Scanning	LIB.

Safety

RoHS

SPECIFICATION FOR APPROVAL

- **CUSTOMER : LG Electronics inc.**
- **ITEM : Power Supply Unit.**
- **P/NO**

Model Name	Customer	Supplier
LGP32M-12P-3P	EAY62512402	PSLC-L115B

- **DATE : 2013.11.15**
- **Revision : 2.2**
- **Remark : MP (PCB REV 2.0)**

Producing District : Yantai, CHINA (중국 연태)
(생산지) **Bekasi, INDONESIA** (인도네시아 베카시)
Gwanju, KOREA (한국 광주)

★ 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.

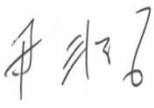
(Cd: 10ppm under, Pb/Hg/Cr+6/PBB/PBDE: 100 ppm under)

LG Innotek

LG Innotek Co., Ltd
Seoul Square 20F, Namdaemunno 5-ga
Jung-gu, Seoul, 100-714, Korea

Documentation For Approval

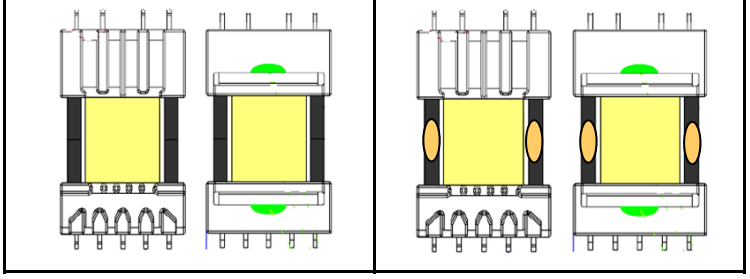
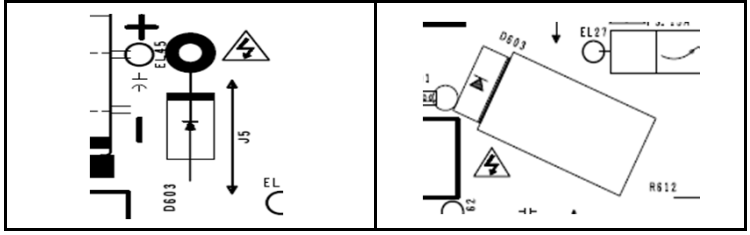
Model Name	Customer	Supplier
LGP32M-12P-3P	EAY62512402	PSLC-L115B

Written	Checked		Approved
			

Contents

Revision History

Rev No.	Contents	Date of Approval	Checked	Remark
0.1	Apply to PV1 (PCB REV 0.1) PCB P/No. : EAX64744501(1.0) PV 1st Edition.	11.11.16	J.J.Park	
0.2	Apply to PV2 (PCB REV 0.3) PCB P/No. : EAX64744501(1.2) 1. Improve EMI & Surge - Add C514 : Ceramic Capacitor 47pF 1KV PV 2nd Edition.	11.12.09	J.J.Park	
1.0	Apply to MP (PCB REV 1.0) PCB P/No. : EAX64744501(1.3) MP Edition.	12.01.13	J.J.Park	
1.1	Apply to MP (PCB REV 1.0) PCB P/No. : EAX64744501(1.3) 1. BOM Modification - C114 : Cheng-Tung Remove 2. Addition a bonding : Between CY102 and LF101, Running Change (back cover touch prevention) MP Edition.	12.02.08	J.J.Park	
1.1	Apply to MP (PCB REV 1.0) PCB P/No. : EAX64744501(1.3) 1. Change 1uF MLCC Capacitor Vendor. - Only use supplier : TDK, MURATA - Applied date : 2012.07.01 MP Edition.	12.06.20	J.J.Park	

Rev No.	Contents	Date of Approval	Checked	Remark
1.2	**Apply to MP (PCB REV 1.0)** **PCB P/No. : EAX64744501(1.3)** **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** Before / After  **MP Edition.**	12.06.29	J.J.Park	
1.3	**Apply to MP (PCB REV 1.0)** **PCB P/No. : EAX64744501(1.3)** **1. Box Change** **- Add : Box Silk (Bar Code and Tape Line)** **MP Edition.**	12.08.24	J.J.Park	
2.0	**Apply to MP (PCB REV 2.0)** **PCB P/No. : EAX64744501(1.5)** **1. Change the type of PFC Output Diode** **- Location : D603** **- Axial type → TO-220 type** Before / After  **MP Edition.**	12.10.18	J.J.Park	

Rev No.	Contents	Date of Approval	Checked	Remark
2.1	**Apply to MP (PCB REV 2.0)** **PCB P/No. : EAX64744501(1.5)** **1.Change production site of LGIT Trans** **- LGIT Yantai → CLOVER Mundeung OEM** **MP Edition.**	13.01.10	J.J.Park	
2.2	**Apply to MP (PCB REV 2.0)** **PCB P/No. : EAX64744501(1.5** **1. L6599AD change assembly site and material** **As is ;** **Before Change** I. Old Assembly site : Amkor in Philippines → "B" marking II. Labels : Assembled in Philippines III. Old Wire : Au **To be ;** **After Change** I. New Assembly site Shenzhen in China → "K" marking II. Labels : Assembled in China III. New Wire : Copper(Cu) **2. 4M Change Process** **1)Responsibility of 4M Change ; LGE** **2)Running Change ; Yes** **3)Goods of Stock ; no rework**	13.11.15	K.T.Choi	

CTQ Management

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 32 inch LGE LED TV.

1.2 Customers product related items

Product : Power Supply Unit
Part code : EAY62512402

1.3 Product name

Product name : LGP32M-12P-3P

Revision code : 2.2

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 1.2Arms . (at 100Vac & Nominal Load) Under 0.8Arms . (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 Set condition.
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

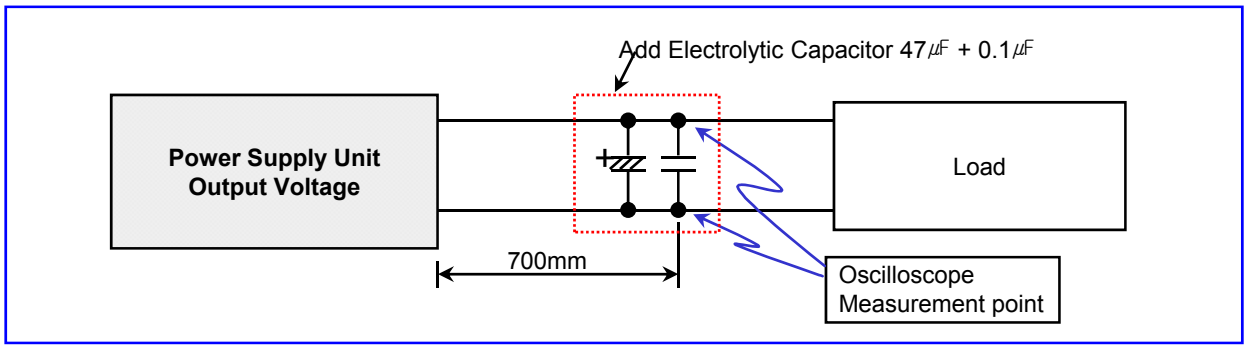
over than 0.9 at 90 – 264Vac & max load condition

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	0.3W Under (15mA)	-	-
		1.3A (0~1.3A) (ON condition)	± 5%	250 mVp_p (Set condition)
12V	11.4V ~ 12.6V	1.8A (0.3~1.8A)	± 5%	350 mVp_p
24V	22.8V ~ 25.2V	2.4A (0.1~2.4A)	± 5%	500 mVp_p

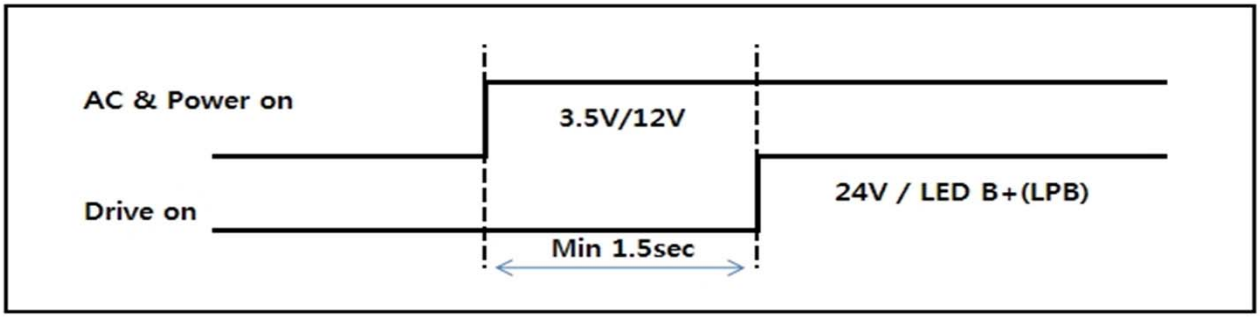
* On Condition : In a moment of Power_ON Signal activated, the current of 3.5V output should be limited within 40mA(Max) at LCD TV condition for stability.
Do not turn "Power_ON" Signal on at the load condition of 3.5V output, more than 40mA.
* Total regulation for each output circuit includes the results 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)

* Power turn on system (Only E/Load condition)
If Main Board is opened, that is electrical load condition,
drive on signal must be turn on after about 1.5s behind power on signal



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 %
MTBF (Mean Time Between Failure)	50,000 hour
Cooling Condition	Natural Air
Shock	98 ㎨ 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 2121V 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 2 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	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 600g
Unit Size	195(W) X 162(L) X 18.9(H)

2.9 Function of protection

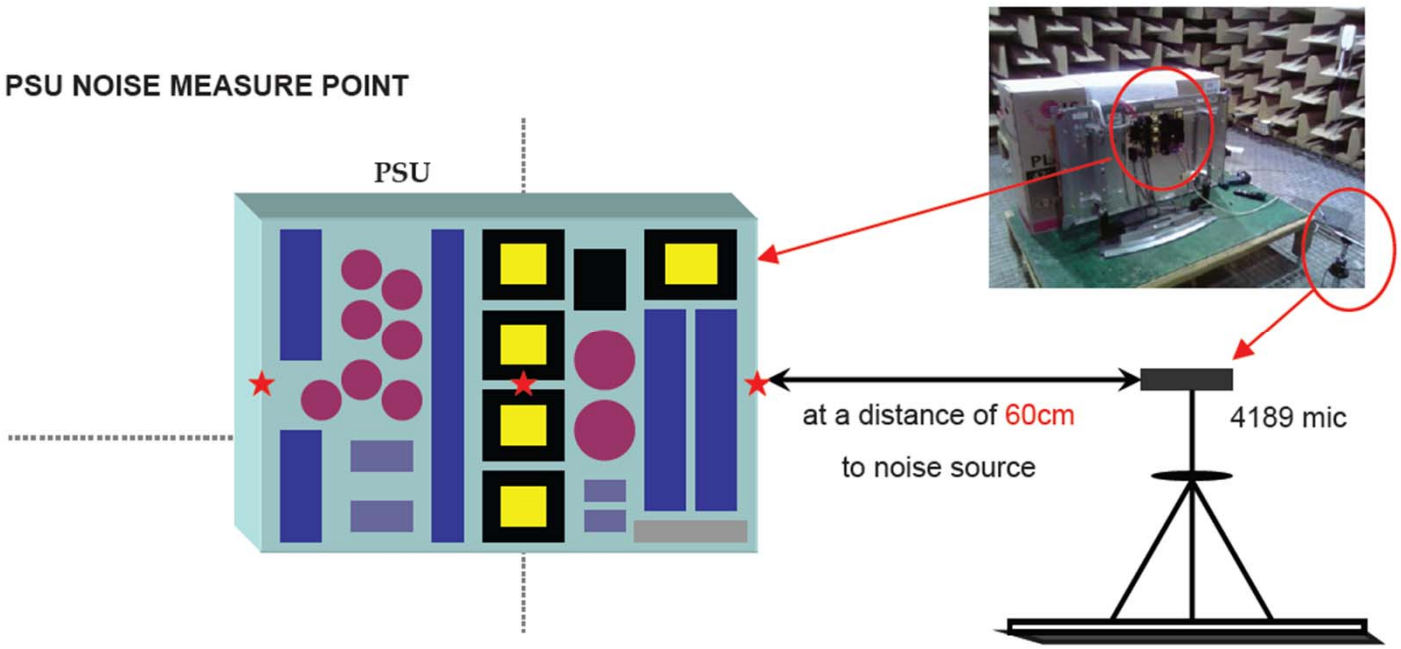
Protection	Output Circuit	Trip Point		Notes
		Min	Max	
Over Current	STBY 3.5V	2.0A	4.0A	Auto Re-start
	12V	4.0A	10.0A	Latch
	24V	3.0A	8.0A	Latch
Short Circuit	STBY 3.5V	-		Auto Re-start
	12V	-		Latch
	24V	-		Latch

* 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.u 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)



2.11 Connector Specification

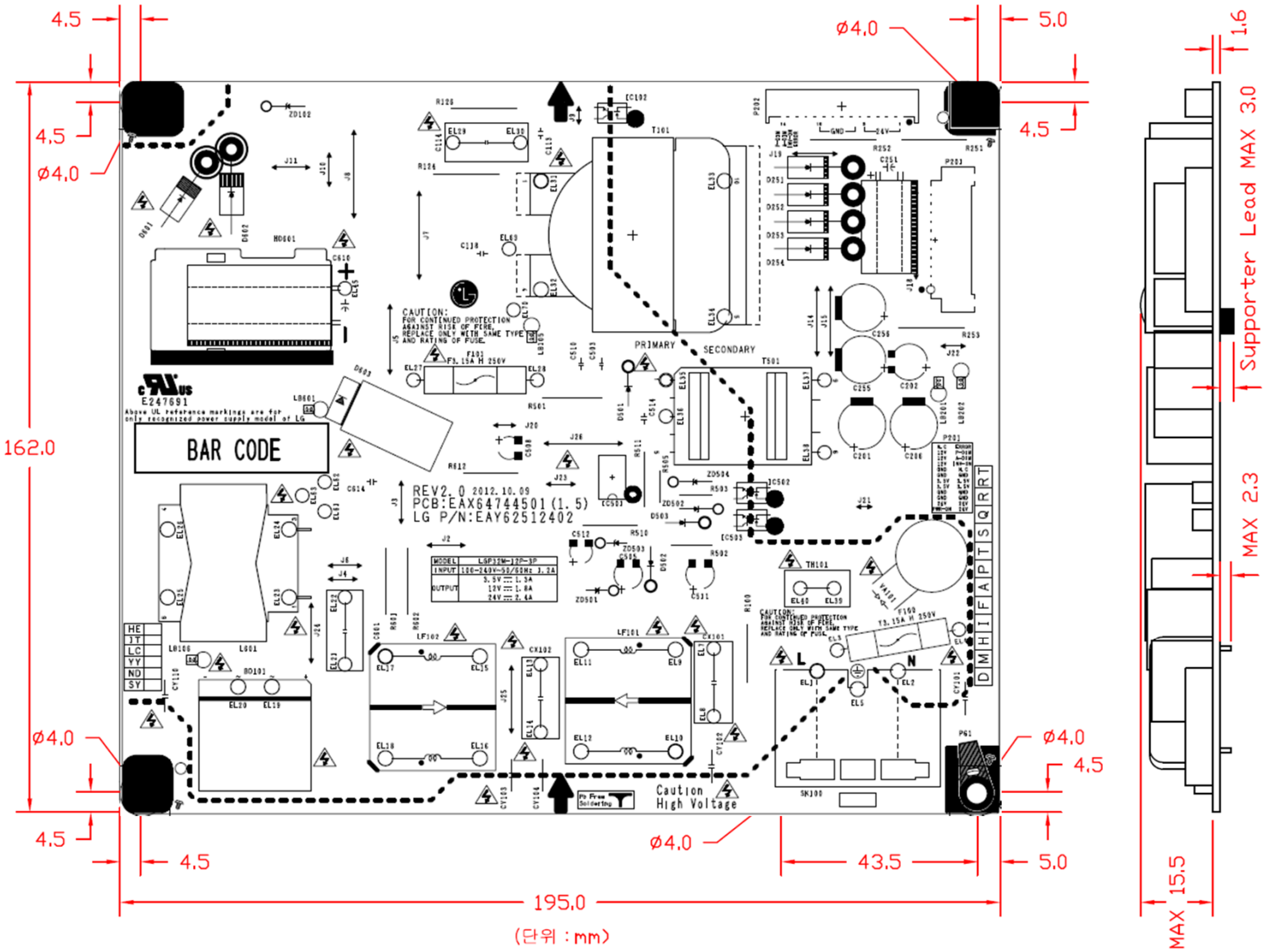
2.11.1 Connectors Usage

SK100	
Type : 90011WR-H03D Maker : YEON-HO	
Pin No.	Signal
1	LIVE
2	F.G
3	NEUTRAL

