appliance (EAY62810502)
	SUSCON	SK		SK500V100uF		
Switching TR, (Q101)	MAGNACHIP	MDF111065B	Min. 650V /	MDF111065B	IEC 60950-1	Test in appliance
	TOSHIBA	TERA65D	Min 7A	TERA65D		

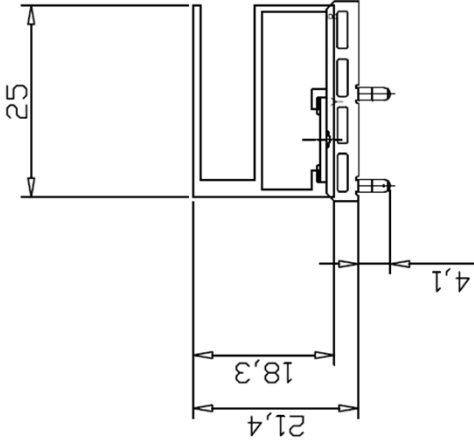
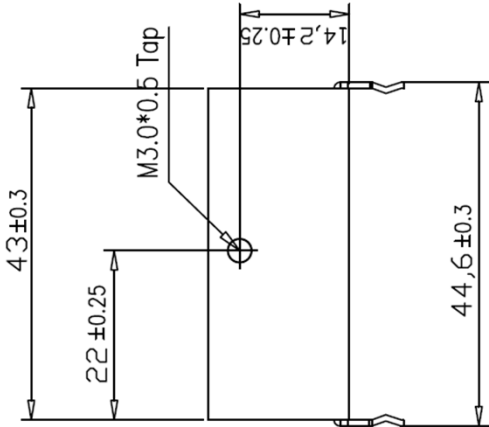
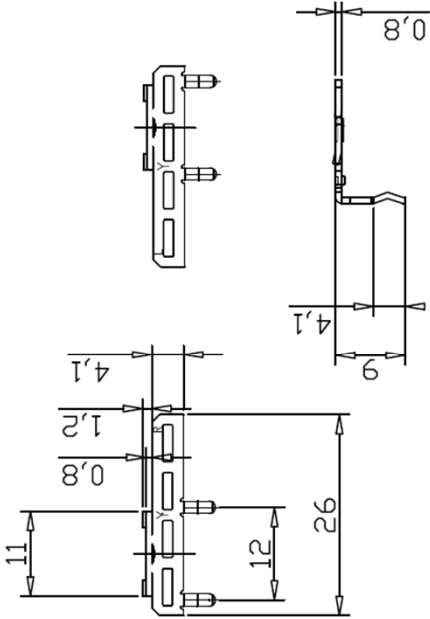
Y Cap. (CY101, CY102, CY103, CY104)	Kunshan Wansheng	Y1 / CT7	Min 250V / (CY101= Max 330pF, CY102= Max 330pF, CY103 = Max 330pF, CY104 = Max 330pF)	CT7 331K	IEC 60384-14		
	Apex intec	Y1 / NK		NK331K			
	DONG IL	Y1 / DA		DA331K			
	YINANDON	Y1 / CT81		CT81 331K			
	SAMWHA	Y1 / SD		SD331K			
	JYA-NAY	Y1 / JN		JN331K			
	GUANGDONG SOUTH HONGMING	Y1 / F		F331K			
	TDK	Y1 / CD		CD331K			
Bridging Cap. (CY110)	Kunshan Wansheng	Y1 / CT7	Min 250V / Max 680pF	CT7 681K	IEC 60384-14		
	Apex intec	Y1 / NK		NK681K			
	DONG IL	Y1 / DA		DA681K			
	YINANDON	Y1 / CT81		CT81 681K			
	SAMWHA	Y1 / SD		SD681K			
	JYA-NAY	Y1 / JN		JN681K			
	GUANGDONG SOUTH HONGMING	Y1 / F		F681K			
	TDK	Y1 / CD		CD681K			
Switching Transformer, (T101)	FEELUX	13S-LPM04	Class B 130℃	13S-LPM04	IEC 60950-1	Test in appliance	
	JIANGSU CHANNELON ELECTRONIC GROUP						
	SOOJUNG						
	ZHONGTAI						
	HANVANG						
Bobbin material of transformer (T101)	SUMITOMO BAKELITE CO LTD	TM-9820/TM-9630	Y-0, 150℃		UL, E41429	UL	
Insulating Tape of transformer (T101)	DUCK SUNG HITECH CO LTD	DTS-204	130℃				
Alt	METAL LINE CO LTD	800(a)	130℃				
Alt	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE FTY	CT, PZ	130℃				
Reinforced insulation wire of transformer (T101)	COSMOLINK CO LTD	TIW-M	Class B, 130℃				
Alt	FURUKAWA ELECTRIC CO., LTD	TEX-E	Class B, 130℃		UL, E206440	UL	
Opto-coupler, (IC102)	Everlight	EL817	External cr: 7.7 mm, Internal cr: 6.0 mm DTI: 0.5 mm / 6000 Vrms	EL817	IEC 60065 UL 1577		
	Lite-on	LTV817...	External cr: 7.8 mm, Internal cr: 5.2 mm DTI: 0.8 mm / 6000 Vrms	817BN			
Discharge Resistor, (R101)	Smart	PRC	1/2W, 1.2Mohm, 5%		IEC 60065		
	UNIROYAL ELECTRONICS INDUSTRY CO., LTD	MGROW2J****A10					IEC 60065
	Pilkor	SR37,MSR37					IEC 60065
PCB, FR-1	DONGYUNG CIR.	DM5-V-0	94V-0				
	SHANGHAI WANZHENG	SWZ-2	94V-0				
	WYT (Wan Yuan Tong)	SWZ-2	94V-0				
	SHANGHAI AREX	O2V0	94V-0				
	NEW TRIUNION	TU-3	94V-0				
	CHIN POON	E5 F01	94V-0				
	TIANJIN DAEDUCK	DC-1 DC-2	94V-0				
	HUIHO	4B-5 4B-1, 4B-2, 4D	94V-0				
	HSIANG KUO	O7V0	94V-0				
	SAMHAN	SH7	94V-0				
	HT CIRCUIT(QINGDAO)	1794V0	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				
	Cosmotech	GS2-V-0-1 CJ2-V-0-1 CJ2-V-0-2	94V-0				
	CHANGZHOU HAIHONG	CCE-V0	94V-0				
1) an asterisk indicates a mark which assures the agreed level of surveillance Remarks: *) Large volume capacitors exceeding volume 1750mm							

Mechanical Drawing

NOTE

- 1. MATERIAL : ALUMINUM A6063S -T5
- 2. BURR 방향에 주의하고 높이는 0.05이하 일 것.
- 3. BENDING부 갈라짐이 없고 각도 공차는 $\pm 1^\circ$ 이하 일 것.
- 4. 소자 결합부위의 평탄도는 0.05mm 이내일것.
- 5. 절삭유 등 기타 이물질이 없도록 완전 탈찌할것.
- 6. 표면에 염색, 이물, 긁힘등 유해한 결함이 없을 것.
- 7. SOLDER PIN 의 입입은 물리적으로야하며 흔들림없이 고정되어있을것.
- 8. 무지정 공차는 ± 0.30 이하일것.
- 9. 기타 의문사항은 반드시 설계자와 협의 할 것.

