

adt	MODEL NO.	CAP012F	SHEET NO	QB20130450
	DESCRIPTION	Switching Adaptor	ISSUED DATE:	2013/01/10

APPROVAL SIGNATURE
DATE:

Customer :

Model No : CAP012F

Part No : CAP012F-A053 REV : A

Type : UL Wall Mount Adapter

Input Voltage	100-240VAC 50/60 Hz	Output Voltage	12V DC 1.0 A 12W
Output Cable	UL2468 26AWG L=1500mm Plug:5.5X2.1X11mm 180 度音叉		
AC Plug	AMERICA Plug (美規插頭)	Packaging	BOX : 85(L)*58(W)*80(H)

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SPEC. Revision History

Date	Revision No.	Change Information	
		Previous version	Current version
2012/04/06	D01		Initial

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1 SCOPE

This document describes basic electrical characteristics and mechanical characteristic of 12W class II power adapter.

2 ELECTRICAL SPECIFICATION

2.1 INPUT REQUIREMENT

2.1.1 INPUT VOLTAGE RANGE

Power adapter shall operate within input specification from 90Vac to 264Vac or provide automatic switching between high line and low line input ranges. The table below shows common input voltage range.

Input Range	Minimum	Nominal	Maximum	Unit
	90	100-240	264	Vac, rms

Table 1 - Input Voltage Range

2.1.2 INPUT FREQUENCY RANGE

The power adapter shall operate within specification from 47 to 63 Hz.

2.1.3 AC INRUSH CURRENT

Peak inrush current should not exceed 40 A at 110Vac ,and 60 A at 220Vac 50Hz, 25 degrees C, cold start. It should not interrupt line fuse or cause damage to the power adapter either at cold or warm start.

2.1.4 INPUT CURRENT

Maximum steady state input current shall not exceed 0.35 A for any line voltage specified in 2.1.1.

2.1.5 LEAKAGE CURRENT

0.25mA max. at 230Vac 50Hz.

2.1.6 INSULATION RESISTANCE

Insulation resistance shall be more than 50M Ω between primary and secondary 500Vdc .

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2.1.7 LOW POWER CONSUMPTION

Vin	Load	Power consumption
230Vac/50Hz 115Vac/60Hz	0A	≤ 0.3 W

2.1.8 HI-POT TEST

Primary to secondary AC 3000V OR DC 4242V / 3 Sec and cut off current should be less than 10mA

2.2 INPUT PROTECTION

2.2.1 INPUT CURRENT PROTECTION

A fuse with rating of 4.7Ω 2W fuse resistor shall be installed on the input line side near the input connector and no any electrical components before.

2.3 OUTPUT REQUIREMENT

2.3.1 OUTPUT POWER

Unit total output power, under steady state conditions, shall not exceed 12.6 W.

2.3.2 OUTPUT VOLTAGE AND CURRENT

Under any combination of line and load variation and environmental conditions, all outputs shall remain within tolerance as defined in Table 2. Output voltage(s) shall be measured at the load side of output connector.

Output Voltage	Load regulation		Line regulation		Current Range	
	Lower Limit	Upper Limit	Lower Limit	Upper Limit	Min.Load	Full load
+12V	±5%		±2%		0A	1.0 A

Table 2 - Output Voltage and Current

2.3.3 RIPPLE AND NOISE

Measurements shall be made with an oscilloscope with minimum of 20MHz bandwidth. Output shall be bypassed at the connector with a 0.1µF ceramic disk capacitor and a 47µF electrolytic capacitor for general testing purpose.

Output Voltage	Maximum Ripple & Noise (Vp-p)
+12.0V	120mV

Table 3 – Ripple and Noise

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2.3.4 OVER VOLTAGE PROTECTION

The power adapter shall provide with over voltage protection such that under any single component failure by recovery.

Output Voltage	OVP
+12.0V	170%Max

2.3.5 OVER CURRENT PROTECTION

After the supply at rated output reaches temperature equilibrium, over current protection shall be operated within specify 1.2A~2.0A, at 115/230Vac condition test after one hour burn-in and reached temperature equilibrium.

2.3.6 OVER TEMPERATURE PROTECTION

N/A

2.3.7 OVERSHOOT AND UNDERSHOOT

During turn on or turn off, the output overshoot shall not exceed nominal output voltage by more than 10%, and output shall not change its polarity with respect to its return line.

2.3.8 SHORT CIRCUIT POTECTION

Power adapter shall have self-limiting protection to protect against short circuit or overload conditions. No damage to the power adapter shall result from a continuous or intermittent short circuit condition. It will be auto-recovered when the failure is removed.

2.3.9 AUDIBLE NOISE

There is no audible noise can be hear when it work with rated spec.