P202	
Type : 20022WR-14BD(H14BD2) 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
13	A-DIM
14	P-DIM

P201			
Type : SMAW200-H24S2 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
19	12V	20	A-DIM
21	12V	22	P-DIM
23	N.C	24	ERROR

2.12 PCB Dimension.

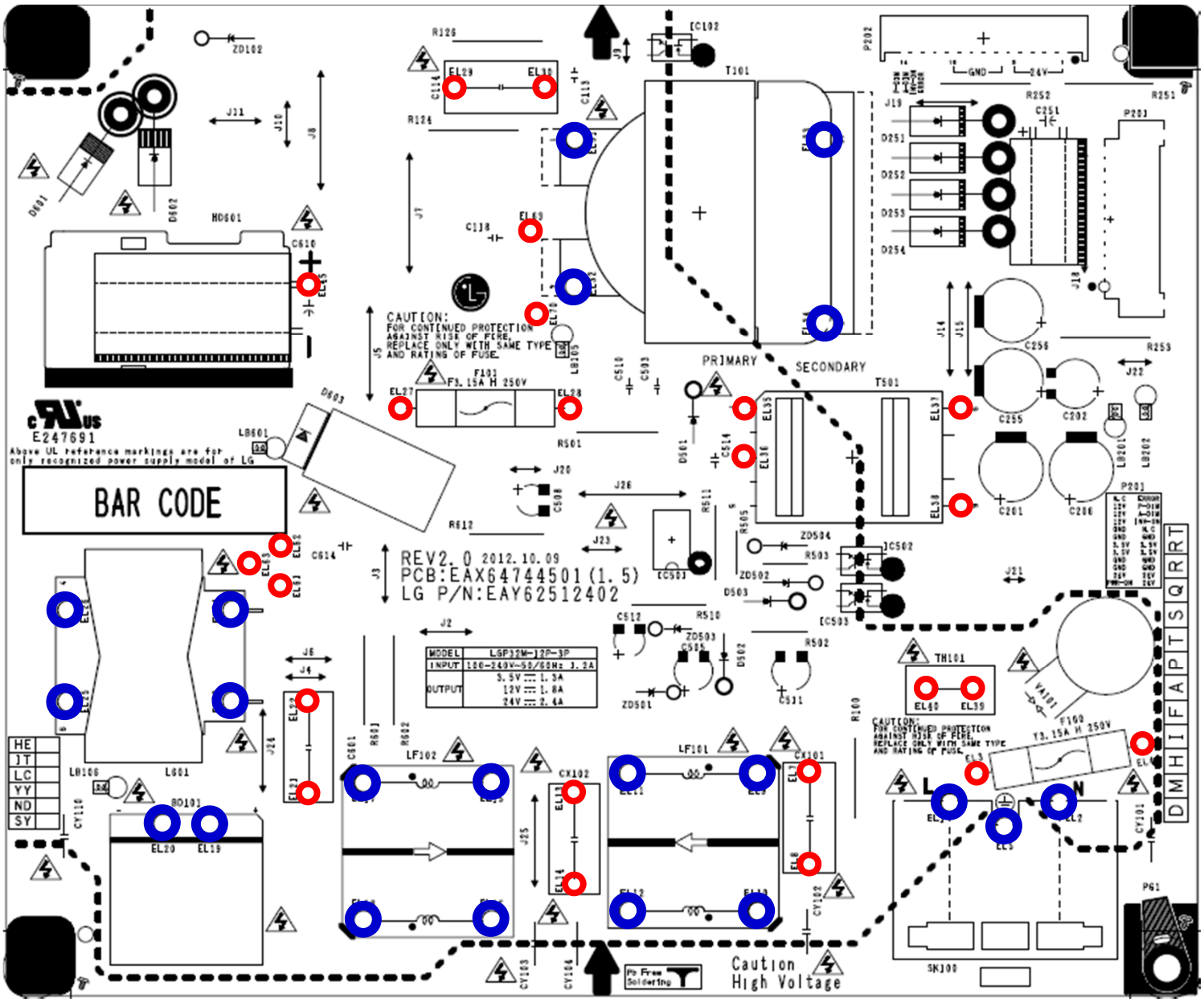


1) Power board PCB	:	195mm X 162mm X 1.6(T)mm
2) Component Height	:	Max 15.5mm
3) Lead Cutting	:	Max 2.3mm (except HD Max 3.5mm)
4) PCB Material	:	FR-1,KB,DS,L, CTI-600

2.13 Apply to the Eyelet point. (LGP32M-12P-3P)

Apply to the Eyelet point 2.0Φ : EL1,EL2,EL5,EL9,EL10,EL11,EL12,EL15,EL16,EL17,EL18,EL19,EL20,EL23,EL24, EL25,EL26,EL31,EL32,EL33,EL34 (21EA)

Apply to the small Eyelet point 1.6Φ : EL3,EL4,EL7,EL8,EL13,EL14,EL21,EL22,EL27,EL28,EL29,EL30,EL35,EL36, EL37,EL38,EL39,EL40,EL45,EL61,EL62,EL63,EL69,EL70 (24EA)



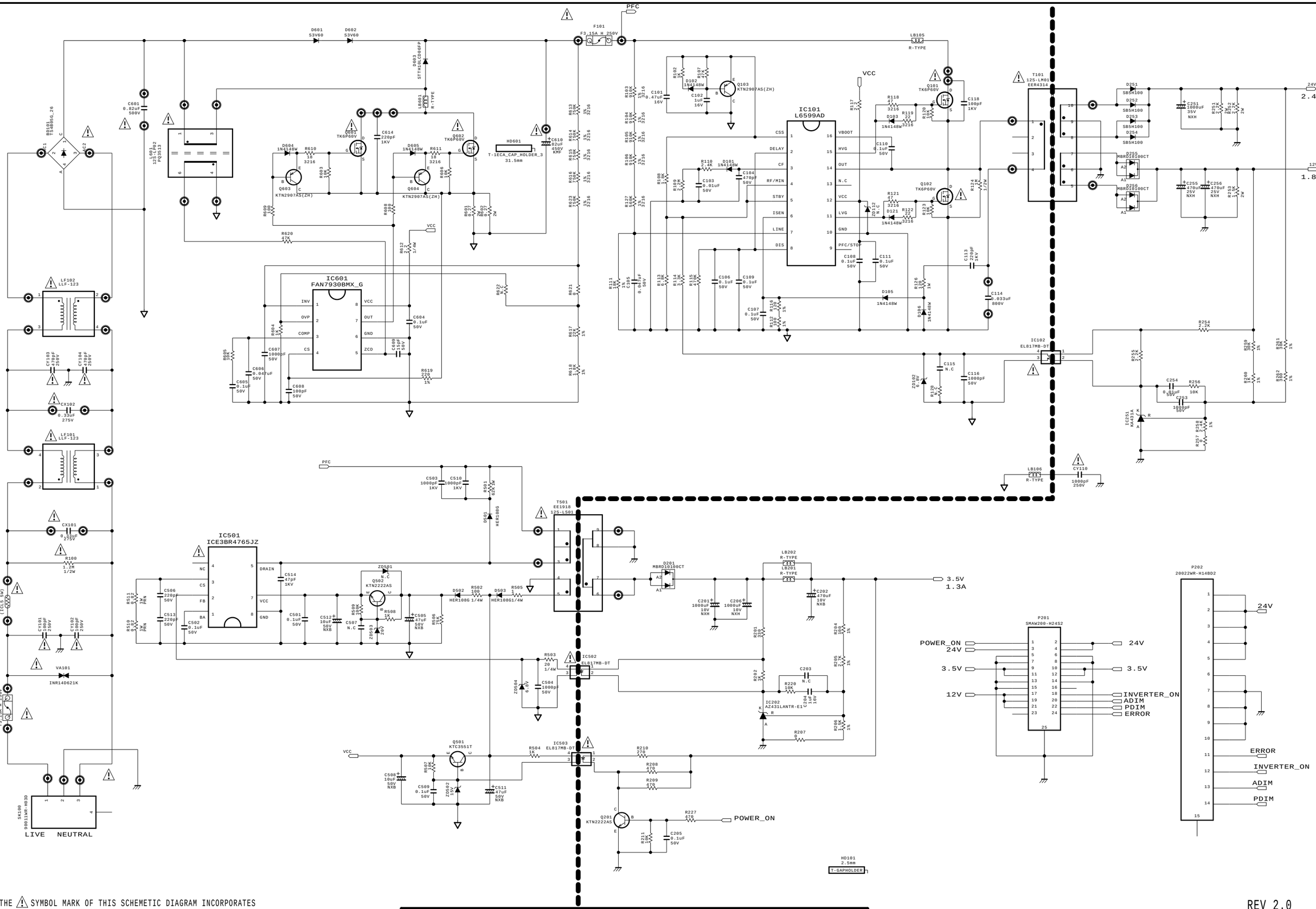
2.14 Electrical Characteristics

<table>
<tr><th>No.</th><th>Test Item</th><th>Test method</th></tr>
<tr><td>1</td><td>Intermittent Operation stability Test</td><td>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.</td></tr>
<tr><td>2</td><td>Low temperature operation</td><td>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.</td></tr>
<tr><td>3</td><td>Low temperature Storage test Leave At low temperature</td><td>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.</td></tr>
<tr><td>4</td><td>Heat cycle storage test</td><td>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></td></tr>
<tr><td>5</td><td>Heat shock test</td><td>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.</td></tr>
</table>

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/s∧2 Vibration in X,Y,Z direction for 30 minutes While applying electricity : Vibration frequency : 5 ~ 100Hz Acceleration : 14.7 m/s∧2 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/s∧2 On the oak more than 10mm thickness with the flat face, raise the one side for 50mm, and it carries out each side free fail for three sides. There shall be no damage to appearance and construction.

Schematic Diagram



THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMETIC.

SECRET

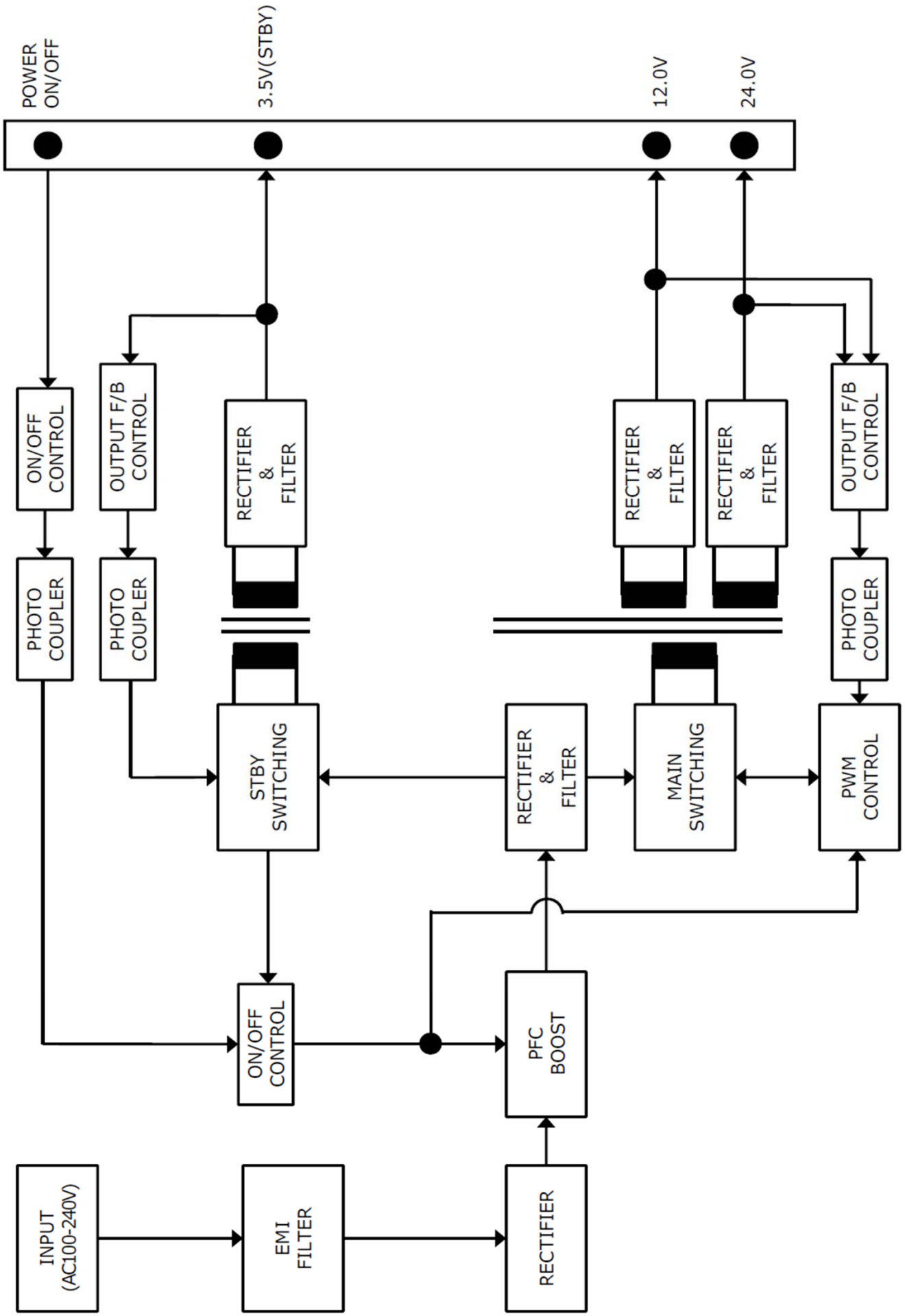
LGElectronics

LG ELECTRONICS

REV 2.0

MODEL	LGP32M-12P-3P	DATE	'12.10.09
BLOCK	PFC\STBY\MULTI	SHEET	1 / 1

Block Diagram


POWER ON/OFF
3.5V(STBY)
12.0V
24.0V
ON/OFF CONTROL
OUTPUT F/B CONTROL
RECTIFIER & FILTER
RECTIFIER & FILTER
RECTIFIER & FILTER
OUTPUT F/B CONTROL
PHOTO COUPLER
PHOTO COUPLER
PHOTO COUPLER
STBY SWITCHING
RECTIFIER & FILTER
MAIN SWITCHING
PWM CONTROL
ON/OFF CONTROL
PFC BOOST
INPUT (AC100-240V)
EMI FILTER
RECTIFIER

