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SPECIFICATION FOR APPROVAL

• CUSTOMER : LG Electronics inc.

• ITEM : Power Supply Unit.

• P/NO

Model Name	Customer	Supplier
LGP4755-13P	EAY62851201	OPVP-0185

• DATE : 2013 . 08.20

• Revision : REV 1.6

• Remark : MP (PCB REV 1.0)

Producing District : CSG (CHINA SUZHOU GENMAO)

생산지 : CSG (중국 소주 겐마오)

★ Safety Standard Parts [안전규격부품 List]

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

★ EMC Standard Parts [전자규격 부품 List]

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

★ Green [유해물질 확인사항]

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

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



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Documentation For Approval

Model Name	Customer	Supplier
LGP4755-13P	EAY62851201	OPVP-0185

Written	Checked	Approved
Miki	Antony	C.T



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Revision History

Rev No.	Contents	Date of Approval	Checked	Remark
0.1	Apply to DV (PCB REV 0.1) PCB P/No. : EAX64908101(1.4) DV 1st Edition.	12.09.07	Antony	
0.2	Apply to PV (PCB REV 0.2) PCB P/No : EAX64908101(1.9) PV 1st Edition.	12.09.22	Antony	
0.21	Apply to PV (PCB REV 0.22) PCB P/No : EAX64908101(2.1) 1, Improve Q502 Veb Margin -, Add Point : D504 1N4148 2, Etc -, Model Separate : Add EL98 (Φ1.6) -, Change PCB Revision : 0.2 → 0,22 PV 2 nd Edition	12.11.23	Antony	
1.0	Apply to MP (PCB REV 1.0) PCB P/No : EAX64908101(2.2) 1.MP -. Add UL Mark	12.12.14	Antony	
1.1	Apply to MP (PCB REV 1.0) PCB P/No : EAX64908101(2.2) FEELUX TRAN`S 12S-LM02,12S-LP02 , Field smell 不良, 刪除 Trans tape maker	13.02.08	Antony	
1.2	Apply to MP (PCB REV 1.0) PCB P/No : EAX64908101(2.2) 1. AC Socket is modified	13.04.17	Antony	
1.3	Apply to MP (PCB REV 1.0) PCB P/No : EAX64908101(2.2) 1. no use vendor delete, and remain actual vendor	13.05.14	Antony	



Revision History

Rev No.	Contents	Date of Approval	Checked	Remark
1.4	Apply to MP (PCB REV 1.0) PCB P/No : EAX64908101(2.2) 1. Add WANSHENG CERAMIC CAP 4M	13.05.21	Antony	
1.5	Apply to MP (PCB REV 1.0) PCB P/No : EAX64908101(2.2) ION FLUX Model : ILF714 →ILF710	13.07.14	Antony	
1.6	Apply to MP (PCB REV 1.0) PCB P/No : EAX64908101(2.2) <DONGIL> AC Socket modify : add cover , DAC-18C3M1→DAC-18C3M1c (It will be applied from 9/23)	13.08.20	Antony	



CTQ Management

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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 47inch,55Inch LGE LED TV.

1.2 Customers product related items

Product : Power Supply Unit
Part code : EAY62851201

1.3 Product name

Product name : **LGP4755-13P**

Revision code : 1.6

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 1.8Arms . (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	± 4KV / 1000ns / 0° to 360°
Hold-up Time	More than 20ms at 100Vac and maximum output load 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)	-	-
		1.0A (0.2~1.0A) (ON condition)	± 5%	250mVp-p (Set Condition)
12V	11.4V ~ 12.6V	1.6A (0.2~1.6A)	± 5%	350mVp-p
24	22.8V ~ 25.2V	4.4A (0.1~4.4A)	± 5%	500mVp-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.

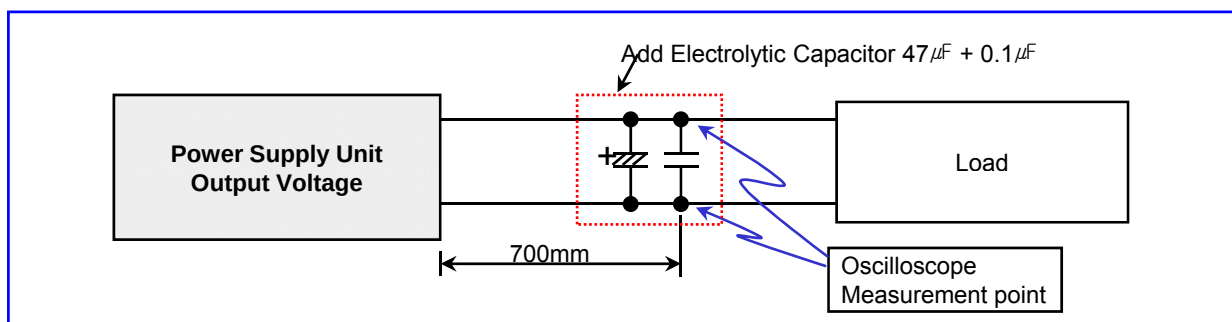
* Total regulation for each output circuit includes the results of input voltage variation, load variation, warm-up drift and temperature change.

* 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

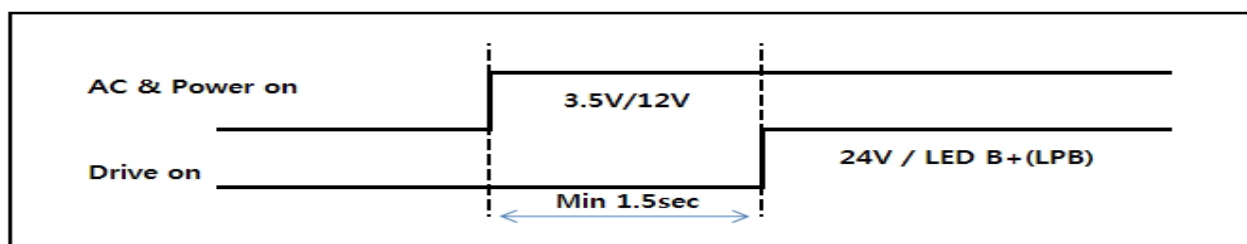


※ Ripple and noise are measured at the end of output cable which are added a 0.1uF ceramic capacitor and 47uF electrolytic capacitor. (connected parallel)

* 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 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

Safety

Dielectric Strength Voltage	AC 1.5KV or DC 2121V 1 Min 10mA (Test Spec) AC 1.8KV 1Sec 10mA (PSU Mass Production) Between Primary and All Secondary Circuits.
Insulation Resistance	Insulation resistance shall be more than 8M ohm (at DC 500V) Between Primary Live, Neutral line and Secondary.

- * Above tests are performed at room temperature in non-condensing atmospheric conditions
- * Frame grounds are connected to secondary circuits.

2.5 Burn-in

More than 2 hours at 45℃(±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 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 400g
Unit Size	159(W) * 245(L) * 19.6(H)

2.9 Function of protection

Protection	Output Circuit	Trip point		Notes
		Min	Max	
Over Current	STBY 3.5V	2.0A	5.0A	Auto Re-start
	12V	3.0A	20.0A	Latch
	24V	5.5A	12.0A	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.μ Pa 2.0E-5 Pa

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

Measure Location : Anechoic Room

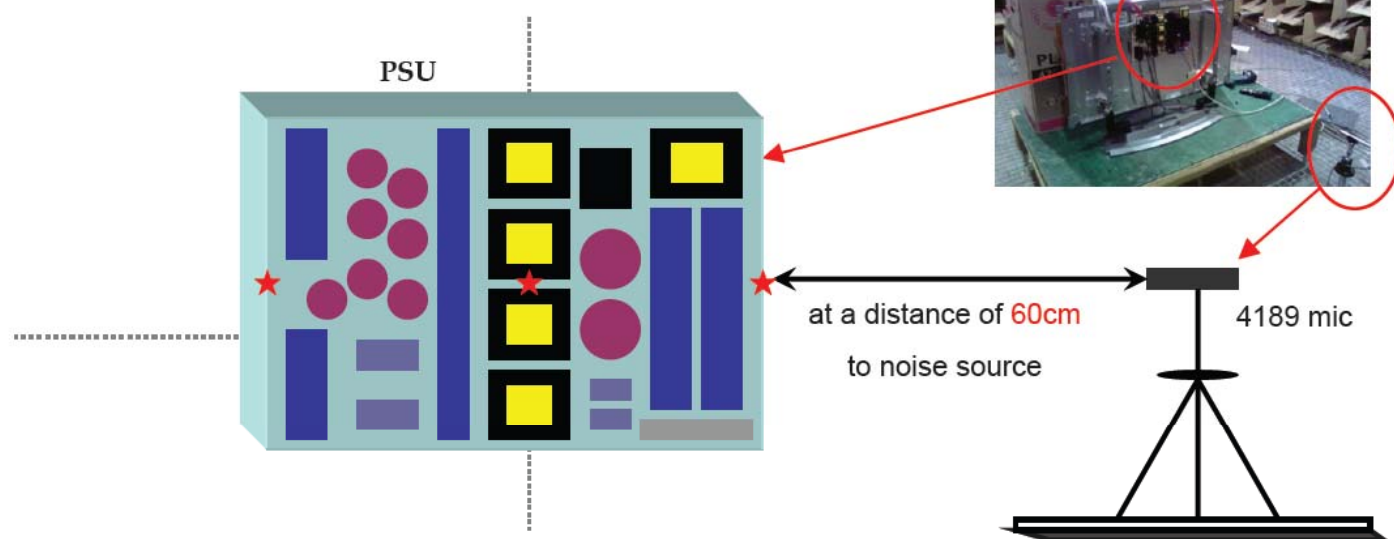
Measure Condition : At a distance of 60cm mic

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

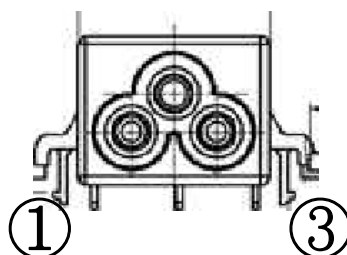




2.11 Connector Specification

2.11.1 Connectors Usage

SK100	
Type :DAC-18C3M1 c	
Maker : DONGIL TECH	
Pin No.	Signal
1	LINE
2	EARTH
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	N.C.
12	DRV-ON
13	A-DIM
14	P-DIM

P201			
Type : SMAW200-H18S2			
Maker : YEON-HO			
Pin No.	Signal	Pin No.	Signal
1	POWER-ON	2	DRV-ON
3	3.5V	4	P-DIM
5	3.5V	6	A-DIM
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

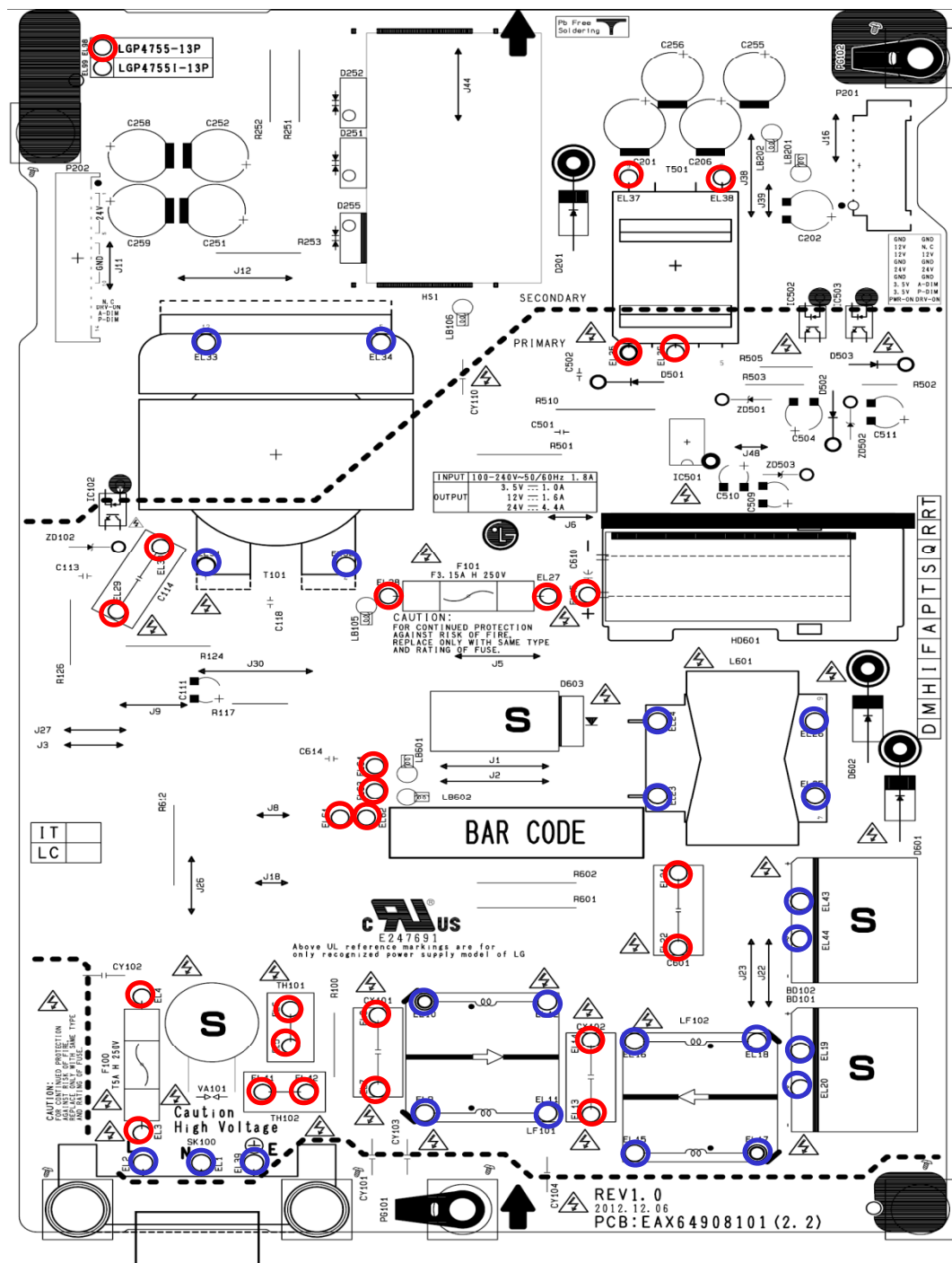
1) Power board PCB : 159mm X 245mm X 1.6(T)mm
2) Component Height : Max 15.5mm (except SK100 Max 17mm)
3) Lead Cutting : Max 2.5mm (except HD Max 3.5mm)
4) PCB Material : FR-1 KB,DS,L,1oz CTI-600



2.13 Apply to the Eyelet point. (LGP4755-13P)

Apply to the Eyelet point 2.0Φ : EL1,EL2,EL9,EL10,EL11,EL12,EL15,EL16,EL17,EL18,EL19,EL20,EL23,EL24,EL25,EL26,EL31,EL32,EL33,EL34,EL39,EL43,EL44 (23EA)

Apply to the small Eyelet point 1.6Φ : EL3,EL4,EL5,EL6,EL7,EL8,EL13,EL14,EL21,EL22,EL27,EL28,EL29,EL30,EL35,EL36,EL37,EL38,EL41,EL42,EL45,EL61,EL62,EL63,EL64,EL98 (26EA)





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°C</td></tr><tr><td>30 minutes</td><td>25°C -> -20°C</td></tr><tr><td>60 minutes</td><td>Minimum storage temperature (-20°C)</td></tr><tr><td>30 minutes</td><td>-20°C -> 25°C</td></tr><tr><td>30 minutes</td><td>25°C</td></tr><tr><td>30 minutes</td><td>25°C -> 70°C</td></tr><tr><td>60 minutes</td><td>Maximum storage temperature (70°C)</td></tr><tr><td>30 minutes</td><td>70°C -> 25°C</td></tr></table>	Time	Temperature	30 minutes	25°C	30 minutes	25°C -> -20°C	60 minutes	Minimum storage temperature (-20°C)	30 minutes	-20°C -> 25°C	30 minutes	25°C	30 minutes	25°C -> 70°C	60 minutes	Maximum storage temperature (70°C)	30 minutes	70°C -> 25°C
Time	Temperature																			
30 minutes	25°C																			
30 minutes	25°C -> -20°C																			
60 minutes	Minimum storage temperature (-20°C)																			
30 minutes	-20°C -> 25°C																			
30 minutes	25°C																			
30 minutes	25°C -> 70°C																			
60 minutes	Maximum storage temperature (70°C)																			
30 minutes	70°C -> 25°C																			
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°C (30minutes), 120°C (30minutes), Switching time : Less than 5 minutes, 200 cycles.																		



