

Approval Sheet

CUSTOMER: 869

CUSTOMER PART NO:

SAC MODEL NO. : SA106C-09S

DESIGN NO. : A106C084005-1 (SMP8100583)

DATE : 2008/4/18

APPROVED BY (PLEASE SIGN)



SINO-AMERICAN ELECTRONIC CO., LTD.

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SINO-AMERICAN ELECTRONIC CO., LTD.

6W AC to DC Switching Power Adapter Specification

Model Name : SA106C-09S

INDEX

- 1.) Electrical Specification -----Page.1:1 ~ 1.7
- 2.) Mechanical Drawing -----Page.2.1 ~ 2.4
- 3.) Safety License -----Page.3.1 ~ 3.3



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SAC AC to DC SWITCHING ADAPTER SPECIFICATION	MODEL:	SA106C-09S	Design NO:	A106C084005-1
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1. DESCRIPTION.

- 1.1 This specification is suitable for : 869
- 1.2 This adapter is used for : V002
- 1.3 This product is AC to DC switching power transfer device, it can provide for a 3.75 W dc output with constant voltage source.
- 1.4 The product complies with RoHS.
- 1.5 The product complies with CEC Level IV.

2. SURFACE , STRUCTURE.

- 2-1 Surface damage , rusting etc. is not permitted.
- 2-2 Appearance , dimension and description : As drawing.

3. ELECTRICAL CHARACTERISTICS.

- 3-1 Input Voltage :
 - a. Rated Voltage, 100 ~ 240 Vac
 - b. Max. Voltage, 90~264 Vac
- 3-2 Input Frequency :
47~63Hz
- 3-3 Input Current :
250 mA (Max.) @ 100Vac/50Hz with full load
- 3-4 Output Voltage and Current(dc) :

	Voltage (Vdc)	Current (mA)	Voltage (Vdc)	Current (mA)
O/P	7.5±5%	0	7.5±5%	500

3-4-1 Line Regulation :

The line regulation is less than ±2%, @ full load and ±10% input voltage.



3-4-2 Load Regulation :

The load regulation is less than $\pm 5\%$.

3-5-1 Efficiency :

60% (Min.) , @ AC Input 240Vac/50 Hz & 100Vac/50Hz with full load.

3-5-2 Average Efficiency : (As per CEC guideline, Level IV)

61.90 % (Min.)

, @ AC Input 115Vac/60Hz and 230Vac/50Hz with 25%,50%,75% and 100% load.

3-6 Ripple and Noise Voltage : (At full load)

At O/P= 7.5 Vdc ≤ 100 mVp-p

The measuring terminated with a 10uF EC-Capacitor and 0.1uF CC-Capacitor , and measurement is done by 20MHz band-width.

3-7 Safety Test :

3-7-1 Hi -Pot Test :

3000 Vac, 5mA, 1 Sec. between Primary and Secondary circuit and chassis.

3-7-2 Insulation Test :

500Vdc, 1 minute between Primary and Secondary circuit and chassis,

IR should $\geq 100M\Omega$.

3-7-3 Leakage Current : ≤ 0.25 mA , @ 240Vac / 50Hz

3-8 Temperature Rise : (Use thermometer).

AC input 100 V / 50 Hz with full load, shall not exceed 45K on case surface @ ambient 25°C.

3-9 Transient Response : $< 10\%$, @ output change between 50% and 100% of full load, slew rate is 0.5A/us, frequency is 100Hz and 10KHz.

3-10 Hold Up Time : ≥ 6 mSec., @ 100Vac/50Hz, ambient 25°C with full load



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3-11 Rise Time : ≤ 20 mSec., @ 100Vac/50Hz, ambient 25°C with full load
from 5% to 95% of V_o .

3-12 Inrush Current : $\leq 40A$,at cold start, 240Vac/50Hz, full load, ambient 25°C.

3-13 No load Power Consumption (Off Mode) : ≤ 0.5 Watts,
At 240Vac/50Hz, ambient 25°C

3-14 PROTECTION CHARACTERISTICS :

3-14-1 Over Voltage Protection 110~220% V_o

3-14-2 Over Load Protection Current: 0.7 ~ 2.2 A @ 100~240Vac, ambient 25°C.

3-14-3 Short Protection :

The adapter can withstand continuous short at DC output and no damage. It will enter into normal condition if the fault condition is removed.

4. ENVIRONMENT.

4-1 Operating Temperature : 0°C ~ + 40°C

4-2 Operating Humidity : 20% to 80 %R.H.

4-3 Storage Temperature : -20°C ~ + 80°C

4-4 Storage Humidity : 10% to 95 %R.H.

5. RELIABILITY.

5-1 MTBF : (When calculated using MIL-HDBK-217F)

50,000 hours at 25°C



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6. SAFETY.

