

LITEON LITE-ON TECHNOLOGY CORP.

APPROVAL SHEET

CUSTOMER : ASUS

CUSTOMER NO : 0A001-00094500

MODEL NO : PA-1050-39

PRODUCT NO : PA-1050-39U3 Rev.A02

ISSUE DATE : 2017/09/11

Customer Approved By : _____

LITE-ON TECHNOLOGY CORP (光寶科技股份有限公司)

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Liteon Technology Corp.

光寶科技股份有限公司

Subject : Revision Records For Approval Sheet.

Model :	<i>PA-1050-39U3</i>
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[illegible]

ENGINEERING SPECIFICATION

5W AC Charger

Part Number: PA-1050-39U3

Product Rev: A

Customer	Rev.	Written By	Effective Date	LITE-ON Technology Corp.
ASUS	A	Jeff Hsu	2017/09/11	SHEET 1 of 11
				LTADPDOC-001-0B1

Revision History

REV.A, 2016.06.22

-Modify from PA-1050-39UW.

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1. General

1.1. SCOPE

This specification defines the performance characteristics of a grounded single phase, 5watt, 5.2Vdc output power supply. This specification also defines worldwide safety and electromagnetic compatibility requirements for the power supply which is intended for use in USB device charger.

2. INPUT REQUIREMENTS

2.1. INPUT VOLTAGE

	MINIMUM	MAXIMUM	NOMINAL
LOW RANGE	90VAC	132VAC	100-120VAC
HIGH RANGE	180VAC	264VAC	200-240VAC

2.2. FREQUENCY

	MINIMUM	MAXIMUM	NOMINAL
SINGLE PHASE	47Hz	63Hz	50-60Hz

2.3. Voltage Section

A full range will be provided to select the appropriate range.

2.4. Efficiency & Energy Star Requirement

The Adaptor shall be designed to meet EPS Requirement as below for both 115VAC and 230VAC:

- No Load Average Power Loss shall be less than 75mW at 230Vac/ 50Hz.
- When Output load is 0.25W, input watt shall be less than 0.45W.
- Average Efficiency value of 25%, 50%, 75%, 100% load condition shall be higher 73.7% at input voltage 115Vac/60Hz and 230Vac/50Hz . with a 1A load condition
- The 10% load condition shall be higher 60.7% at input voltage 115Vac/60Hz and 230Vac/ 50Hz

2.5. Input Current

0.25 Amps maximum at nominal input voltage within the low range as specified in paragraph 2.1 and at any combination of loading conditions.

2.6. Inrush Current

Peak inrush current: Inrush current shall not exceed 22% of the max rated value including I2t derating for all input components.

2.7. POWER SUPPLY EFFICIENCY

-The power supply efficiency shall be more than 70% measure at the normal voltage maximum load as specified in paragraph 2.2.1 with the AC input set at the nominal voltage. The power supply efficiency shall meet requirement as specified in item 2.4 with

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the AC input set at the nominal voltage.

