LITE-ON TECHNOLOGY CORP.

APPROVAL SHEET

CUSTOMER	:	ASUS
CUSTOMER NO	:	0A001-00095900
MODEL NO	:	PA-1050-39
PRODUCT NO	:	PA-1050-39U3 Rev.A03
ISSUE DATE	:	2017/07/19

Customer Approved By： _____

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Subject : Revision Records For Approval Sheet.

Model :	***PA-1050-39U3***

Customer Revision	Revision	Date	Comments Description.	DCN No.
NA	A01	07/29/16	Initial	
NA	A02	4/14/17	Change OPP to BOPP	DCN1703150
NA	A03	7/19/17	Apply BSMI ROHS New Rule	DCN1706099

ENGINEERING SPECIFICATION

5W AC Charger

Part Number: PA-1050-39U3

Product Rev: A

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:

a. No Load Average Power Loss shall be less than **75mW** at 230Vac/ 50Hz.
b. When Output load is **0.25W**, input watt shall be less than **0.45W**.
c. 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
d. 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

the AC input set at the nominal voltage.

2.8. Output Load Ripple Current

<100mA

3. OUTPUT REQUIREMENTS

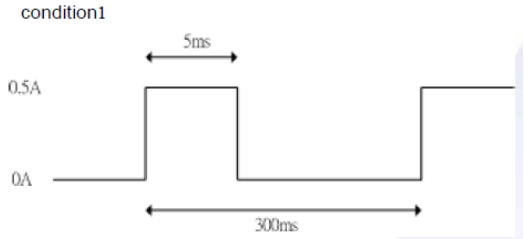
3.1. STATIC DC LOAD

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

NOMINAL	LOAD CURRENT(A)	



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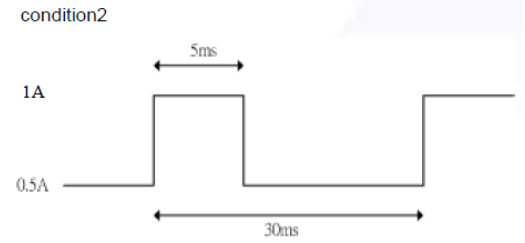


VOLTAGE (V)	MIN.	Normal	
+5.2	0	0.5	+4.6V~+6V
	0.5	1	

Note1. If output drop less than4.6V, the durning shall 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**.

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.

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 300Vac 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
4. IEC 61000-4.5 Surges
5. IEC 61000-4.6 Conducted Immunity
6. IEC 61000-4.11Voltage 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 ±1K volt

7.6. LIGHTNING SURGE

A ±1K 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.
±15KV air discharge Performance Criterion B
±12KV air discharge Performance Criterion A.
±8KV contact discharge Performance Criterion A.

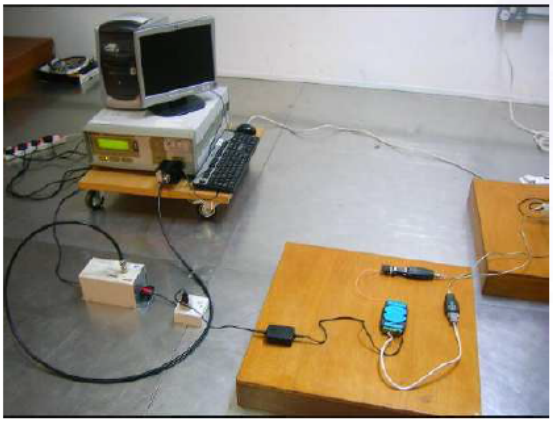
7.8. Common Noise

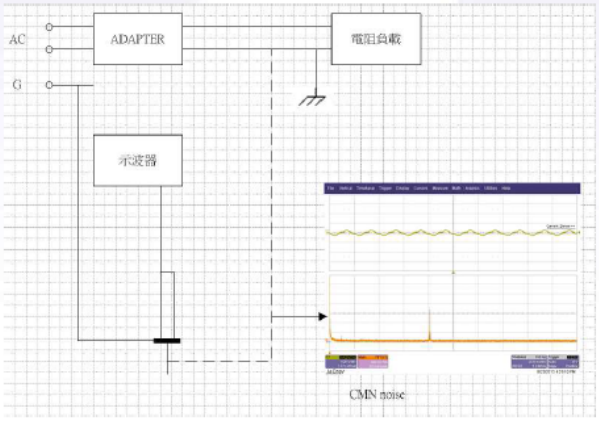
Test Equipment and Environment : Follow EN61000-4-6

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.