2.15 Mechanical Characteristics

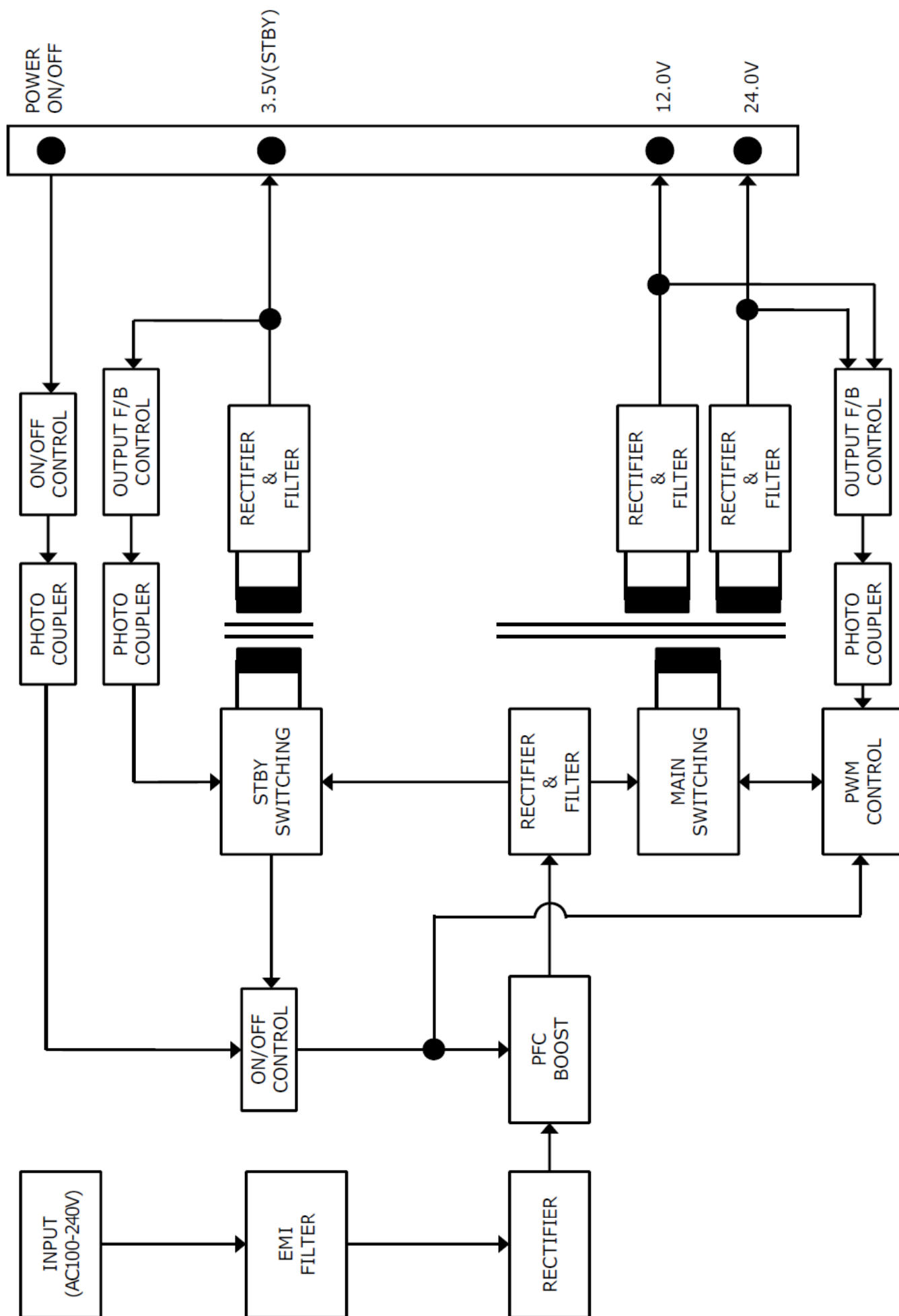
No.	Test Item	Test method
1	Appearance	There shall be no contaminant or dirt on the switching regulator which has adverse effect on electrical characteristics. There shall be no excessive unevenness or scratches on the plated or painted surface.
2	Vibration	While applying electricity : Vibration frequency : 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



Block Diagram





Parts List



NO.	L/V	Q'ty	UNIT	LOCATION	SPECIFICATION	DESCRIPTION	MAKER
	MI			HS1	MULTI DIODE ASS'Y	HEAT SINK ASS'Y	
1	MI	1	EA	HS1	LGP4755-13P (50*30*14)	HEAT SINK	MINGXUE HUAPENG YAOFENG
2	MI	3	EA	D251,D252,D255	MBRF20100CT 20A 100V TO-220FP MBRF20U100CT 20A 100V TO-220FP MBRF20100CT 20A 100V TO-220FP	DIODE	SENSITRON KEC TSC
3	MI	3	EA	FOR D251,D252,D255	M/S S/W + Φ3.0 7L SILVER PLATE HEAD BHM Screw, M3.0 * 6.0L, with Clamfix, Cr3+WH Plating	SCREW	RUIYOU ROEN
4	MI	3	GR	FOR D251,D252,D253	KD-3 H-SC-7	SILICON GREASE	SANCHEN XUNWEI
	MI				LGP4755-13P MI COMPONENTS	MI ASS'Y	
5	MI	2	EA	BD101,BD102	TS10K60 600V 10A KB11006G 600V 10A D10XB60 600V 10A	DIODE	TSC LITEON DACHANG
6	MI	1	EA	C610	NZE 120uF 450V M P7.5 Φ18X40 SK 120uF 450V M P7.5 Φ18X40	CAPACITOR, ALUMINUM	SAMYOUNG SUSCON
7	MI AI	2	EA	CY101,CY102	CD 100pF 250V K P10, Y1 CT81 100pF 250V K P10, Y1	CAPACITOR, CERAMIC	TDK YINANDON
8	MI AI	3	EA	CY103,CY104,CY110	CD 470pF 250V K P10, Y1 CT81 470pF 250V K P10, Y1	CAPACITOR, CERAMIC	TDK YINANDON
9	MI	1	EA	C601	PCMP 372/472 0.82uF 500V J P15 MPHB 0.82uF 500V J P15 CTH 0.82uF 500V J P15	CAPACITOR, FILM	PILKOR EUROPTRONIC CHENG TUNG
10	MI	1	EA	C114	PCMP 384 0.027uF 800V J P15 MPLB 0.027uF 1000V J P15	CAPACITOR, FILM	PILKOR EUROPTRONIC
11	MI	2	EA	CX101,CX102	PCX2 337 0.33uF 275V P15 MPX 0.33uF 275V P15 CTX 0.33uF 275V P15	CAPACITOR, FILM	PILKOR EUROPTRONIC CHENG TUNG
12	MI	2	EA	D601,D602	1N5408G 1KV 3A P20	DIODE	TSC
13	MI	1	EA	D201	SB560 60V 5A P20 SB560 60V 5A P20	DIODE	DACHANG LITEON
14	MI	1	EA	D603	BYV29FX-600 600V 9A STTH10LCD06FP 600V 10A	DIODE	NXP ST
15	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
16	MI	1	EA	F100	T5A H 250V 215 RED(1-LINE) T5A H 250V 50CT RED(1-LINE)	FUSE, TIME LAG	LITTELFUSE Dainfuse
17	MI	2	EA	PG101,PG102	YF-002-00131 SPCC 0.4T GND PIN JS-12-75-04 SPCC 0.4T GND PIN	GND REINFORCE	YAOFENG DIHUA
18	MI	3	EA	IC102,IC502,IC503	EL817MB(DT) LTV817M-BN	IC	EVERLIGHT LITEON
19	MI	1	EA	IC501	FSD106LG	IC	FAIRCHILD
20	MI	2	EA	LF101,LF102	LLF-121, 19Φ 25mH	LINE FILTER	FEELUX ZHONGTAI
21	MI	2	EA	TH101,TH102	ICL-5W 2R50MSMT	THERMISTOR NTC	SMART
22	MI	1	EA	T101	12S-LM02 (EER4714, 450uH)	TRANSFORMER	FEELUX ZHONGTAI
23	MI	1	EA	L601	12S-LP02 (PQ3513, 220uH)	TRANSFORMER	FEELUX ZHONGTAI
24	MI	1	EA	T501	12S-LS01 (EE1918, 1.1mH)	TRANSFORMER	FEELUX ZHONGTAI
25	MI	1	EA	VA101	INR14D621K-CAP 620V Φ14 TUBE L-FORM WMR14D621K 620V Φ14 TUBE L-FORM SVC621D-14ATM7 620V Φ14 TUBE L-FORM NFC14D621K0037WC 620V Φ14 TUBE L-FORM	VARISTOR	AMOTECH Xiamen Wanning SAMWHA NFC



26	MI	1	EA	HD601	EC45CAP-A0-12	CAP HOLDER	TBI
27	MI	1	EA	P202	20022WR-H14BD2	WAFER	YEONHO
28	MI	1	EA	SK100	DAC-18C3M1 c	WAFER	DONGIL TECH
29	MI	1	EA	P201	SMAW200-H18S2 18PIN WHITE	WAFER	YEONHO
	SMT				LGP4755-13P SMT COMPONENTS	SMT ASSEMBLY	
30	SMT	2	EA	C103,C254	0.01uF 50V K 1608 X7R	CAPACITOR, CHIP	YAGEO HEC
31	SMT	2	EA	C105,C606	0.047uF 50V K 1608 X7R	CAPACITOR, CHIP	YAGEO HEC
32	SMT	7	EA	C107,C108,C110,C205,C503, C516,C604	0.1uF 50V K 1608 X7R	CAPACITOR, CHIP	YAGEO HEC
33	SMT	1	EA	C106	0.22uF 25V K 1608 X7R	CAPACITOR, CHIP	YAGEO HEC
34	SMT	5	EA	C116,C253,C505,C607,C608	1000pF 50V K 1608 X7R	CAPACITOR, CHIP	YAGEO HEC
35	SMT	1	EA	C605	0.033uF 50V K 1608 X7R	CAPACITOR, CHIP	YAGEO HEC
36	SMT	1	EA	C101	0.47uF 16V K 1608 X7R	CAPACITOR, CHIP	YAGEO HEC
37	SMT	2	EA	C102,C204	1uF 16V K 1608 X7R	CAPACITOR, CHIP	YAGEO HEC
38	SMT	1	EA	ZD601	BZT52C6V8S 6.8V SOD-323	DIODE, ZENER	DIODES TSC
39	SMT	1	EA	ZD112	BZT52C18VS 18V SOD-323	DIODE, ZENER	DIODES TSC
40	SMT	1	EA	C104	470pF 50V J 1608 COG	CAPACITOR, CHIP	YAGEO HEC
41	SMT	2	EA	Q601,Q602	STD13NM60N 600V 11A D-PAK TK10P60W 600V 9.8A D-PAK FCD380N60E 600V 10A D-PAK	FET,SMD	STMICRO TOSHIBA FAIRCHILD
42	SMT	2	EA	Q101,Q102	STD13NM60N 600V 11A D-PAK TK10P60W 600V 9.8A D-PAK	FET,SMD	STMICRO TOSHIBA
43	SMT	9	EA	D101,D102,D103,D105,D106, D121,D504,D604,D605	1N4148W 100V 150mA SOD-123	DIODE	DIODES TSC
44	SMT	1	EA	IC601	R2A20133D	IC	RENESAS
45	SMT	1	EA	IC101	L6599AD, SO-16	IC	STMICRO
46	SMT	1	EA	IC202	SJ432BS 1.24V ±0.5% SOT-23 AZ431LANTR-E1 1.24V ±0.5% SOT-23	IC	AUK BCD
47	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	IC	AUK BCD KEC
48	SMT	2	EA	R207,R257	0Ω J 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
49	SMT	1	EA	R206	1.5KΩ F 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
50	SMT	1	EA	R507	15KΩ J 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
51	SMT	1	EA	R605	180Ω J 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
52	SMT	1	EA	R618	24KΩ F 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
53	SMT	1	EA	R108	1.8KΩ J 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
54	SMT	1	EA	R509	100KΩ J 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
55	SMT	1	EA	R204	100Ω F 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
56	SMT	2	EA	R608,R609	100Ω J 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
57	SMT	8	EA	R120,R123,R211,R220,R256, R515,R603,R606	10KΩ J 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
58	SMT	1	EA	R116	120Ω F 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
59	SMT	1	EA	R111	18KΩ F 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
60	SMT	2	EA	R610,R611	18Ω J 3216	RESISTOR, CHIP	YAGEO TZAI YUAN
61	SMT	1	EA	R260	1KΩ F 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
62	SMT	4	EA	R102,R202,R504,R508	1KΩ J 1608	RESISTOR, CHIP	YAGEO TZAI YUAN