후가공명		선택
아노다이징 (Anodizing)	단면부 포함	
	단면부 제외	○
착색	WHITE	○
	BLACK	



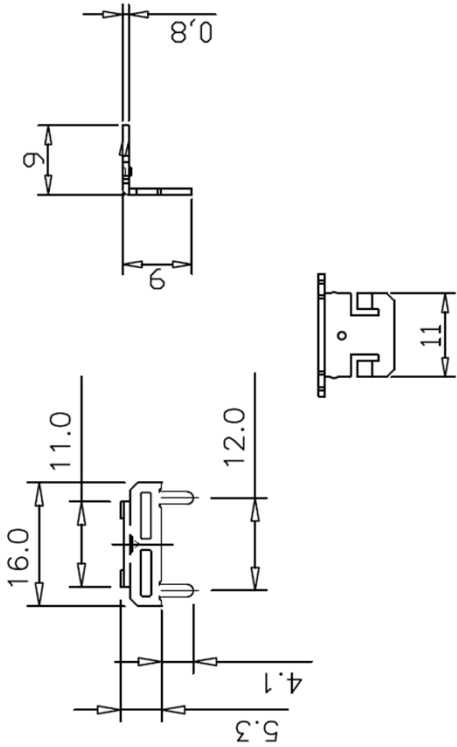
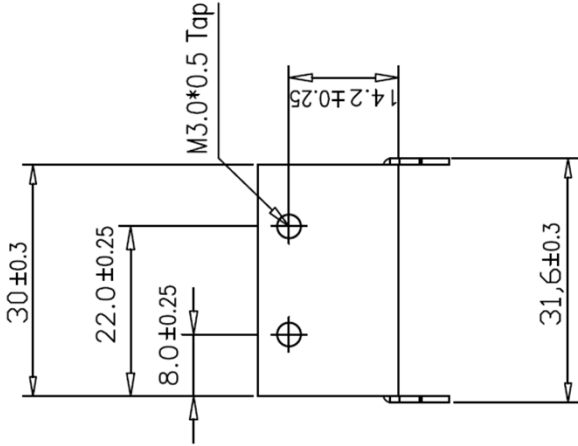
NO	THE NAME OF AN ARTICLE	DWG-NO	MATERIAL	Q'TY	REMARK
1	HEAT SINK - A		AL 6063 (탈지처리)	1	YW-327
2	PIN-TERMINAL		SCP1,SPOC PIN , 주석도금	2	YW-L-016L-R

NO.	REVISION	PLANNED BY				CHECKED BY				APPROVED BY				LGP42-13PL1 LGP3739-13PL1 (공용)	HS1	DWG NO.
		UNIT	SCALE	FILE NAME	USER	FILE NAME	USER	FILE NAME	USER	FILE NAME	USER	FILE NAME	USER			
		mm	1/1	2012.08.27	J.W.KIM	2012.08.27	K.R.KANG	2012.08.27	K.R.KANG	2012.08.27	K.R.KANG	2012.08.27	K.R.KANG			
GENERAL TOLERANCE																
PROJECTION																
3RD ANGLE																
0 - 4																
±0.07 ±0.10 ±0.15 ±0.20																
4 ~ 16																
±0.08 ±0.10 ±0.15 ±0.20																
16 ~ 64																
±0.12 ±0.15 ±0.20 ±0.25																
64 ~ 250																
±0.25 ±0.40 ±0.60																
YU-WON NRT Co.,Ltd.																

NOTE

- 1. MATERIAL : ALUMINUM A6063S -T5
- 2. BURR 방향에 주의하고 높이는 0.05이하 일 것.
- 3. BENDING부 갈라짐이 없고 각도 공차는 $\pm 1^\circ$ 이하 일 것.
- 4. 소자 결합부위의 평탄도는 0.05mm 이내일것.
- 5. 절삭유 등 기타 이물질이 없도록 완전 탈찌할것.
- 6. 표면에 얼룩, 이물, 균열등 유해한 결함이 없을것.
- 7. SOLDER PIN 의 양면은 폴리작이어야하며 흠을없이 고정되어있을것.
- 8. 무지정 공차는 ± 0.30 이하일것.
- 9. 기타 의문사항은 반드시 설계자와 협의 할 것.

후가공명		선택
아노다이징 (Anodizing)	단면부 포함	
	단면부 제외	○
착색	WHITE	○
	BLACK	



NO.	THE NAME OF AN ARTICLE	DWG-NO.	MATERIAL	Q'TY	REMARK
1	HEAT SINK - A		AL 6063 (탈지처리)	1	YW-325
2	PIN-TERMINAL		SCP1,SPOC PIN , 주석도금	2	YW-L-013A

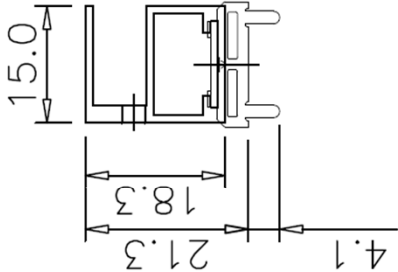
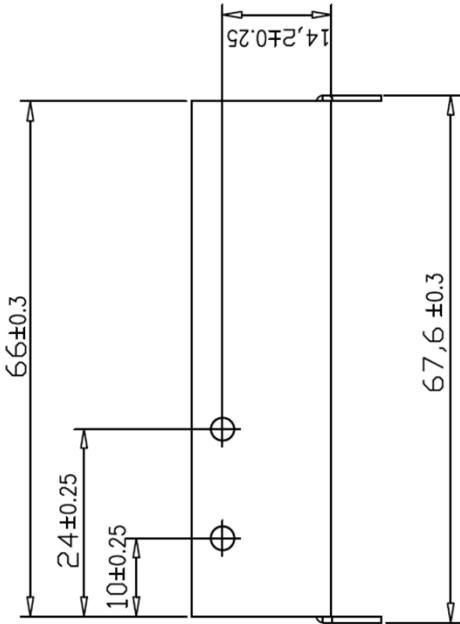
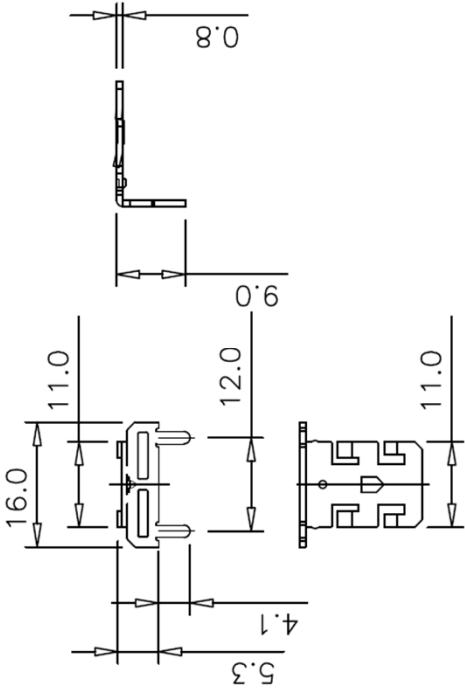
NO.	REVISION	APPROVED BY				LGP42-13PL1 LGP3739-13PL1 (공용)	HS2
		UNIT	SCALE	PLANNED BY	CHECKED BY		
		mm	1/1	J.W.KIM	K.R.KANG		
				2012.08.27	2012.08.27		
		FILE NAME					
		YU-WON NRT Co.,Ltd.					
		DWG NO.					