2.4 PERFORMANCE REQUIREMENT

2.4.1 EFFICIENCY

Efficiency (watt out / watt in) shall be a minimum of 77.76 % at active average mode.

2.4.2 TURN ON DELAY TIME

Output shall reach steady state within 3 seconds of turn on at 90Vac or greater.

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2.4.3 HOLD-UP TIME

Hold-up time shall be a minimum of 10 mS (output voltage form normal output drop to -20%)
at 115Vac/230Vac input.

2.4.4 DYNAMIC LOAD

Step load change: from 20% to 80% Load on the output.

Dwell Time: 5ms duty.

Slew rate: 0.1A/usec

the output overshoot or undershoots: $\leq \pm 10\%$ output voltage

3 ENVIRONMENTAL SPECIFICATION

3.1 TEMPERATURE

Operation within specification: 0 to 40 degrees C.

Storage: -20 to 85 degrees C

3.2 HUMIDITY

Operation: 10% to 90% relative humidity, non-condensation.

Storage: 5% to 95% relative humidity, non-condensation.

3.3 VIBRATION AND SHOCK

The power adapter shall withstand forces of 2G at variable recurrent frequencies of 10 to 55Hz and a simulated transportation test. Transportation test will consist of a 1/2G vibration force at the resonant frequencies of the board or components.

The test will last for 15 min. The power adapter will be tested in a configuration representative of the intended application with shipping cartons. The power adapter must survive a 50G force for duration of 20mS in all 3 orthogonal planes from normal mounting points.

3.4 CALCULATED MEAN TIME BETWEEN FAILURES (MTBF)

The MTBF for the power adapter shall equal or exceed 50,000 hours when operated at full rated load in 25°C ambient temperature by MIL-STD-217F.

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4 APPLICATION STANDARD & RELATED SPECIFICATION

4.1 STANDARD & SAFETY

4.1.1 SAFETY STANDARD

Meet
CE
CEC
CB
GS-TUV
UL/C-UL

4.1.2 EMI

Refer to FCC 15(Class-B, 115Vac operation)

Refer to CISPR 22(Class-B, 230Vac operation)

Refer to EN55022(Class-B)

4.1.3 EMS

Refer IEC61000-4-2

Energy Storage Capacitor 150pF Discharge resistor 330Ω.

(Air Discharge: ± 8KV min. Contact Discharge: ± 4KV min.)

Refer IEC61000-4-4 level 3

Impulse: ±1kV applied to L, N and chassis, pulse frequency 5kHz,

period 5 min. input voltage 110Vac and full load.

Refer IEC61000-4-5

±1kV applied between line and line.

4.1.4 LPS

Meet IEC60950-1

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4.1.5 ENVIRONMENT STANDARDS

RoHS regulation

4.1.6 ENERGY SAVING

CEC standards Level V.

5 MECHANICAL

5.1 INPUT CONNECTOR AND OUTPUT CABLE

5.1.1 INPUT CONNECTOR

Wall mount.

5.1.2 OUTPUT JACK AND CABLE

See the dimension mechanical drawing.

5.2 AC ADAPTER EXTERNAL DIMENSION

See the dimension mechanical drawing.

5.3 LABEL DRAWING

See the label drawing.

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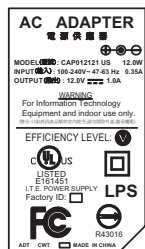
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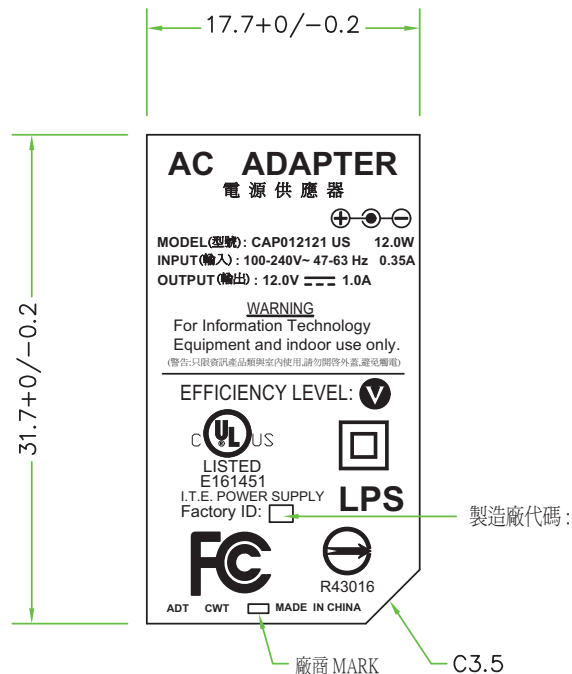
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A



1:1

B



C

備註:

- 1.MATERIAL:50#消銀龍+OPP(UL 安規)
- 2.COLOR: 銀底,黑字.
- 3.總厚度:0.2~0.3mm.
- 4.高溫測試:需耐溫100°C 24小時,不可翹皮或皺摺.
- 5.安規標誌請按安規標準來製作.