Parts List

NO.	L/V	Q'ty	UNIT	LOCATION	SPECIFICATION	DESCRIPTION	MAKER
	MI				LGP32M-12P MI COMPONENTS	MI ASSEMBLY	
1	MI	1	EA	BD101	TS4B05G-26 600V 4A TS4B05G 600V 4A KBJ406G 600V 4A D4SB60L 600V 4A RS405M 600V 4A	DIODE	TSC DACHANG LITEON SHINDENGEN RECTRON
2	MI	1	EA	C610	KMF 82uF 450V M P7.5 Φ18X31.5 SK 82uF 450V M P7.5 Φ18X32	CAPACITOR, ALUMINUM	SAMYOUNG SUSCON
3	MI	1	EA	C251	NXH 1000uF 35V M RB P5 Φ12.5X20 MG 1000uF 35V M RB P5 Φ13X21	CAPACITOR, ALUMINUM	SAMYOUNG SUSCON
4	MI AI	2	EA	CY101,CY102	NK 100pF 250V K P10 ,Y1 CD 100pF 250V K P10 ,Y1 CT81 100pF 250V K P10 ,Y1 SD 100pF 250V K P10 ,Y1 DA 100pF 250V K P10 ,Y1	CAPACITOR, CERAMIC	APEX INTEC TDK YINANDON SAMWHA DONGIL ELEC.
5	MI AI	2	EA	CY103,CY104	NK 470pF 250V K P10 ,Y1 CD 470pF 250V K P10 ,Y1 CT81 470pF 250V K P10 ,Y1 SD 470pF 250V K P10 ,Y1 DA 470pF 250V K P10 ,Y1	CAPACITOR, CERAMIC	APEX INTEC TDK YINANDON SAMWHA DONGIL ELEC.
6	MI AI	1	EA	CY110	NK 1000pF 250V M P10 ,Y1 CD 1000pF 250V M P10 ,Y1 CT81 1000pF 250V M P10 ,Y1 SD 1000pF 250V M P10 ,Y1 DA 1000pF 250V M P10 ,Y1	CAPACITOR, CERAMIC	APEX INTEC TDK YINANDON SAMWHA DONGIL ELEC.
7	MI	1	EA	C601	PCMP 372/472 0.82uF 500V J P15 MP 0.82uF 500V J P15 CTH 0.82uF 500V J P15 MPHB 0.82uF 500V J P15	CAPACITOR, FILM	PILKOR LUMEN CHENG TUNG EUROPTRONIC
8	MI	1	EA	C114	PCMP 384 0.033uF 800V J P15 NP 0.033uF 800V J P15 MPLB 0.033uF 1000V J P15	CAPACITOR, FILM	PILKOR LUMEN EUROPTRONIC
9	MI	2	EA	CX101,CX102	PCX2 337 0.33uF 275V P15 CTX 0.33uF 275V P15 MPX 0.33uF 275V P15	CAPACITOR, FILM	PILKOR CHENG TUNG EUROPTRONIC
10	MI	2	EA	D601,D602	1N5408G 1KV 3A P20 S3V60 600V 3.5A P20 30PDA60 600V 3A P20	DIODE	TSC SHINDENGEN NIHON INTER
11	MI	1	EA	D603	STTH10LCD06 600V 10A TO-220FP BYV29FX-600 600V 9A TO-220FP	DIODE	STM NXP
12	MI	4	EA	D251,D252,D253,D254	SB5100 100V 5A P20 SB5100 100V 5A P20 SR510-24 100V 5A P20	DIODE	SENSITRON LITEON TSC
13	MI	1	EA	F101	F3.15A H 250V 216 VIOLET(2-LINE) F3.15A H 250V 50CF VIOLET(2-LINE)	FUSE, FAST ACTING	LITTELFUSE Dainfuse
14	MI	1	EA	F100	T3.15A H 250V 215 VIOLET(1-LINE) T3.15A H 250V 50CT VIOLET(1-LINE) T3.15A H 250V TSC VIOLET(1-LINE)	FUSE, TIME LAG	LITTELFUSE Dainfuse WALTER
15	MI	1	EA	PG1	JS-12-75-04 SPCC 0.4T	GND REINFORCE	SAMSUNG JS ST TELECOM
16	MI	3	EA	IC102,IC502,IC503	EL817MB(DT) LTV817M-BN	IC	EVERLIGHT LITEON
17	MI	1	EA	IC501	ICE3BR4765JZ	IC	INFINEON
18	MI	2	EA	LF101,LF102	CS915200SBA, 19Φ, 20mH LH9B019200, 19Φ, 20mH LLF-123, 19Φ, 20mH LLF-123, 19Φ, 20mH	LINE FILTER	TNC DONGIL TECH DONG YANG TELECOM FEELUX
19	MI	1	EA	TH101	DSC5D15 5Ω 6A Φ15 L-FORMING MF72-5D15 5Ω 6A Φ15 L-FORMING WTR15D5 5Ω 6A Φ15 L-FORMING ICL-5W 5R00MSMT	THERMISTOR NTC	DSC NSE Xiamen Wanming SMART(ICL)
20	MI	1	EA	T101	12S-LM01 (EER4314, 380uH)	TRANSFORMER	BUJEON JIANGSU CHANNELON FEELUX DONG YANG TELECOM LG Innotek LIENCHANG SOOJUNG TDK
21	MI	1	EA	L601	12S-LP02 (PQ3513, 220uH)	TRANSFORMER	BUJEON JIANGSU CHANNELON FEELUX LG Innotek LIENCHANG SOOJUNG TDK
22	MI	1	EA	T501	12S-LS01 (EE1918, 1.1mH)	TRANSFORMER	BUJEON JIANGSU CHANNELON FEELUX DONG YANG TELECOM LIENCHANG SOOJUNG TDK
23	MI	1	EA	VA101	INR14D621K-CAP 620V Φ14 L-FORMING TUBE WMR14D621K 620V Φ14 L-FORMING TUBE SVC621D-14ATM7 620V Φ14 L-FORMING TUBE	VARISTOR	AMOTECH Xiamen Wanming SAMWHA
24	MI	1	EA	HD601	T-1ECA_CAP_HOLDER_3(31.5mm)	CAP HOLDER	TBI
25	MI	1	EA	P202	20022WR-14BD 20022WR-H14BD2	WAFER	YEONHO
26	MI	1	EA	SK100	90011WR-H03D 3PIN P9 BLACK BK	WAFER	YEONHO
27	MI	1	EA	P201	SMAW200-H24S2 24PIN WHITE	WAFER	YEONHO

	SMT				LGP32M-12P SMT COMPONENTS	SMT ASSEMBLY	
28	SMT	2	EA	C103,C254	0.01uF 50V K 1608 X7R	CAPACITOR, CHIP	MURATA PILKOR SAMWHA TAIYOYUDEN TDK YAGEO HEC
29	SMT	2	EA	C105,C606	0.047uF 50V K 1608 X7R	CAPACITOR, CHIP	MURATA PILKOR SAMWHA TAIYOYUDEN TDK YAGEO HEC
30	SMT	12	EA	C106,C107,C108,C109,C110, C111,C205,C501,C502,C509, C604,C605	0.1uF 50V K 1608 X7R	CAPACITOR, CHIP	MURATA PILKOR SAMWHA TAIYOYUDEN TDK YAGEO HEC
31	SMT	1	EA	C101	0.47uF 16V K 1608 X7R	CAPACITOR, CHIP	MURATA PILKOR SAMWHA TAIYOYUDEN TDK YAGEO HEC
32	SMT	4	EA	C116,C253,C504,C607	1000pF 50V K 1608 X7R	CAPACITOR, CHIP	MURATA PILKOR SAMWHA TAIYOYUDEN TDK YAGEO HEC
33	SMT	1	EA	C608	100pF 50V J 1608 COG	CAPACITOR, CHIP	MURATA PILKOR SAMWHA TAIYOYUDEN TDK YAGEO HEC
34	SMT	1	EA	C609	15pF 50V J 1608 COG	CAPACITOR, CHIP	MURATA PILKOR SAMWHA TAIYOYUDEN TDK YAGEO HEC
35	SMT	2	EA	C102,C204	1uF 16V K 1608 X7R	CAPACITOR, CHIP	MURATA TDK
36	SMT	2	EA	C506,C513	220pF 50V J 1608 COG	CAPACITOR, CHIP	MURATA PILKOR SAMWHA TAIYOYUDEN TDK YAGEO HEC
37	SMT	1	EA	C104	470pF 50V J 1608 COG	CAPACITOR, CHIP	MURATA PILKOR SAMWHA TAIYOYUDEN TDK YAGEO HEC
38	SMT	4	EA	Q101,Q102,Q601,Q602	STD10NM60N 600V 10A D-PAK TK6P60V 600V 6.2A D-PAK IPD60R600E6 600V 7.3A D-PAK	FET,SMD	STMICRO TOSHIBA INFINEON
39	SMT	3	EA	D201,D255,D256	MBRD10100CT 10A 100V D-PAK MBRD10U100CT 10A 100V D-PAK SPEN-210A 10A 100V D-PAK	DIODE,SMD	SENSITRON KEC SANKEN
40	SMT	8	EA	D101,D102,D103,D105,D106, D121,D604,D605	SDS4148G 100V 150mA SOD-123 1N4148W 100V 150mA SOD-123 1N4148W 100V 150mA SOD-123 MMSD4148T1G 100V 200mA SOD-123	DIODE	AUK DIODES RECTRON ONSEMI
41	SMT	1	EA	IC601	FAN7930BMX_G, SO-8	IC	FAIRCHILD
42	SMT	1	EA	IC101	L6599AD, SO-16	IC	STMICRO
43	SMT	1	EA	IC202	TLV431BSN1T1G 1.24V ±0.5% SOT-23 SJ432BS 1.24V ±0.5% SOT-23 AZ431LANTR-E1 1.24V ±0.5% SOT-23	IC	ONSEMI AUK BCD
44	SMT	1	EA	IC251	SNF431BS 2.5V ±0.5% SOT-23 AS431ANTR-E1 2.5V ±0.5% SOT-23 KIA431BM 2.5V ±0.5% SOT-23 KA431SLMF2 2.5V ±0.5% SOT-23	IC	AUK BCD KEC FAIRCHILD

45	SMT	3	EA	R207,R257,R621	0Ω J 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
46	SMT	1	EA	R206	1.5KΩ F 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
47	SMT	1	EA	R618	1.8KΩ F 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
48	SMT	1	EA	R108	1.8KΩ J 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
49	SMT	1	EA	R509	100KΩ J 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
50	SMT	2	EA	R112,R204	100Ω F 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
51	SMT	2	EA	R608,R609	100Ω J 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
52	SMT	9	EA	R120,R123,R211,R220,R256, R507,R603,R605,R606	10KΩ J 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
53	SMT	1	EA	R116	120Ω F 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
54	SMT	1	EA	R111	18KΩ F 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
55	SMT	2	EA	R610,R611	18Ω J 3216	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
56	SMT	1	EA	R260	1KΩ F 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
57	SMT	5	EA	R102,R202,R504,R508,R604	1KΩ J 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
58	SMT	2	EA	R254,R255	2.2KΩ J 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN

59	SMT	1	EA	R109	2.2MΩ J 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
60	SMT	1	EA	R117	2.2Ω J 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
61	SMT	1	EA	R258	2.4KΩ F 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
62	SMT	1	EA	R110	2.4KΩ J 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
63	SMT	1	EA	R205	2.7KΩ F 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
64	SMT	1	EA	R619	220Ω F 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
65	SMT	1	EA	R617	22KΩ F 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
66	SMT	2	EA	R119,R122	22Ω J 3216	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
67	SMT	1	EA	R210	270Ω J 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
68	SMT	1	EA	R114	3.3KΩ J 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
69	SMT	2	EA	R259,R261	30KΩ F 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
70	SMT	1	EA	R201	330Ω J 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
71	SMT	1	EA	R262	360Ω F 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
72	SMT	1	EA	R115	470KΩ J 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
73	SMT	3	EA	R208,R209,R227	470Ω J 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN

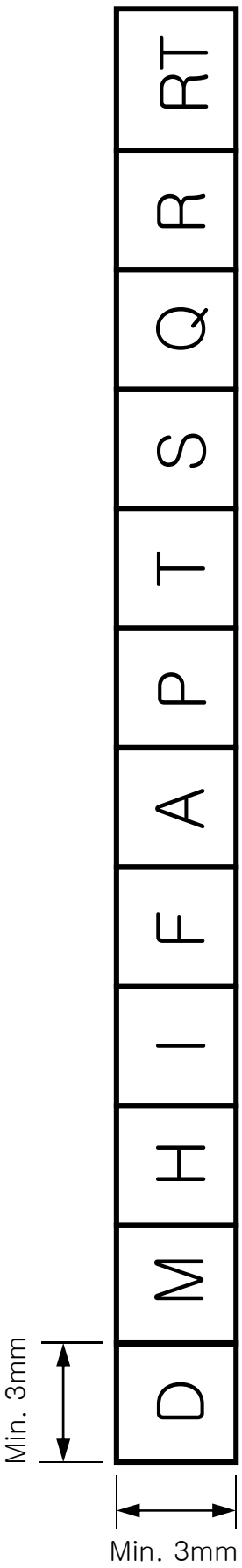
74	SMT	2	EA	R107,R620	47KΩ J 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
75	SMT	2	EA	R118,R121	47Ω J 3216	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
76	SMT	1	EA	R127	560KΩ F 3216	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
77	SMT	1	EA	R113	6.8KΩ J 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
78	SMT	5	EA	R613,R614,R615,R616,R623	750KΩ F 3216	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
79	SMT	1	EA	R506	75KΩ J 1608	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
80	SMT	4	EA	R103,R104,R105,R106	910KΩ F 3216	RESISTOR, CHIP	KAMAYA PILKOR ROHM SAMSUNG YAGEO TZAI YUAN
81	SMT	1	EA	Q501	BCW66GLT SOT-23 NPN KTC3551T 80V 1A TSM NPN 2SC5865 SOT-23 NPN	TRANSISTOR	ONSEMI KEC ROHM
82	SMT	2	EA	Q201,Q502	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	KEC ONSEMI NXP AUK
83	SMT	3	EA	Q103,Q603,Q604	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	KEC ONSEMI NXP AUK
84	SMT	1	EA	HD101	3.0X2.45X2.5H	SUPPORTER	POWER VALLEY
85	SMT	0.5	GR		HT-130A-106 HT-130D-7 LOCTITE 3609	BOND	HITECH KOREA HITECH KOREA LOCTITE
	AI				LGP32M-12P AI COMPONENTS	AI ASSEMBLY	
86	AI	2	EA	C201,C206	NXH 1000uF 10V M P5 Φ10X12.5 MG 1000uF 10V M P5 Φ10X13	CAPACITOR, ALUMINUM	SAMYOUNG SUSCON
87	AI	2	EA	C255,C256	NXH 470uF 25V M P5 Φ10X12.5 MG 470uF 25V M P5 Φ10X13	CAPACITOR, ALUMINUM	SAMYOUNG SUSCON
88	AI	2	EA	C508,C512	NXB 10uF 50V M P5 Φ5X11 SG 10uF 50V M P5 Φ5X11	CAPACITOR, ALUMINUM	SAMYOUNG SUSCON
89	AI	2	EA	C505,C511	NXB 47uF 50V M P5 Φ6.3X11 SG 47uF 50V M P5 Φ6.3X11	CAPACITOR, ALUMINUM	SAMYOUNG SUSCON
90	AI	1	EA	C202	NXB 470uF 10V M P5 Φ8X11.5 SG 470uF 10V M P5 Φ8X12	CAPACITOR, ALUMINUM	SAMYOUNG SUSCON
91	AI	1	EA	C514	DM 47pF 1KV K P5 125℃ CC 47pF 1KV K P5 125℃ CC45 47pF 1KV K P5 125℃ ECO 47pF 1KV K P5 125℃ CC81 47pF 1KV K P5 125℃	CAPACITOR, CERAMIC	APEX INTEC DONGIL ELEC TDK SAMWHA YINANDON
92	AI	1	EA	C118	DG 100pF 1KV K P5 125℃ CK 100pF 1KV K P5 125℃ CK45 100pF 1KV K P5 125℃ EKR 100pF 1KV K P5 125℃ CT81 100pF 1KV K P5 125℃	CAPACITOR, CERAMIC	APEX INTEC DONGIL ELEC TDK SAMWHA YINANDON
93	AI	2	EA	C113,C614	DG 220pF 1KV K P5 125℃ CK 220pF 1KV K P5 125℃ CK45 220pF 1KV K P5 125℃ EKR 220pF 1KV K P5 125℃ CT81 220pF 1KV K P5 125℃	CAPACITOR, CERAMIC	APEX INTEC DONGIL ELEC TDK SAMWHA YINANDON
94	AI	2	EA	C503,C510	DG 1000pF 1KV K P5 125℃ CK 1000pF 1KV K P5 125℃ CK45 1000pF 1KV K P5 125℃ EKR 1000pF 1KV K P5 125℃ CT81 1000pF 1KV K P5 125℃	CAPACITOR, CERAMIC	APEX INTEC DONGIL ELEC TDK SAMWHA YINANDON