NO	THE NAME OF AN ARTICLE	DWG NO	MATERIAL	Q'TY	REMARK
1	HEAT SINK - A		AL 6063 (탈지처리)	1	YW-325
2	PIN-TERMINAL		SCP1, SPOC PIN , 주석도금	2	YW-L-013

NOTE

1. MATERIAL : ALUMINUM A6063S -T5
2. BURR 방향에 주의하고 높이는 0.05이하 일 것.
3. BENDING부 갈라짐이 없고 각도 공차는 $\pm 1^{\circ}$ 이하 일 것.
4. 소자 결합부위의 평탄도는 0.05mm 이내일것.
5. 절삭유 등 기타 이물질이 없도록 완전히 탈지할것.
6. 표면에 얼룩, 이물, 굴힘등 유해한 결함이 없을 것.
7. SOLDER PIN 의 압입은 물리적이여야하며 흔들림없이 고정되어있을것.
8. 무지정 공차는 ± 0.3 이하일것.
9. 기타 의문사항은 반드시 설계자와 협의 할 것.

후가공명		선택
아노다이징 (Anodizing)	단면부 포함	
	단면부 제외	○
착색	WHITE	○
	BLACK	



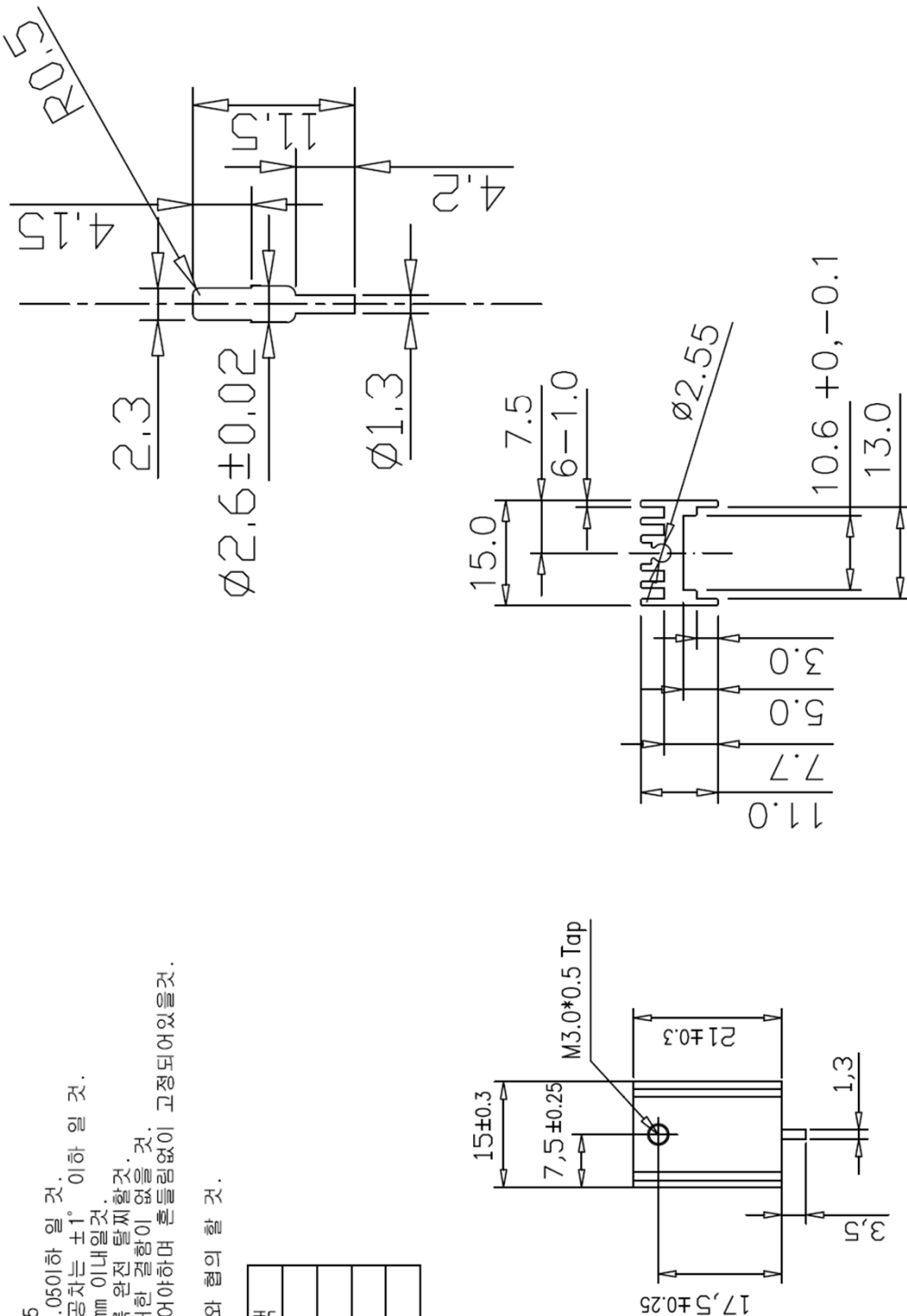
REVISION	NO.											LGP42-13PL1 LGP3739-13PL1 (공용)		HS3			

NOTE

1. MATERIAL : ALUMINUM A6063S -T5
2. BUMP 방향에 주의하고 높이는 0.050이하 일 것.
3. BENDING 각과 라디언이 없고 각도 공차는 $\pm 1^\circ$ 이하 일 것.
4. 수차 결함과 와류의 평탄도는 0.05mm 이내 일 것.
5. 절삭유 등 기타 이물질이 없도록 확인 할 것.
6. 표면에 열부, 이물질, 증착을 두해할 곳이 없음을 것.
7. SOLDER PIN 의 압입은 물리시켜야하며 본 제품을 없이 고정되어 있을 것.
8. 두지정 공차 ± 0.30 이하 일 것.
9. 기타의 사양은 반드시 설계자와 협의 할 것.