2.8. Output Load Ripple Current

<100mA

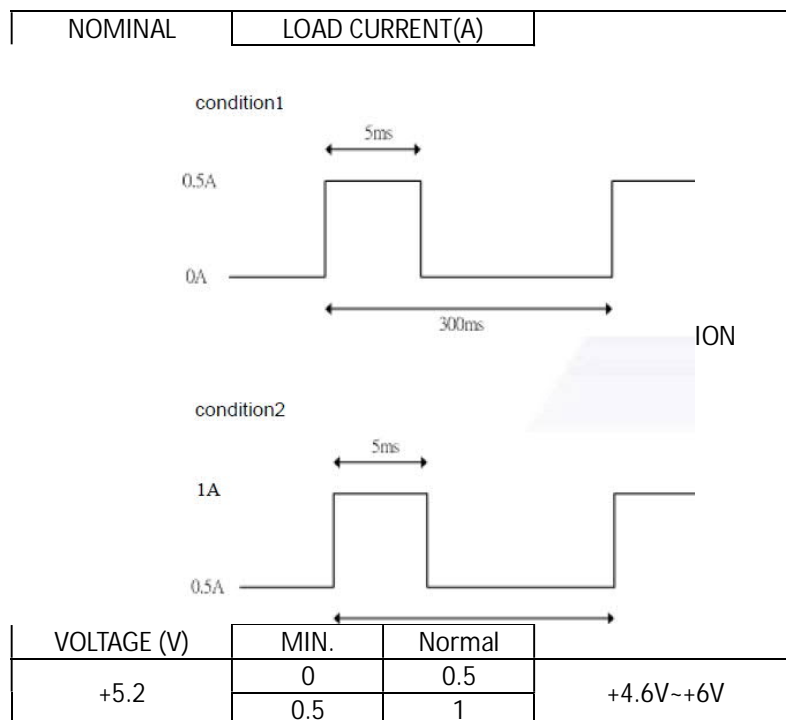
3. OUTPUT REQUIREMENTS

3.1. STATIC DC LOAD

NOMINAL VOLTAGE (V)	LOAD CURRENT(A)			REGULATION
	MIN.	Normal	Max.	
+5.2	-		1	+5V~+5.25V
+5.2	0		-	+4.94V~+5.25V

Note : Output added 0.1uF ceramic capacitor and 10uF tantalum capacitor capacitors.

3.2. DYNAMIC LOAD



Note1. If output drop less than 4.6V, the duration shall be less than 3ms @ condition 1.

3.3. TURN ON DELAY TIME

The output turn on delay time (time from the application of AC to output within regulation limits) shall be less than 3s at 100V/ 240V and maximum output load.

3.4. RISE TIME

The output rise time (measured from the 10% point to the 90% point on the waveform) shall be less than 40ms.

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3.5. RIPPLE AND NOISE

The ripple and noise of the outputs shall be measured at the load end if the output cables when terminated to load impedance as specified in paragraph 3.1

OUTPUT VOLTAGE		RIPPLE & NOISE (P-P)		Output Load	
+5.2	V	200	mV	1	A
+5.2		100		0.5	

1. Use 20MHz Bandwidth frequency scope.(sample mode)
2. Output added 0.1uF ceramic capacitor and 10uF tantalum capacitor capacitors.

3.6. LOAD IMPEDANCE

Filter capacitors are connected to each pins of the mating output connector. Capacitance values and material type are listed below.

VOLTAGE NOM.(V)	CAPACITANCE NOM. (uF)	MATERIAL TYPE
+5.2V	0.1uF/10uF	CERAMIC/TAN

3.7. HOLD UP TIME

The power supply shall maintain voltage regulation within the specified limits in paragraph 3.1 for at least 5 milliseconds after lost of input voltage measure at 100 VAC(rms) and at maximum output load.

3.8. Overshoot

-The output overshoot at turn on shall not exceed 10% of normal voltage value with or without the load connected.

4. NO LOAD OPERATION

The power supply shall be able to operate under no load condition. No damage to the power supply is allowed and internal component cannot be stressed beyond its rating

5. PROTECTION

5.1. OVER VOLTAGE PROTECTION

The power supply should shutdown for any cause of over voltage conditions before any output exceeds its limits below.

NOMINAL OUTPUT VOLTAGE (V)	OVER VOLTAGE
	MAX.
+5.2	7.5V

The power supply will be auto-recovery or latch when OVP function is triggered..

5.2. SHORT CIRCUIT PROTECTION

A short circuit placed on DC output shall cause no damage and auto-recovery.

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5.3. OVER CURRENT PROTECTION

The power supply shall provide over current protection on output. Maximum current inception point of output shall be limited to the following values:

OUTPUT VOLTAGE (V)	CURRENT LIMIT (A)
+5.2	1.22A

The power supply output establish again within 2s after overload is removed.
The power supply can't has any damage during working at CC mode.

6. SAFETY REQUIREMENTS

The power supply must comply with the following national standards:

6.1. DIELECTRIC STRENGTH

Primary to Secondary : 4242 VDC or 3000Vac for 60sec.

6.2. INSULATION RESISTANCE

Primary to secondary : 30 Meg. ohms Min., 500VDC

6.3. GROUND LEAKAGE CURRENT

The power supply ground leakage current shall be less than 20 uA at 240Vac/ 50Hz.

7. ELECTROMAGNETIC COMPATIBILITY

Power supply for use with the host system will be tested to conform with the following emission standards.

7.1. FCC REQUIREMENTS

Power supply shall comply with the United States Communication Commission (FCC) Rules and Regulations, Part 15, Subpart J, Computing Devices "Class B limits".