63	SMT	1	EA	R604	200K Ω J 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
64	SMT	2	EA	R254,R255	2.2K Ω J 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
65	SMT	1	EA	R109	2.2M Ω J 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
66	SMT	1	EA	R258	2.4K Ω F 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
67	SMT	1	EA	R110	2.4K Ω J 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
68	SMT	1	EA	R205	2.7K Ω F 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
69	SMT	1	EA	R619	220K Ω J 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
70	SMT	1	EA	R112	22 Ω F 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
71	SMT	2	EA	R119,R122	22 Ω J 3216	RESISTOR, CHIP	YAGEO TZAI YUAN
72	SMT	1	EA	R210	270 Ω J 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
73	SMT	1	EA	R114	3.3K Ω J 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
74	SMT	3	EA	R259,R261,R617	30K Ω F 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
75	SMT	1	EA	R201	330 Ω J 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
76	SMT	1	EA	R262	360 Ω F 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
77	SMT	1	EA	R115	470K Ω J 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
78	SMT	3	EA	R208,R209,R227	470 Ω J 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
79	SMT	1	EA	R107	47K Ω J 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
80	SMT	2	EA	R118,R121	47 Ω J 3216	RESISTOR, CHIP	YAGEO TZAI YUAN
81	SMT	1	EA	R127	560K Ω F 3216	RESISTOR, CHIP	YAGEO TZAI YUAN
82	SMT	1	EA	R113	6.8K Ω J 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
83	SMT	5	EA	R613,R614,R615,R616,R623	750K Ω F 3216	RESISTOR, CHIP	YAGEO TZAI YUAN
84	SMT	1	EA	R506	75K Ω J 1608	RESISTOR, CHIP	YAGEO TZAI YUAN
85	SMT	4	EA	R103,R104,R105,R106	910K Ω F 3216	RESISTOR, CHIP	YAGEO TZAI YUAN
86	SMT	1	EA	Q501	BCW66GLT SOT-23 NPN 2SC5865 SOT-23 NPN	TRANSISTOR	ONSEMI ROHM
87	SMT	2	EA	Q201,Q502	MMBT2222A 40V 600mA SOT-23 NPN KTN2222AS 40V 600mA SOT-23 NPN SBT2222A 40V 600mA SOT-23 NPN	TRANSISTOR	ONSEMI KEC AUK
88	SMT	3	EA	Q103,Q603,Q604	MMBT2907A -60V -600mA SOT-23 PNP KTN2907AS -60V -600mA SOT-23 PNP SBT2907A -60V -600mA SOT-23 PNP	TRANSISTOR	ONSEMI KEC AUK
89	SMT	2	EA	HD101,HD102	3.0X2.45X2.5H	SUPPORTER	POWER VALLEY
90	SMT	0.5	GR		NE8800T	BOND	FUJI



	AI				LGP4755-13P AI COMPONENTS	AI ASSEMBLY	
91	AI	2	EA	C201,C206	NXH 1000uF 10V M P5 Φ 10X12.5 MG 1000uF 10V M P5 Φ 10X13	CAPACITOR, ALUMINUM	SAMYOUNG SUSCON
92	AI	3	EA	C251,C252,C258	NXH 330uF 35V M P5 Φ 10X12.5 MG 330uF 35V M P5 Φ 10X12.5	CAPACITOR, ALUMINUM	SAMYOUNG SUSCON
93	AI	2	EA	C255,C256	NXH 470uF 25V M P5 Φ 10X12.5 MG 470uF 25V M P5 Φ 10X13	CAPACITOR, ALUMINUM	SAMYOUNG SUSCON
94	AI	3	EA	C111,C509,C510	NXB 10uF 50V M P5 Φ 5X11 SG 10uF 50V M P5 Φ 5X11	CAPACITOR, ALUMINUM	SAMYOUNG SUSCON
95	AI	2	EA	C504,C511	NXB 47uF 50V M P5 Φ 6.3X11 SG 47uF 50V M P5 Φ 6.3X11	CAPACITOR, ALUMINUM	SAMYOUNG SUSCON
96	AI	1	EA	C202	NXB 470uF 10V M P5 Φ 8X11.5 SG 470uF 10V M P5 Φ 8X12	CAPACITOR, ALUMINUM	SAMYOUNG SUSCON
97	AI	2	EA	C118,C614	CK45 100pF 1KV K P5 125 $^{\circ}$ C CT81 100pF 1KV K P5 125 $^{\circ}$ C CT81 100pF 1KV K P5 125 $^{\circ}$ C	CAPACITOR, CERAMIC	TDK YINANDON Kunshan Wansheng
98	AI	1	EA	C113	CK45 220pF 1KV K P5 125 $^{\circ}$ C CT81 220pF 1KV K P5 125 $^{\circ}$ C CT81 220pF 1KV K P5 125 $^{\circ}$ C	CAPACITOR, CERAMIC	TDK YINANDON Kunshan Wansheng
99	AI	1	EA	C502	CK45 1000pF 1KV K P5 125 $^{\circ}$ C CT81 1000pF 1KV K P5 125 $^{\circ}$ C CT81 1000pF 1KV K P5 125 $^{\circ}$ C	CAPACITOR, CERAMIC	TDK YINANDON Kunshan Wansheng
100	AI	3	EA	D501,D502,D503	UF4007 1KV 1A DO-41	DIODE	DACHANG TSC
101	AI	2	EA	ZD102,ZD501	1N5235B 6.8V DO-35	DIODE, ZENER	TSC
102	AI	1	EA	ZD502	1N5245B 15V DO-35	DIODE, ZENER	TSC
103	AI	1	EA	ZD503	1N5250B 20V DO-35	DIODE, ZENER	TSC
104	AI	26	EA	EL3,EL4,EL5,EL6,EL7,EL8, EL13,EL14,EL21,EL22,EL27 ,EL28,EL29,EL30,EL35,EL36, EL37,EL38,EL41,EL42,EL45, EL61,EL62,EL63,EL64,EL98	1.6X3.0	EYELET	YAOFENG DELIKANG
105	AI	23	EA	EL1,EL2,EL9,EL10,EL11, EL12,EL15,EL16,EL17,EL18, EL19,EL20,EL23,EL24,EL25, EL26,EL31,EL32,EL33,EL34, EL39,EL43,EL44	2.0X3.0	EYELET	YAOFENG DELIKANG
106	AI	6	EA	LB105,LB106,LB201,LB202, LB601,LB602	BFS3550R2F SINGLE RADIAL	INDUCTOR, BEAD FILTER LEAD	SAMWHA
107	AI	20	EA	J1,J2,J3,J5,J6, J8,J9,J11,J12,J16,J18, J22,J23,J26,J27,J30, J38,J39,J44,J48	Φ 0.6	JUMPER WIRE	HUIHUA TZAI YUAN
108	AI	1	EA	R124	MSR37 1M Ω 1/2W J SURGE	RESISTOR, FIXED CARBON COMPOSITION	PILKOR
109	AI	1	EA	R100	MSR37 1.2M Ω 1/2W J SURGE	RESISTOR, FIXED CARBON COMPOSITION	PILKOR
110	AI	1	EA	R505	CF 1 Ω 1/4W J SMALL	RESISTOR, CARBON FILM	TZAI YUAN
111	AI	1	EA	R117	CF 2.2 Ω 1/4W J SMALL	RESISTOR, CARBON FILM	TZAI YUAN
112	AI	1	EA	R612	CF 33 Ω 1/4W J SMALL	RESISTOR, CARBON FILM	TZAI YUAN
113	AI	1	EA	R503	CF 20 Ω 1/4W J SMALL	RESISTOR, CARBON FILM	TZAI YUAN
114	AI	1	EA	R502	CF 100 Ω 1/4W J SMALL	RESISTOR, CARBON FILM	TZAI YUAN
115	AI	1	EA	R501	MOF 62K Ω 1W J SMALL	RESISTOR, METAL OXIDE FILM	TZAI YUAN
116	AI	1	EA	R510	MOF 120K Ω 2W J SMALL	RESISTOR, METAL OXIDE FILM	TZAI YUAN
117	AI	1	EA	R126	MOF 120 Ω 1W J SMALL	RESISTOR, METAL OXIDE FILM	TZAI YUAN
118	AI	1	EA	R253	MOF 1.5K Ω 2W J SMALL	RESISTOR, METAL OXIDE FILM	TZAI YUAN
119	AI	2	EA	R251,R252	MOF 2.2K Ω 2W J SMALL	RESISTOR, METAL OXIDE FILM	TZAI YUAN
120	AI	2	EA	R601,R602	WNPS 0.2 Ω 2W J SMALL PRN02 0.2 Ω 2W J SMALL	RESISTOR, WIRE WOUND	ABCO SMART
121	AI	1	EA	PCB	LGP4755-13P (159*245*1.6T) FR-1 KB,DS,L,1oz CTI-600	PCB	SHANGHAI WANZHENG NEW TRIUNION WYT



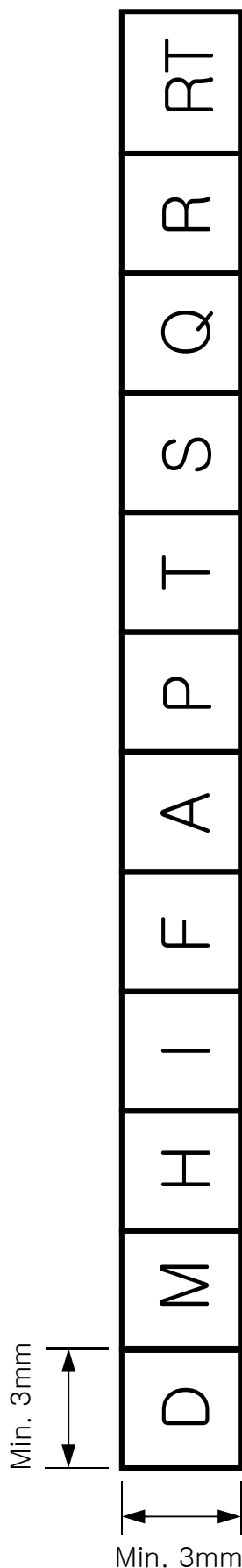
	ETC				LGP4755-13P SUBSIDIARY MATERIALS		
122	ETC	0.0625	EA		630 x 425 x 205 t8	BOX CARTON	WUJIANG ZHENLONG SUZHOU JIADELONG
123	ETC	0.1	EA		620 x 165 t8	BOX PARTITION	WUJIANG ZHENLONG SUZHOU JIADELONG
124	ETC	0.053	EA		415 x 165 t8	BOX PARTITION	WUJIANG ZHENLONG SUZHOU JIADELONG
125	ETC	0.053	EA		145 x 250 t25	BOX PARTITION	WUJIANG ZHENLONG SUZHOU JIADELONG
126	ETC	1.033	EA		615 x 410 t8	BOX PAD	WUJIANG ZHENLONG SUZHOU JIADELONG
127	ETC	1	EA			BUBBLE SHEET	LIYUAN WINWORLD
128	ETC	0.003	KG		ILF-710(kg)	FLUX	ION ELEC
129	ETC	0.002	KG		40X8 NY WHITE 93CODE 19DIGIT	BAR CODE	QIUJING
130	ETC	5	GR		ES2044H & ES2482W SD-5 UB-5601	BOND (RTV)	CANADA SANCHEN U-BOND
131	ETC	0.015	KG		SAC0307 A+ SN:99%, AG:0.3%, CU:0.7%	SOLDER BAR	DYFENCO
132	ETC	0.002	KG		SAC0307 A+ SN:99%, AG:0.3%, CU:0.7%	SOLDER WIRE	DYFENCO



Process Marking



공정표시 MARK (PCB SILK)

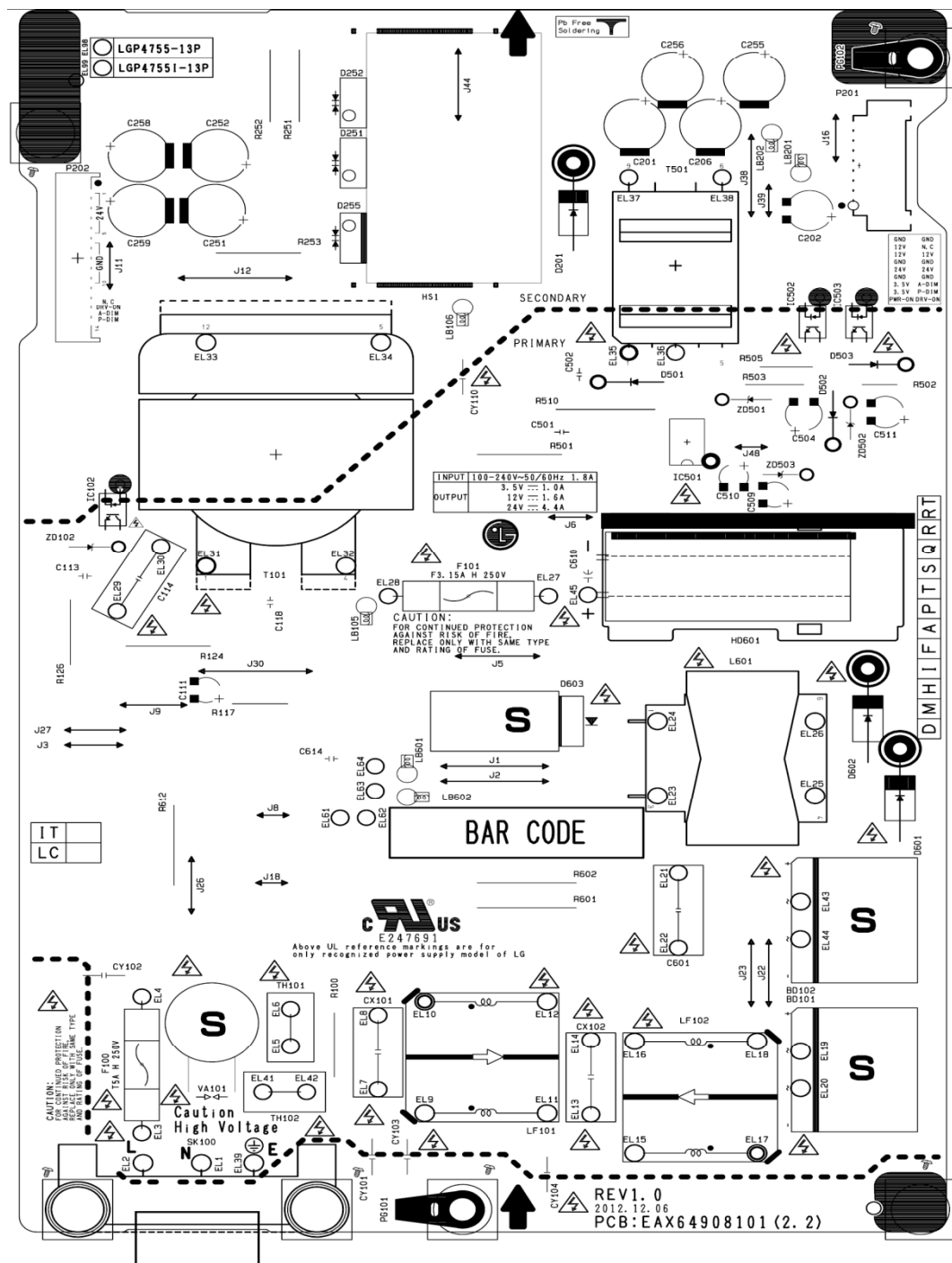


D : 자삽
M : SMD
H : 수삽 최종
I : ICT
F : 1차 성능
A : AGING
P : HI-POT
T : 최종 검사 (ATE)
S : SET 검사
Q : QC 검사
R : 불량 수리
RT : 양산 보증 시험