작업	아노다이징 (Anodizing)	단면부 포함	면
		단면부 제외	
		WHITE	면
		BLACK	면

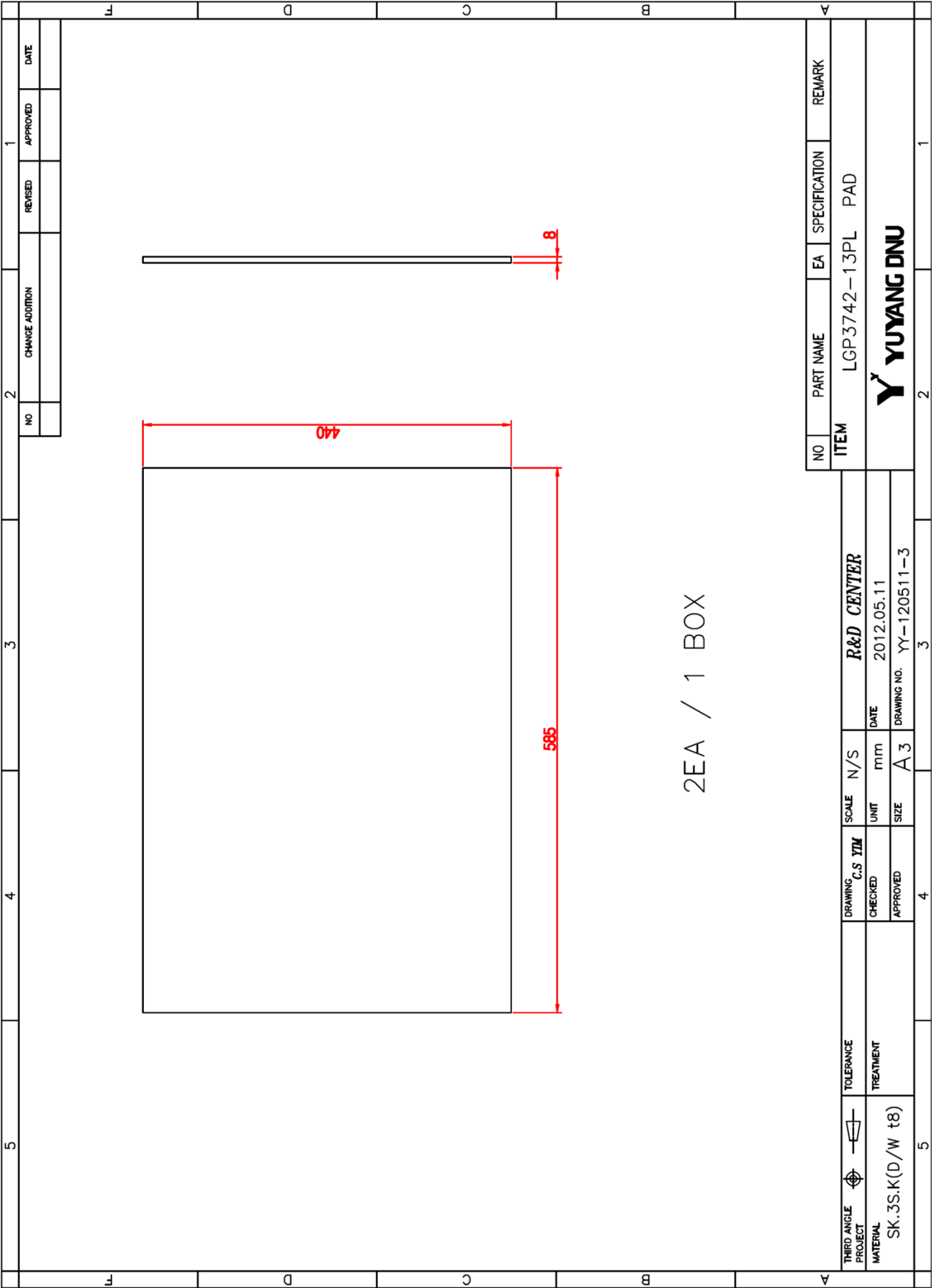
NO	THE NAME OF AN ARTICLE	DWG-NO	MATERIAL	Q'TY	REMARK
1	HEAT SINK - A		AL 6063 (탈지처리)	1	YW-10
2	PIN-TERMIAL		SOP1,SPCC PIN, 주석도금	2	2.6 PIN

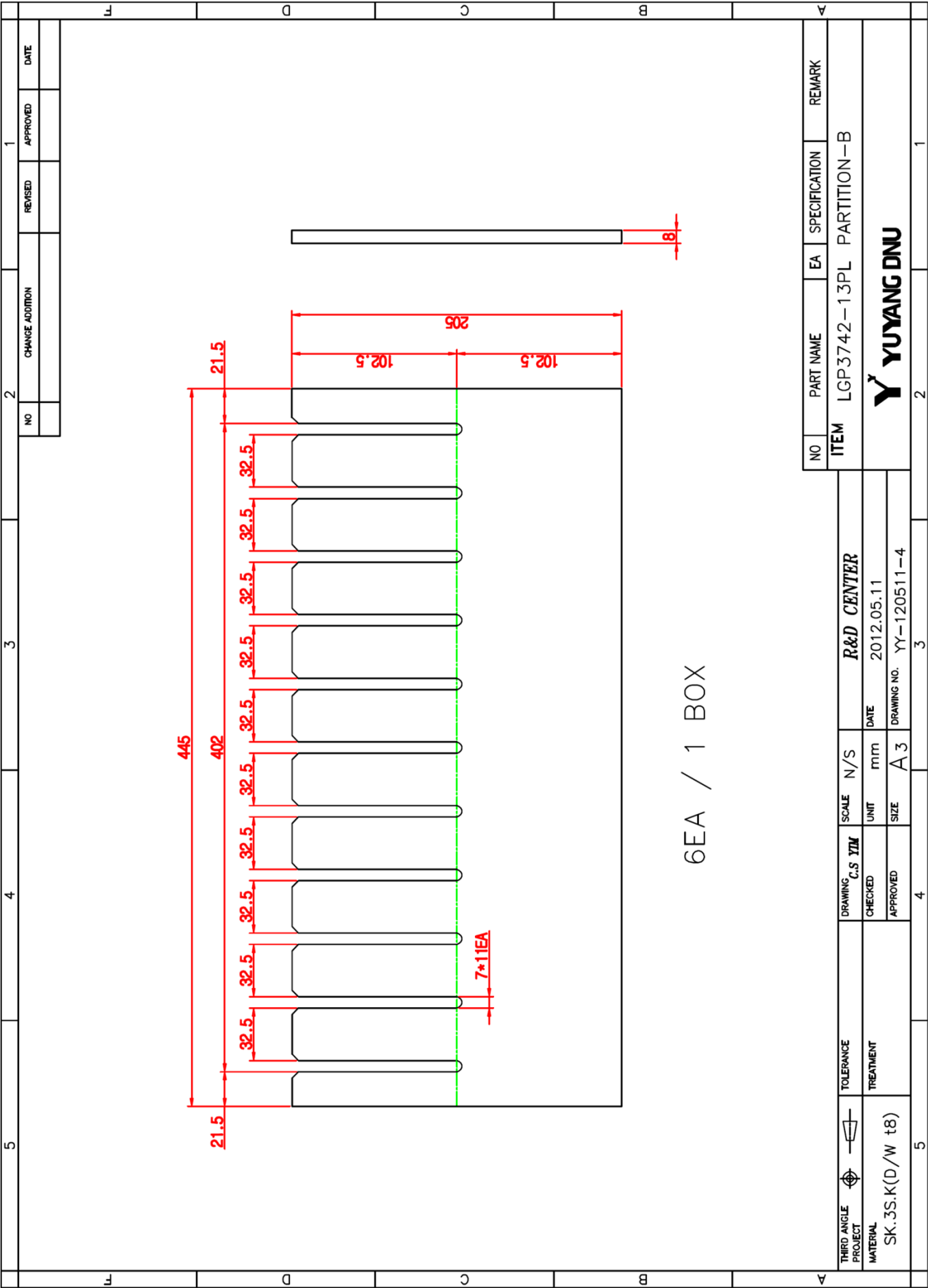
[illegible]