7.2. VDE REQUIREMENTS

Power supply shall conform to the "Class B" requirements of CISPR 22.

7.3. VCCI REQUIREMENTS

Power supply shall conform to the "Class II" requirements of VCCI.

7.4. EMC REQUIREMENTS

7.4.1. Immunity requirement

The adapter shall meet the below Immunity requirement based on:

1. IEC 61000-4.2 ESD
2. IEC 61000-4.3 Radiated Immunity
3. IEC 61000-4.4 Electrical Fast Transients

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4. IEC 61000-4.5 Surges
5. IEC 61000-4.6 Conducted Immunity
6. IEC 61000-4.11 Voltage Dips
- 7.4.2. Emissions requirement
The adapter shall meet EN55022 Class B
- 7.4.3. Power line Harmonics
The adapter shall meet IEC 1000-3-2 Class D
- 7.4.4. Voltage Fluctuation and Flicker
The adapter shall meet EN610003-3

7.5. IMPULSE NOISE

A ± 1 K volt

7.6. LIGHTNING SURGE

A ± 1 K volt (L-N) by IEC 61000-4-5

7.7. ESD

this adapter is capable to withstand ESD Test voltage at any point around The enclosure as below.

- ± 15 KV air discharge Performance Criterion B
- ± 12 KV air discharge Performance Criterion A.
- ± 8 KV contact discharge Performance Criterion A.

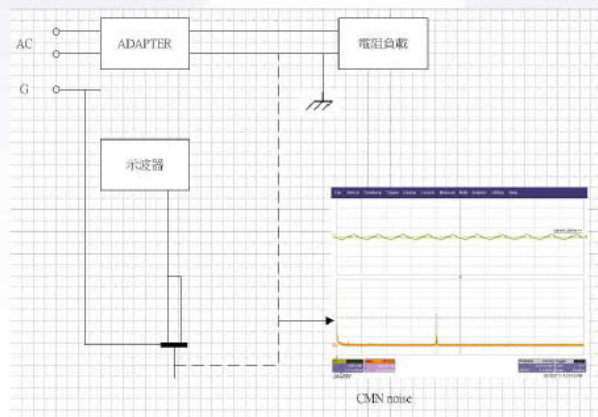
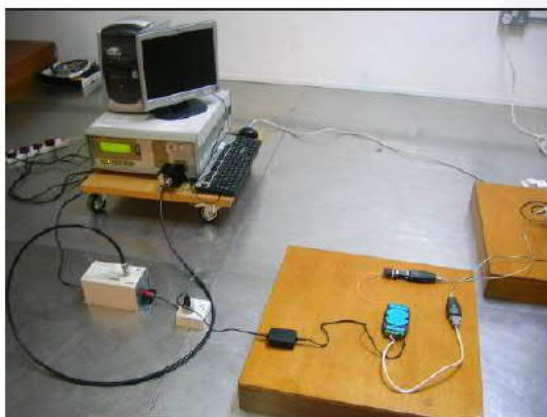
7.8. Common Noise

Test Equipment and Environment : Follow EN61000-4-6

Test voltage Condition :3V

Test Frequency :150K ~ 600KHz

Specification :CMN Max.:0.8V @150K~600K



8. RELIABILITY

8.1. MTBF

The PSU Mean Time Between Failures should not less than 150K hours at 100/ 240Vac 90% load 25 degree C.

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8.2. OPERATION LIFE

The Adaptor shall be designed for a min. life of 13140hrs at 5W load condition, ambient temperature at 25 degree C, input voltage at 100Vac and 240Vac.

Note: Capacitor voltage 95% de-rating is accepted.

9. ENVIROMENT

9.1. OPERATING

Temperature : 0 to 40 degrees centigrade.

Relative Humidity : 5 to 95 percent RH, non-condensing.

9.2. SHIPPING AND STORAGE

Temperature : -30 to +80 degrees centigrade.

Relative Humidity : 5 to 95 percent RH, non-condensing.

9.3. Altitude

Operation : 0-10,000ft

Shipping : 0-50,000ft

9.4. Regulated Substances REQUIREMENT

The Adaptor shall be designed to meet 100% RoHS requirement.