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 rice shall be less than 60deg C at 25deg C ambient 100/ 240Vac on Bakelite without airflow. ($\triangle T < 35℃$ at 25℃)
(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 .

14. MACHANICAL

14.1. Physical Size

Plastic case size 38mm (L)* 38mm (W) *27.5mm(H)
Weight: 31 g ± 2.5%

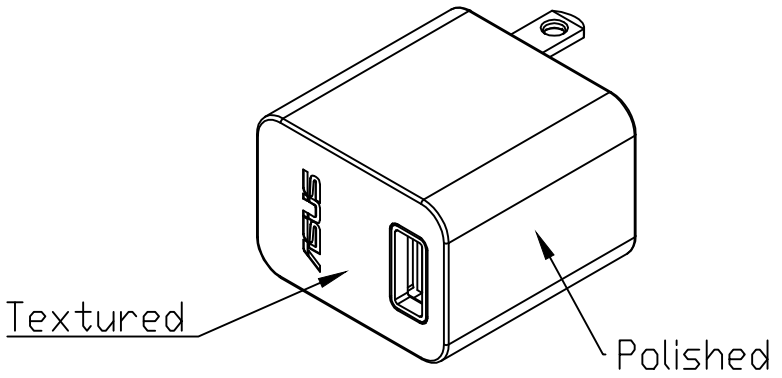
14.2. Input Connector

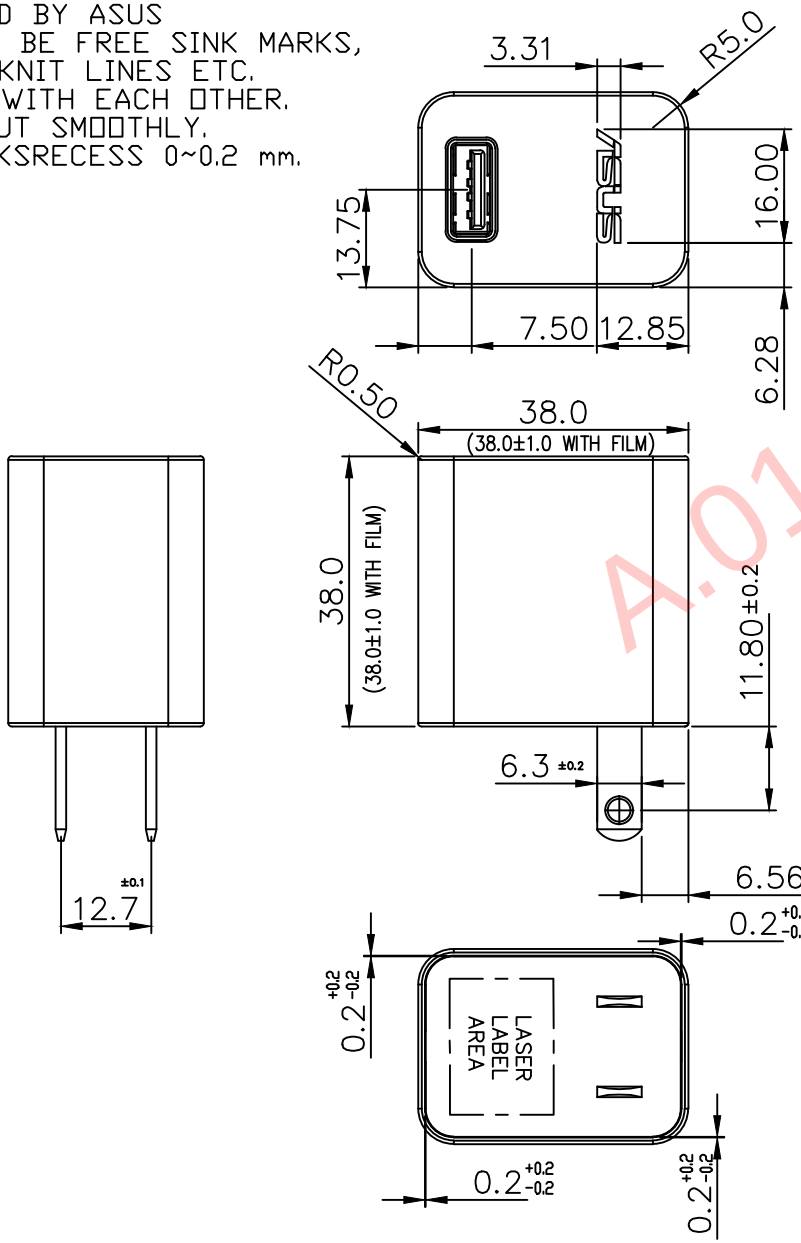
Input Pin: US PIN

14.3. Output Connector

USB 2.0 connector

NOTES: UNLESS OTHERWISE SPECIFIED.
1. PART DRAFTS USE MIN. DRAFT.
2. ENCLOSURE:
   MEET MIN. V-0 FLAMMABILITY.
   Color: WHITE (DEFINED BY ASUS)
   TEXTURE: DEFINED BY ASUS
3. PART SURFACE TO BE FREE SINK MARKS,
   TOOLING MARKS, KNIT LINES ETC.
4. CASE MUST MATE WITH EACH OTHER.
   GATE MUST BE CUT SMOOTHLY.
5. EJECTOR PIN MARKSRECESS 0~0.2 mm.





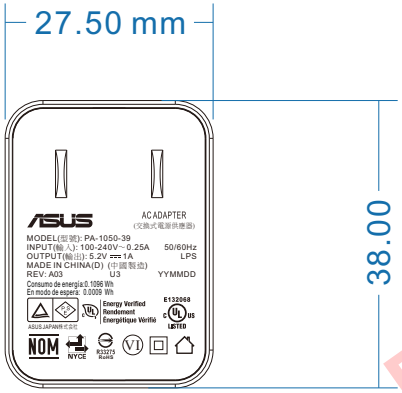