Safety Status : V Applicable Not applicable

Agency	Standards	Note
UL	UL60950-1	
CUL	CSA-C22.2 No.60950-1	
FCC	FCC Part 15:2005,Subpart B,Class B	

7. EMS & EMI.

7-1 EMS :

Items	Specification	Reference
ESD	Contact : $\pm 4KV$	IEC61000-4-2
	Non-Contact : $\pm 8KV$	
RS	Frequency : 80MHz~1.0GHz, Field Strength : 3V/M	IEC61000-4-3
EFT	1.0KV on input ac power ports.	IEC61000-4-4
SURGE	Line to line : $\pm 1KV$ (peak)	IEC61000-4-5
	Line to earth (ground) : $\pm 2KV$ (peak)	

7-2 EMI for both Conduction & Radiation : (At Resistor load)

Comply with Standards
CISPR22 ; EN55022, Class B

8. MECHANICAL CHARACTERISTICS.

8-1 Physical Size : 64mm(L) x 45mm(W) x 31mm(H)

8-2 Enclosure material : 94V-1, minimum

8-3 Output Cable : 1828.8mm UL2468#24 X 2C , with Plug : 2.1*5.5*9.5 L(音叉車溝)
Polarity : Center "+"



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8-4 Strain Relief Test :

9 Kg to the output cord for 60 seconds each , there should be no breakage of the cord or plug .

8-5 Vibration Test :

The vibration frequencies are set at 10-55-10Hz. with total amplitude of 1.5 mm along the 3 directions namely X-Y-Z. The each direction should be vibrated for 30 minutes, after testing no abnormal electrical or mechanical should occur.

8-6 Drop Test : (Referring to CSA C22.2 No.60950 / UL6950 / EN60950)

Products shall be dropped from a height of 1M onto a horizontal surface consists of hardwood at 13mm thick, mounted on two layers of plywood each 19mm to 20mm thick, all supported on a concrete or equivalent non-resilient floor.

8-7 Cord Bending Test :

The cord shall withstand a weight of 200 g, when swung from left to right at an angle of 120 deg. For testing total of 1000 times.

9. Product Warranty :

The products warrant for at least one year against defects in materials and workmanship.

10. Net Weight (Reference) : 87 ±10g

Tested By: KYL

Checked By: 

Approved By: 





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Engineering Sample Electrical Testing Data											
Customer :	869 普鈦					Date:	2008/4/18				
Part No. :	SA106C-09S					Design No. :	A106C084005-1				
Test Ambient :	25 °C										
Test Instruments :	1. Elec. Load : Chroma 63010 2. Power Meter : KIOKI 3330 3. Digitizin Osc. : LeCroy LT322										
ITEM	TEST SPEC.	Sample No.									
		1	2	3	4	5	6	7	8	9	10
At 100Vac/50Hz No loading power	≤ 0.5 Watts (Max.)	0.23	0.22	0.2	0.21	0.2					
Input Current At Full Load	250 mA (Max.)	74	74	74	74	73					
O/P DC-Voltage At Load 0 mA	7.5±5% Vdc	7.57	7.58	7.58	7.58	7.56					
O/P DC-Voltage At Load 500 mA	7.5±5% Vdc	7.40	7.42	7.41	7.41	7.40					
Ripple & Noise At full Load	≤100 mVp-p	40	40	40	40	40					
Efficiency	65% (Min.)	72	72	71	72	72					
Over Load Current	0.7 ~ 2.2	1.5	1.6	1.5	1.5	1.5					
At 240Vac/50Hz No loading power	≤ 0.5 Watts (Max.)	0.24	0.24	0.23	0.23	0.22					
Input Current At Full Load	250 mA (Max.)	40	43	42	42	41					
O/P DC-Voltage At Load 0 mA	7.5±5% Vdc	7.57	7.59	7.58	7.58	7.56					
O/P DC-Voltage At Load 500 mA	7.5±5% Vdc	7.40	7.42	7.41	7.41	7.40					
Ripple & Noise At full Load	≤100 mVp-p	40	40	40	40	40					
Efficiency	60% (Min.)	69	67	67	67	69					
Over Load Current	0.7 ~ 2.2	1.8	2.0	1.8	1.8	1.8					
Remark :	Output ripple and noise are measured by oscilloscope (20MHz bandwidth) and output in parallel with one EC 10uF/50V and one 0.1uF/50V ceramic capacitor										



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Engineering Sample Electrical Testing Data For CEC Requirement