95	AI	3	EA	D501,D502,D503	UF1007 1KV 1A DO-41 UF4007 1KV 1A DO-41 HER108G 1KV 1A DO-41 UF4007 1KV 1A DO-41	DIODE	DIODES DACHANG RECTRON TSC
96	AI	2	EA	ZD102,ZD504	1N5235B 6.8V DO-35 1N5235B 6.8V DO-35 MTZJ6.8B 6.8V DO-34	DIODE, ZENER	RECTRON VISHAY ROHM
97	AI	1	EA	ZD502	1N5245B 15V DO-35 1N5245B 15V DO-35 MTZJ15B 15V DO-34	DIODE, ZENER	RECTRON VISHAY ROHM
98	AI	1	EA	ZD503	1N5250B 20V DO-35 1N5250B 20V DO-35 MTZJ20B 20V DO-34	DIODE, ZENER	RECTRON VISHAY ROHM
99	AI	24	EA	EL3,EL4,EL7,EL8,EL13, EL14,EL21,EL22,EL27,EL28, EL29,EL30,EL35,EL36,EL37, EL38,EL39,EL40,EL45,EL61, EL62,EL63,EL69,EL70	1.6X3.0	EYELET	SAMSUNG JS DOSUNG DAERIN HUAKANG DELIKANG SEJIN LEZHI Avico
100	AI	21	EA	EL1,EL2,EL5,EL9,EL10, EL11,EL12,EL15,EL16,EL17, EL18,EL19,EL20,EL23,EL24, EL25,EL26,EL31,EL32,EL33, EL34	2.0X3.0	EYELET	SAMSUNG JS DOSUNG DAERIN HUAKANG DELIKANG SEJIN LEZHI Avico
101	AI	5	EA	LB105,LB106,LB601,LB201,LB202	BFS3550R2F SINGLE RADIAL	INDUCTOR, BEAD FILTER LEAD	SAMWHA
102	AI	21	EA	J2,J3,J4,J5,J6, J7,J8,J9,J10,J11, J14,J15,J18,J19,J20, J21,J22,J23,J24,J25, J26	Φ0.6	JUMPER WIRE	DIELEC DAEALEAD TPI TZAI YUAN UNI-OHM ILKWANG DM Seungwon RLC
103	AI	1	EA	R124	MSR37 1MΩ 1/2W J SURGE PRC92 1MΩ 1/2W J SURGE	RESISTOR, FIXED CARBON COMPOSITION	PILKOR SMART
104	AI	1	EA	R100	MSR37 1.2MΩ 1/2W J SURGE PRC92 1.2MΩ 1/2W J SURGE	RESISTOR, FIXED CARBON COMPOSITION	PILKOR SMART
105	AI	1	EA	R505	CRS 1Ω 1/4W J SMALL RDM94 1Ω 1/4W J SMALL SFR25 1Ω 1/4W J SMALL CF 1Ω 1/4W J SMALL	RESISTOR, CARBON FILM	ABCO SMART PILKOR TZAI YUAN
106	AI	1	EA	R612	CRS 2.2Ω 1/4W J SMALL RDM94 2.2Ω 1/4W J SMALL SFR25 2.2Ω 1/4W J SMALL CF 2.2Ω 1/4W J SMALL	RESISTOR, CARBON FILM	ABCO SMART PILKOR TZAI YUAN
107	AI	1	EA	R503	CRS 20Ω 1/4W J SMALL RDM94 20Ω 1/4W J SMALL SFR25 20Ω 1/4W J SMALL CF 20Ω 1/4W J SMALL	RESISTOR, CARBON FILM	ABCO SMART PILKOR TZAI YUAN
108	AI	1	EA	R502	CRS 100Ω 1/4W J SMALL RDM94 100Ω 1/4W J SMALL SFR25 100Ω 1/4W J SMALL CF 100Ω 1/4W J SMALL	RESISTOR, CARBON FILM	ABCO SMART PILKOR TZAI YUAN
109	AI	1	EA	R501	MORS 62KΩ 1W J SMALL RSD01 62KΩ 1W J SMALL PR01 62KΩ 1W J SMALL MOF 62KΩ 1W J SMALL	RESISTOR, METAL OXIDE FILM	ABCO SMART PILKOR TZAI YUAN
110	AI	1	EA	R126	MORS 120Ω 1W J SMALL RSD01 120Ω 1W J SMALL PR01 120Ω 1W J SMALL MOF 120Ω 1W J SMALL	RESISTOR, METAL OXIDE FILM	ABCO SMART PILKOR TZAI YUAN
111	AI	1	EA	R253	MORS 1.5KΩ 2W J SMALL RSD02 1.5KΩ 2W J SMALL PR02 1.5KΩ 2W J SMALL MOF 1.5KΩ 2W J SMALL	RESISTOR, METAL OXIDE FILM	ABCO SMART PILKOR TZAI YUAN
112	AI	2	EA	R251,R252	MORS 2.2KΩ 2W J SMALL RSD02 2.2KΩ 2W J SMALL PR02 2.2KΩ 2W J SMALL MOF 2.2KΩ 2W J SMALL	RESISTOR, METAL OXIDE FILM	ABCO SMART PILKOR TZAI YUAN
113	AI	2	EA	R601,R602	WNPS 0.27Ω 2W J SMALL PRN02 0.27Ω 2W J SMALL	RESISTOR, WIRE WOUND	ABCO SMART
114	AI	2	EA	R510,R511	WNPS 0.82Ω 1W J SMALL PRN01 0.82Ω 1W J SMALL NKNP 0.82Ω 1W J SMALL	RESISTOR, WIRE WOUND	ABCO SMART TZAI YUAN
115	AI	1	EA	PCB	LGP32M-12P-3P (162*195*1.6T) FR-1 KB,DS,L,CTI-600	PCB	DUCK SUNG HT CIRCUIT(QINGDAO) DONGMYUNG CIR SHANGHAI WANZHENG NEW TRIUNION TIANJIN DEA DUCK HUIHO TIAN FENG TIS KOREA Wellbest Cosmotech Kyosha SAMHAN

	ETC				SUBSIDIARY MATERIALS		
116	ETC	0.0625	EA		162W * 200L * 15H	BOX CARTON	NAEWAY IND. DAESAN. HANYOUNG JAEIL QXBW TAILI PACKING HUAXING PACK SOONGSAN WUJIANG ZHENLONG SUZHOU JIADELONG KUNSHAN KUNHONG Dongju
117	ETC	0.1	EA		506 * 173 (Cross board A)	BOX PARTITION	NAEWAY IND. DAESAN. HANYOUNG JAEIL QXBW TAILI PACKING HUAXING PACK SOONGSAN WUJIANG ZHENLONG SUZHOU JIADELONG KUNSHAN KUNHONG Dongju
118	ETC	0.053	EA		341 * 173 (Cross board B)	BOX PARTITION	NAEWAY IND. DAESAN. HANYOUNG JAEIL QXBW TAILI PACKING HUAXING PACK SOONGSAN WUJIANG ZHENLONG SUZHOU JIADELONG KUNSHAN KUNHONG Dongju
119	ETC	0.033	EA		506 * 341	BOX PAD	NAEWAY IND. DAESAN. HANYOUNG JAEIL QXBW TAILI PACKING HUAXING PACK SOONGSAN WUJIANG ZHENLONG SUZHOU JIADELONG KUNSHAN KUNHONG Dongju
120	ETC	1	EA		Air Vinyl 470*225	Air Vinyl	DUCKJIN S&P JAEIL QXBW CHUMDAN A-TEK KUNSHANKUNHONG LIYUANG Serveone
121	ETC	1	EA		BARCODE LABEL (40*8)	BAR CODE	SUNJIN. HANA. AIT SERVEONE WUJIANG SUNGLING GUNGGAOQI ZHI XIN
122	ETC	0.003	Kg		EF-9301(g) ILF-714(kg) TF328-2-2(Kg) EC-19S-8 CS-9111LF	FLUX	ALPHA ION ELEC TONGFANG 동화다무라 청솔
123	ETC	0.015	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 ALLOYMETAL DYFENCO YUNNAN TIN SOLNET
124	ETC	0.002	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 ALLOYMETAL DYFENCO YUNNAN TIN SOLNET
125	ETC	5	GR		H-828W OKE-410 QS9112 RTV SS7945W TSE3854DS-W BN707 RTV KE402RTV ES 2044H & 2S2482W UB-5601 EA-4100 DS818	BOND (RTV)	OKONG OKONG KCC KCC MOMENTIVE BONIC SHINETSU CANADA U-BOND DOW CORNING 동양실리콘
126	ETC	0.0000385	BUK		Ribbon Black R300,60mm*300M(FOR WHITE POLY)	Ribbon	Ricoh Thermal Transfer Ribbon Serve One
127	ETC	0.0000215	BUK		Ribbon Black Wax 110mmx300m, K104 (For paper label)	Ribbon	Ricoh Thermal Transfer Ribbon ITW Serve One
128	ETC	0.043	PAC		TAPE OPP 50*50K	TAPE OPP	Serve One 덕성하이텍 QingDao Nengneng Chiyoda

Process Marking

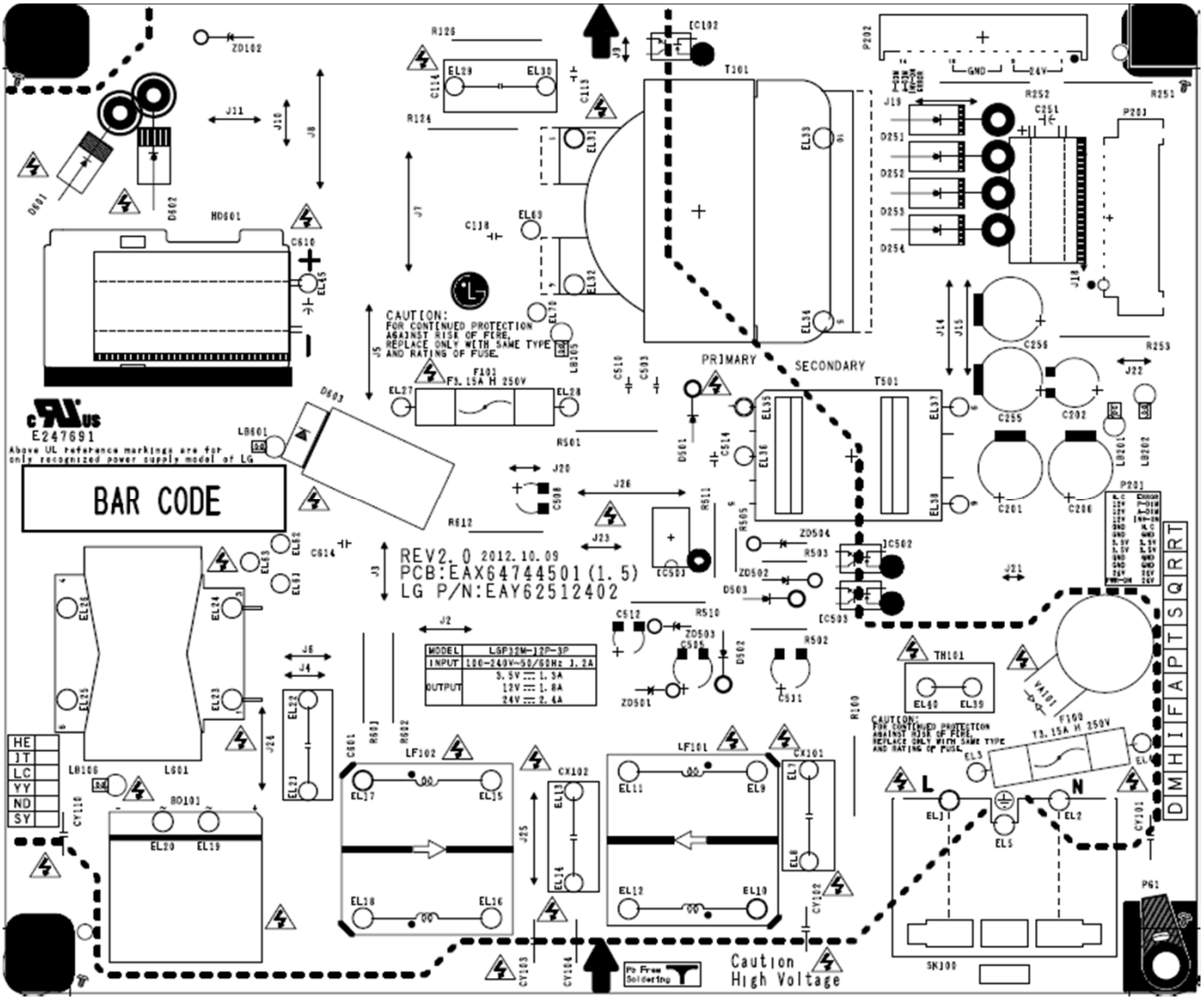
공정표시 MARK (PCB SILK)