10. TEMPERATURE RISE OF CASE SURFACE

The case temperature rise shall be less than 60deg C at 25deg C ambient 100/ 240Vac on Bakelite without airflow. ($\Delta T < 35^{\circ}\text{C}$ at 25°C)

(It doesn't include the bottom surface)

11. Acoustic noise

Input Condition: Vin: 90Vac~264Vac

Frequency : 47Hz to 63 Hz

Load Condition:

Dynamic Load follows ASUS Spec

Static Load (from 0A to Full Load , 0.05A per step) Spec.

Static Load:

Microphone at a distance of 10cm from the surface and noise level is less than 20dB

Microphone at a distance of 3cm from the surface and noise level is less than 25dB

12. Drop Test

Drop 30 times(5 times on each face) on each cycles from a height of 36 inches onto a hardwood surface. There must be no function damage after testing

13. AC Plug Pull/Push Test

After welding push or plug 30Kg force on AC Plug , the AC plug can't separated from the main body and case can't deformation .

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14. MACHANICAL**14.1. Physical Size**

Plastic case size 38mm (L) * 38mm (W) * 27.5mm(H)

Weight: 31 g \pm 2.5%**14.2. Input Connector**

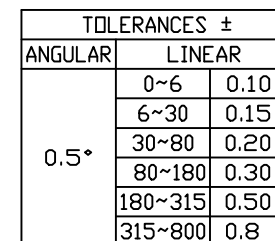
Input Pin: US PIN

14.3. Output Connector

USB 2.0 connector

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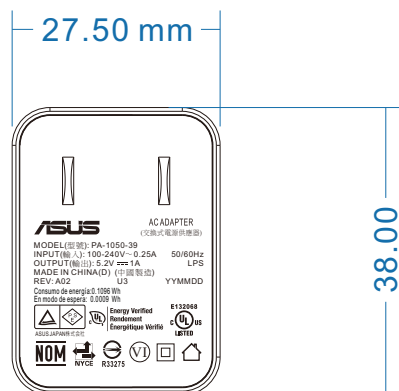
5. EJECTOR PIN MARKS RECESS 0~0.2 mm.



Artwork by Laser etching

1--YY(YEAR):2010--10 , 2011--11,2012--12
MM(MONTH) : 01.02,03---12
DD(DAY):01,02,----31
2--SERIAL MODEL : U3
3--REVISION REV:
BEFORE MP:X00,X01,X02...X10...X99...
MP:A01, A02, A03...A10...A99....
(PRODUCT REVISION OF CUSTOMER)

YYMMDD U3 REV: A02
1 2 3



ASUS

ACADAPTER
(交換式電源供應器)

MODEL(型號): PA-1050-39
INPUT(輸入): 100-240V~0.25A 50/60Hz
OUTPUT(輸出): 5.2V = 1A LPS
MADE IN CHINA(D) (中國製造)
REV: A02 U3 YYMMDD

Consumo de energia: 0.1096 Wh
En modo de espera: 0.0009 Wh



Energy Verified
Rendement
Énergétique Vérifié

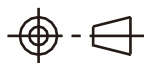


ASUS JAPAN株式会社



SCALE 2X

REVISION	DESCRIPTION	DATE	CHECKER		
PRINTING DATE	25-Jul-2016				
FINAL DATE	25-Jul-2016				
UNIT: mm	SCALE:				



2D FILE
3D FILE

DESIGNER Money
SAFETY



TITLE: Laser-LABEL
PROJECT:PA-1050-39U3

PART NO.:
DRAWING NO.:

REV.: A

NOTES

1.Material and specification please refer to P/N:825172

2D barcode printing rule as below definition.

2D BARCODE DEFINITION:

PPPPP-PPPPPPPYWWFXXXXX

PART NO.:
ASUS P/N

YEAR CODE:
EX:2014 YEAR :PRINT 4

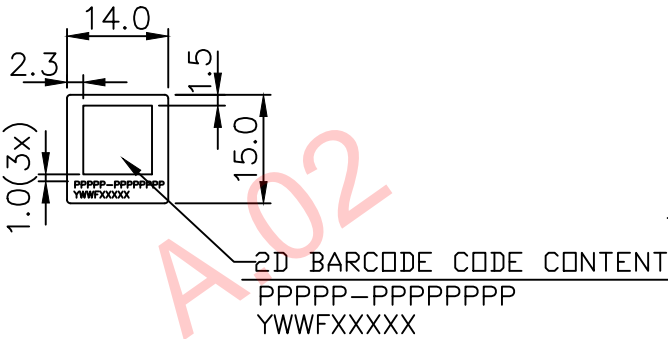
WEEK CODE: FROM 01~52
EX:10TH WEEK, PRINT 10

FACTORY CODE: FROM A TO Z
EX:CZ PLANT PRINT AS D

SERIES NUMBER FROM 00001~ZZZZZ
FOR EVERY WEEK,THIS STARTING SERIAL
NO.WILL ALWAYS BEGIN AT"00001".