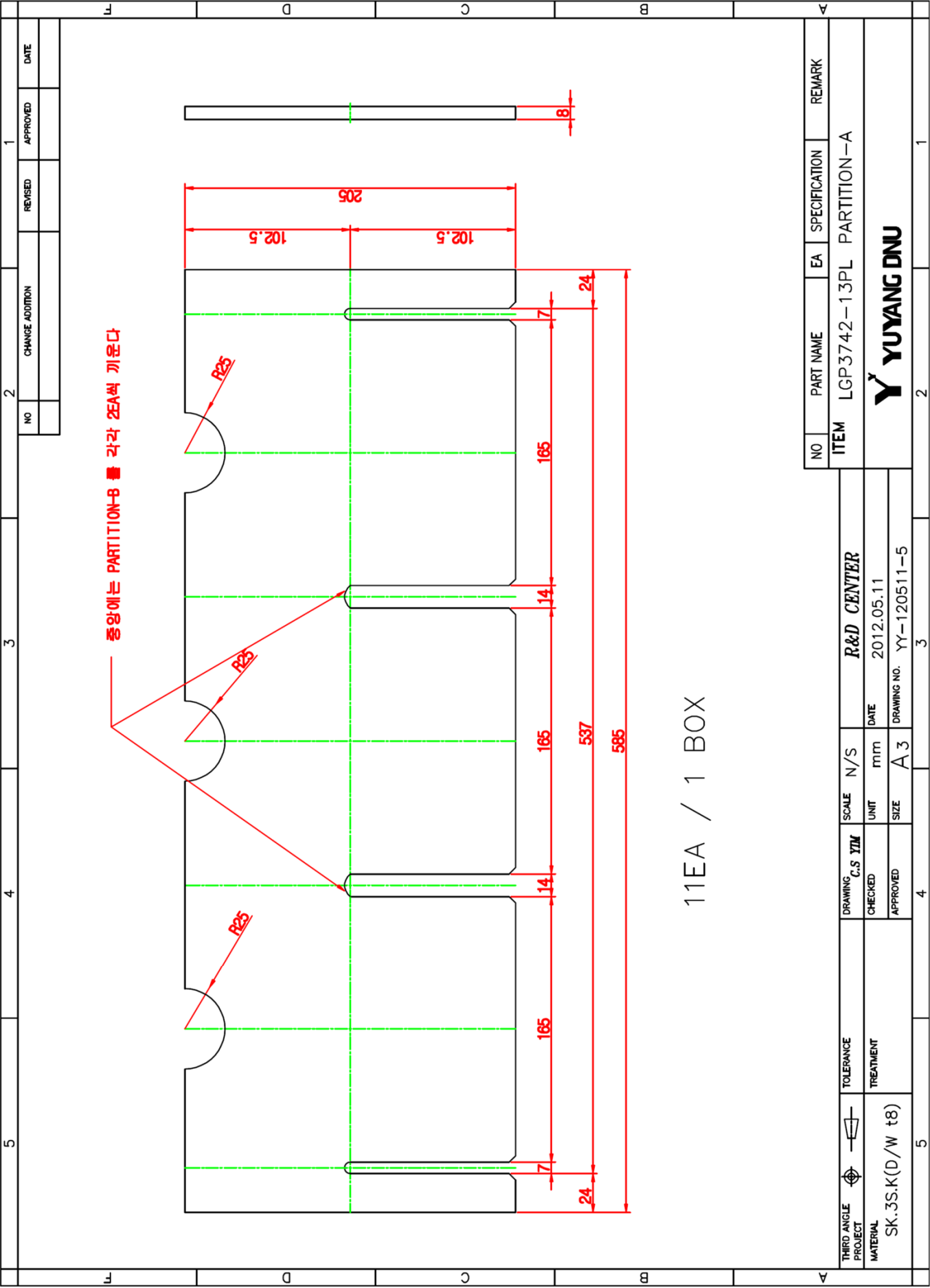
Packing Drawing

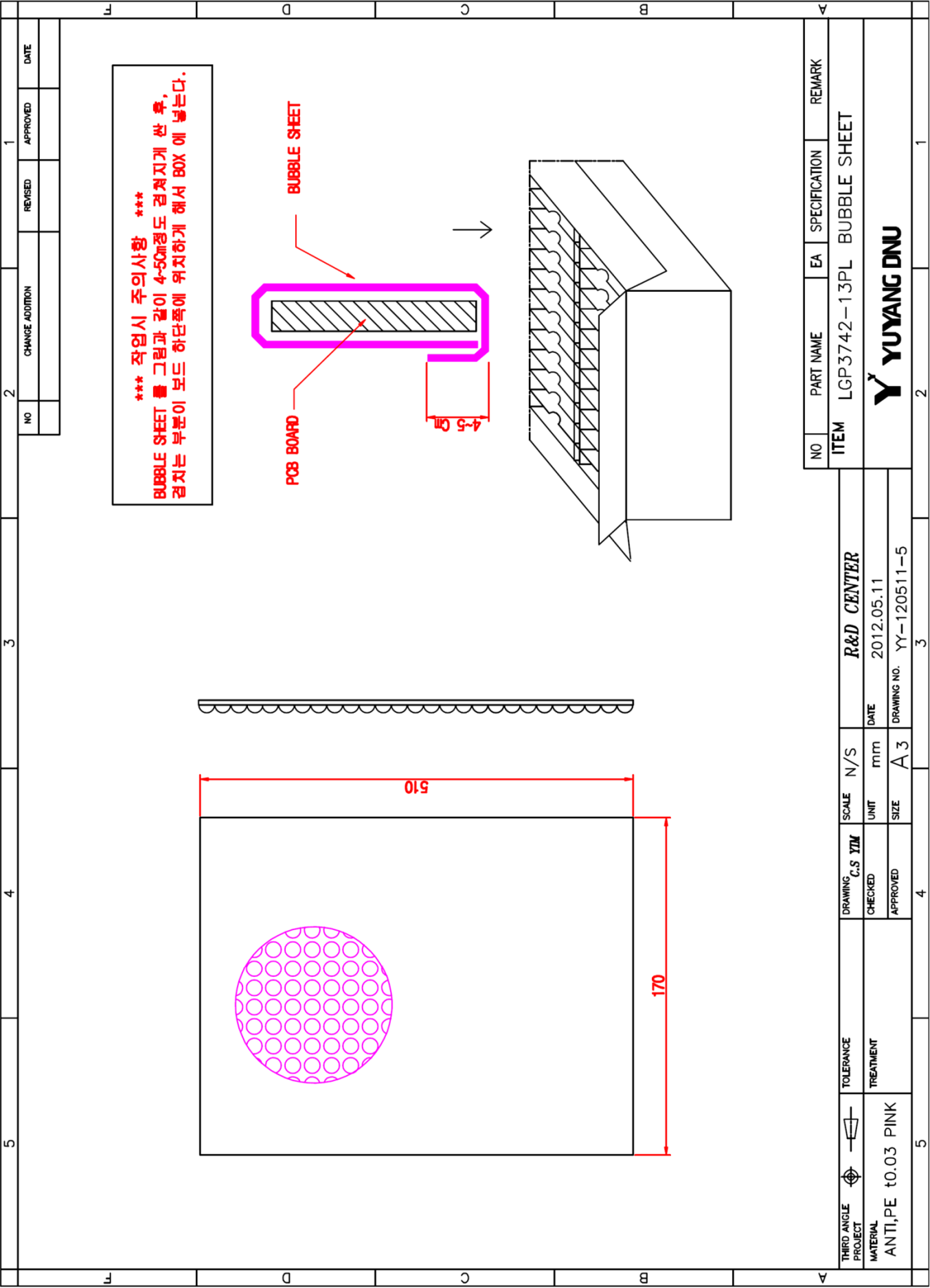
45

46









NO	PART NAME	EA	SPECIFICATION	REMARK
ITEM	LGP3742-13PL	BUBBLE SHEET		
YUYANG DNU				
R&D CENTER				
DRAWING C.S YTM		SCALE	N/S	
CHECKED		UNIT	mm	DATE 2012.05.11
APPROVED		SIZE	A3	DRAWING NO. YY-120511-5
THIRD ANGLE PROJECT	TOLERANCE			
MATERIAL ANTI,PE t0.03 PINK	TREATMENT			

Bar-Code Label Drawing

※ **Bar Code Size**는 그림의 **size**가 최소**size**이며,
업체 기준 및 **PCB**공간에 따라 변경 할 수
있으나, 그림의 **size**보다 줄일 수는 없음.

일자표기 방법

Method of marking	Date	Method of marking	Date	Method of marking	Date
1	1	B	11	M	21
2	2	C	12	N	22