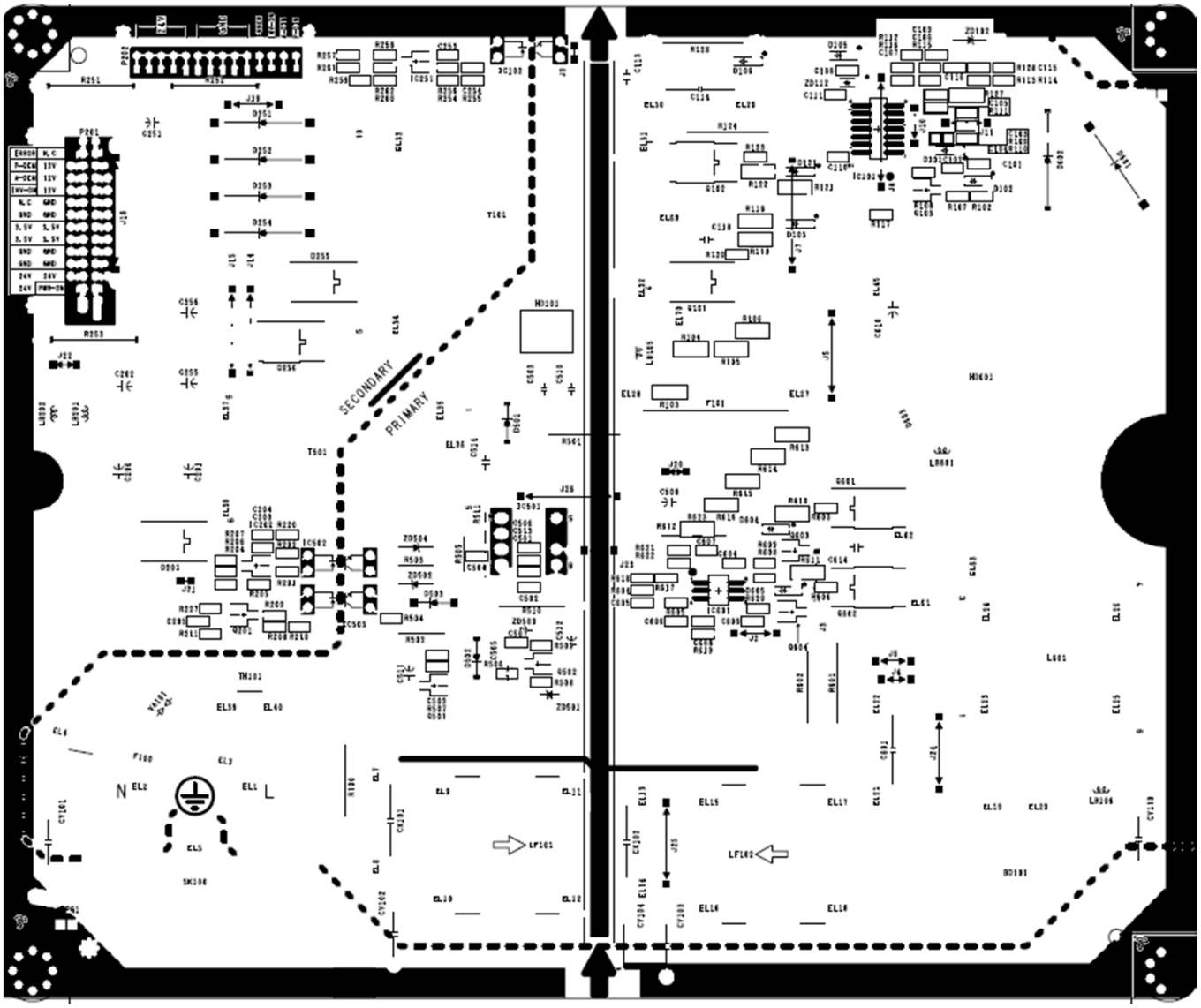
D : 자삽
M : SMD
H : 수삽 취출
I : ICT
F : 1차 성능
A : AGING
P : HI-POT
T : 취출 검사 (ATE)
S : SET 검사
Q : QC 검사
R : 불량 수리
RT : 양산 모델 시험

PCB Layout

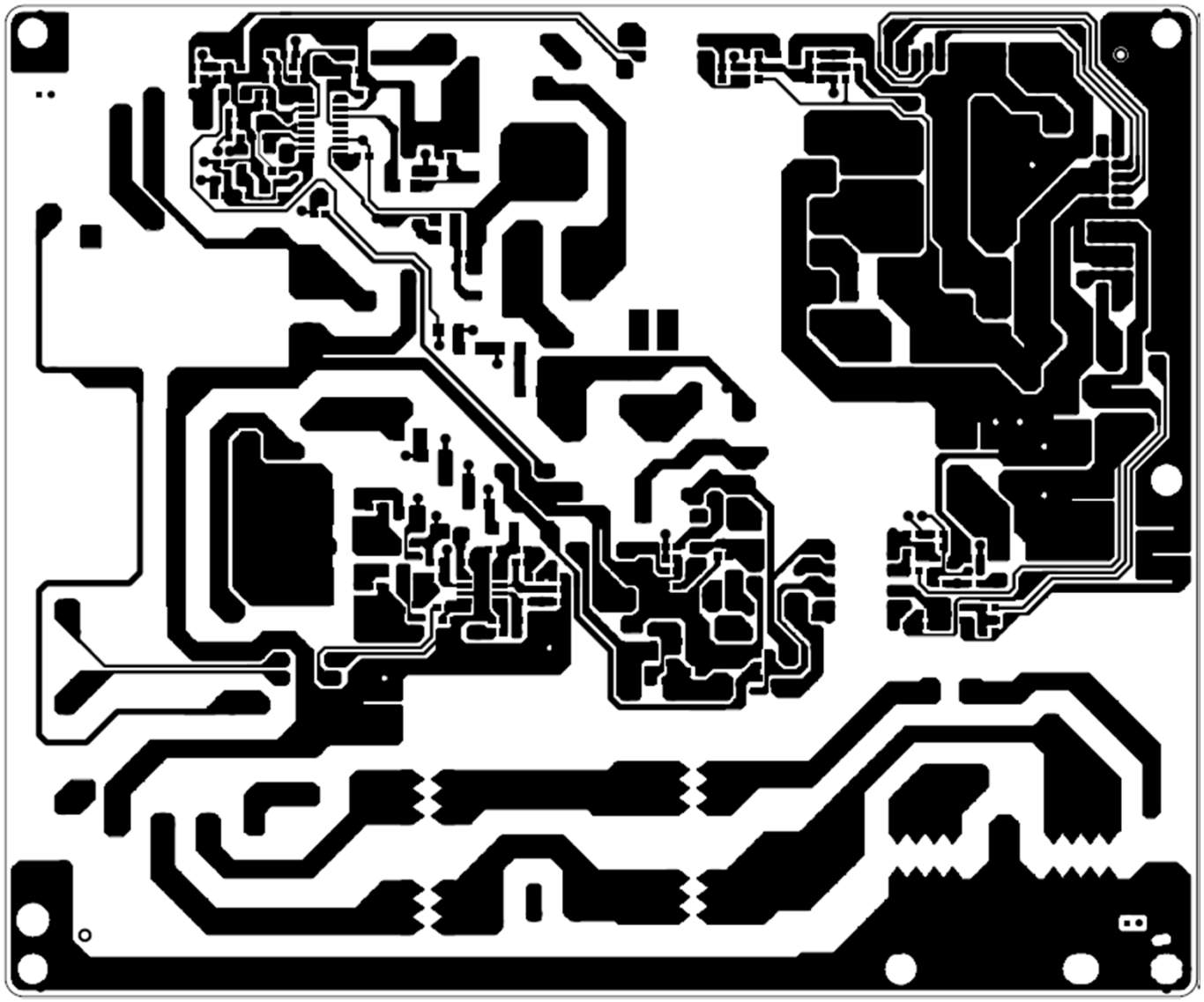
Top Silk


BAR CODE
REV2.0 2012.10.09
PCB:EAX64744501(1.5)
LG P/N:EAY62512402
E247691
PRIMARY
SECONDARY
CAUTION:
FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE AND RATING OF FUSE.
F101 F3.15A H 250V
F102 T3.15A H 250V
MODEL LSP32M-12P-3P
INPUT 100-240V~50/60Hz 1.2A
OUTPUT 5.5V 1.3A
12V 1.8A
24V 2.4A
Pb Free Soldering
Caution
High Voltage
GND
24V
L
N

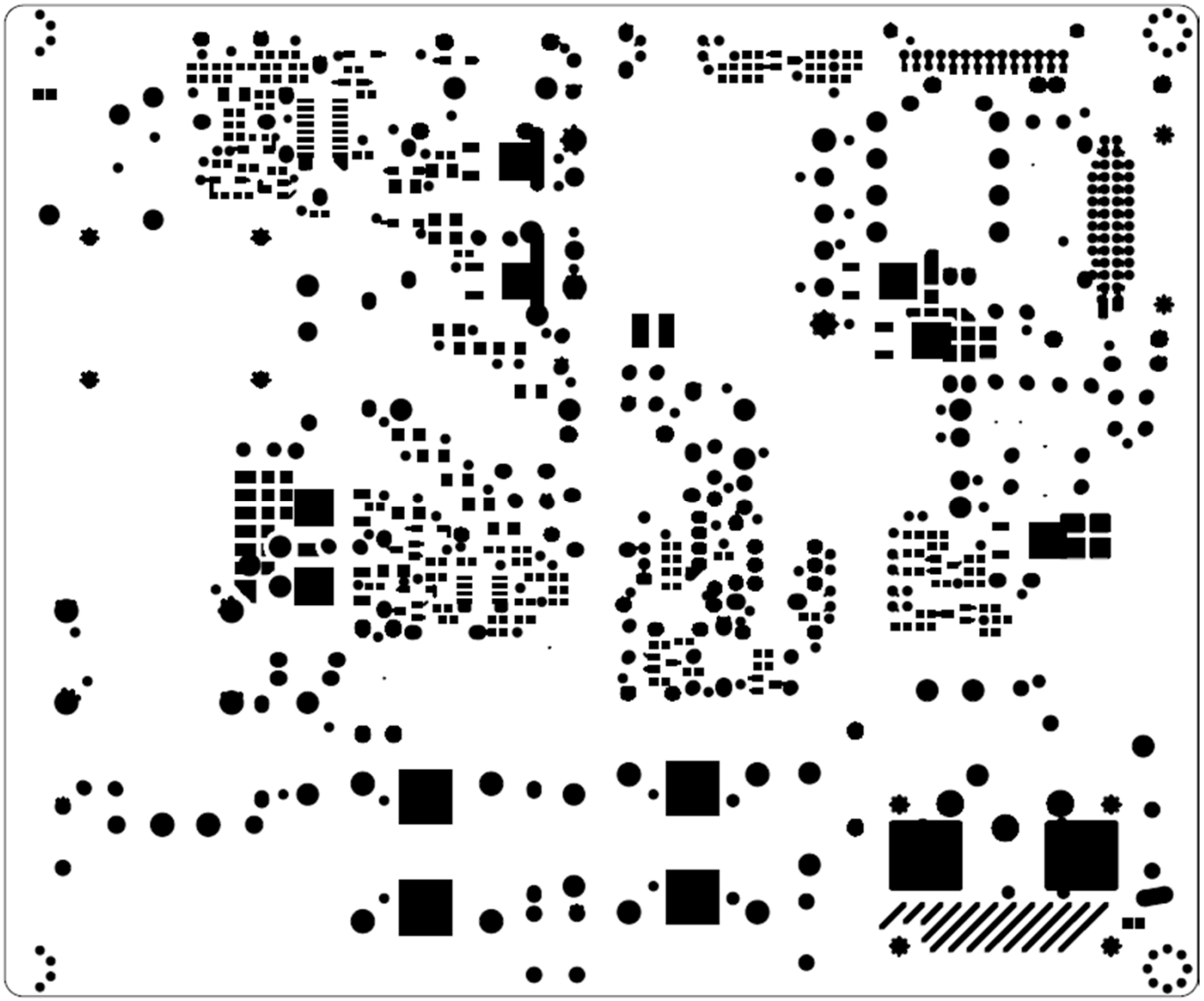
Bottom Silk



Bottom Pattern



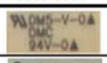
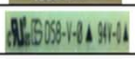
Bottom Solder mask