D

環保材料標準:

No	有害物質名稱	含量標準	SHEET METAL TOLERANCE (UNLESS OTHERWISE SPECIFIED)			
			DIMENSION	PIERCING	BENDING	ANGULAR
1	鎘 (Cd)	<75ppm				
2	鉛 (Pb)	<800ppm				
3	汞 (Hg)	<800ppm	X < 8	±0.1	±0.15	±0.3°
4	六價鉻 (Cr) ⁶	<800ppm	8 ≤ X < 25	±0.1	±0.2	±0.5°
5	多溴聯苯 (PBB)	<800ppm	25 ≤ X < 100	±0.15	±0.25	±0.5°
6	多溴二苯醚 (PBDE)	<800ppm	100 ≤ X < 300	±0.2	±0.3	±1°
7	鎘,鉛,汞,六價鉻.(包裝材料)	總含量<100ppm	300 ≤ X < 800	±0.3	±0.5	±1.5°

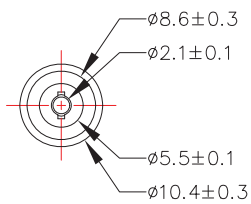
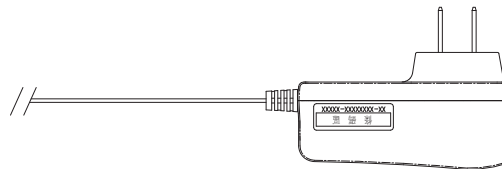
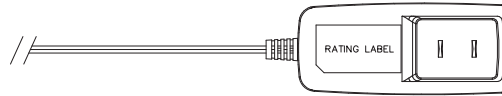
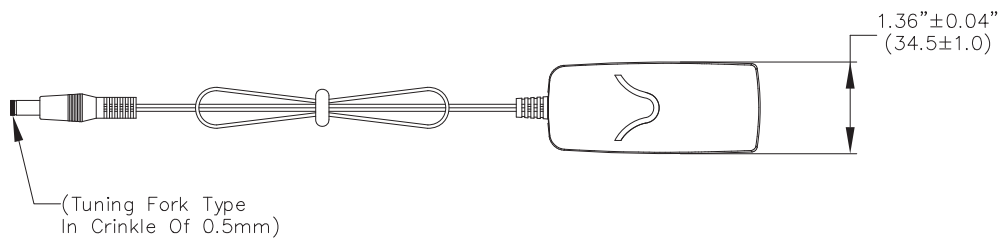
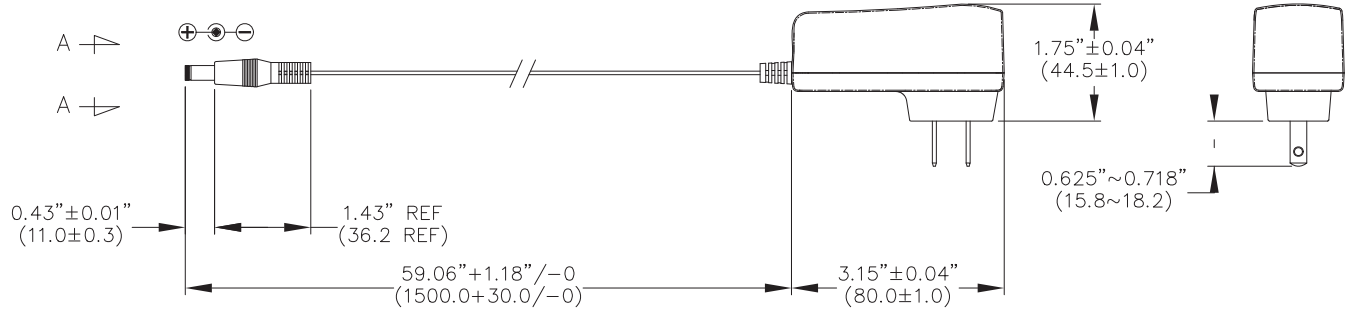
D03 應客戶需求:追加 BSMI MARK 及中文說明(和 D01 不同,沒有"僑威科技股份有限公司")

D02 應客戶需求:取消 BSMI MARK 及中文說明

D01 新製

REV.	DESCRIPTION			
	UNIT: mm	MODEL NO.: CAP012121 (ADT)		
	MATERIAL	PART NO.: G35-I002149-P200		
	DESIGNED	DRAWING NO.: LABEL-CAP012121 US-UL-09		
APPROVED	SAFETY	CHECKED	SCALE: 1:1	
Andy	Mickey	Jason	Lilac	SHEET M
DATE: 12.11.2012	DATE: 12.11.2012	DATE: 12.11.2012	DATE: 12.11.2012	1 OF 1 A4 _L
THIRD ANGLE PROJECTION				