TOLERANCES ±		
ANGULAR	LINEAR	
0.5°	0~6	0.10
	6~30	0.15
	30~80	0.20
	80~180	0.30
	180~315	0.50
	315~800	0.8

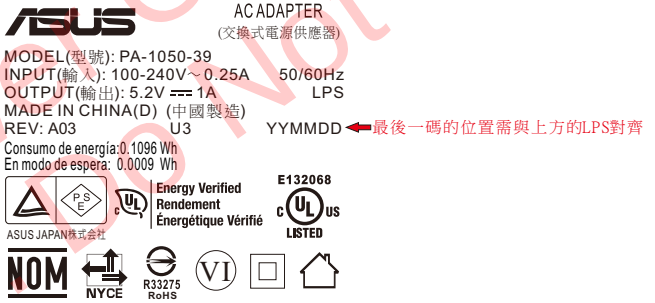
REVISION	DESCRIPTION	DATE	CHECKER	SHEET / CODE / UNIT: mm	SCALE: 1:1	2D FILE / 3D FILE	DESIGNER: Money / APPROVER	TITLE: OUTLINE	PART NO.:	PROJECT: PA-1050-39U3	DRAWING NO.: 0-002549	REV.: A
A	RELEASED	17-Jun-2016										

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: XXX
1 2 3





SCALE 2X

REVISION	DESCRIPTION	DATE	CHECKER
B	MODIFY BSMI LOGO(ADD RoHS)	26-Apr-2017	
A	REVISE THE DESCIBTION OF REVISION	25-Jul-2016	

PRINTING DATE	26-Apr-2017		2D FILE		DESIGNER	HARVEY	LITEON®	TITLE: Laser-LABEL	PART NO.:
FINAL DATE	26-Apr-2017		3D FILE		SAFETY			PROJECT:PA-1050-39U3	DRAWING NO.:	REV.: B
UNIT : mm	SCALE:								

NOTES

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

2D barcode printing rule as below definition.