Safety Parts

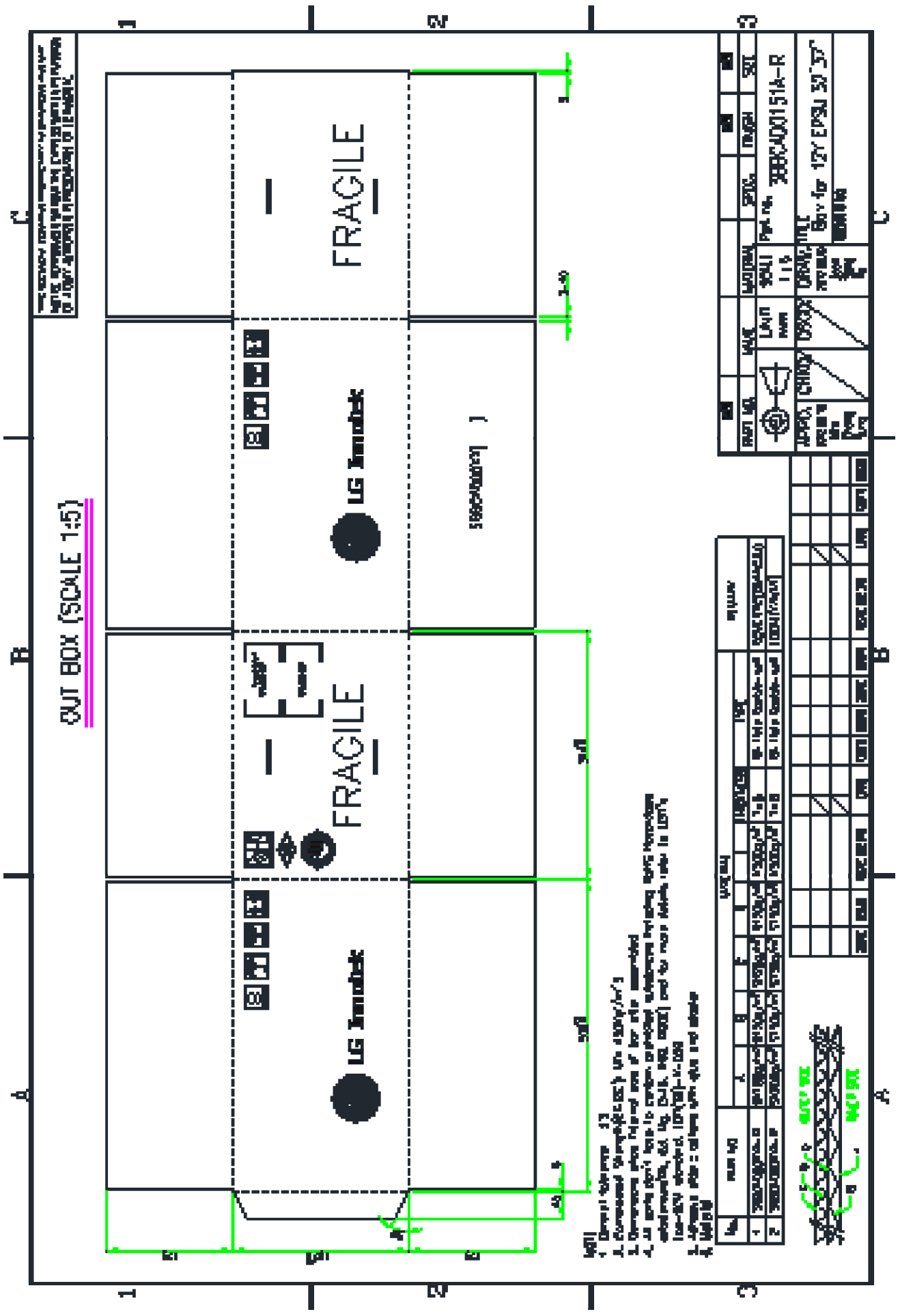
Object/part No.	Manufacturer / Trademark	Type / Model	Value / Rating	Parts Marking (實物)	standard	mark(s) of conformity1)
AC input connector, (SK100)	Yeon Ho	90011WR-H03D	250V / 10A		IEC 60065 UL 1977	
Fuse, (F100)	Littelfuse Inc.	215 Series	T3.15A H / 250V	LF.T3.15AH250VP	IEC 60127-1	
	WALTER FUSE	TSC		TSC3.15A250V(P)	IEC 60127	
	BUSSMANN	S505		T3.15AH250V	IEC 60127	
	Dainfuse	50CT		T3.15AH250V	IEC 60127	
	CONQURE	UDA / UDA-A		UDA T3.15A H 250V	IEC 60127-3-5	
Fuse, (F101)	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	
	CONQURE	UBM-A		UBM-A 3.15A 250V	IEC 60127-2-1	
Line Filter, (LF101,LF102)	TNC	CS915200SBA	Rated 130℃	915200S	IEC 60065	Test in appliance
	Dongil Tech	LH9B19200		019200		
	DONG YANG TELECOM CO., LTD	LLF-123		LLF-123		
	JIANGSU CHANNELON ELECTRONIC GROUP					
	FEELUX					
	SOOJUNG					
	JIANGSU TAICHANG ELECTRONICS Co.,LTD.					
Varistor, (VA101)	Samwha	SVC621D-14	620V,Min.	SVC621-14	IEC61051-2	
	Amotech Co., Ltd.	INR 14D621		INR 14D621		
	Xiamen Wanming Electronics Co.,Ltd	WMR14D621K		WMR 14D621K		
Bridge Diode, (BD101)	Rectron	RS405M	Min. 600V / 4A	RS405M	E94233	
	Lite-on	KBJ406G		KBJ406G		Test in appliance
	DACHANG	TS4B05G		TS4B05G		
	GULF	GSIB460		GSIB460		
	TSC	TS4B05G-26		TS4B05G	E96005	
	SHINDENGEN	D4SB60L		D4SB60L	E142422	
X-cap. (CX101,CX102)	Pilkor	PCX2 337	275V (CX101= Max 0.33uF, CX102= Max 0.33uF)	PCX2 337	IEC 60384-14 UL1414	
	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	
	CHENGTUNG	CTX		CTX	IEC 60384-14 UL1414	
Thermistor. (TH101)	DSC	DSC 5D-15	5ohm at 25 °C	DSC 5D-15	IEC 60065	
	Xiamen Wanming Electronics Co.,Ltd	WTR 15D050		WTR 15D050		
	JIANGSU XINGSHUN ELECTRONICS CO., LTD	5D2-15		5D2-15		
	Smart	ICL-5W		ICL-05 5R00MSMT		
	NANJING SHIHENG ELECTRONICS CO., LTD	MF72 5D15		MF72 5D15		
Elec.Cap., (C610)	SAMYOUNG	KMF	450V / Max 82uF / 105℃	KMF450V82uF	IEC 60950-1	Test in appliance
	SUSCON	SK		SK450V82uF		
	SAMWHA	WL		LT450V82uF		
	LELON	RGA		RGA450V82uF		

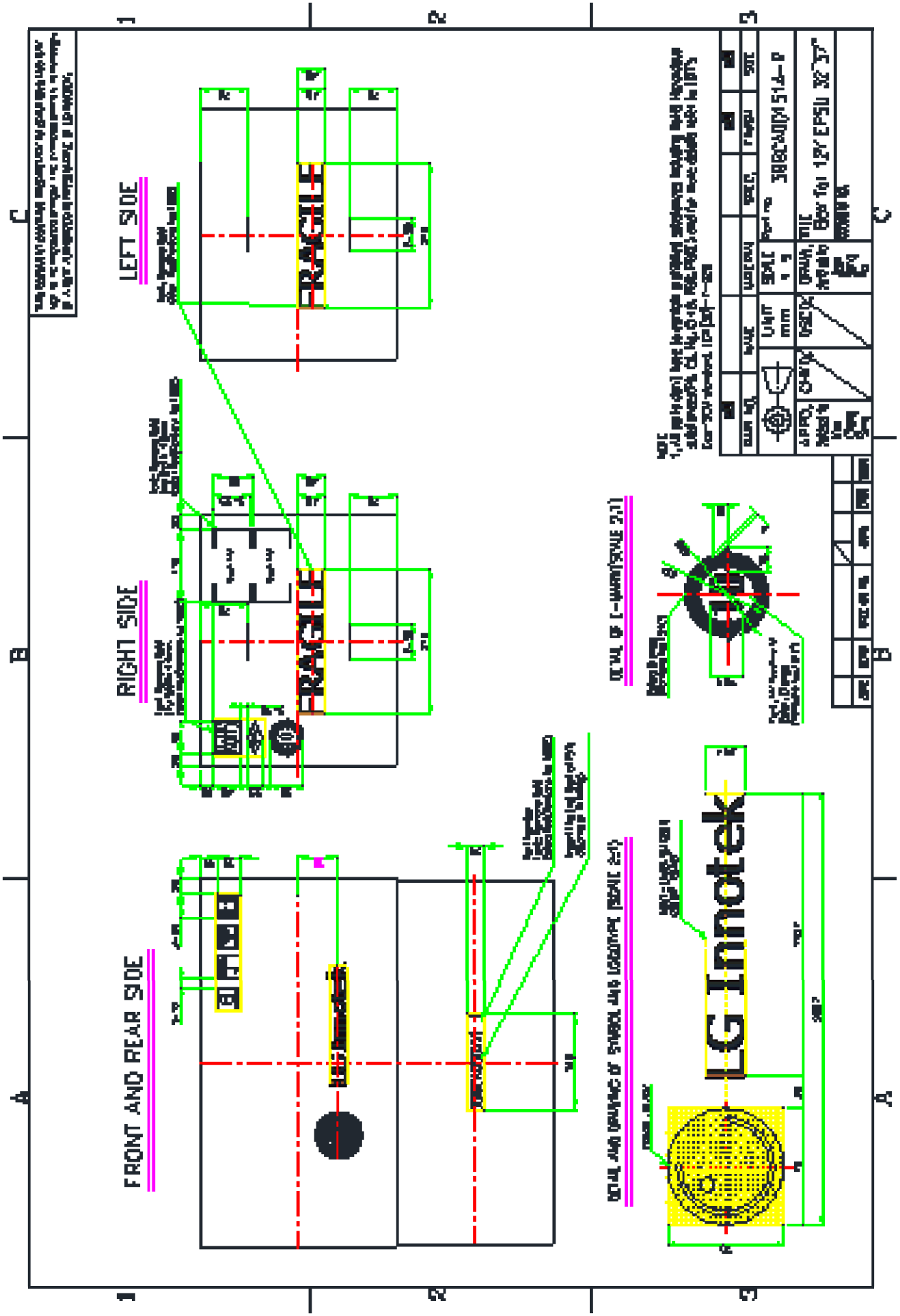
Switching TR, (Q601,Q602)	STMICRO	STD10NM60N	Min. 600V / Min 4.5A	STD10NM60N	IEC 60950-1	Test in appliance
	FAIRCHILD	FCD5N60NTM		FCD5N60NTM		
	TOSHIBA	TK6P60V		TK6P60V		
	INFINEON	IPD60R600E6		IPD60R600E6		
Switching TR, (Q101,Q102)	STMICRO	STD10NM60N	Min. 600V / Min 4.5A	STD10NM60N	IEC 60950-1	Test in appliance
	FAIRCHILD	FCD5N60NTM		FCD5N60NTM		
	TOSHIBA	TK6P60V		TK6P60V		
	INFINEON	IPD60R600E6		IPD60R600E6		
Flyback IC, (IC501)	INFINEON	ICE3BR4765JZ	Min. 650 V / Min 1.67A	3BR4765JZ	IEC 60950-1	Test in appliance
Y Cap., (CY101,CY102)	ANSHAN KEI FAT	Y1 / CT7	Min 250V / Max 100pF	CT7 101K	IEC 60384-14	
	Kunshan Wansheng	Y1 / CT7		CT7 101K		
	Apex intec	Y1 / NK		NK101K		
	DONG IL	Y1 / DA		DA101K		
	YINANDON	Y1 / CT81		CT81 101K		
	SAMWHA	Y1 / SD		SD101K		
	JYA-NAY	Y1 / JN		JN101K		
	GUANGDONG SOUTH HONGMING	Y1 / F		F101K		
	TDK	Y1 / CD		CD101K		
Y Cap., (CY103,CY104)	ANSHAN KEI FAT	Y1 / CT7	Min 250V / Max 470pF	CT7 471K	IEC 60384-14	
	Kunshan Wansheng	Y1 / CT7		CT7 471K		
	Apex intec	Y1 / NK		NK471K		
	DONG IL	Y1 / DA		DA471K		
	YINANDON	Y1 / CT81		CT81 471K		
	SAMWHA	Y1 / SD		SD471K		
	JYA-NAY	Y1 / JN		JN471K		
	GUANGDONG SOUTH HONGMING	Y1 / F		F471K		
	TDK	Y1 / CD		CD471K		
Bridging Cap., (CY110)	ANSHAN KEI FAT	Y1 / CT7	Min 250V / Max 1000pF	CT7 102M	IEC 60384-14	
	Kunshan Wansheng	Y1 / CT7		CT7 102M		
	Apex intec	Y1 / NK		NK102M		
	DONG IL	Y1 / DA		DA102M		
	YINANDON	Y1 / CT81		CT81 102M		
	SAMWHA	Y1 / SD		SD102M		
	JYA-NAY	Y1 / JN		JN102M		
	GUANGDONG SOUTH HONGMING	Y1 / F		F102M		
	TDK	Y1 / CD		CD102M		
PFC Coil,(L601)	SOOJUNG	12S-LP02	Class B	12S-LP02	IEC 60950-1	Test in appliance
	BUJEON					
	DONG YANG TELECOM CO., LTD					
	LG Innotek					
	JIANGSU CHANNELON ELECTRONIC GROUP					
	TDK					
	FEELUX					
	JIANGSU TAICHANG ELECTRONICS Co.,LTD.					
	LIENCHANG					
Switching Transformer, (T101)	SOOJUNG	12S-LM01	Class B	12S-LM01	IEC 60950-1	Test in appliance
	BUJEON					
	DONG YANG TELECOM CO., LTD					
	LG Innotek					
	JIANGSU CHANNELON ELECTRONIC GROUP					
	TDK					
	FEELUX					
	JIANGSU TAICHANG ELECTRONICS Co.,LTD.					
	LIENCHANG					

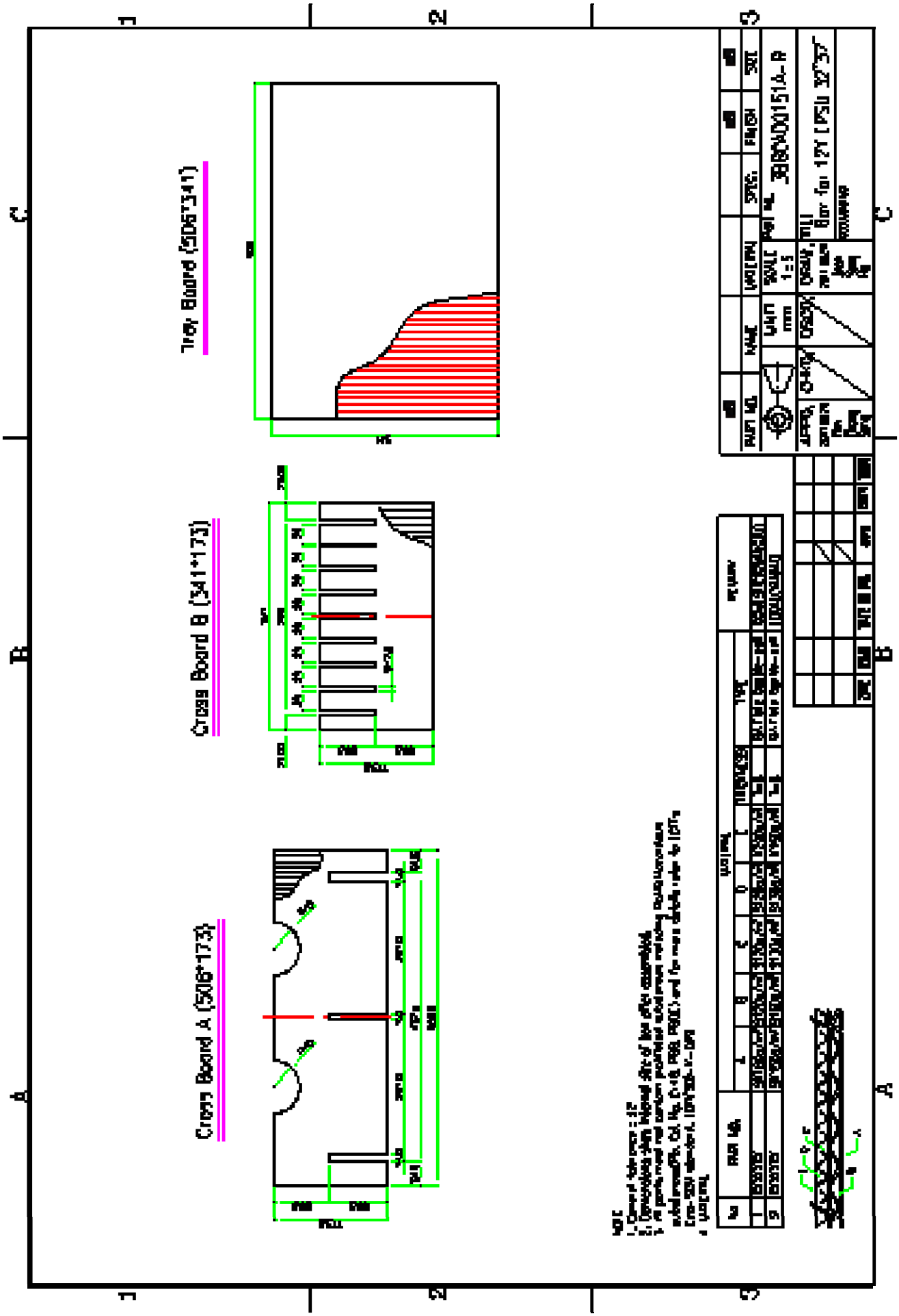
Switching Transformer, (T501)	SOOJUNG	12S-LS01	Class B	12S-LS01	IEC 60065	Test in appliance
	BUJEON					
	DONG YANG TELECOM CO., LTD					
	JIANGSU CHANNELON ELECTRONIC GROUP					
	TDK					
	FEELUX					
	JIANGSU TAICHANG ELECTRONICS Co.,LTD.					
	Clover hi-tech Co., Ltd.					
	LIENCHANG					
Opto-coupler, (IC102,IC502,IC503)	Everlight	EL817	>0,4mm / Rated 6000Vac	EL817	IEC 60065 UL 1577	
	Lite-on	LTV817...		817BN		
Discharge Resistor, (R100)	Smart	PRC	1/2W, 1.2Mohm, 5%		IEC 60065	
	UNIROYAL ELECTRONICS INDUSTRY CO., LTD	MGR0W2J****A10			IEC 60065	
	Pilkor	SR37,MSR37			IEC 60065	
Capacitor (C601)	Pilkor	PCMP 372 (box) PCMP 472 (Film)	0.82uF / 500V	820nJ 500V 372 MKP 824 J 500 P472 MPP	IEC60384-1	UL
	LUMEN	MP (Film)	0.82uF / 500V	M 824J MP 500V		
	EUROPTRONIC	MPHB (Box)	0.82uF / 500V	MPHB 824 J 500		
	Sung-Ho	MPP (Film) BMPP (BOX)	0.82uF / 500V	824J 500V S MPP 824J 500V BMPP SH		
	CHENG TUNG	CTH (Box)	0.82uF / 500V	CTH 824 J 500V		
Capacitor (C114)	Pilkor	PCMP 384(Box)	0.033uF / 800V	33nJ 800V 384 MMKP	IEC60384-1	UL
	LUMEN	NP (Film)	0.033uF / 800V	M 333J NP 800V		
	EUROPTRONIC	MPLB (Box)	0.033uF / 1000V	MPLB 333 J 1000		
	Sung-Ho	MPPS (Film)	0.033uF / 800V	333J S 800V MPPS		
	CHENG TUNG	PPN (box)	0.033uF / 800V	PPN 333J 800V		
FR-1	DONGMYUNG CIR.	DM5-V-0	94V-0			
	SHANGHAI WANZHENG	SWZ-2	94V-0			
	SHENG KHUANG(WEI JUN)	03V0-C 03V0	94V-0			
	SHANGHAI AREX	02V0	94V-0			
	NEW TRIUNION	TU-3	94V-0			
	CHIN POON	E5	94V-0			
	TIANJIN DAEDUCK	DC-1 DC-2	94V-0			
	HUIHO	4B-5	94V-0			
	HSIANG KUO	07V0	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			
	Cosmotech	GS2-V-0-1 CJ2-V-0-1 CJ2-V-0-2	94V-0			
	CHANGZHOU HAIHONG	CCE-V0	94V-0			