版本	修訂內容	修訂者	日期
D01	新製	黃錦厚	2013.01.10



VIEW "A"
(SCALE 3:1)

NOTES:

1. CASE & CABLE COLOR : BLACK
2. CHARGER PLUG SPEC.: IEC320-C10
3. CABLE SPEC.: UL2468 26AWG 80°C 300V
4. MODEL:G99-CAP012F-A053
5. PART NO:G18-B18715A-M600

	APPROVED 程志勇	DATE 2013.01.10	DRAWING NO. CA-P-01-036 CA-P-C10-351	UNIT INCHES (MM)	REV. D01
TITLE Switching Power Charger, 12W (12V)	DESIGNED 李呂	DRAWING 黃錦厚	MODEL NO. CAP012121U-B50	TOLERANCES:	SHEET 1/1

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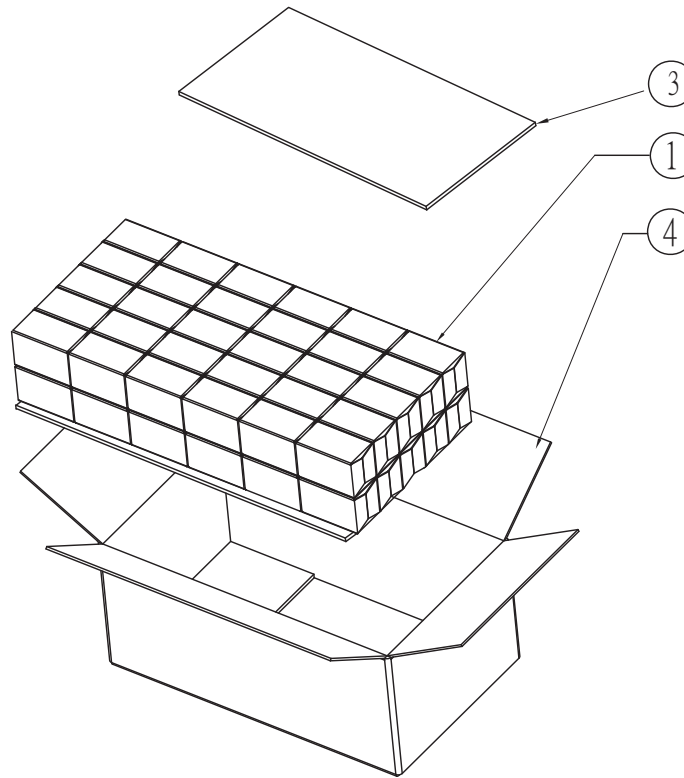
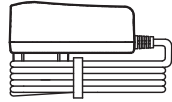
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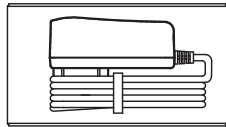
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STEP1:將成品及線材整理如下圖,



STEP3:將成品如圖般放入白盒內



1.組件:

1.1.:白盒:85*58*80mm
用量:60PCS1.3.:平卡:410*355mm
用量:3PCS1.4.:外箱:
用量:1PCS外箱尺寸 425*370*205mm
Q'TY.: 60 PCS

環保材料標準:

No	有害物質名稱	含量標準	SHEET METAL TOLERANCE (UNLESS OTHERWISE SPECIFIED)				A REV.	DESCRIPTION		
			DIMENSION	PIERCING	BENDING	ANGULAR		UNIT: mm	MODEL NO.:	CAP
1	鎘 (Cd)	<75ppm								
2	鉛 (Pb)	<800ppm								
3	汞 (Hg)	<800ppm	X < 8	±0.1	±0.15	±0.3°				
4	六價鉻 (Cr)	<800ppm	8 ≤ X < 25	±0.1	±0.2	±0.5°				
5	多溴聯苯 (PBB)	<800ppm	25 ≤ X < 100	±0.15	±0.25	±0.5°	APPROVED	CHECKED	DESIGNED	DRAWING NO.:
6	多溴二苯醚 (PBDE)	<800ppm	100 ≤ X < 300	±0.2	±0.3	±1°		李呂	黃錦厚	CAP-425-370-205-01
7	鎘,鉛,汞,六價鉻(包裝材料)	總含量<100ppm	300 ≤ X < 800	±0.3	±0.5	±1.5°	DATE:	DATE: 2013.01.10	DATE: 2013.01.10	SCALE:

THIRD ANGLE PROJECTION SHEET 1 OF 1 M/A4L