2D BARCODE DEFINITION:

PPPPP-PPPPPPPPYWWFXXXXX

PART NO.:
ASUS P/N

YEAR CODE:
EX:2014 YEAR :PRINT 4

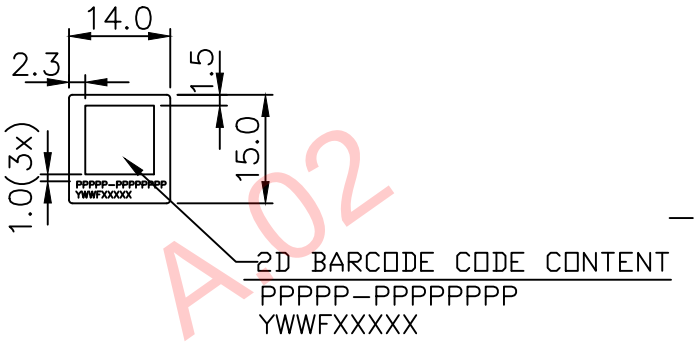
WEEK CODE: FROM 01~52
EX:10TH WEEK, PRINT 10

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

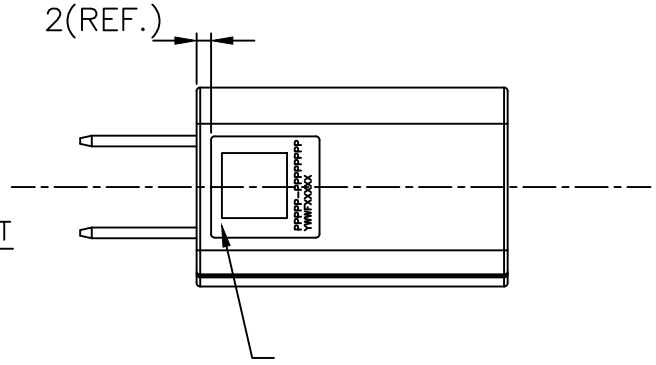


A. 字體顏色 :黑色(Defined by ASUS)

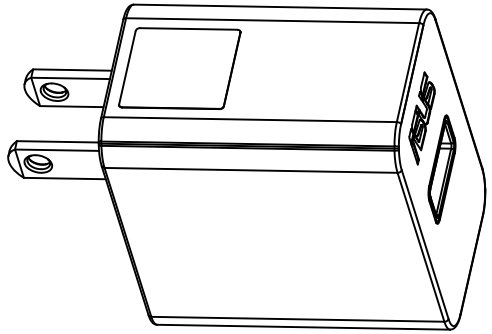
BARCODE碼大小 :8.0*8.0mm
文字部分 :Arial(字高 1.4mm)

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)