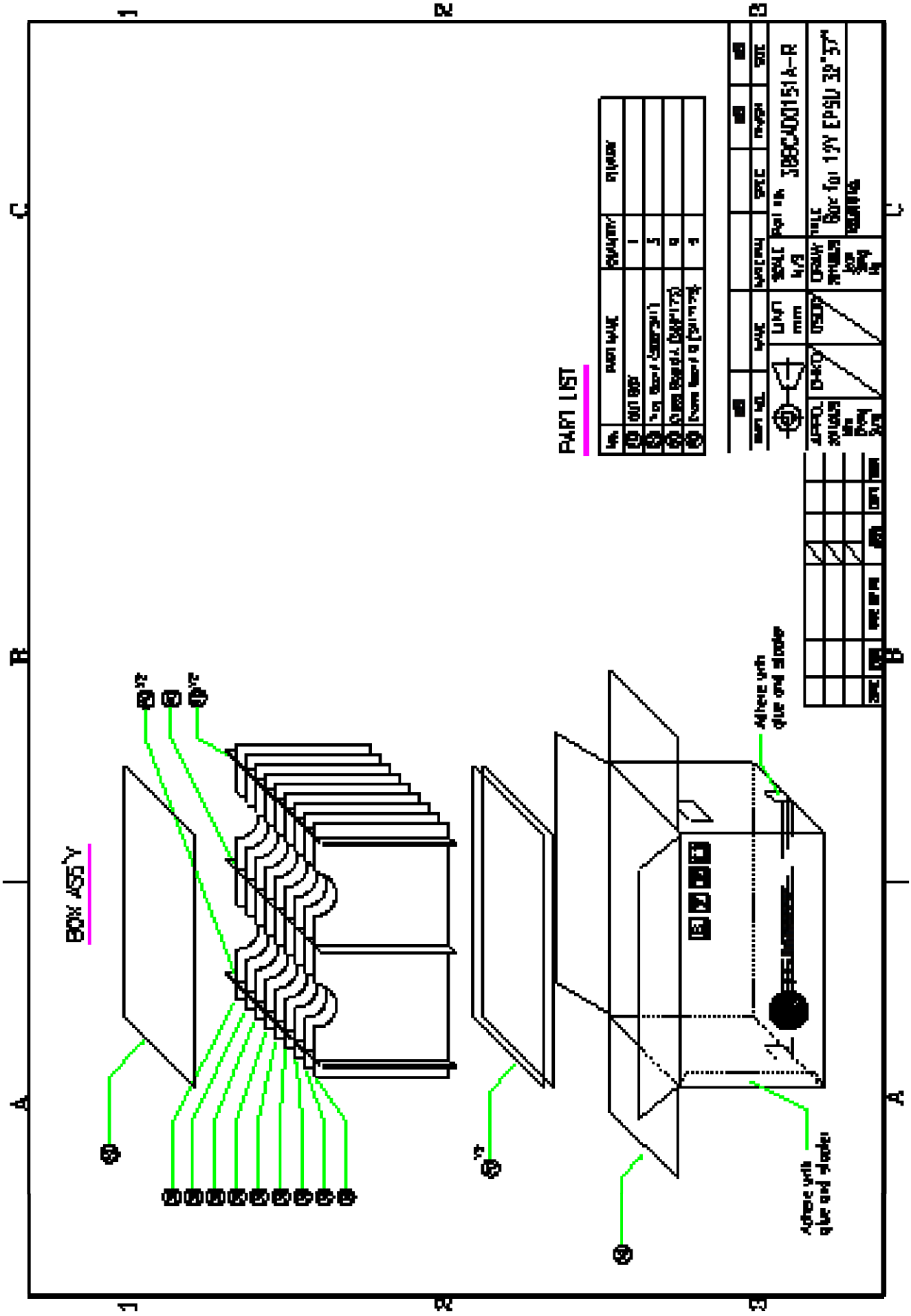
1) an asterisk indicates a mark which assures the agreed level of surveillance
Remarks: *) Large volume capacitors exceeding volume 1750㎣

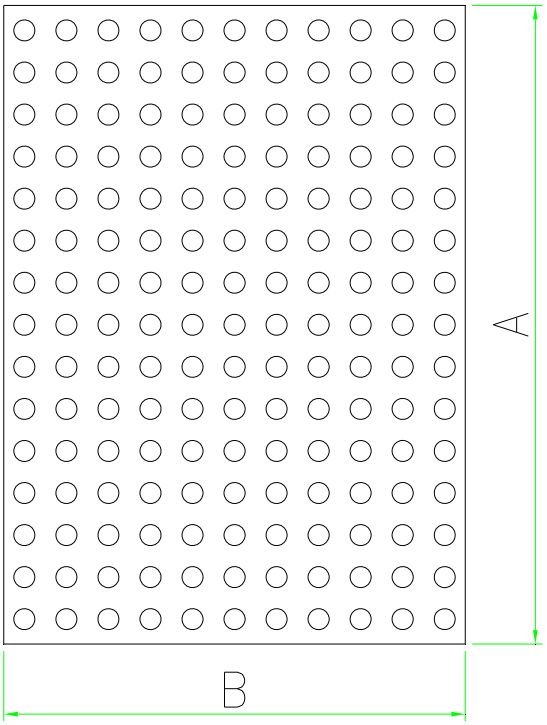
Packing Drawing


FRAGILE
FRAGILE
LG Innotek
LG Innotek
CUT BOX (SCALE 1:5)


LEFT SIDE
RIGHT SIDE
FRONT AND REAR SIDE
FRAGILE
LG Innotek


Tray Board (506*341)
Cross Board B (341*173)
Cross Board A (506*173)





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

Part NO.	Thickness	"A"	"B"	Application Model	LGIT PCB Part Number
A	4 ±1.5	400	225	EPSU 32/37(162L*195W)	3EBDDB0001A-R
B	4 ±1.5	585	220	EPSU 42/47(245L*159W)	3EBDDB0002A-R
C	4 ±1.5	620	200	EPSU 55(270L*159W)	3EBDHA0001A-R
D	4 ±1.5	585	270	LPB 42/47(245L*243W)	3EBDDB0003A-R
E	4 ±1.5	585	220	LPB 42/47 Low(245L*174W)	3EBDDB0002A-R
F	4 ±1.5	620	270	LPB 55(270L*242W)	3EBDDB0003A-R
G	4 ±1.5	620	200	LPB 55 Low(270L*176W)	3EBDHA0001A-R

PART NO.	NAME	MATERIAL	SPEC.	FINISH	SIZE

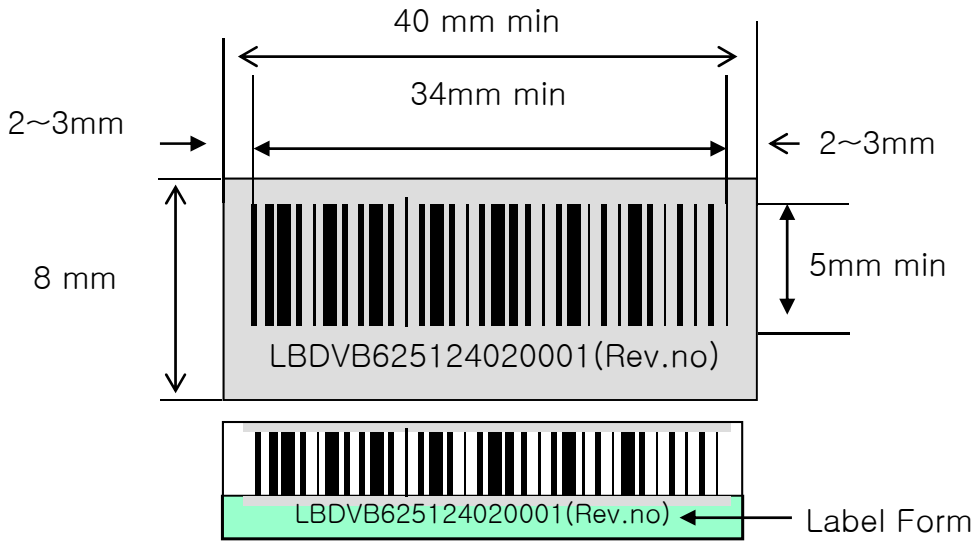
ZONE	SYMB	DATE OR NO.	APPD	CHKD	DSGD

UNIT: mm
SCALE: NS
APPD.: 12.04.02 Kim Chang Sung
CHKD.:
DSGD.:
DRAW.: 12.04.02 Jeon Sung Ho
TITLE: Air Vinyl for 12Y
DOCUMENT NO.: ———

LG Innotek Co., Ltd.

Bar-Code
Label Drawing

LGP32M-12P-3P (EAY62512402)



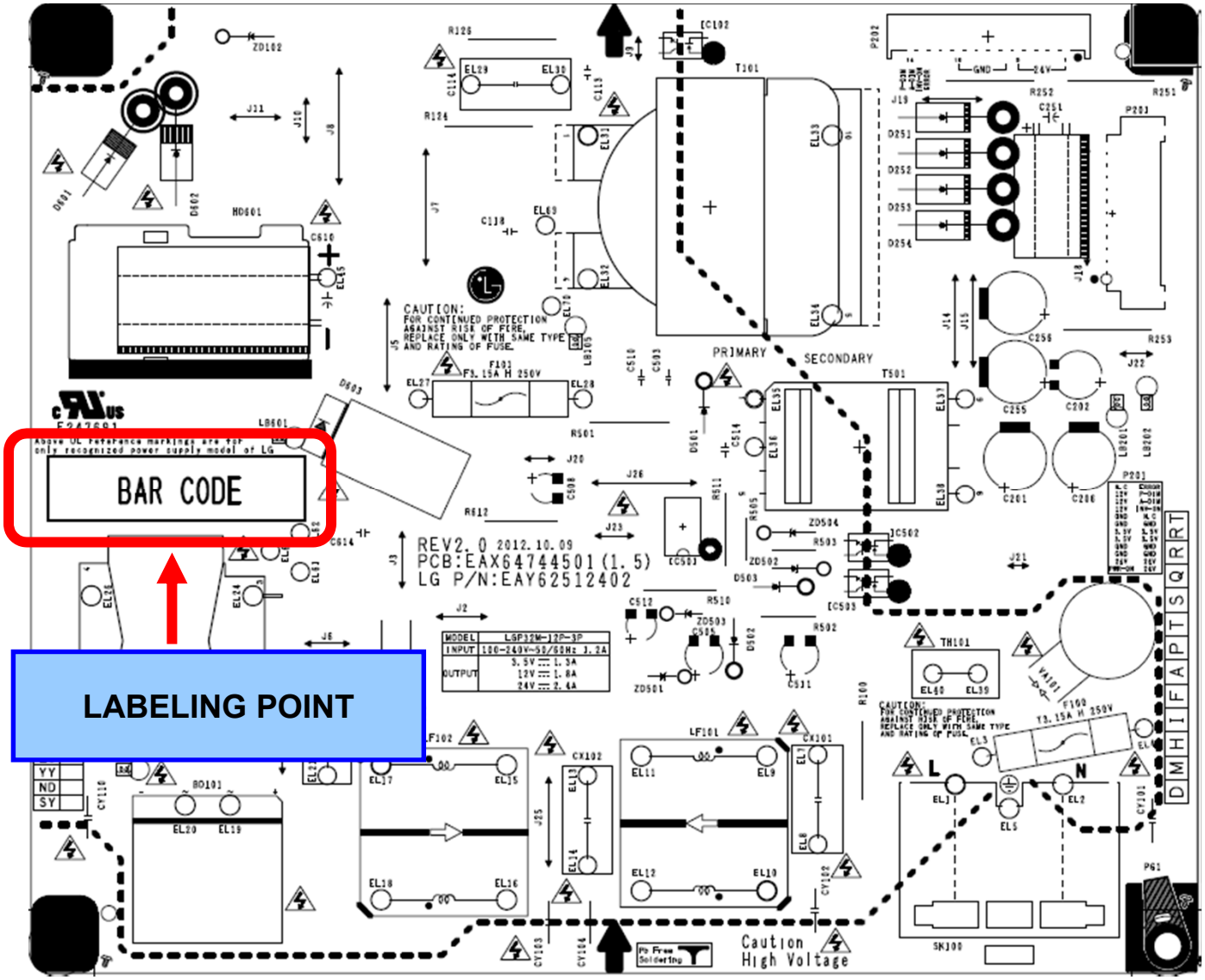
※ Bar Code Size는 그림의 size가 최소size이며, 업체 기준 및 PCB공간에 따라 변경 할 수 있으나, 그림의 size보다 줄일 수 는 없음.

Code	Barcode Specification	Remark
Manufacturing code	L (L : LGIT)	
Manufacturing Year	B (A : 2010, B : 2011,...)	
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.	62512402 (EAY62512402)	
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.