3	3	D	13	P	23
4	4	E	14	Q	24
5	5	F	15	R	25
6	6	G	16	S	26
7	7	H	17	T	27
8	8	J	18	U	28
9	9	K	19	V	29
A	10	L	20	W	30
				X	31

PSU Bar Code Label Spec



T 9 D 1 A 62810501 0001 (3.3)

Approval Revision History

(Bar code should not be read during scanning work.)

Serial No. (10 Digit No. or 34 Digit No)

Part No of LGE (EAY62810501)

Manufacturing Line (A, B, C)

Manufacturing Date [1,2,3,4,5,6,7,8,9,A,B,C,D,E,...X]

Manufacturing Month (1, 2, 3, ... Oct.: O, Nov.: N, Dec.: D)

Manufacturing Year(9:2009 / A :2010 / B :2011 ...)

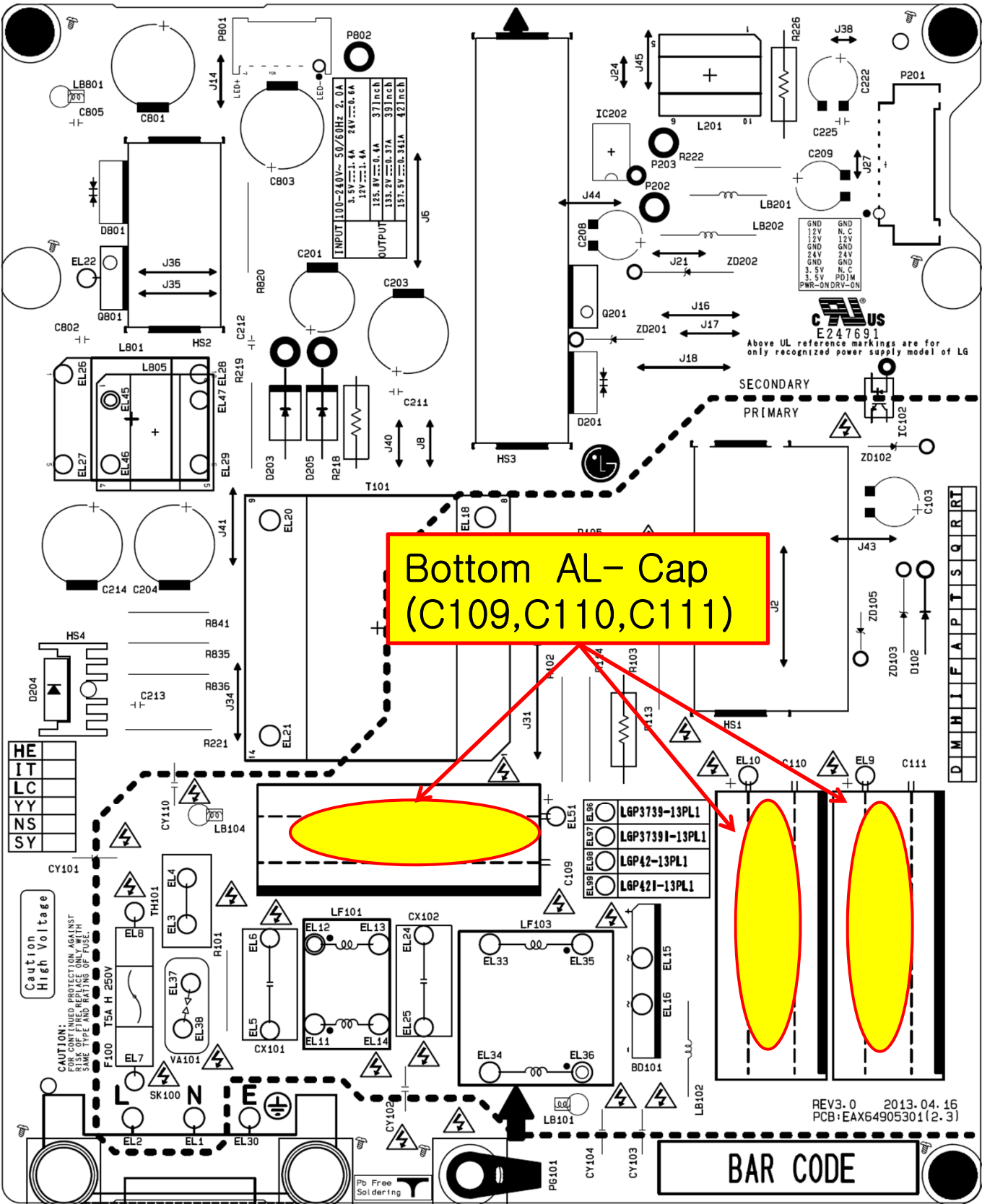
Supplier Code (L : LGIT / B : H&E / T : YY..)