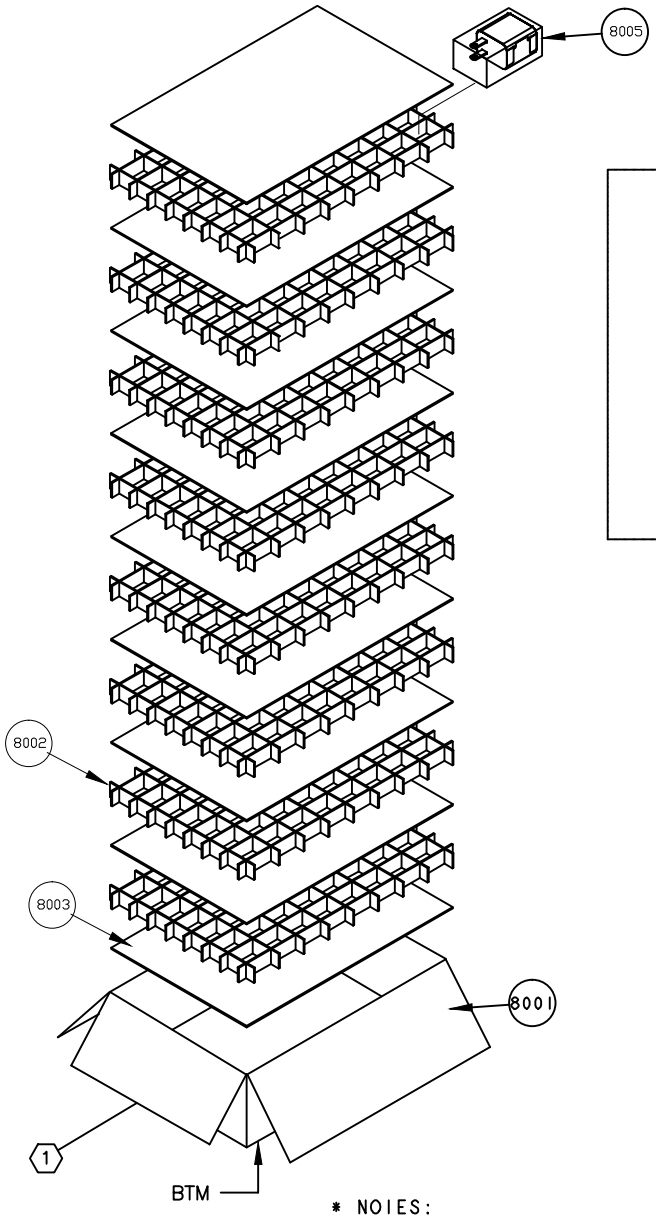
2D BARCODE STICK LOCATION

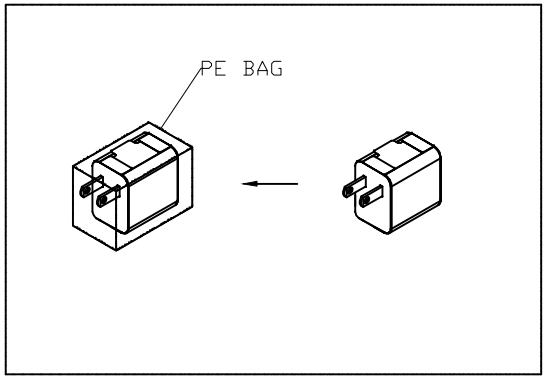


貼於OPP膜外側,靠近機台中間位置
以遮住黏膠為原則



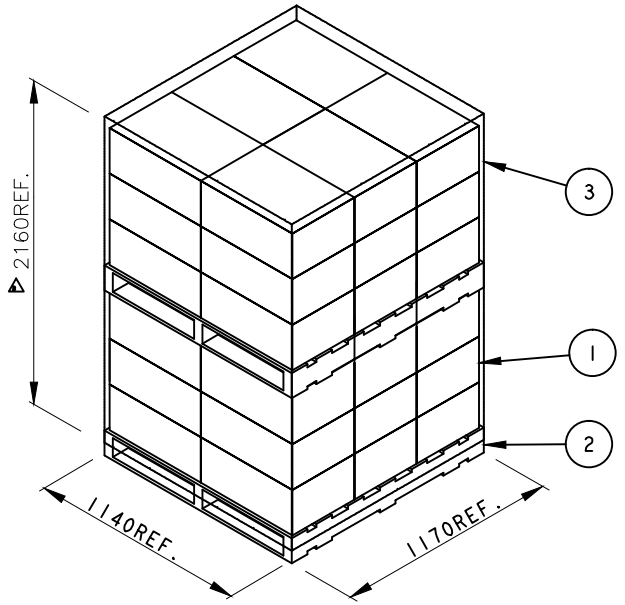
A	RELEASED	25-Jul-2016	1A~8F	PRINTING DATE	25-Jul-2016		2D FILE		DESIGNER	Money	SAFETY		LITEON	TITLE: BARCODE	PART NO.: (825172)93-M105039BC1-ROHS
REVISION	DESCRIPTION	DATE	ZONE	FINAL DATE	25-Jul-2016		3D FILE	- - -	CHECKER		APPROVED	DANIEL		PROJECT: PA-1050-39U3	DRAWING NO.: BC-825172-0010 REV.: A
				UNIT: mm	SCALE: - -										





DETAIL–A

A.01



* 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

* 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.