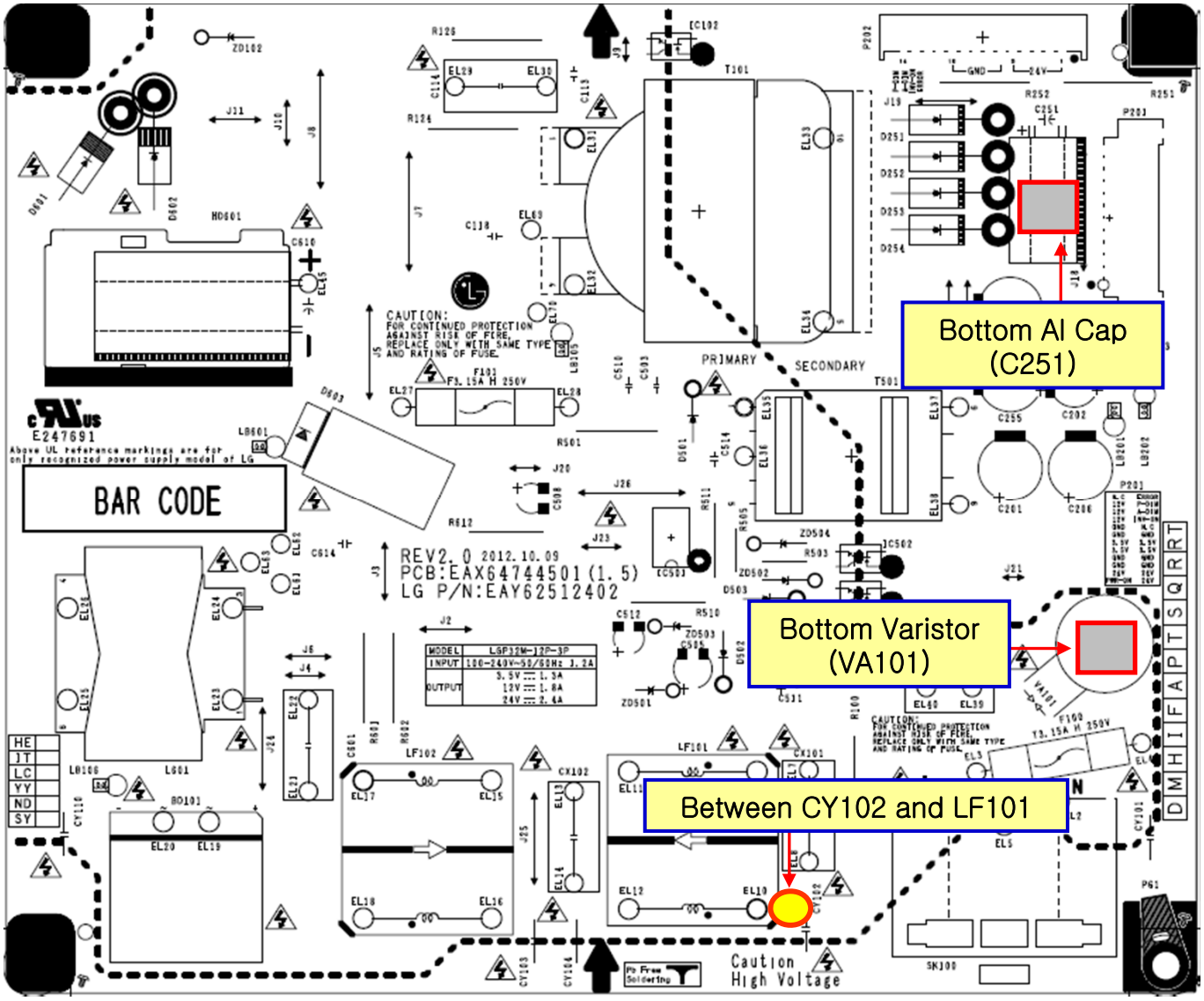
※ Label P/N : 3320KE0008B
Ribbon Black R300 P/N : 5250KR0011A

Labeling Point


BAR CODE
LABELING POINT
REV2.0 2012.10.09
PCB:EAX64744501(1.5)
LG P/N:EAY62512402
PRIMARY
SECONDARY
CAUTION:
FOR CONTINUED PROTECTION
AGAINST RISK OF FIRE,
REPLACE ONLY WITH SAME TYPE
AND RATING OF FUSE.
Caution
High Voltage

Workmanship Point

Silicone Bonding Point (PCB Bottom , Component Side)



Manufacturing Process

공정번호		공정 흐름도	공정명	작업내용	4M			
					MAN (사람)	Machine (장비)	Material (재료)	Method (방법)
자삽공정	1	▽	Incoming matrial]	[자재 준비] 해당 모델의 부품 부번과 수량을 확인하고 Box 해제 후 Tray에 적치		작업대, 이동대차, 라벨프린터, 스캐너	부품	수량,포장상태, 부번, Lot 상태, 일자	제조 정규 요청 리스트 월별 입출고 관리 리스트
	2	○	[Eyelet]	PCB에 Eyelet, GT Pin을 삽입		Eyelet M/C	Eyelet	Program명, 모델명 확인, 삽입 좌표 조정 에어압력: 5.0Kgf/㎠ ~ 이상	일상점검표 기종전환 Sheet 초품검사일지 수리일표
	3	○	[Jump Wire]	PCB에 Jump Wire를 삽입 후 클린칭		Jump Wire M/C 비전 검사(AOI) 버니어 켈리퍼스 각도 측정 지그	Jump Wire	Clinching 길이:1.5±0.3mm Clinching 각도:15~35˚ 중복 삽입, 미삽 없을 것	일상점검표 수리일보
	4	○	[Sequence]	Axial 자재를 순서와 극성에 맞게 Tape로 연결		Sequence M/C 버니어캘리퍼스	Axial 부품	테이핑 치수 : 54.5~55mm 부품 치우침 : 0.3mm 이하 부품 간격: 5mm	일상점검표 초품검사일지
	5	○	[Axial]	PCB에 Axial 부품을 삽입 후 클린칭		Axial M/C 비전 검사(AOI) 각도 측정 지그 버니어 켈리퍼스	부품 Seqence	Clinching 길이:1.2~1.5mm Clinching 각도:15~35˚ 탈삽, 미삽 발생하지 않을 것	일상점검표 초품검사일지 기종전환 Sheet 수리일보
	6	○	[이형 자삽]	PCB에 이형 부품을 삽입 후 클린칭		M10 M/C 버니어 켈리퍼스	이형 부품	Clinching 길이:1.2~1.5mm Clinching 각도:15~35˚ 부품 거리 : 6~6.5mm 탈삽, 미삽 발생하지 않을 것	일상점검표 초품검사일지 기종전환 Sheet 수리일보
	7	○	[Radial]	PCB에 Radial 부품을 삽입 후 클린칭		Radial M/C 버니어 켈리퍼스 비전 검사(AOI)	Radial 부품	투입 부품 부번, 용량, 방향, 위치 확인 Clinching 길이:1.2~1.5mm Clinching 각도:35˚ PCB와 극성 일치 탈삽, 미삽 발생하지 않을 것	BOM 일상점검표 기종전환 Sheet 수리일보

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

공정번호		공정 흐름도	공정명	작업내용	4M				
					MAN (사람)	Machine (장비)	Material (재료)	Method (방법)	
SMT	1	▽	[자재준비]	[자재 준비] 해당 모델의 부품 부번과 수량을 확인하고 Box 해제 후 Tray에 적치		입고도장 제습함 부품보관대/이동대차 바코드 스캔	부품	수량,포장상태, 부번, Lot 상태, 일자 LGIT P/N Label 확인 BOM/MSD Level	제조 정규 요청 리스트 월별 입출고 관리 리스트
	2	○	[Solder Cream]	Solder Cream 보관 및 사용		냉장고 Thermometer	Almit (LFM-48W TM-HP(L)) :Sn-Ag3.0-Cu0.5	온도 관리 한계 : 1~10℃ -(미개봉시) 생산일시 6개월가지 사용가능 상온방치 2시간이상 교반시간 60초 ~120초	냉장 온도 관리 Sheet 관리라벨 사용 이력 관리
	3	○	[Chip Bond]	Chip bond 보관 및 사용		냉장고 Thermometer	Chip Bond	온도 관리 한계 : 1~10℃ 상온방치 2시간이상	일상점검표 수리일보
	4	○	[본드 인쇄]	Stencil Mask를 Printer에 장착하고 그위에 Bond를 투입한 후 PCB를 Loader로부터 공급 받아 Squeegee로 칩접착제를 정위치에 인쇄		Mask Bond 인쇄기 Squeegee	Chip Bond	마스크 번호 Mask 두께: 3.0T 2012 홀 사이즈 : 0.8mm 3216 홀 사이즈 : 1.2mm	마스크 입고시 확인
								칩접착제 모델명 : HT-130DL 초도 생산시 투입량 : 300g 2Hr마다 양 체크 후 보충 : 100g~250g	투입 Check Sheet
								스퀴즈의 압력과 속도 조정 (조건표) 인쇄 상태 확인 Squeegee No. (조건표) 마스크 세척	모델별 조건표 교대/기종전환 Check Sheet Manual 세척 이력 관리 Sheet
	5	○	[Chip Mount]	칩 본딩된 PCB 위에 Chip 장착		Chip Mounter	부품	BOM, 도면 확인 자재 교환 Check Mounting 상태 확인 Pick-up 상태 확인	초품검사일지 MES PDA 교대/기종전환 Check Sheet 부품 Loss율 기록표 일상점검표
	6	○	[이형 Mount]	칩 본딩된 PCB 위에 이형 부품 장착 PCB에 장착된 부품 삽입 상태 검사(AOI)		Multi Mounter AOI	부품	BOM, 도면 확인 자재 교환 Check Mounting 상태 확인 Pick-up 상태 확인 OK, NG Sample로 장비 검증	초품검사일지 MES PDA 교대/기종전환 Check Sheet 부품 Loss율 기록표 AOI 검사 불량 관리 Sheet 일상점검표
	6	○	[Reflow]	PCB에 부착된 부품을 고정하기 위해 접착제를 경화		Reflow M/C Profile Jig Push/Pull Gage		생산 모델과 프로그램을 일치 할 것. 프로파일 온도 조건표와 프로파일을 확인한다. 최고 온도 : 140도 이하 / 120Overtime:70~100초	작업지도서 온도 프로파일 일상점검표 교대/기종전환 Check Sheet
								Chip 접합 강도 1608 : 1.0kgf 이상 2012 : 1.3kgf 이상 3216 : 1.5kgf 이상	접합 강도 측정 Sheet

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

공정번호		공정 흐름도	공정명	작업내용	4M				
					MAN (사람)	Machine (장비)	Material (재료)	Method (방법)	
수삽 ~ 포장	1	▽	[자재준비]	[자재 준비] 해당 모델의 부품 부번과 수량을 확인하고 Box 해제 후 Tray에 적치		입고도장 제습함 부품보관대 이동대차	부품	수량,포장상태, 부번, Lot 상태, 일자 LGIT P/N Label 확인	제조 정규 요청 리스트 월별 입출고 관리 리스트
	2	○	[Manual Insertion]	바코드 라벨 발행		PC Barcode 라벨 프린터 스캐너	라벨	라벨 검증	MES 작업지도서
	3	○	[수삽공정]	PCB에 부품 삽입		수삽 컨베이어 납땜지그 부품적치대/부품대차 매거진 PC/스캐너	부품 실리콘	납땜 지그 화살표와 PCB 진행 화살표 일치 PCB 부번 확인 부품 삽입 상태 확인 라벨 실크 Box 내 삽입 실리콘 규격 도포 실시	작업지도서 외관 검사 기준서 일상점검표 표준샘플 초품검사일지
	4	○	[Flux공정]	PCB 하단에 Flux 분사		Flux M/C 비중계	Flux	Flux 비중: 0.823±0.005 Flux 분포 및 노즐 상태 확인	일상점검표
	5	○	[WaveSoldering 공정]	Soldering		Wave Soldering M/C Solder 자동 공급기 Wave Checker	Solder	Preheater온도: 110±10℃ Pot 1차: 257±3℃ Pot 2차: 257±3℃	Soldering 일상 점검 일지 작업지도서
								납조 성분 Check -Cu: 12,000 ppm -Pb : 800ppm 이내 DPU 관리	ICP 성분 Data 납조 변경 이력 관리대장 Solder 투입 관리표
	5	○	[납땜 검사 및 수정 공정]	Soldering 된 제품 납 땜 상태 검사 및 수정		인두기 인두 온도 측정기 수정 컨베이어	제품	외관검사 기준을 참고 하여 전면 검사 실시 인두기 온도: 330±20℃ 인두기 누설전압: 10mV 이하	외관 검사 기준서 인두 일상 점검표 작업지도서
	6	◇	[ICT 공정]	PCB에 장착된 부품 상태 검사		ICT M/C (AT-01) Fixture PC	제품	모델명, 프로그램 확인 부품 규격 확인	일상점검표 작업지도서 BOM
	7	◇	[동작검사]	제품 동작 검사		Fixture 계측기 Inline 설비, PC Barcode Scanner	제품	모델명, 공정 확인 Program Version 확인 Check Sum값 확인 (Check sum:0xBEA5C) 제품 전기적 특성 측정 표준 샘플로 OK/NG 확인	MES Program 자동 확인 승인원(전기적 특성 Spec) 일상점검표
	8	◇	[내압검사]	제품 내압 검사		Fixture 내압기 Inline 설비	제품	표준 샘플로 OK/NG 확인 내압 검사 실시	승인원(내압 Spec) 일상점검표
	9	○	[실리콘도포]	실리콘 도포		Dispenser	실리콘	제품별 도포위치	작업지도서 일상점검표
	10	◇	[Aging공정]	제품 Aging 검사		Aging M/C Select Card 유사부하 Cable	제품	온도, 시간 확인 합격 기준 확인	MES 작업지도서 일상점검표
	11	◇	[최종외관검사]	제품 외관 검사			제품	외관검사 기준을 참고 하여 검사	외관 검사 기준서 작업지도서
	12	◇	[특성검사]	제품 특성 검사		Fixture 계측기 Inline 설비, PC Barcode Scanner	제품	모델명, 공정 확인 Program Version 확인 제품 전기적 특성 측정 표준 샘플로 OK/NG 확인	MES Program 자동 확인 승인원(전기적 특성 Spec) 일상점검표
	13	□	[포장]	제품 포장		Barcode Scanner PC	제품 Box 에어비닐	모델명, Barcode 확인	MES 작업지도서

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 Ver1.9 에서 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 1차측 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 회로Location No.는 EL***로 시작할 것	OK		
30	Gripper의 회로Location No.는 G***로 시작할 것	OK		해당사항 없음
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		해당사항 없음
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		해당사항 없음
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 시작 할 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 Trans 에 한함
6	Trans의 경우 300V 기준으로 Barrier 8mm이상 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 이상일 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		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: 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		

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	OK		
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.]	OK		해당사항 없음
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)	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 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 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  _GP32M-12P-3P Safety_check list			

Appendix 2.

WARRANTY LETTER

Non-use certificate

Description	For approval / For mass production	Submitting date	2011 . 11. 09

Cooperating suppliers				
Company name	LG Innotek	Approval	Person in charge	Head of department
Contact	Tel 062-950-0232	Name	김 인 재	김 형 성
e-Mail	ijkim@lginnotek.com	Signature		

LGE Part No.	EAY62512402	Part production date	
Maker Part No.	PSLC-L115B	Production plant	
Part name	LGP32M-12P-3P		

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, Cr^{6+}, 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℃/10 sec) ☐ Reflow (Requirement : 250℃/10 sec)

1. Maximum heat-resisting temperature : 260 ℃ 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.

LG Electronics