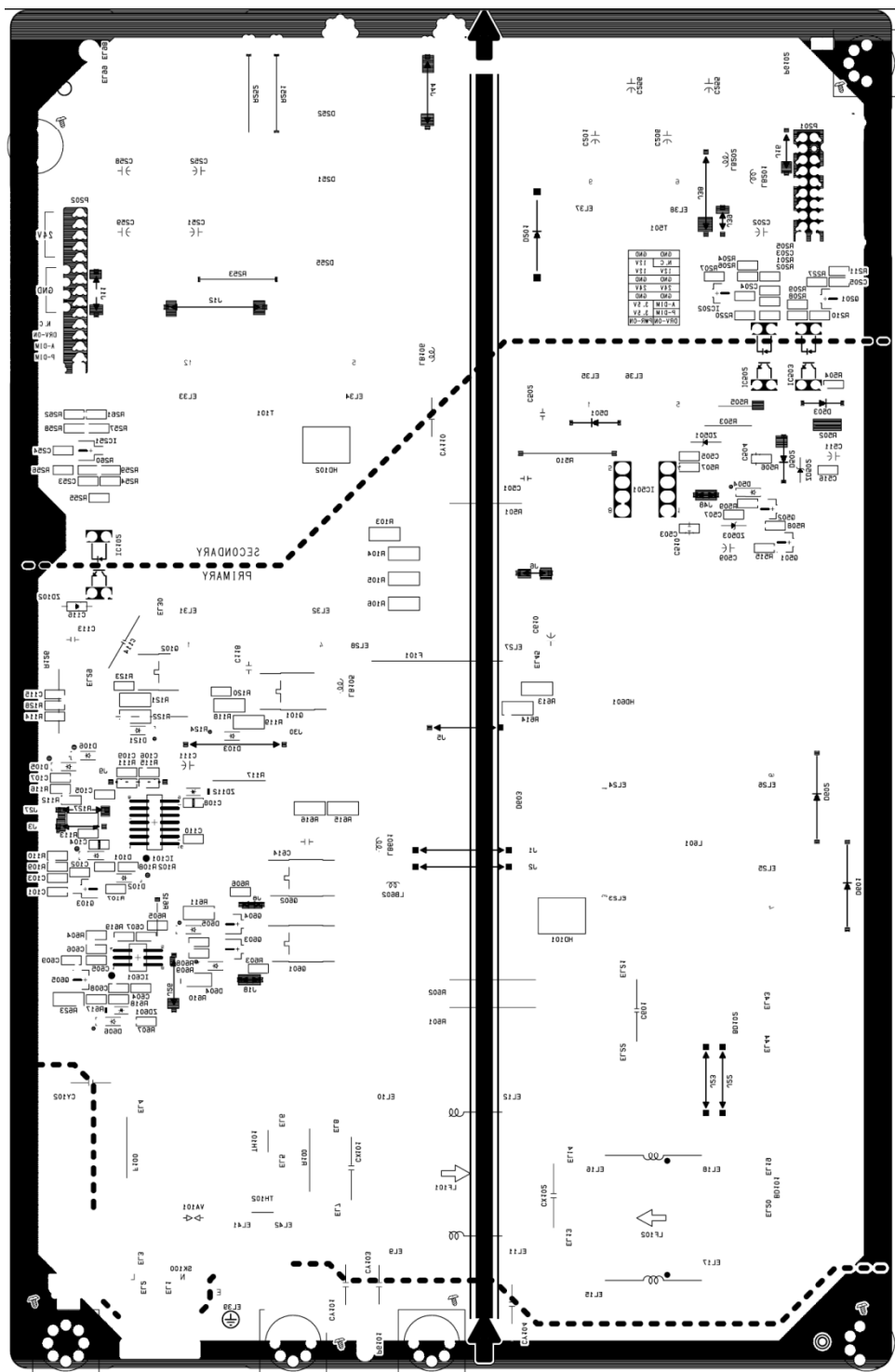


PCB Layout

Top Silk

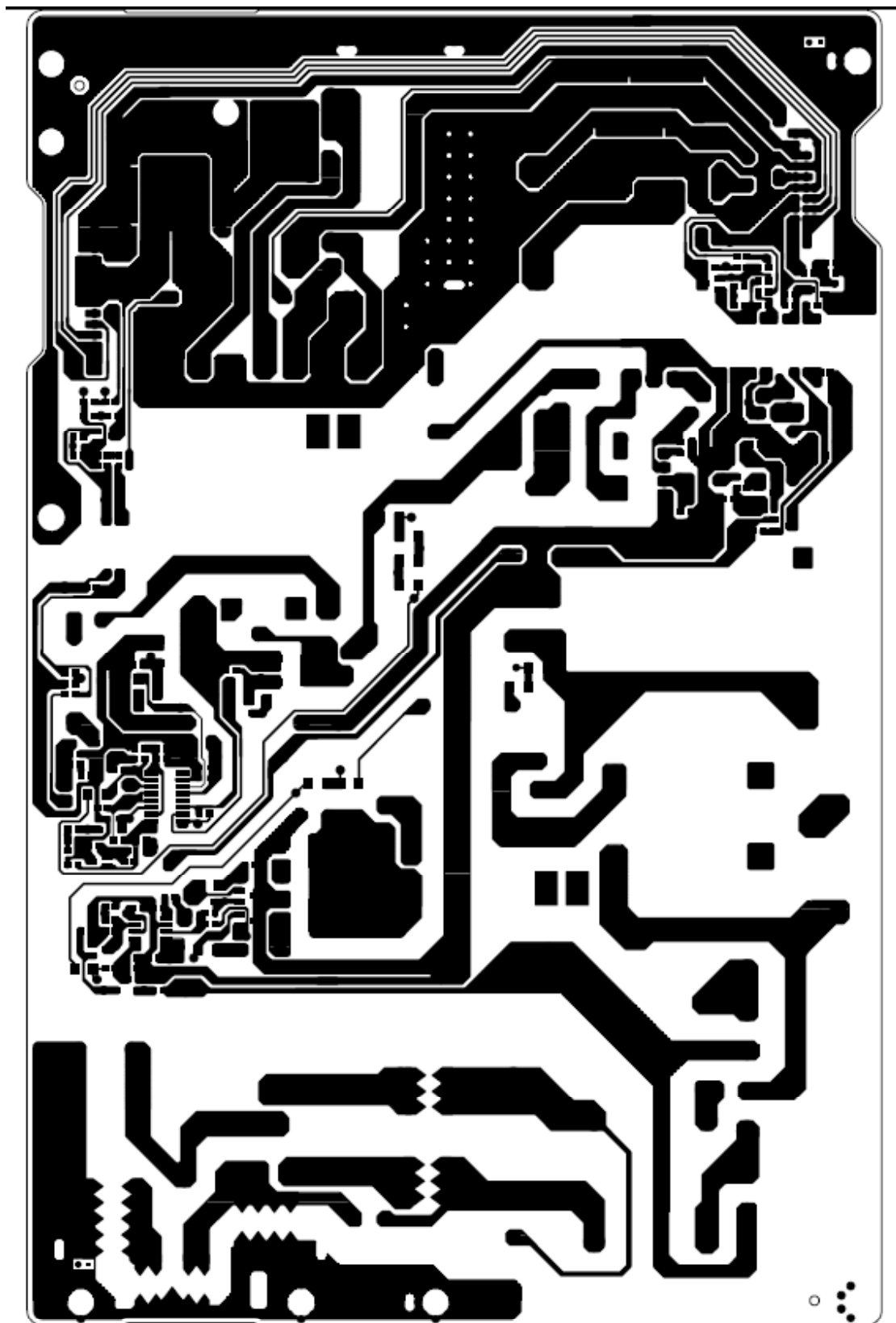


Bottom Silk





Bottom Pattern





Bottom Solder Mask





Safety Parts



Object/part No.	Manufacturer / Trademark	Type / Model	Value / Rating	Parts Marking (實物)	standard	mark(s) of conformity1)
AC input connector, (SK100)	Dongil Tech	BMC-18C3M1	250V / 2.5A	DAC-18C3M1	IEC 60320-1	
Fuse, (F100)	Littelfuse Inc.	215 Series	T5A H / 250V	LF.T5AH250VP	IEC 60127-1	
	WALTER FUSE	TSC		TSC5A250V(P)	IEC 60127	
	BRUSSMANN	SS05		T5AH250V	IEC 60127	
	Deinfuse	50CT		T5AH250V	IEC 60127	
	CONQUE	UDA / UDA-A		UDA T5A H 250V	IEC 60127-3-5	
Fuse, (F101)	Littelfuse Inc.	216 Series	F3.15A H / 250V	LF.F3.15AH250VP	IEC 60127-1	
	WALTER FUSE	FSC		FSC3.15A250V(P)	IEC 60127	
	Deinfuse	50CF		F3.15AH250V	IEC 60127	
	CONQUE	UBH-A		UBH-A 3.15A 250V	IEC 60127-2-1	
Line Filter, (LF101,LF102)	TVC	CS920250SHA	Rated 130℃	920250S	IEC 60065	Test in appliance
	Dongil Tech	LT020250		020250		
	FEELIX	LLF-121		LLF-121		
	JIANGSU CHANNELON ELECTRONIC GROUP					
	SOUJUNG					
	ZHONGTAI					
	DONGYANG TELECOM CO.,LTD					
JIANGSU TAICHANG ELECTRONICS CO.,LTD.						
Base material of Linefilter (LF101,LF102)	WOMENTIVE SPECIALTY CHEMICALS GMBH	FF 2736	Y=0, 150℃		IL, E61040	IL
Alt	Chang Chun Plastics Co., Ltd	T375BF, T375J	Y=0, 150℃		IL, E59481	IL
Alt	SUMITOMO BABELITE CO LTD	PM-9820	Y=0, 150℃		IL, E41429	IL
Varistor, (VA101)	Samsha	SV0621D-14	Climatic category: 40/085/21 Maximum continuous voltage:385Va.c. Current pulse rating: 6 kV/3 kA	SV0621-14	IECC 42000 IEC 42200 IECC 42201 IEC 60065 Clause 14.12 and IEC 60950-1 Annex Q	
	Anotech Co., Ltd.	INR 14D621	Climatic category: 40/085/56 Maximum continuous voltage: 385Va.c. Current pulse rating: 6 kV/3 kA	INR 14D621	IECC42000/A1 IEC42200/A1 IECC 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	WMR14D621K	Climatic category: 40/85/56 Maximum continuous voltage: 750Va.c. Current pulse rating: 6 kV/3 kA	WMR 14D621K	IEC 61051-1 IEC 61051-2 IEC 61051-2-2 IEC 60950-1 Annex Q	
	Guangxi New Future Inforamion Indstry 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,BD102)	Lite-on	EBJ1006G	Min 600V / 10A	EBJ1006G	IEC 60384-14 IL1414	Test in appliance
	DACHANG	D1010B60		D1010B60		
	TSC	TS10K60		TS10K60		
	GLP	G1010B60		G1010B60		
	RECTOR	RS1007M		RS1007M		
	SHINDENGEN	D1010B60		D1010B60		
Y-cap. (CX101, CX102)	Pi Ikor	PCX2 337	Min 275V~ / (CX101= Max 0.33uF, CX102= Max 0.33uF)	PCX2 337	IEC 60384-14 IL1414	
	Okaya	LE		LE	IEC 60384-14 IL1414	
	ELROPTRONIC	MPX		MPX	E19061/ E311052 IEC 60384-14-2'nd IL1414	
	CHENGTING	CTX		CTX	IEC 60384-14 IL1414	
Thermistor. (TH101,TH102)	BSC	BSC 2.5D-15	2.5ohm at 25℃	BSC 2.5D-15	IEC 60065	
	Xiamen Wanning Electronics Co.,Ltd	WTR15D2R5		WTR 15D2R5		
	JIANGSU XINGSHUN ELECTRONICS CO., LTD	2.5D2-15		2.5D2-15		
	Smart	HCL-5W		HCL-05 2R50MSMT		
	NANJING SHIBENG ELECTRONICS CO., LTD	MF72 2.5D15		MF72 2.5D15		
Elec.Cap., (CG10)	SANWONG	NZE	450V / Max 120uF / 105℃	NZE450V120uF	IEC 60950-1	Test in appliance
	SESCON	SK		SK450V120uF		
	SANWONG	NZE	500V / Max 100uF / 105℃	NZE500V100uF	IEC 60950-1	Test in appliance
	SESCON	SK		SK500V100uF		
Switching TR, (Q601,Q602)	STMicro	STD13N60N	Min. 600V / Min 9A	L3N060N	IEC 60950-1	Test in appliance
	FAIRCHILD	FD1380N60E		FD1380N60E		
	TOSHIBA	TK10P60W		TK10P60W		
Switching TR, (Q101,Q102)	STMicro	STD13N60N	Min. 600V / Min 9A	L3N060N	IEC 60950-1	Test in appliance
	FAIRCHILD	FD1380N60E		FD1380N60E		
	TOSHIBA	TK10P60W		TK10P60W		
Flyback IC, (IC501)	FAIRCHILD	FSD109LG	Min. 650 V / Min 0.7A	FSD109LG	IEC 60950-1	Test in appliance
Y Cap., (CY101,CY102)	Kunshan Wansheng	Y1 / CT7	Min 250V / (CY101 : Max 100uF, CY102 : Max 100uF)	CT7 101K	IEC 60384-14	
	Apex intec	Y1 / NK		NK101K		
	DONG IL	Y1 / DA		DA101K		
	YINANDON	Y1 / CT81		CT81 101K		
	SAMSHA	Y1 / SD		SD101K		
	JYA-NAY	Y1 / JN		JN101K		
	GUANGDONG SOUTH HONGHING	Y1 / F		F101K		
	TIK	Y1 / CD		CD101K		
Y Cap., (CY103,CY104)	Kunshan Wansheng	Y1 / CT7	Min 250V / (CY103 : Max 470uF, CY104 : Max 470uF)	CT7 471K	IEC 60384-14	
	Apex intec	Y1 / NK		NK471K		
	DONG IL	Y1 / DA		DA471K		
	YINANDON	Y1 / CT81		CT81 471K		
	SAMSHA	Y1 / SD		SD471K		
	JYA-NAY	Y1 / JN		JN471K		
	GUANGDONG SOUTH HONGHING	Y1 / F		F471K		
	TIK	Y1 / CD		CD471K		