Customer : 869 普鈦

Date: 2008/4/18

Part No. : SA106C-09S

Design No. : A106C084005-1

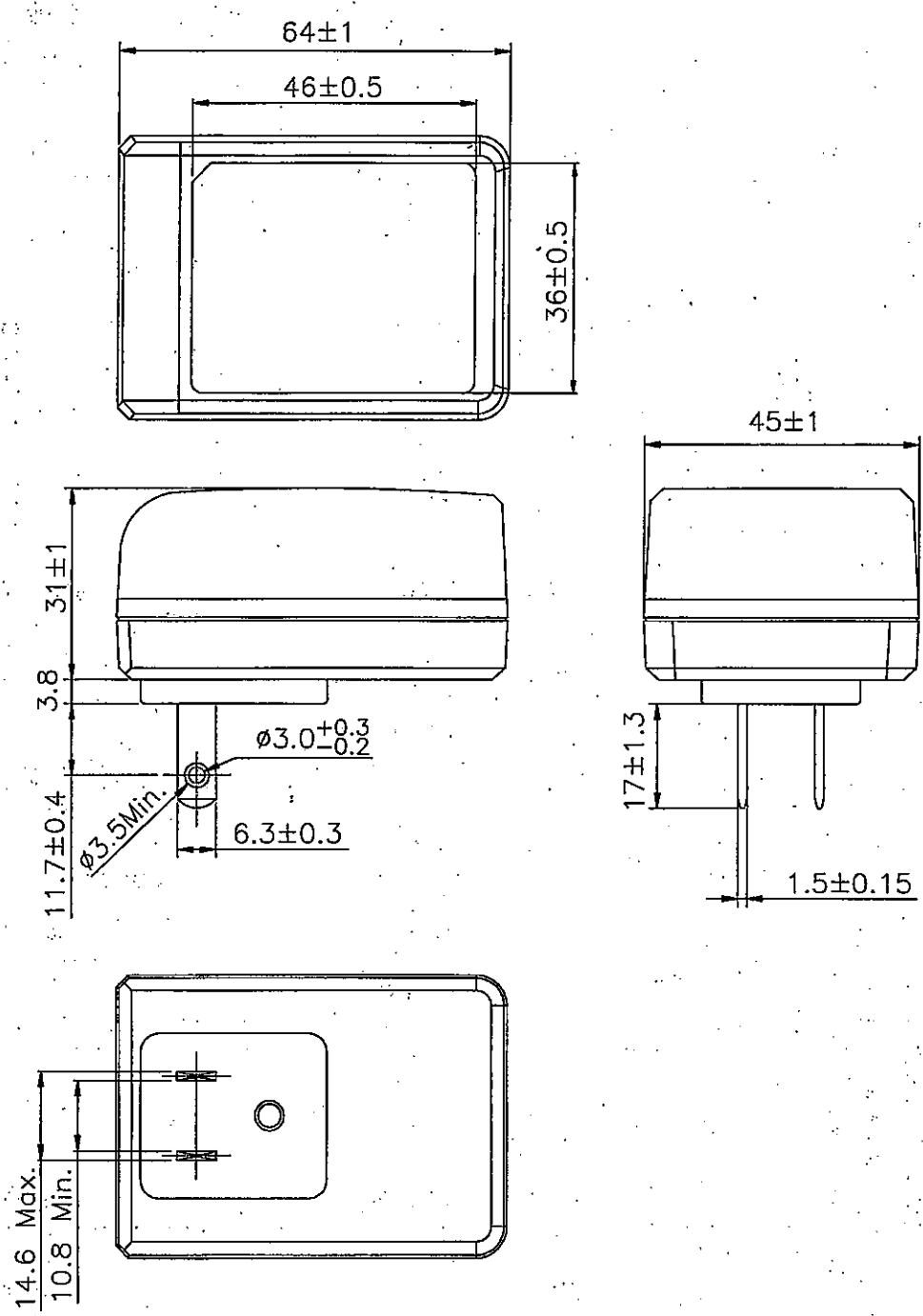
Input Voltage (V)	Frequency (Hz)	Output Voltage (V)	Output Current (A)	Output Power (W)
100~240	47~63	7.5	0.5	3.75