1	PA-1050-39U3	0A001-00094500
ITEM	LITEON MODEL	ASUS PART NO.

2D BARCODE PRINT RULE
PRINTED BY LITEON



A. 字體顏色 :黑色(Defined by ASUS)

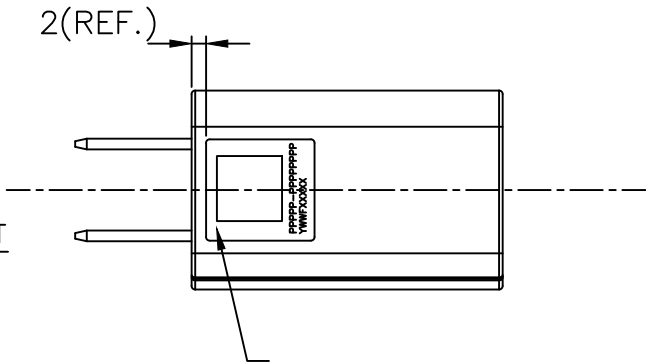
BARCODE碼大小 :8.0*8.0mm

文字部分 :Arial(字高 1.4mm)

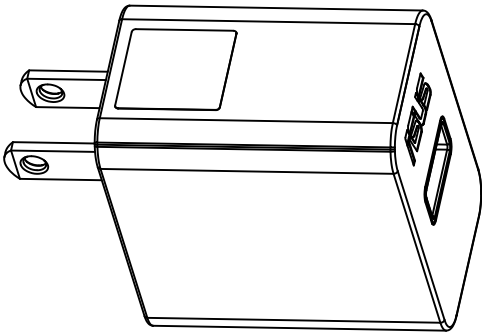
B. 2D BARCODE

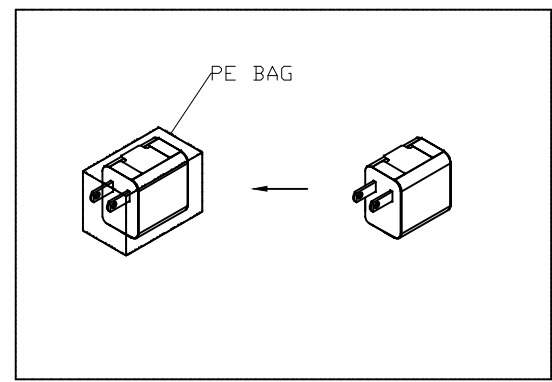
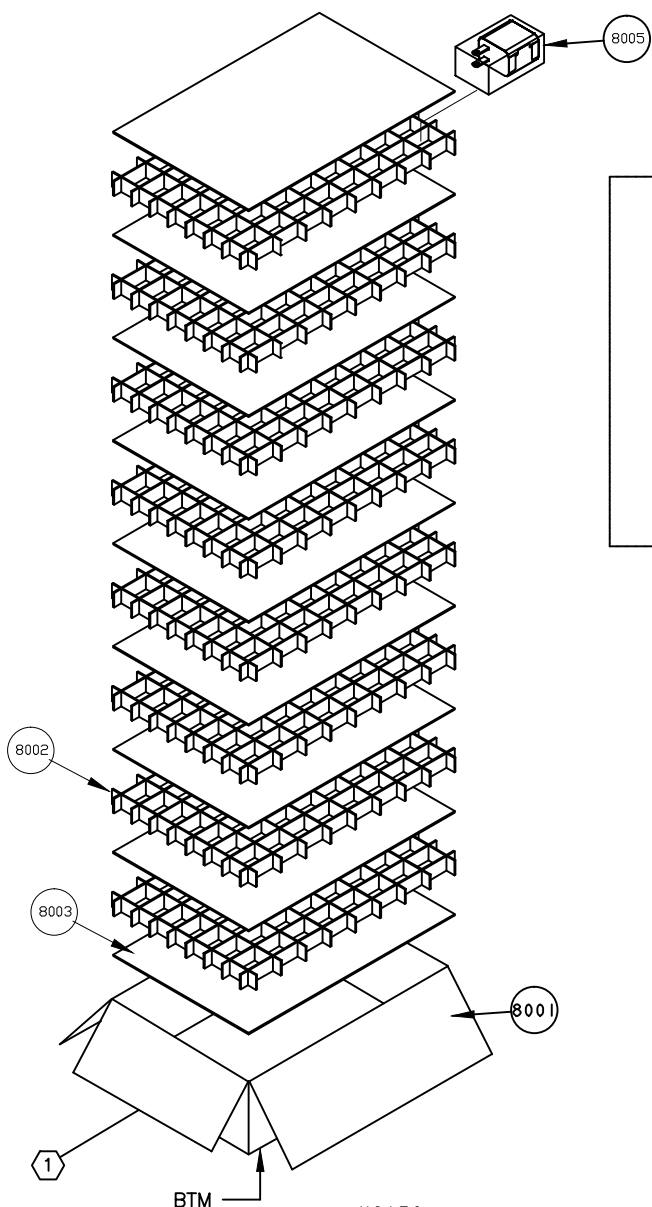
- * 600 DPI Printer Minimum.
- * 24X24 row/column Datamatrix ECC200 symbol per ISO/IEC 16022 Data Matrix Specification 20 mil cell dimension.
- * Color:BLACK(Defined by ASUS)