Labeling Point



Workmanship Point

Silicone Bonding Point (●)



Manufacturing Process

공정번호	공정 흐름도	중요도	공정명	작업내용	4M			
					Man(사람)	Machine(장비)	Material(재료)	Method(방법)
1			수입 검사	샘플 수입 검사 진행		D/Calipers (Mitutoyo) M/Meter (Mitutoyo) PIN Gauge (Eisen) L.C.R Meter (HP) 내압기 (Extech) 전자 현미경 (ICALSCOPE) DCR Meter (GW Instek) 석정반 (성진이앤지)		수입검사 기준서
2			AI	자살		Equence Axial (Dynapert) Radial (Panaset) Eyelet (은성) Jumper전용기	승인원 대치	Axial / Radial 리드 각도 : 15 ~ 25도 리드 길이 : 1.5 ~ 2mm
3			SMT	Chip자살		AIS-K411-R2SS (TSM) VIP-98 (N BTU Eng co.) 1810 (Exd Heller) HDP-2C (Panasonic) YV-64D (Yamaha) HSD-X (Yamaha) HSD-XG (Yamaha) YV-100XS (Yamaha) YV-100XS (Yamaha) YVL88II (Yamaha) YVL88XF (Yamaha) YV-100XF (Yamaha) YV-100XF (Yamaha) YV-100X (Yamaha) YV-10	승인원 대치	1. 미삼, 오삼, 역삼 없을 것 2. Chip 틀어짐 PCB PAD 에서 1/3 이상 벗어 났을 경우 NG 3. 점착 강도 1608 : 1kgf 이상 2012 : 1.3kgf 이상 3216 : 1.5kgf 이상
4			H/S 준비작업	H/S 준비작업			승인원 대치	1. 치수에 맞게 작업 할 것
5			수삽	부품 삽입			승인원 대치	오삼,미삼,역삼,철삼 없을 것
6			수삽 외관 검사	수삽 부품 확인 (미삼/오삼역삼)				
7		CTQ	Wave Soldering	납땜	홍호선사원	SAF-700 (신명기전) SAS-680LTP (신명기전) SAS-680TP (신명기전) SAS-680 (신명기전)	HSE-11 B20 WIRE(희성) SN:99%, AG:0.3%, CU:0.7%	공정 관리 기준 Au : 0.2wt% 이하 Cu : 1.2wt% 이하 Zn : 0.0005wt% 이하 Bi : 0.025wt% 이하 Fe : 0.02wt% 이하 Cd : N.D Pb : 0.1% 이하 - 0.08 over 시 교체
8			중간 검사	수삽 부품 확인 (미삽/오삽역삽)				
9			Soldering면 납땜 수정	납땜 상태 확인 수정			HSE-HGF10(희성금속)	
10			반면 검사	납땜 상태 확인 검사				
11			ICT	ICT검사		CMS-9000 FX (우리회사) CMS-9000 FX (우리회사) CMS-9000 FV (우리회사)		1. 오삼,미삼,역삼,open,short 검출 2. PASS, FAIL 판정 확인
12			동작검사	동작 출력치 확인		ATS1000(1),ATS500, ATS1000(2) (비오비엔터프라이즈)		1. TEST JIG 및 CONVEYOR 에 제품 장착상태 확인 2. PASS, FAIL 판정 확인 (FAIL시 경광등 울림)
13		Safety CTQ	내압Test	내압 검사		7142 (Extech)		1. TEST JIG 및 CONVEYOR 에 제품 장착상태 확인 2. PASS, FAIL 판정 확인 (FAIL시 경광등 울림)
14			실리콘 도포	실리콘 도포			QS9112(KCC) OKE-410(OKONG)	
15		CTQ	Aging	Aging진행		Aging System (아진전자)		1. CABLE 연결상태 확인 2. 출력전압 확인용 LED 상태 확인 3. 부품 BURNT 유/무 확인

16 Repair NG G	CTQ	특성 검사	제품 출력치 확인	감재규 대리, 이용순 반장 정경택 대리, 문경덕 사원	ATS1700(1),ATS1700(2) ATS1200,ATS1600, ATS1000(3),ATS1500 (비오비엔터프라이즈)		1. 자재의 오상, 설상, 미상 상태 확인 2. 냉납, SHORT, 납불등 SOLDERING 상태 확인 3. READ 길이 확인 (MAX 2.5mm) 4. 실리콘 BONDING 상태 확인
17 Repair NG G		외관 검사	제품 외관 검사진행				
18		실장/포장	실장 검사 포장진행			SK SK A궐 1층, SK SSKK DW 2 층, SK SK B궐 1층, 수K수 수출용 2층(제일포장산업)	
19		출하 검사	제품 품질 보정, 출하 검사 진행		ATS3000 (비오비엔터프라이즈)		출하 검사 기준서

Appendix List

No.	Contents	Total Page number
1	Power Check list	9 Page
2	Warranty letter	2 page

Appendix 1.