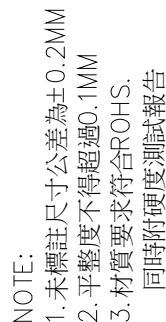


Bridging Cap., (CY110)	Kunshan Wansheng	Y1 / CT7	Min 250V / (CY110 : Max 470pF)	CT7 471K	IEC 60384-14	
	Apex intec	Y1 / NK		NK471K		
	DONG IL	Y1 / DA		DA471K		
	YINADON	Y1 / CTR1		CTR1 471K		
	SAMBA	Y1 / SD		SD471K		
	JYA-WHY	Y1 / JN		JN471K		
	GUANGDONG SOUTH HONGHING	Y1 / F		F471K		
	TDK	Y1 / CD		CD471K		
PFC Coil,(L601)	FEELUX	125-LP02	Rated 130℃	125-LP02	IEC 60950-1	Test in appliance
	JIANGSU CHANNELON ELECTRONIC GROUP					
	SOOJUNG					
	TDK					
	LG Innotek					
	HME CO LTD					
	JIANGSU TAICHANG ELECTRONICS Co.,LTD.					
	NANYANG					
Bobbin material of transformer (L601)	SUMITOMO BAKELITE CO LTD	PM-9820	T=0, 150℃		UL, E141429	UL
		PM-9630				
Alt	Chang Chun Plastics Co., Ltd	T375J	T=0, 150℃		UL, E59481	UL
Insulating Tape of transformer (L601)	DUCK SUNG HITECH CO LTD	OTS-204	130℃		UL, E105147	UL
Alt	METAL LINE CO LTD	800(a)	130℃		UL, E162848	UL
Alt	JINGJIANG YAHIA PRESSURE SENSITIVE GLUE CO LTD	CT, PZ	130℃		UL, E165111	UL
Alt	3M Company	No.1318 No.1350F-1	130℃		UL, E17385	UL
Switching Transformer, (T101)	SOOJUNG	125-LM02	Class B, 130℃	125-LM02	IEC 60950-1	Test in appliance
	LG Innotek					
	JIANGSU CHANNELON ELECTRONIC GROUP					
	TDK					
	FEELUX					
	ZHONGTAI					
Bobbin material of transformer (T101)	DI DUPONT DEVENOMIS & CO INC	FR530	T=0, 155℃		UL, E41938	UL
Switching Transformer, (T501)	FEELUX	125-LS01	Class B, 130℃	125-LS01	IEC 60065	Test in appliance
	JIANGSU CHANNELON ELECTRONIC GROUP					
	SOOJUNG					
	TDK					
	ZHONGTAI					
	JIANGSU TAICHANG ELECTRONICS Co.,LTD.					
	HME CO LTD					
	Clover hi-tech Co., Ltd.					
Bobbin material of transformer (T501)	SUMITOMO BAKELITE CO LTD	PM-9820/PM-9630	T=0, 150℃		UL, E41429	UL
Insulating Tape of transformer (T501)	DUCK SUNG HITECH CO LTD	OTS-204	130℃		UL, E105147	UL
Alt	METAL LINE CO LTD	800(a)	130℃		UL, E162848	UL
Alt	JINGJIANG YAHIA PRESSURE SENSITIVE GLUE CO LTD	CT, PZ	130℃		UL, E165111	UL
Alt	JINGJIANG JINGYI ADHESIVE PRODUCT CO LTD	WF310, JY25-A	130℃		UL, E246950	UL
Alt	CHANG SHU JIANG YI TAPE INDUSTRY CO LTD	LY-XX	130℃		UL, E246820	UL
Alt	3M Company	No.1318 series, No.1350 series	130℃		UL, E17385	UL
Reinforced insulation wire of transformer	COSMOLINK CO LTD	TTF-W	Class B, 130℃		UL, E213764	UL
Alt	YOUNG CHANG SILICONE CO.,LTD.	STF-B	Class B, 130℃		UL, E242198	UL
Alt	GREAT LIDUOLIN INDUSTRIAL CO.,LTD	TDW(B)	Class B, 130℃		UL, E211989	UL
Alt	FURUKAWA ELECTRIC CO., LTD	TEX-E, TEX-PS	Class B, 130℃		UL, E206440	UL
Opto-coupler, (IC102,IC502,IC503)	Everlight	EL817	External cr: 7.7 mm, Internal cr: 6.0 mm HTL: 0.5 mm / 6000 Vrms	EL817	IEC 60065 UL 1577	
	Lite-on	LTN817...		817BN		
Discharge Resistor, (R100)	Smart	PRC	1/2W, 1.2Mohm, 5%		IEC 60065	
	UNIBROYAL ELECTRONICS INDUSTRY CO., LTD	NR60W2J****A10			IEC 60065	
	Pilkor	SR37, MSR37			IEC 60065	
Capacitor (C601)	Pilkor	PCMP 372 (box)	0.82uF / 500V	830nJ 500V 372 MXP	IEC60384-1	Test in appliance
	LUMEN	NP (Film)	0.82uF / 500V	M 824J NP 500V		
	EUROPTRONIC	WFLB (Box)	0.82uF / 500V	WFLB 824 J 500		
	CHENG TUNG	CTH (Box)	0.82uF / 500V	CTH 824 J 500V		
Capacitor (C114)	Pilkor	PCMP 384(Box)	0.027uF / 800V	27nJ 800V 384 MMXP	IEC60384-1	Test in appliance
	LUMEN	NP (Film)	0.027uF / 800V	M 273J NP 800V		
	EUROPTRONIC	WFLB (Box)	0.027uF / 1000V	WFLB 273J 1000		
FR-1	DONGHUNG CIR.	DMS-V-0	94V-0		IEC60384-1	
	SHANGHAI WANZHENG	SWZ-2	94V-0			
	WYT (Wan Yuan Tong)	SWZ-2	94V-0			
	SHANGHAI AREX	02V0	94V-0			
	NEW TRILINION	TU-3	94V-0			
	CHIN POON	E5 F01	94V-0			
	TIANJIN DAERUCK	DC-1 DC-2	94V-0			
	HUIHO	4B-5 4B-1, 4B-2, 4D	94V-0			
	HSLANG KEO	07V0	94V-0			
	SAMHAN	SH7	94V-0			
	HT CIRCUIT(QINGDAO)	1794V0	94V-0			
	WONETUNG	WE-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	S4504V-0	94V-0			
	Wellbest	WTV0-01	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 1750um



Mechanical Drawing





Packing Drawing

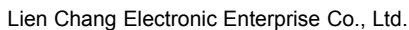


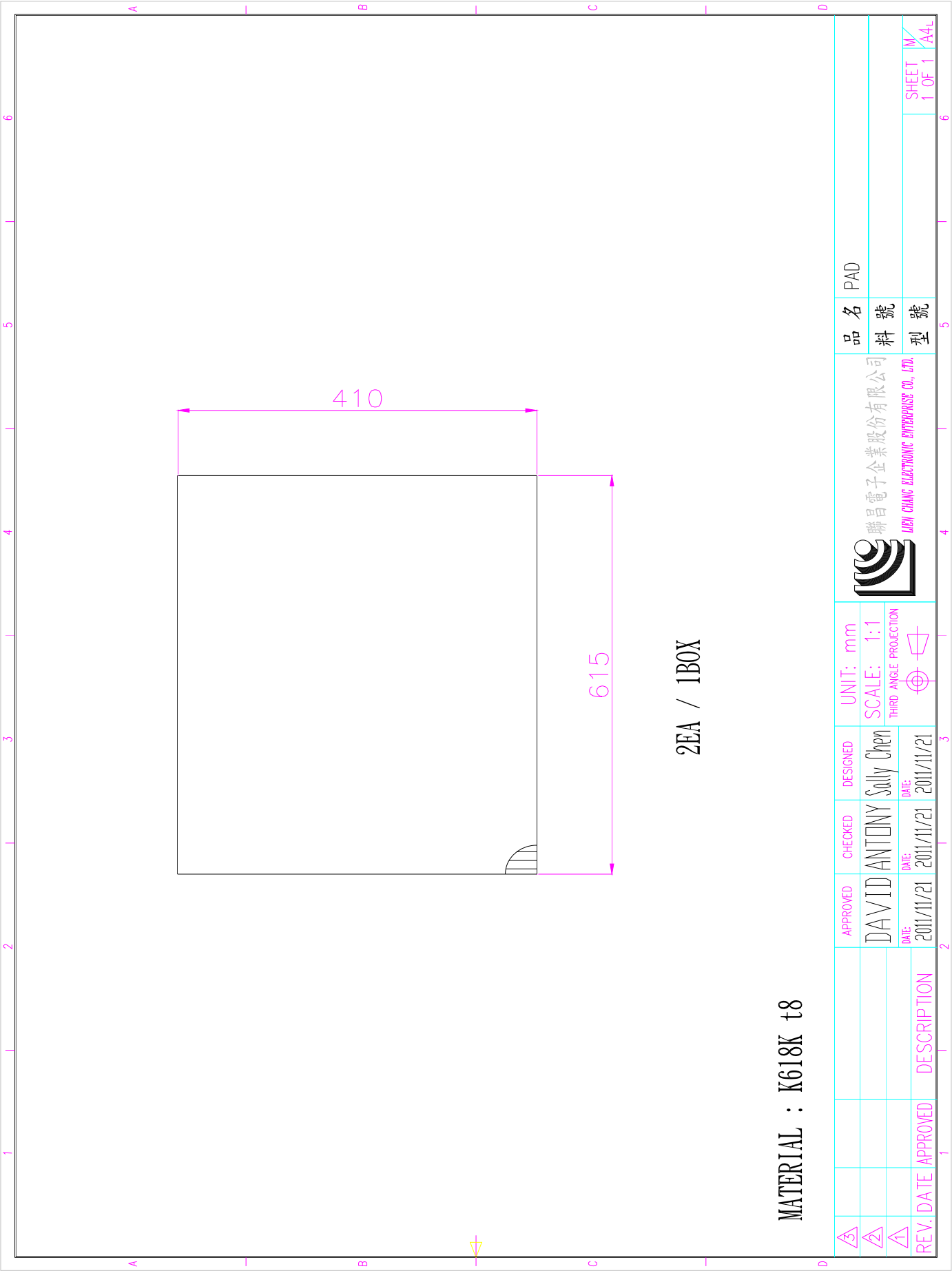
NO.		DESCRIPTION	QTY	MATERIAL	Remark
1		CORTON BOX	1 / 20	630x425x205xt8	
2		PAD	2 / 20	615x410xt8	
3		PARTITION A	11 / 20	620x165xt8	
4		PARTITION B	3 / 20	415x165xt8	
5		PARTITION C	4 / 20	145x250xt25	
6		BUBBLE SHEET	20 / 20	260x440mm	
7		POWER BOARD	20 / 20	245x159x18.9mm	