2D BARCODE STICK LOCATION



貼於OPP膜外側,靠近機台中間位置
以遮住黏膠為原則

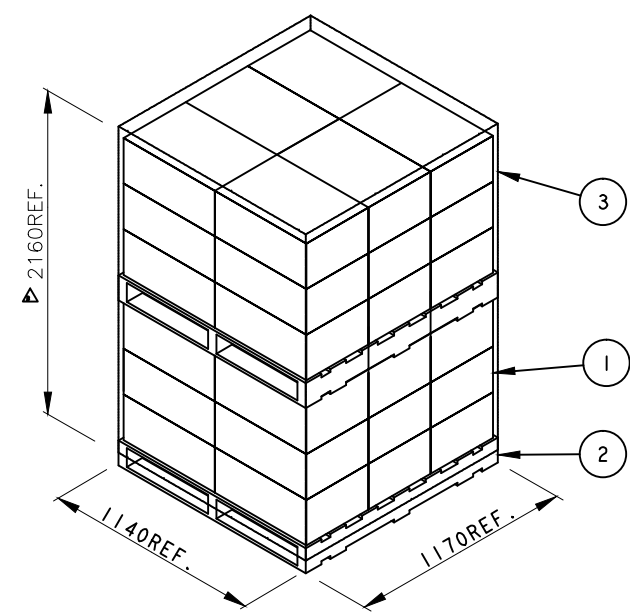




DETAIL-A

* PACKING ASS'Y DRAWING:
1. ALL DIMENSIONS ARE IN MM.
2. PARTS SPECIFIED AS FOLLOWS:

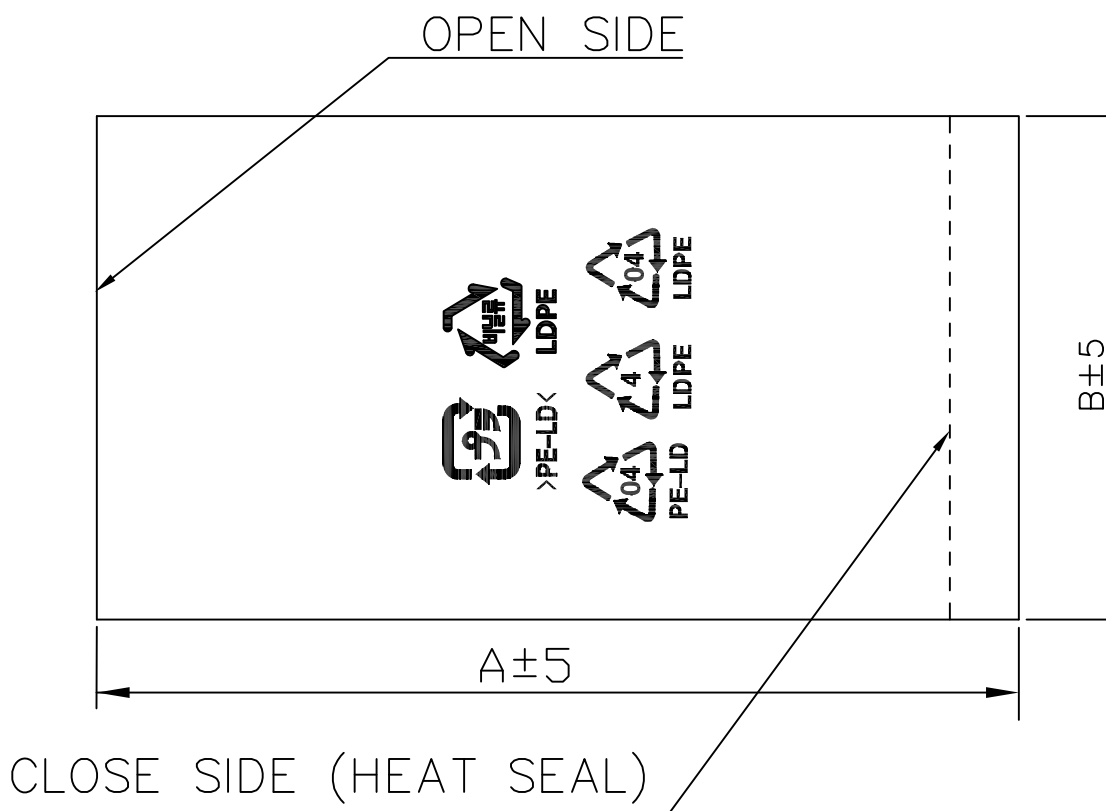
* NOTES:
UNLESS OTHERWISE SPECIFIED,
1. STAMP MODEL'S SERIES AND REV.
VERSION ON THE CARTON FOR
EACH SHIPPING.
2. CARTON USES PACKING TAPE TO
SEAL.



* PALLET ASS'Y DRAWING:
1. ALL DIMENSIONS ARE IN MM.
2. PARTS SPECIFIED AS FOLLOWS:

ITEM	PART NAME	QUANTITY
1	CARTON	1 CARTON=448 UNITS
2	PALLET	1 PALLET=3 LAYERS 18 CARTONS 8064 UNITS
3	POLYESTER FILM	2 LAYERS MIN.
4	40 FT CONTAINER	1 CONTAINER=40 PALLETS
	20 FT CONTAINER	1 CONTAINER=20 PALLETS

- NOTES: UNLESS OTHERWISE SPECIFIED.
1. MATERIAL: PE, CLEAR POLYSTER
 2. THICKNESS IS 0.05mm: TOLERANCE $\pm 0.02\text{mm}$.
 3. SURFACE RESISTIVITY : 10^4 ohm/s MIN .
 4. NO DAMAGE AND VAPOR.
 5. MARK COLOR: BLACK.