POWER CHECK LIST

Revision History		Rev	DATE	REMARK
1	기존 PCB Check Sheet Ver1.9 에서 신규 Power Check Sheet Ver1.0 으로 개정 함	1.0	2011.06.02	
2	1. 필수 Marking사항 - 14번 항목 추가 2심일 경우 PSU 2심 기기 규격마크 체크항목 추가 2. Component - 13번 항목 추가 누운 type의 choke coil일 경우 유동에 따른 lead 설삽 발생 방지를 위해 중점 검사 항목 지정 관리함	1.1	2012.05.23	
3	1. PCB pattern 간격 - 9번 항목 추가 IT / TV PCB 공용을 위해 GND pattern 두께 8.5mm or Jump wire 삽입 내용 추가	1.2	2012.10.30	

Details Check Item		RESULT		REMARK
▶ 부품 LOCATION NO.		OK	NG	
1	Power 1차측 회로 Location No.가 100번대 일 것 (Multi 1차측 포함)	OK		
2	Power 2차측 회로 Location No.가 200번대 일 것 (Stand by 2차측, Multi 2차 포함)	OK		
3	Inverter 1차측 회로 Location No.가 300번대 일 것	OK		
4	Inverter 2차측 회로(F/B,OVP회로부 포함) Location No.가 400번대 일 것	OK		
5	Stand by 1차측은 Location No.가 500번대 일 것	OK		
6	PFC단은 Location No.가 600번대 일 것	OK		
7	MICOM 주위는 Location No.가 700번대 일 것	OK		
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		
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 회로Location No.는 EL***로 시작할 것	OK		
30	Gripper의 회로Location No.는 G***로 시작할 것	OK		
31	Holder의 회로Location No.는 HD***로 시작할 것	OK		
32	Thermistor의 회로Location No는 TH***로 시작할 것	OK		
33	Metal Ground의 회로Location No.는 PG***로 시작할 것	OK		
34	Line Filter의 회로Location 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 회로Location No는 IC***로 시작할 것	OK		2007.04.16 DDC 표준
37	Relay의 회로 Location No.는 RL***로 시작할 것	OK		
38	Y-Capacitor의 회로Location No는 CY***로 시작할 것	OK		
39	X-Capacitor의 회로Location No는 CX***로 시작할 것	OK		
40	Fuseble Resistor의 회로Location No는 R***로 시작할 것	OK		
▶ 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) 
2	Primary(L,N) ⇔ Safety GND 간격이 3mm이상일 것 (단, 2심일 경우 6mm 이상 일 것)	OK		
3	Live ⇔ Neutral 간격이 3mm 이상일 것	OK		
4	Primary ⇔ Secondary 부품간 공간 거리는 6mm이상일 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		
9	FG GND 접지 연속성(40A/2분) test 만족 시킬것. →TV PSU 설계 단계에서 IT Safety 기준으로 설계. (GND pattern 두께 8.5mm 설계 or Jump wire 삽입, EMI 문제 발생시 Skip 할수 있음)	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 시 킬 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 한 함.
4	1차 평활 Cap 3mm 영역 내 아래로 Pattern이 지나가지 는 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 Trans 에 한함
6	Trans의 경우 300V 기준으로 Barrier 8mm 이상 사용하 고 있을 것 (Note 0) (Barrier를 줄이기 위해 Wire에 Tube 사용가능, 규격 GR. 필 확인 사항)	OK		첨부화일 참조. (Creepage)
7	AC Inlet의 경우 Yellow - Green wire의 Screw 3.5Φ 이 상일 것. * Y/G wire를 사용하지 않을 경우, PCB Pattern으로만 대응 시엔 200A Test통과할 것 * Safety GND는 독립적으로 GND역할만 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. Core에 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		
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 이 격을 시킨다. (적용이 어려울 경우, 반드시 Insulation sheet 추가한다.)	OK		
12	2차 측 출력 Wafer 는 고정 PIN 추가 TYPE 적용 할 것 (단, LPB 일 경우 Micom Deberging 용 Wafer 는 제외)	OK		
13	누운 type의 choke coil일 경우 유동에 따른 lead 설 설 발생 방지를 위해 중점 검사 항목 지정관리를 한다.	OK		첨부화일 참조. (choke coil)

NOTE 0

Creepage

NOTE 1

CAPACITOR

NOTE

Choke coil

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 유침 파일 참조 요망, 그리고, 반드시 규격에 최종 확인 받을 것.	OK		2심은 제외함
3	Fuse rating(전압,T,전류,H), caution(규격 문구), UL Mark 는 입력되어 있을 것 Ex) T5A H 250V 형식으로 표시함 * caution: UL에 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, PCB 에 마킹 되었는지 확인 할 것. - 표기 값 : 600V 이상 (CTI 600)	OK		
12	Critical Component List 기준으로 회로도에 Caution 마크 넣을 것 	OK		
13	PCB 에 Screw 마크 넣을 것 	OK		
14	PCB 에 2심 기기 규격 마크 넣을 것 	OK		단, 2심 일 경우에만 적용함

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 Surge 로 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			
2	Inverter Trans로 부터 주변 4mm 이내에 소신호 AC pattern이 지나갈 시에는 OVP/OLP 등 Worst 상태를 반드시 확인하여 이상이 없을 것 (Feed Back Line 포함) [AC입력으로 부터 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.]	-		
3	Inverter 출력부에 적용한 고압 Capacitor의 Lead는 인위적 힘을 가하여도 주변 부품과 Touch 되지 않도록 절연 거리 확보 or Bodning 적용할 것. (특히, 다른 고압 Capacitor의 body와 touch 되지 않도록 할 것)	-		
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)	-		
5	고압 Inverter wafer 는 수평 Type 일 것.	-		

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 Resistor 미적용 시 Relay Open Test 확인 하여, PL 조건 만족할 것)	OK		첨부화일 참조(Relay)
6	1차 Control IC의 IC Vcc 정류Cap.은 High Ripple, Low Impedance Cap. 사용할 것.	OK		
7	RN Type (Metal Film Type) Resistor는 100kohm이상 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 현물을 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 조치한 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 LGP42-13PL1(EA Y62810501)_안정성 PL Check	OK		

Appendix 2.

WARRANTY LETTER

Non-use certificate

Description	For approval/ For mass production	Submitting date	2013 . 08. 07
-------------	-----------------------------------	-----------------	---------------

Cooperating suppliers

Company name	YUYANG DNU CO.,LTD.	Approval	Person in charge	Head of department
Contact	Tel.:82-31-350-7406	Name	KIM SANG OK	CEO
e-Mail	sokim@yuyang.co.kr	Signature	 D:WTV & MFTW Pb FreeWROHSWarranty	 <i>Sang Ok Kim</i> PRESIDENT SANG OK KIM
LGE Part No.	EAY62810501	Part production date	filling the sheet in case of mass production	
Maker Part No.	LGP42-13PL1	Production plant	HWASUNG in KOREA QINGDAO in CHINA	
Part name	LGP42-13PL1			

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 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 ☐ Reflow (Requirement : 250℃ / 10sec)

1. Maximum heat-resisting temperature : 260℃

2. Time within actual Peak time : 10

☒ 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.