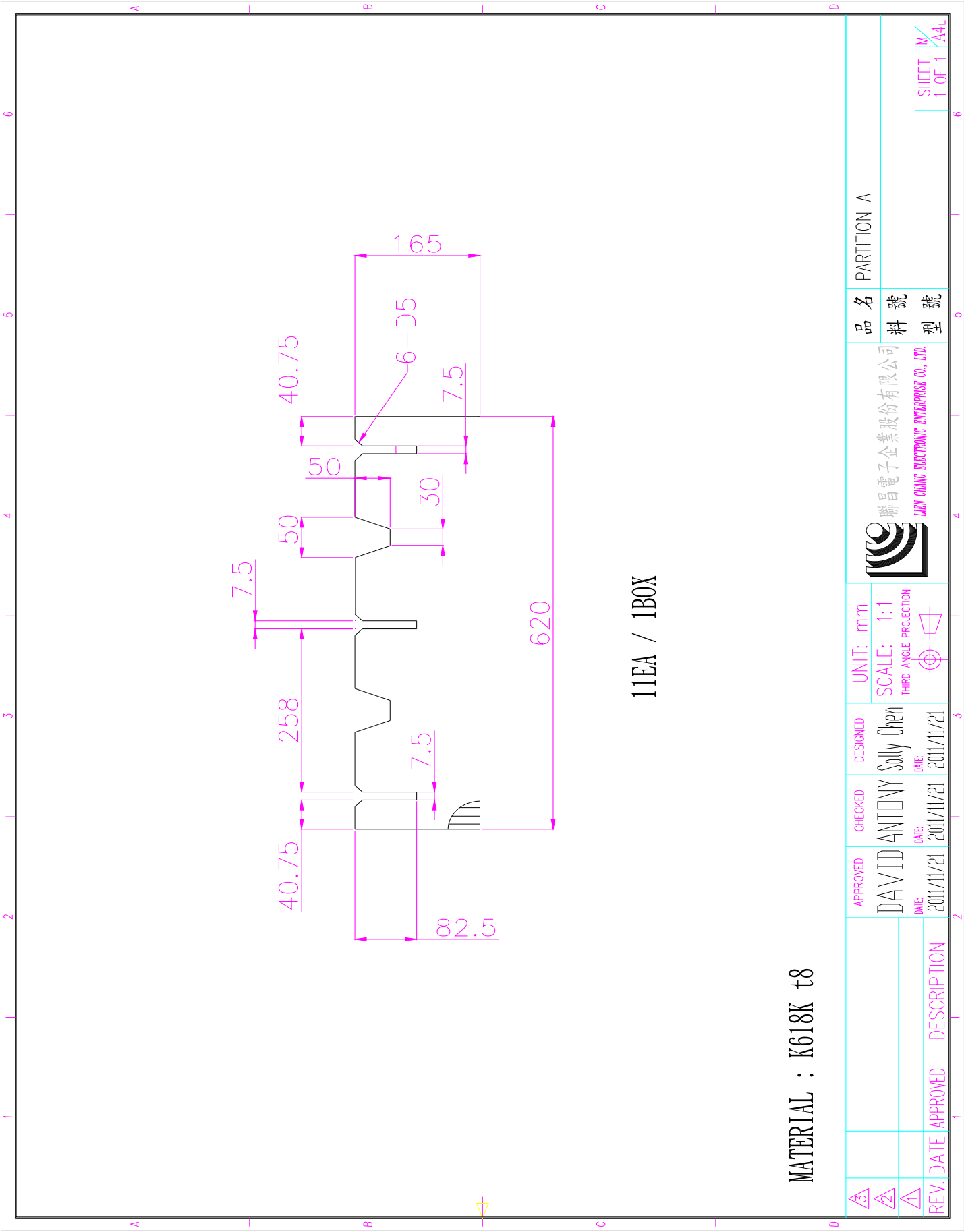
IN

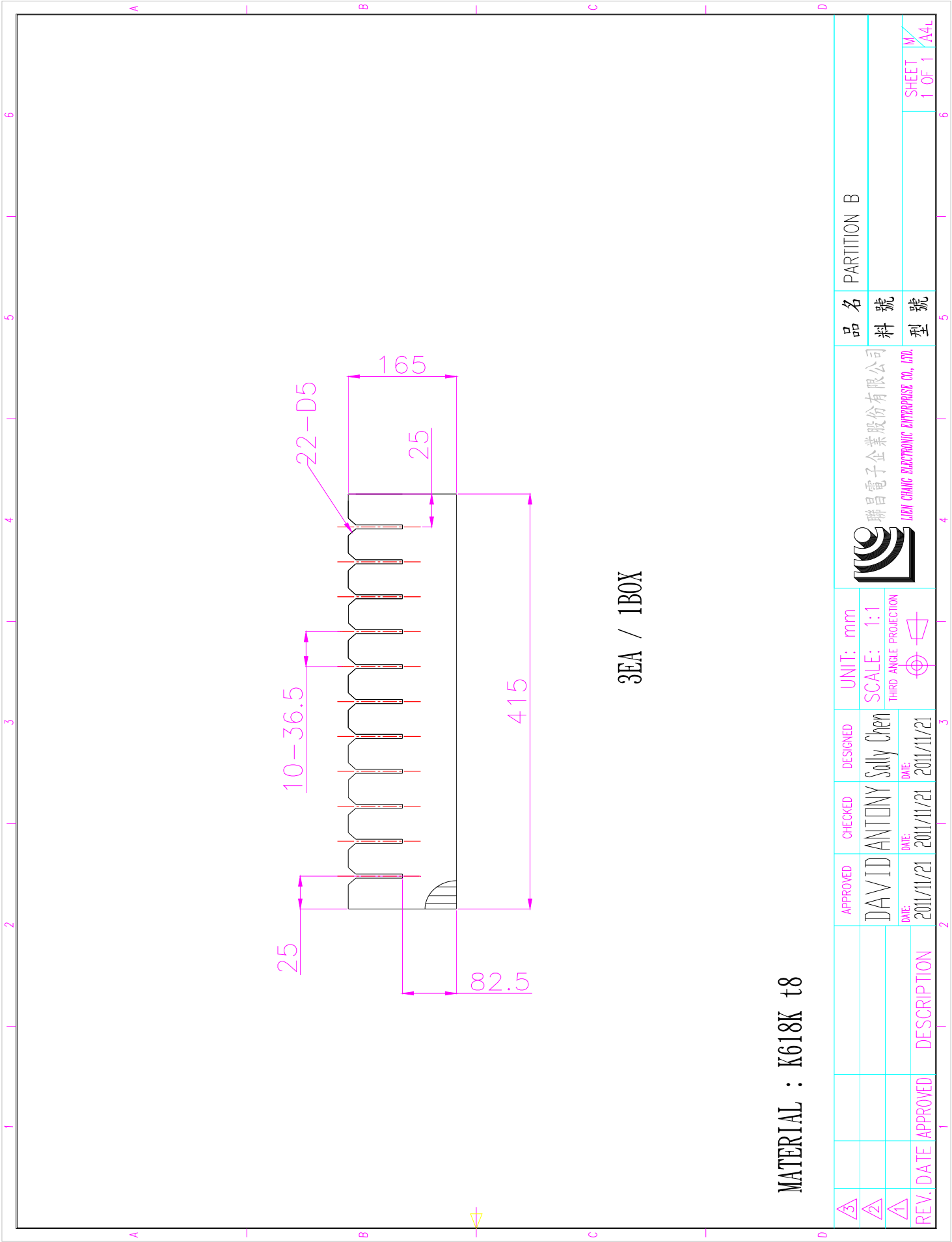
GUIDE 50*50(1400~2000)
PALLET:1070*1100*150mm

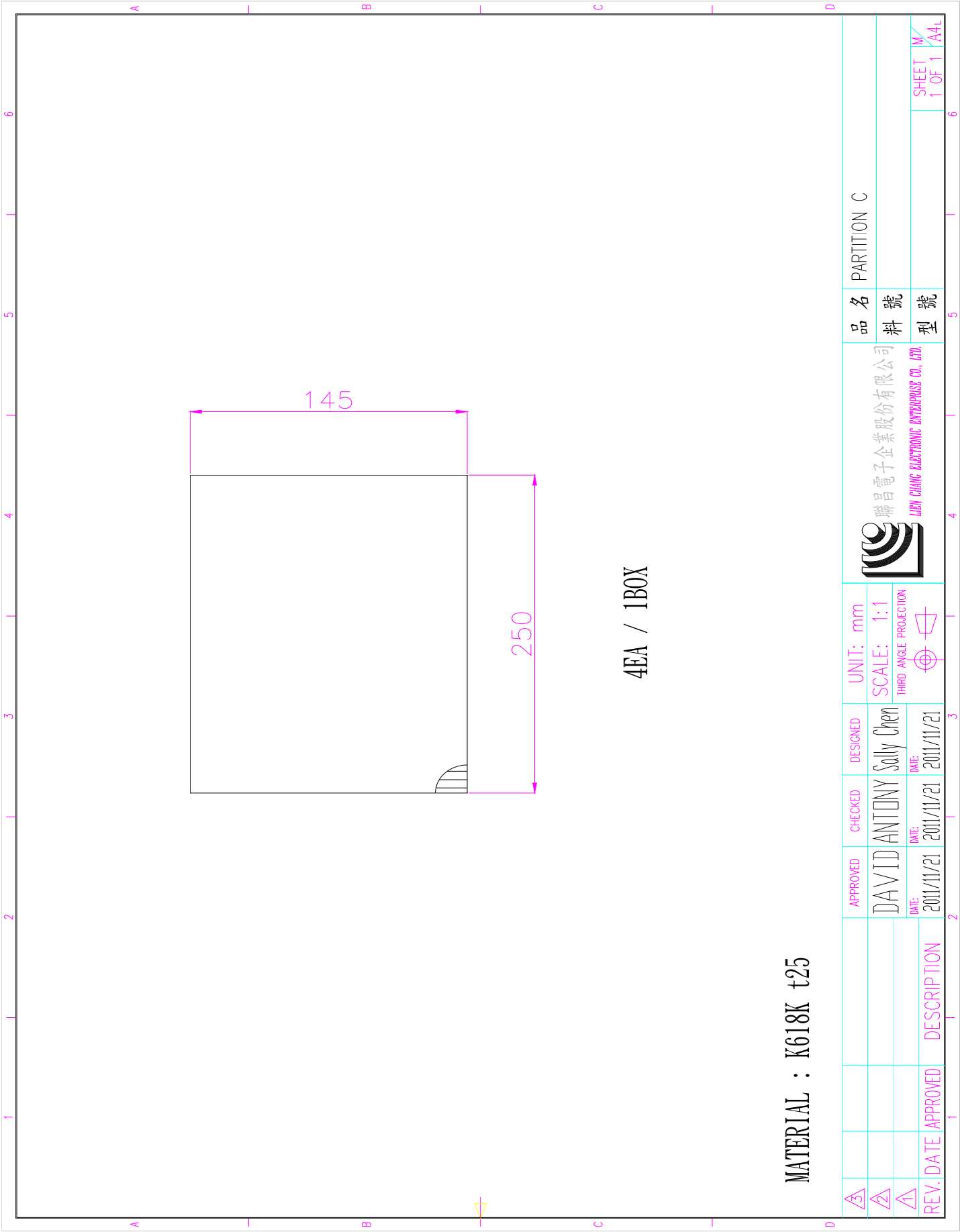
品名	PACKING DWG 630x425x205mm
料號	
型號	OPVP-0152/133
SHEET	1 OF 1 / A4L