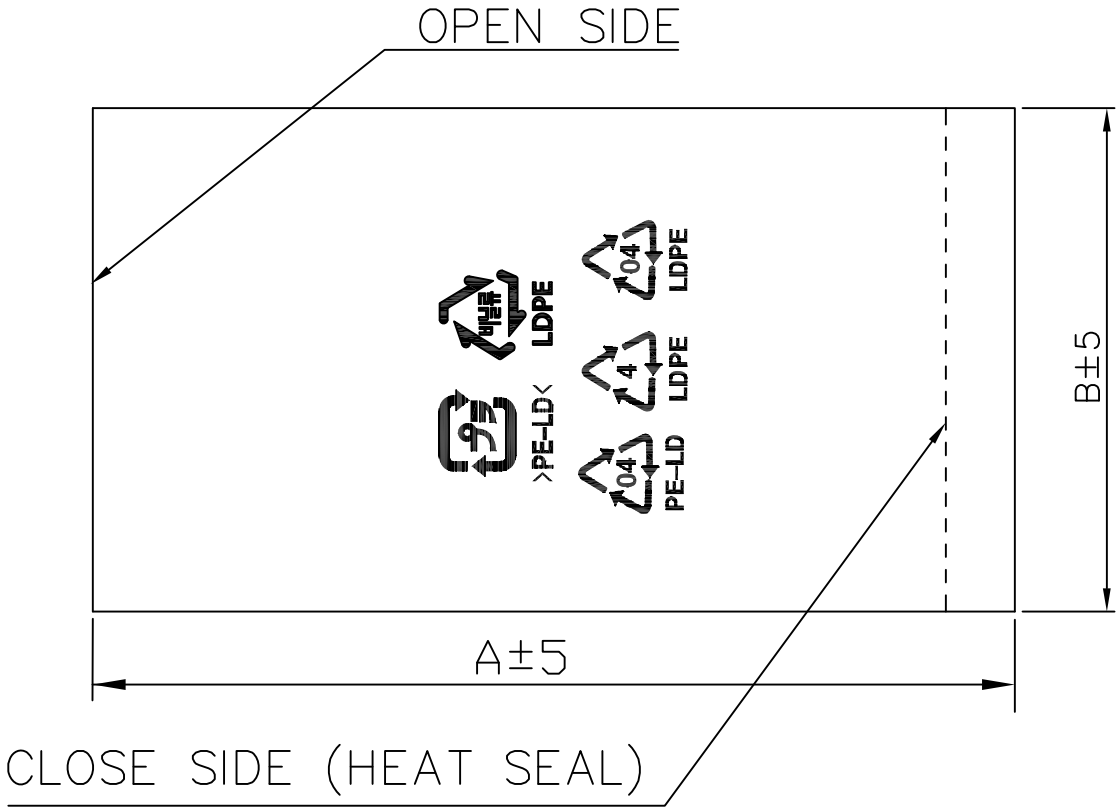
REVISION	DESCRIPTION	DATE	ZONE
A	RELEASED	18-Jul-2016	1A~8F

PRINTING DATE	18-Jul-2016	2D FILE	PACKING_PA-1050-39U3
FINAL DATE	18-Jul-2016	3D FILE	
UNIT: mm	SCALE:		

DESIGNER	Money			LITEON	TITLE: PACKING
CHECKER		APPROVED			PROJECT: PA-1050-39U3

PART NO.:
DRAWING NO.: P-002550 REV.: A

NOTES: UNLESS OTHERWISE SPECIFIED.
1. MATERIAL: PE, CLEAR POLYSTER
2. THICKNESS IS 0.05mm: TOLERENCE ±0.02mm.
3. SURFACE RESISTIVITY : 10^4 ohm/s MIN.
4. NO DAMAGE AND VAPOR.
5. MARK COLOR: BLACK.



ITEM	P/N	A	B
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

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

PRINTING DATE	19-Apr-2012		2D FILE	PE BAG DELL TYPE-A	DESIGNER	Mars Fan			TITLE: PE BAG
FINAL DATE	19-Apr-2012		3D FILE		CHECKER		APPROVED		PROJECT: PE BAG DELL TYPE-D
UNIT: mm	SCALE: 1/1								

LITEON

PART NO.:

DRAWING NO.: 743645

REV.: H