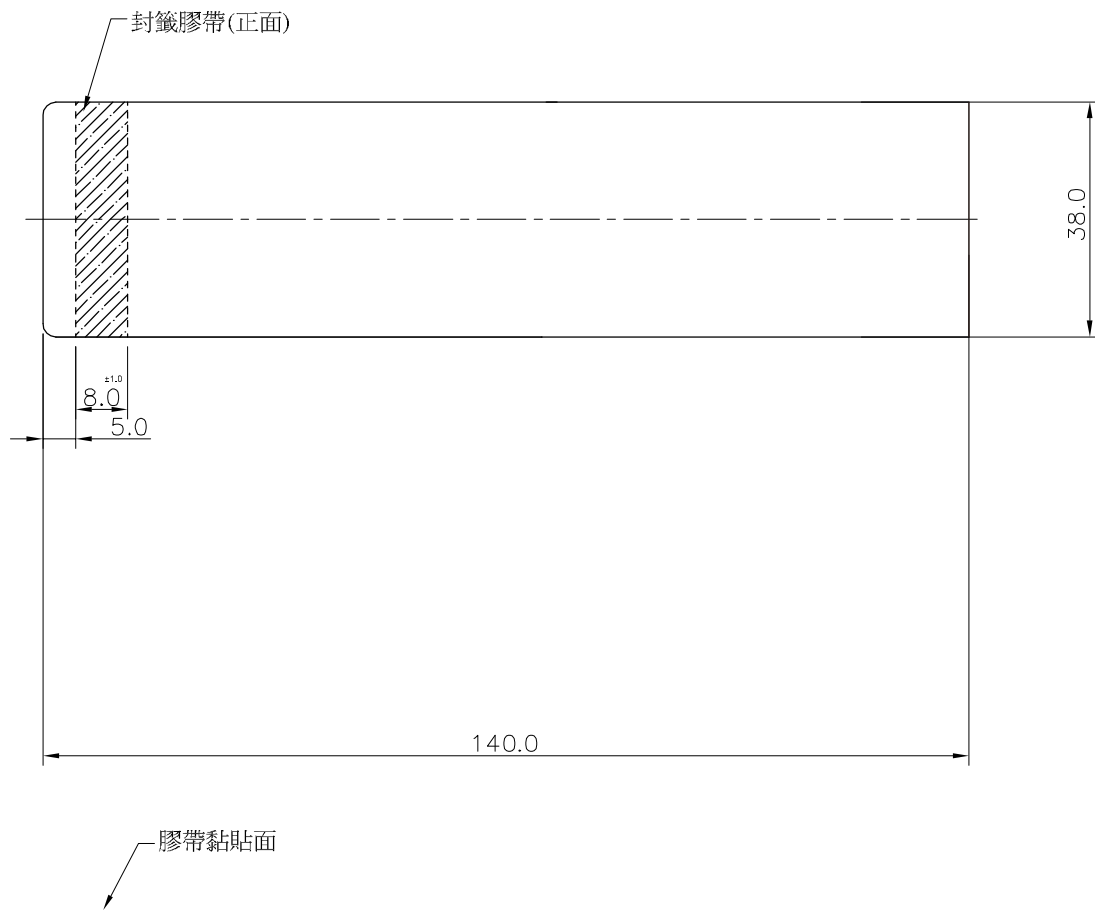
31			
30			
29	714367	480	125
28	742505	650	160
27	719357	150	100
26	751165	65	50
25	731976	380	125
24	701227	180	140
23	701231	490	320
22	736955	130	70
21	743171	450	420
20	700644	435	160
19	701228	280	255
18	703369	400	220
17	703437	445	320
16	703570	217	115
15	714049	250	250
14	716105	560	125
13	717037	300	300
12	719497	400	150
11	723172	510	355
10	725342	240	170
9	733949	250	140
8	735290	250	105
7	735772	380	85
6	735927	230	100
5	714927	380	125
4	733859	330	230
3	734378	200	80
2	734478	380	140
1	743645	400	240
ITEM	P/N	A	B

	RELEASED	19-Apr-2012	1A~6D
REVISION	DESCRIPTION	DATE	ZONE

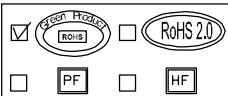
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FINAL DATE	19-Apr-2012		3D FILE	_____	CHECKER		APPROVED			PROJECT: PE BAG DELL TYPE-D	DRAWING NO.: 743645	REV.: H
UNIT: mm	SCALE: 1/1											

NOTE:

1. 材質:BOPP(抗靜電)
2. 厚度: 50.0um ±3%(不含背膠)
3. 霧度: : <1.5%
4. 光澤度: >85%
5. 表面電阻率(雙面) : $\leq 10e10 \sim 10e12$ Ohm
6. TOLERANCE TO BE +0.25mm



TOLERANCES ±		
ANGULAR	LINEAR	
0.5°	0~6	0.10
	6~30	0.20
	30~80	0.25
	80~180	0.30
	180~315	0.50
	315~800	0.8

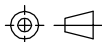


LITEON

TITLE: OPP SHEET PART NO.: (827794) 90-M105039PS2-ROHS
PROJECT: PA-1050-39U3 DRAWING NO.: 490-827794 REV.: A

REVISION	DESCRIPTION	DATE	ZONE
1	RELEASED	13-Mar-2017	1A~8F

PRINTING DATE	13-Mar-2017
FINAL DATE	13-Mar-2017
UNIT: mm	SCALE:



2D FILE OPP SHEET
3D FILE

DESIGNER HARVEY
CHECKER APPROVED