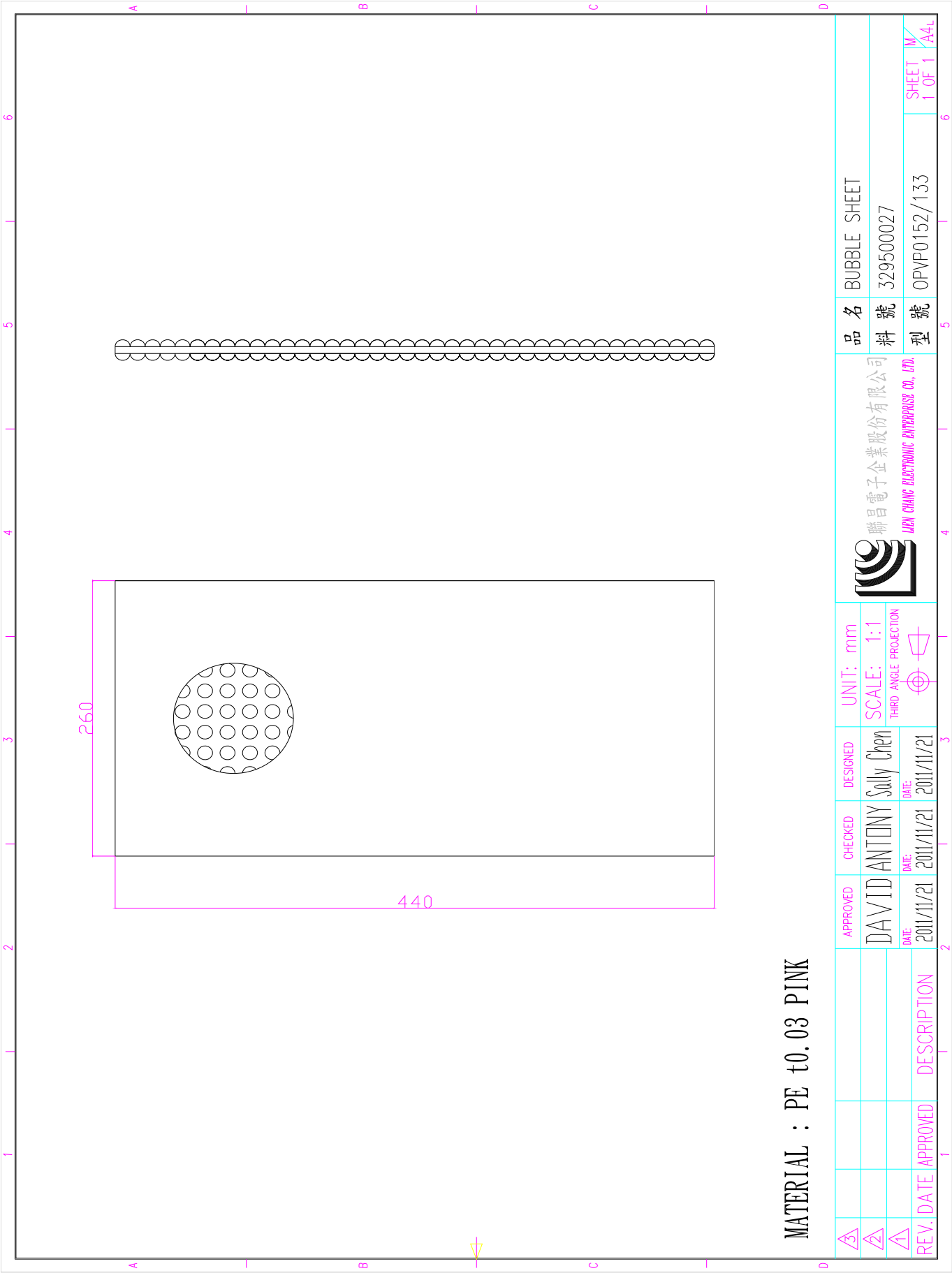






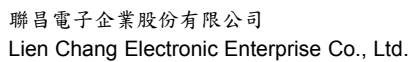








Bar-Code Label Drawing

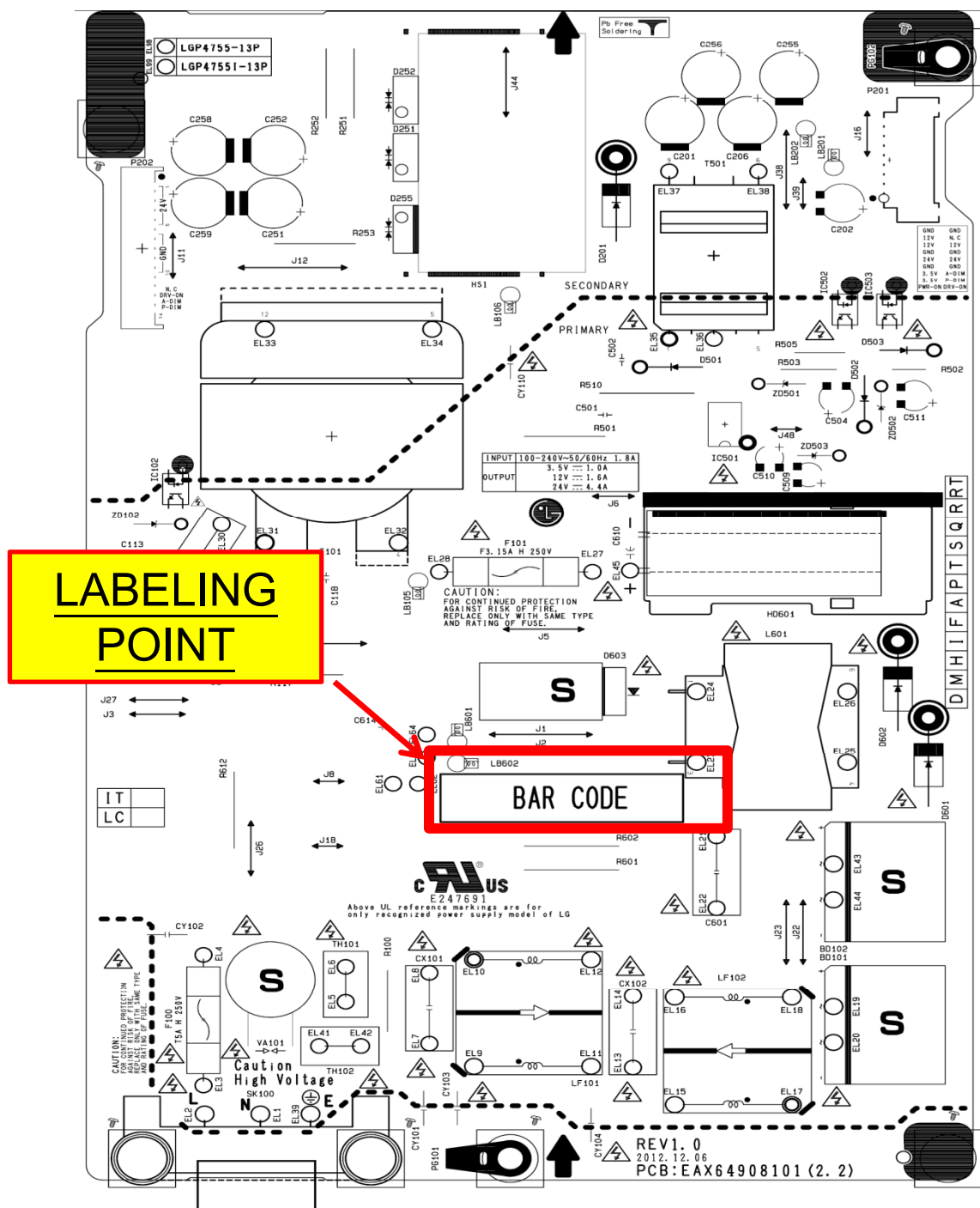




Labeling Point



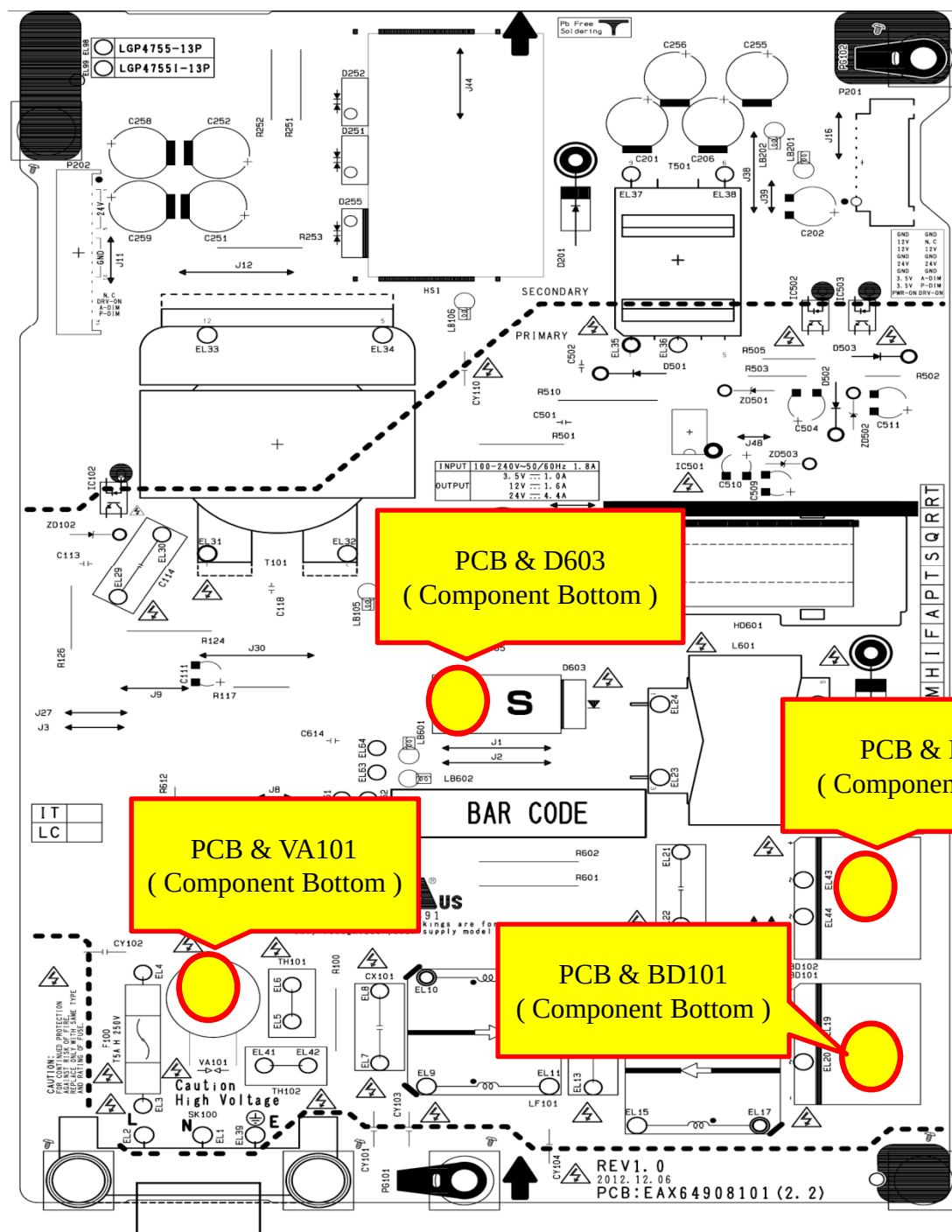
LABELING POINT





Workmanship Point

Silicone Bonding Point ()





Manufacturing Process

4M QC Flow Chart

Process no.	QC Flow	Process name	Work content	Mag. Frequency	4M				
					Man(사람)	Machine(장비)	Material(재료)	Method(방법)	
1		Purchasing	Raw material purchase	Every P/O	Ping Lang	PC/ FAX/TEL	/	1. Part/No.、Part Name、Spec.、Q'ty、Delivery. 2. Suppliers' Magt.。	Production management procedure BOM
2		Warehouse	Receive material	Every accept datasheet	Jincheng Guo	Balance Couter	/	1. Check the material box's layer. 2. Check P/No.、Spec.、Part name、Q'ty、Validity-period.	Incoming receiving procedure Products protection procedure
3		IQC	Incoming material inspection	MIL-STD-105E(II) AQL=0.25	David Zhang	Diode tester LCR meter Hi-pot equipment solder oven	Raw material	1. Check the Brand,P/N0, Spec.Q'ty,Validity-period,Lot No. 2. Check the appearance.	Incoming inspection procedure
4		Eyelet	PCBA eyelet	100% transfer shift change model ECN one time/2 hrs	Yuxing Tang	Eyelet M/C	Eyelet	1. Check the program of M/C 2. Check parts of BOM 3. Check lead angle:20° ~40°	1.AI first article inspection records 2.Part date code check (SEB3R24)
5		Jump Wire	PCBA Jump wire insertion	100% transfer shift change model ECN one time/2 hrs	Yuxing Tang	Jump Wire M/C	Jump Wire	1.Check the program of M/C 2.Check parts of BOM 3.Check lead angle:15° ~30° 4.Check lead lenth:1.2~1.8mm	1.AI first article inspection records 2.Part date code check (SEB3R24)
6		Axial	Axial parts auto insertion	100% transfer shift change model ECN one time/2 hrs	Yuxing Tang	Axial M/C	Axial parts	1.Check the program of M/C 2.Check parts of BOM 3.Check lead angle:15° ~30° 4.Check lead lenth:1.2~1.8mm	1.AI first article inspection records 2.Part date code check (SEB3R24)
7		Radial	Radial parts auto insertion	100% transfer shift change model ECN one time/2 hrs	Yuxing Tang	Radial M/C barcode scanner	Radial parts	1.Check the program of M/C 2.Check parts of BOM 3.Check lead angle:15° ~45° 4.Check lead lenth:1.2~1.8mm	1.AI first article inspection records 2.Part date code check(SEB3R24) 3.MES system
8		QA inspection	Sampling check	transfer shift change model ECN one time/2 hrs	Caselin Sun	magnifier LCR meter	/	1. check parts 2. Checking the PCBA 3. Checking the Quality of SMD-process	1. QA inspection form in SMT area (SEB1R34) 2. SMD capacitor measure in SMT area (SEP5R02) 3. Push-pull force data for SMT part (SEP5R01)
9		Apply red glue	Apply red glue on pcb	100% transfer shift change model ECN one time/2 hrs	Yuxing Tang	Apply gule machine	red glue	1. Progarm Editing 2. Checking the Progarm File 3. "Red-glue" store-condition: 5~10℃ /6months.	1.Store temp. of Tin paste / red gule (SEB8R02) 2.Take out/off records of Tin paste and red gule (SDM5P04) 4. process check form in SMT area (SEB3R28)
10		SMT mounting	SMD mounted on PCB	100% transfer shift change model ECN one time/2 hrs	Yuxing Tang	Yamaha Mounting machine	SMD parts	1. Progarm Editing 2. Checking the Progarm File 3. Material's checking	1.Part station in SMT area 2.Bom list
11		Visual inspection	check parts	100% transfer shift change model ECN one time/2 hrs	Yuxing Tang	nipper magnifier	/	1. "FAI"-checking & "Sample"-checking 2. Check the Part (Missing; inverse-insertion; damaged...)	1.Inspection form in SMT area (SEB3R28) 2. QA first samples check in SMT area (SEB1R33)

12		Reflow	PCBA reflow	100% transfer shift change model ECN one time/2 hrs	Yuxing Tang	profile measure equipment reflow	/	Control the temperature of "Reflow"-M/C.	1. Profile of reflow 2. Temp. control records of SMT (SEM9R04)
13		SMT inspection	check appearance	100% transfer shift change model ECN one time/2 hrs	Yuxing Tang	nipper magnifier barcode scanner	/	1. Checking the PCB with magnify 2. Checing the Quality of SMD-process	1. Self-inspection in SMT area (SEB1R36) 2. Check form in SMT 3.MES system
14		QA inspection	Sampling check	transfer shift change model ECN one time/2 hrs	Caselin Sun	magnifier LCR meter Push-pull meter	/	1. Every 2hrs, testing the capacity of "SMD-Capacitor" 2. Every 2hrs, testing the "bonding"- strength 3. Checking the PCB with magnify 4. Checking the Quality of SMD-process	1. QA inspection form in SMT area (SEB1R34) 2. SMD capacitor measure in SMT area (SEP5R02) 3. Push-pull force data for SMT part (SEP5R01)
15		component prepare	processing material	100% transfer shift change model ECN one time/2 hrs	Yuxing Tang	processing jig	prepared material	Sample Checking	1.Self-inspection 2.check datasheet for component prepare
16		M/I	Manual insert material	100% transfer shift change model ECN one time/2 hrs	Yuxing Tang	NG box tray fixture barcode scanner	common parts	1. Checking the brand、P/N0、Spec.、 Name、Q'ty、Lot No.、 2. Checking the quality of MI	1.Self-inspection 2. Check form of part date code 2. check form of PCBA in process
17		 CTP Double wave solder	soldering	100% transfer shift change model ECN one time/2 hrs	Yuxing Tang	DIP TEST equipment auto wave-solder	solder bar flux	1.Pre-heat: 350℃+/-20℃。 2.Soldering-M/C : 255℃~260℃。 3.Flux : 0.80+/-0.02g/cm3, Soldering Speed : 1.20 ~ 1.60m/Min.	1. Monthly maintain form of wave solder (SDR1R23) 2.Daily/weekly maintain form of wave solder (SDR1R22)
18		PCBA inspection	check appearance	100% transfer shift change model ECN one time/2 hrs	Yuxing Tang	magnifier	/	1. Materials' checking 2. Soldering-"Q" Checking 3. Checking the quality of Soldering surface	1.Daily report of AI/INVERTER QC (SEB3R21) 2. Inspection form of PCBA in process (SEB3R19)
19		AOI inspection	automatic optical inspection	100% transfer shift change model ECN one time/2 hrs	Yuxing Tang	AOI M/C	/	1. Checking the Test-program 2.Checking the quality of Soldering surface	1. AOI daily test report (SEB3R27) 2.Inspection form of PCBA in process (SEB3R19)
20		Touch up	manual soldering	100% transfer shift change model ECN one time/2 hrs	Yuxing Tang	IRon-soder	solder wire	Repair the "Poor-soldering" point (including cold-soldering, warp-soldering, solder-short)	1.Self-inspection 2. Inspection form of PCBA in process (SEB3R19)
21		ICT	ICT test	100% transfer shift change model ECN one time/2 hrs	Yuxing Tang	ICT test M/C	/	1. Checking the Test-program 2. Checking the Part's Spec.	1. ICT daily test report (SEB3R27) 2.Inspection form of PCBA in process (SEB3R19)
22		 CTP HI-POT	safety test	100% transfer shift change model ECN one time/2 hrs	Xian Xu	HI-POT test M/C barcode Scanner	/	1.check HI-POT test condition meet the SPEC 2. .For ok products, scan and flow to the next station. If It is NG, stick NG label and put into NG box	1. Inspection form (SEB3R23) 2. Equipment adjust before production (SDS1R03) 3.Inspection form of finished products (SEB3R19) 4.MES system

23		Initial test	first function test	100% transfer shift change model ECN one time/2 hrs	Yuxing Tang	DC load AC power source test jig FLUKE-45 barcode Scanner	/	1.check test condition meet the SPEC 2.For ok products, scan and flow to the next station. If It is NG, stick NG label and put into NG box	1. Check data form (SEB3R23) 2.equipment adjust (SDS S1R03) 3.MES system
24		apply glue	Apply RTV bond	100% transfer shift change model ECN one time/2 hrs	Yuxing Tang	apply glue M/C	RTV bond	1. Check the P/N and Spec of silicone 2.Check the glue quantity which locates on the right place 3. Check if there is miss of applying glue	1.Self-inspection 2. Inspection form of products in process
25		PCBA sampling check	sampling check appearance	100% transfer shift change model ECN one time/2 hrs	Caselin Sun	magnifier	/	1. Material's checking 2. Checking the soldering-quality 3. Checking the quality of PCB-print	1.PCBA inspection form (SEB1R26) 2.PCBA rejection form (SEB1R30)
26		CTP Aging	burn in	100% transfer shift change model ECN one time/2 hrs	Xian Xu	Power source aging tools aging load	/	1.Aging Load:meet the SPEC. 2.aging time : 2hrs. Temp : 45℃+/-5℃.	1.records of AI/INVERTER aging(SDR9R19) 2.Aging input check form (SDR9D20)
27		CTP Final test (ATE)	Final function test	100% transfer shift change model ECN one time/2 hrs	Xian Xu	ATE barcode Scanner	/	1.check ATE test condition meet the SPEC 2. For ok products, scan and flow to the next station. If It is NG, stick NG label and put into NG box	1.Daily visual form(SEB3R21) 2. Inspection form of PCBA in process (SEB3R19) 3. Adjust equipment before production(SDS1R03) 4.MES system
28		Visual inspection	check appearance	100% transfer shift change model ECN one time/2 hrs	Xian Xu	magnifier	/	1. Check if the part was damaged and the other fails 2. Check if there was miss of applying gule 3. Do marking on the good products and flow out 4. Stick the NG label on the NG product and put into the box, at the same time, record the related information	1. Daily visual inspection form (SEB3R21) 2.Inspection form of PCBA in process(SEB3R19) LIPS/INVERTER Final test records of finished products in process(SEB3R31)
29		100% inspection	check appearance	100% transfer shift change model ECN one time/2 hrs	Xian Xu	barcode Scanner	/	1.Carefully check the solder status, for example: empty solder, wrap solder, cold solder, PCB 2. Check the PIN is damaged in connector	1. Visual daily form(SEB3R21) 2. LIPS/INVERTER inspection form(SEB3R31) 3.MES system
30		Package	pack PCBA into box	100% transfer shift change model one time/2 hrs	Xian Xu	Tape M/C Pen	box bubble sheet	1. Check the P/N, Model name, date, label, carton 2. Put the products in the right place and stick label	1.Records of products traking s/n (SEB3R22) 2. Records of tracing the Inverter S/N Inspection finished products form (SEB3R19)
31		OQC	Sampling finished products	MIL-STD-105E(II) AQL=0.25	Caselin Sun	DC load AC/DC SOURCE FLUKE-45 barcode Scanner	/	1. Check the part, soldering status, part damage, and so on 2. Measure the dimension of the product 3. Test the electrical parameter 4. Stick the NG label on the NG product and put into the NG box, at the same open the reject note 5. NG product must be rework	1.Finished products inspection procedure 2.Adjust equipment before production (SDS1R03) 3.outgoing inspection data of finished products (SEB1R28) 4.MES system
32		Warehouse	Store product	Every store datasheet	Jincheng Guo	Trailer barcode Scanner	/	1. Check P/N, Model, Quantity 2. Check the heigh of stock and carton 3. cCheck the QA pass seal	1.Finished product store procedure 2.Store datasheet 3.MES system

incoming
 operate
 inspect
 store



Appendix List

No.	Contents
1	POWER Check List
2	Warranty Letter



Appendix 1

POWER CHECK List



Revision History		Rev	DATE	REMARK
1	Format changed PCB Check Sheet Ver1.9 to Power Check Sheet Ver1.0	1.0	2011.06.02	
2	1. Essentiality Marking items – Add No. 14 Input Standard Mark for 2 pin in Bare PCB 2. Compoment –Add No. 13 If you use choke coil lying, You can use after appoint test item for poor prevention.	1.1	2012.05.23	
3	PCB Pattern Space – Add No. 9 Add 8.5mm (thickness of GND Pattern) or Insert of Jump Wire For use Together (IT and TV)	1.2	2012.10.30	



Details Check Item		RESULT		REMARK
► Components LOCATION NO.		OK	NG	
1	Power Primary section circuit Location No. : 100 series (Including Multi primary)	O		
2	Power Secondary section circuit Location No. : 200 series (Including Stand by & Multi Secondary)	O		
3	Inverter Primary section circuit Location No. : 300 series	-	-	
4	Inverter Secondary section (Including F/B,OVP circuit) circuit Location No. : 400 series	-	-	
5	Stand by Primary section circuit Location No. : 500 series	O		
6	PFC section circuit Location No. : 600 series	O		
7	MICOM section circuit Location No. : 700 series	-	-	
8	LCD : LED Driver section circuit Location No. : 800 series	-	-	This content only applies to LCD
9	PDP : Stand by Primary and Secondary section circuit Location No. : 300 series	-	-	This content only applies to PDP
10	PDP : Va Secondary section circuit Location No. : 500 series	-	-	This content only applies to PDP
11	PDP : Vs Secondary section circuit Location No. : 900 series	-	-	This content only applies to PDP
12	PDP : Vs,Va Primary section circuit Location No. : 800 series	-	-	This content only applies to PDP
13	CTV : Power Block section circuit Location No. : 800 series	-	-	This content only applies to CTV



Details Check Item		RESULT		REMARK
► Components LOCATION NO.		OK	NG	
14	Resistor circuit Location No. : From beginning to R***.	O		
15	Capacitor circuit Location No. : From beginning to C***.	O		
16	Diode circuit Location No. : From beginning to D***.	O		
17	Zener Diode circuit Location No. : From beginning to ZD***.	O		
18	Coil circuit Location No. : From beginning to L***.(Including PFC section)	O		
19	Transformer circuit Location No. : From beginning to T***.(Including Drive Trans)	O		
20	Bead circuit Location No. : From beginning to LB***.	O		
21	Fuse circuit Location No. : From beginning to F***.	O		
22	TR/FET/Thyristor circuit Location No. : From beginning to Q***.	O		
23	Varistor circuit Location No. : From beginning to VA***.	O		
24	Volume Resistor circuit Location No. : From beginning to VR***.	-	-	Variable Resistance
25	Jumper circuit Location No. : From beginning to J***.	O		
26	H/S circuit Location No. : From beginning to HS***.	O		
27	IC circuit Location No. : From beginning to IC***.	O		2007.04.16 DDC Standard
28	Connector wafer / Ass'y(Board in type) circuit Location No.: From beginning to P***.	O		
29	Eyelet circuit Location No. : From beginning to EL***.	O		
30	Gripper circuit Location No. : From beginning to G***.	-	-	
31	Holder circuit Location No. : From beginning to HD***.	O		
32	Thermistor circuit Location No. : From beginning to TH***.	O		



Details Check Item		RESULT		REMARK
► Components LOCATION NO.		OK	NG	
33	Metal Ground circuit Location No. : From beginning to PG***.	O		
34	Line Filter circuit Location No. : From beginning to L***.	O		
35	AC Socket(Inlet) circuit Location No. : From beginning to SK***. (Including AC Power supply wafer for Docking)	O		2007.04.16 DDC Standard
36	Photo Coupler circuit Location No. : From beginning to IC***.	O		2007.04.16 DDC Standard
37	Relay circuit Location No. : From beginning to RL***.	-	-	
38	Y-Capacitor circuit Location No. : From beginning to CY***.	O		
39	X-Capacitor circuit Location No. : From beginning to CX***.	O		
40	Fuseble Resistor Location No. : From beginning to R***.	-	-	
► PCB Pattern Space (Keep a Safety distance)		OK	NG	
1	Primary ⇔ Secondary(GND,Y-Cap,Photo Coupler) : A space(Gap) of at least 6.5mm. (But, Working Voltage is more than 350V, Comply with the space of the safety request.)	O		Refer to the Attached File
2	Primary(L,N) ⇔ Safety GND : A space of at least 3mm. (But, In the case of Two Pin, A space of at least 6mm)	O		
3	Live ⇔ Neutral : A space of at least 3mm.	O		
4	Primary⇔Secondary components (Clearance) : A space of at least 6mm. (if space is below 6mm, it must add insulation sheet)	O		
5	(Power Primary section) Main Current loop is made more than 3mm on Pattern thickness(width). (B/Diode ↔ Primary Main cap : Very important)	O		
6	Don't pass small signal line under PFC Coil. DC is no problem.	O		
7	When It Connects Main GND (AC smooth Capacitor Cap. GND) to IC GND, separate pattern after consideration for pattern impedance.	O		
8	In the case of Stand by IC of the Dip type, secure safety distance between pin of the high voltage and pin of the low voltage. (Only, use N.A or Bare Pin near Drain pin)	O		



Details Check Item		RESULT		REMARK
► PCB Pattern Space (Keep a Safety distance)		OK	NG	
9	Satisfy Continuity TEST of the grounding about FG GND (40A / 2Minute) → Add 8.5mm (thickness of GND Pattern) or Insert of Jump Wire For use Together (IT and TV) (But, If EMI Issue occur, we don't apply.)	0		



Details Check Item		RESULT		REMARK
► Component		OK	NG	
1	When surge test, Between Primary and Secondary space have to gap of at least 6mm . { Distinguish between safety GND and secondary GND (Use Y-cap with insulation) , need Space, need Insulation Sheet }	0		※ 3 Pin : A space of at least 3mm 2 Pin : A space of at least 6mm
2	Beside Primary smooth cap. component is separated a heating component over 3mm. (clearance)	0		
3	Primary smooth cap. component is separate as below - Upper area : over 1mm - Bottom area : over 5mm (Only, Vertical type Capacitor) (Note 1)	0		
4	Don't pass the pattern under 3mm area on primary smooth cap. (Only top side pattern of Epoxy)	0		
5	If use short-height core, you must use insulation tape. (To add the space distance with PCB)	0		This content only applies to Insulation Trans of first, secondary
6	In case of trans, use Barrier of at least 7mm(6.4 + 3.2) by 300V (Standard). (Wire's Tube can be use for reduce Barrier tape height) Safety Gr. is sure to check the item. (Note 0)	0		
7	In case of AC Inlet, Screw of Yellow-Green wire is use more than 3.5Φ. * if it don't use Y/G wire. When only PCB pattern use, it must have pass the 200A test. * Safety GND is role of independence GND. UL Test Request If it use only Pattern, Safety is certainly check.	0		
8	The component is pushed by force, The Clearance is need to at least 6mm between Primary and Secondary components. Don't touch the core by another parts.	0		
9	When use Box type Capacitor, apply to Forming type with RTV Bond. (Including X-capacitor) (Only Sony PDP Model)	-	-	

NOTE 0



Creepage

NOTE 1



CAPACITOR



Details Check Item		RESULT		REMARK
► Component		OK	NG	
10	All of parts should be separated more than 2mm around CORE (Including all Trans type). •In case of Inducted Voltage 1kV (peak to peak) should be separated more than 4mm. (based on 1000:1 Probe)	O		
11	Between Inverter Trans and Metal Frame(shield) is separated more than 4mm. (if it is difficult, surely add Insulation sheet)	-	-	
12	Output wafer of the secondary use add type of a fixed pin. (But, except for the wafer of LPB using for Micom Debugging)	O		
13	If you use choke coil lying, You can use after appoint test item for poor prevention (Note 2)	O		

NOTE 2



Choke coil



Details Check Item		RESULT		REMARK
▶ Essentiality Marking items		OK	NG	
1	AC Socket, AC inlet Wafer must be marked "L"/"N". Also docking Type is marked.(QA Request), : Top & Bottom side (Note 3-2)	O		※ Fuse is located on Live
2	When Safety GND is separated from Chassis, Worker should be located by confirmation. (Note 2) • PCB top & bottom side is all marking, Please Check the attached file in detail Content. And, Certainly receive the final confirm by safety Gr.	O		※ But, except for 2 pin
3	Fuse rating(Voltage,T, Current,H), caution(Safety title), UL Mark should be input. Ex) T5A H 250V * Caution: Don't change the words based on UL's sentence. (For ~ , Replace ~)	O		
4	Fuse must locate very ease finding scope. (Fuse Marking is the same)	O		
5	High Voltage warning mark have to be input. - Inverter Output : Only LIPS. - Primary section Metal.(H/Sink), High Voltage opened location. (Fuse) : All Model	O		
6	To mark the Input/Output Voltage &, Current Spec. (Note 3)	O		
7	Classify Primary and Secondary section have to be marked for separation of Area. (Top side/Bottom side) - Power side Primary & Secondary - to mark the Only the Inverter output.	O		
8	Each component circuit No. have to be shown	O		
9	Don't overlap the Bottom circuit No. in solder pattern/ Components shape etc.	O		
10	Draw PCB marking, Considering Dead Space of Tool structure. Add Metal area mark for PCB fixing.	O		
11	Check CTI spec in PCB specification Check Marking in Bare PCB - Marking : CTI 600 (More than 600V)	O		
12	Input Caution Mark in a Circuit diagram  (CCL standards)	O		
13	Input Screw Mark in Bare PCB 	O		
14	Input Standard Mark for 2 pin in Bare PCB 	-	-	※ Only, apply to 2 pin

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	When Lightning Surge is L/N Test, Varistor must use more than 14Φ 620V.	O		
2	Lightning Surge to L/G & G/N : 3KV over Y-Cap. (Use Y1 Class)	O		
3	In case of lightning surge, only Fuse Dead is OK, only. (Countermeasure : Protect to arcing. Varistor is closely located Fuse.)	O		
4	GND Arcing pattern Slit size is 1.2mm. Both ends distance of the Arcing Pattern is 3.0mm by safety role. (Between L and N)	O		
5	Conducted Emission Test Condition : 110Vac/220Vac & 50Hz/60Hz TV Model : GND Connect / No connect VIVID/STANDARD, HDMI/ANTENNA	O		
► INVERTER (only LIPS)		OK	NG	
1	Do use Ballaster capacitor.	-	-	
2	When small signal AC pattern pass around to 4mm from Inverter Trans, it is no problem after confirmed OVP/OLP and etc Worst condition. (Including Feed Back Line) [For the reduce of inverter noise from AC Input, Power FET's Heat sink's form can change for using shield between AC input and Inverter Trans. (CE restriction item) – Consider design]	-	-	
3	The Lead of high voltage ceramic CAP applied at inverter output part must keep insulation distance or be applied RTV bonding, even though the article force is applied.	-	-	
4	Check size around Gripper or Eyelet of Inverter Trans. -Size of the copper around Gripper or Eyelet : More than 5.5mm -Pattern Size around Gripper or Eyelet : More than 6mm (But, only apply LIPS of more than 32Inch)	-	-	
5	Inverter wafer use horizontality type.	-	-	



Details Check Item		RESULT		REMARK
▶ ETC		OK	NG	
1	Don't use CAN Type Fuse.	O		
2	Housing`s Maker of Connector what Main Board /Power Board (LIPS) have to be same with Wafer Maker. If they are differ, You have to check the spec./Drawing or request the component test to IQC(in case Board in type connector, Also Terminal type must be checked	O		
3	Don't use Litz Wire.	O		USTC
4	Apply to PFC Bypass Diode. (Note 4)	O		See attached file(Bypass)
5	When use Relay, apply to Fusing Resistor. (Note 5) (But, when Fusing Resister don't apply, Check Relay Open Test – Check PL Condition)	O		See attached file(Relay)
6	Use of High Ripple & Low Impedance type's rectification CAP at primary control IC VCC.	O		
7	Don't use RN Type (Metal Film Type) Resistor over 100kohm.	O		In June 26 th 08, We have had problem about this at MP for LGEND.
8	When apply TO-220, TO-3P type FET, Diode, IC, Lead length is shorted because of cutting after forming. So, Lead length and pitch must have checked by Heat-sink, Approval sheet on PDM, Actual Component. (Take conference previously with LGEAZ, LGEND about this issue, LGEND wants forming type in all TO-220, TO-3P type's components)	O		In March 08 for LGEAZ CKD PQ event , We have history responded to the emergency issues
9	Check the Lead length of PCB bottom side, when use H/sink, wafer and other component at special type model which manages Lead length.	O		
10	In this case, Component in Critical Component List. Check Marking on component.	O		
11	If discharge resistance is used model sold to the Japanese market, Use Resister of the Dip Type certified standard. (Only, Use model sold to the Japanese market)	O		

NOTE 4



Bypass-Diode

NOTE 5



Relay



Details Check Item		RESULT		REMARK
▶ Attachment		OK	NG	
1	 PL check List PL Safety Check List Ver3.7	O		



Non-use certificate

Description	For approval / For mass production	Submitting date	2012 . 7 . 31
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Cooperating suppliers				
Company name	Lien Chang Electronic	Approval	Person in charge	Head of department
Contact	Tel: (886-2) 22035100	Name	Alan Wang	Alan Wang
e-Mail	alanwang@lienchang.com.tw	Signature		
LGE Part No.	EAY62851201	Part production date	filling the sheet in case of mass production	
Maker Part No.	OPVP-0185	Production plant	filling the sheet in case of mass production	
Part name	LGP4755-13P			

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°C /10 sec)

1. Maximum heat-resisting temperature : 260_°C

2. Time within actual Peak time : 10_sec.

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

Note.

1. All the contents written on these documents must be created on the basis of facts, and cooperating suppliers must submit the data immediately whenever LG Electronics requests.
2. In the case that these documents are used for approval purposes, cooperating suppliers must submit the sample on the request. For the purpose of mass production, it must be submitted at the time of delivering the first product.



Control list of environment-related substances

Description	Substances	Contained		Remark
		YES	NO	
Level A- I	Lead(Pb) and its compounds		✓	
	Cadmium(Cd) and its compounds		✓	
	Mercury(Hg) and its compounds		✓	
	Hexavalent chromium and its compounds		✓	
	Polybrominated biphenyls(PBB)		✓	
	Polybrominated diphenylethers(PBDE)		✓	
Level A- II	Polychlorinated biphenyls (PCB)		✓	
	Polychlorinated naphthalenes (PCN)		✓	
	Polychlorinated terphenyls (PCT)		✓	
	Short-chain Chlorinated paraffins (SCCP)		✓	
	Asbestos and its compounds		✓	
	Ozone Depleting Substances		✓	
	Azo compounds		✓	
	Nickel(Ni) and its compounds		✓	
	Specific Organic tin compounds		✓	
	Arsenic(As) and its compounds		✓	
	Formaldehydes		✓	
Level B	Polyvinyl chloride (PVC)		✓	
	Phthalates		✓	
	Beryllium(Be) and its compounds		✓	
	Antimony(Sb) and its compounds		✓	
	Selenium(Se) and its compounds		✓	
	Palladium amd its compounds		✓	
	Bismuth and its compounds		✓	
	Other Chlorinated flame retardants		✓	
	Other brominated flame retardants		✓	