Input 115V / 60Hz	Output Load		Sample No.									
	(%)	(A)	1	2	3	4	5	6	7	8	9	10
Input Power (W)	0%	0.000	0.23	0.22	0.2	0.21	0.2					
	25%	0.125	1.64	1.59	1.56	1.55	1.53					
	50%	0.250	2.67	2.78	2.71	2.7	2.64					
	75%	0.375	3.86	3.82	3.84	3.84	3.81					
	100%	0.500	5.04	5.04	5.05	4.94	5.04					
Output Power (W)	25%	0.125	0.92	0.92	0.92	0.92	0.92					
	50%	0.250	1.86	1.86	1.86	1.86	1.86					
	75%	0.375	2.77	2.78	2.78	2.78	2.78					
	100%	0.500	3.68	3.69	3.69	3.68	3.69					
Efficiency (%)	25%	0.125	56.10	57.86	58.97	59.35	60.13					
	50%	0.250	69.66	66.91	68.63	68.89	70.45					
	75%	0.375	71.76	72.77	72.40	72.40	72.97					
	100%	0.500	73.02	73.21	73.07	74.49	73.21					
Average Efficiency (%)			67.6	67.7	68.3	68.8	69.2					
MAX No-Load Energy Consumption (W)	0.5	(Max.)	Pass	Pass	Pass	Pass	Pass					
MIN Average Active Mode Efficiency (%)	61.90	(Min.)	Pass	Pass	Pass	Pass	Pass					
Input 230V / 50Hz	Output Load		Sample No.									
	(%)	(A)	1	2	3	4	5	6	7	8	9	10
Input Power (W)	0%	0.000	0.24	0.24	0.23	0.23	0.22					
	25%	0.125	1.68	1.7	1.69	1.64	1.64					
	50%	0.250	2.85	2.9	2.94	2.94	2.9					
	75%	0.375	4.01	4.01	3.97	3.94	3.94					
	100%	0.500	5.08	5.27	5.23	5.08	5.2					
Output Power (W)	25%	0.125	0.92	0.92	0.92	0.92	0.92					
	50%	0.250	1.86	1.86	1.86	1.86	1.86					
	75%	0.375	2.77	2.78	2.78	2.77	2.78					
	100%	0.500	3.68	3.69	3.69	3.68	3.69					
Efficiency (%)	25%	0.125	54.76	54.12	54.44	56.10	56.10					
	50%	0.250	65.26	64.14	63.27	63.27	64.14					
	75%	0.375	69.08	69.33	70.03	70.30	70.56					
	100%	0.500	72.44	70.02	70.55	72.44	70.96					
Average Efficiency (%)			65.4	64.4	64.6	65.5	65.4					
MAX No-Load Energy Consumption (W)	0.5	(Max.)	Pass	Pass	Pass	Pass	Pass					
MIN Average Active Mode Efficiency (%)	61.90	(Min.)	Pass	Pass	Pass	Pass	Pass					
CEC Requirement : Standards for Power Supplies Effective Jan. 1,2008 (Efficiency Level : IV)												
Proposed Energy-Efficiency Criteria for Active Mode						Proposed Energy Consumption Criteria for No Load						
Output Power (Po)	Minimum Average Efficiency					Output Power (Po)	Maximum Power in No-Load					
0 to ≤ 1 watt	≥ 0.5 * Po					Any Output	≤ 0.5 watts					
> 1 to ≤ 51 watts	≥ [0.09 * ln (Po)] + 0.5											
> 51 watts	≥ 0.85											

Tested By: _____ Checked By: _____ Approved By: _____ QA By: _____

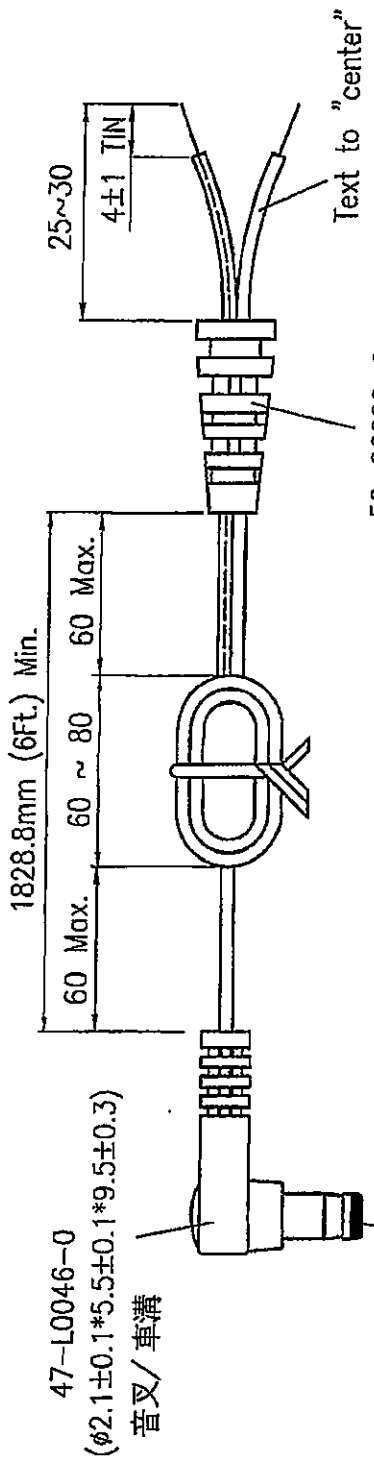


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SA106C-09S

UNIT:mm

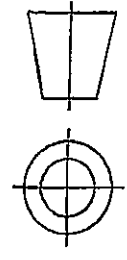


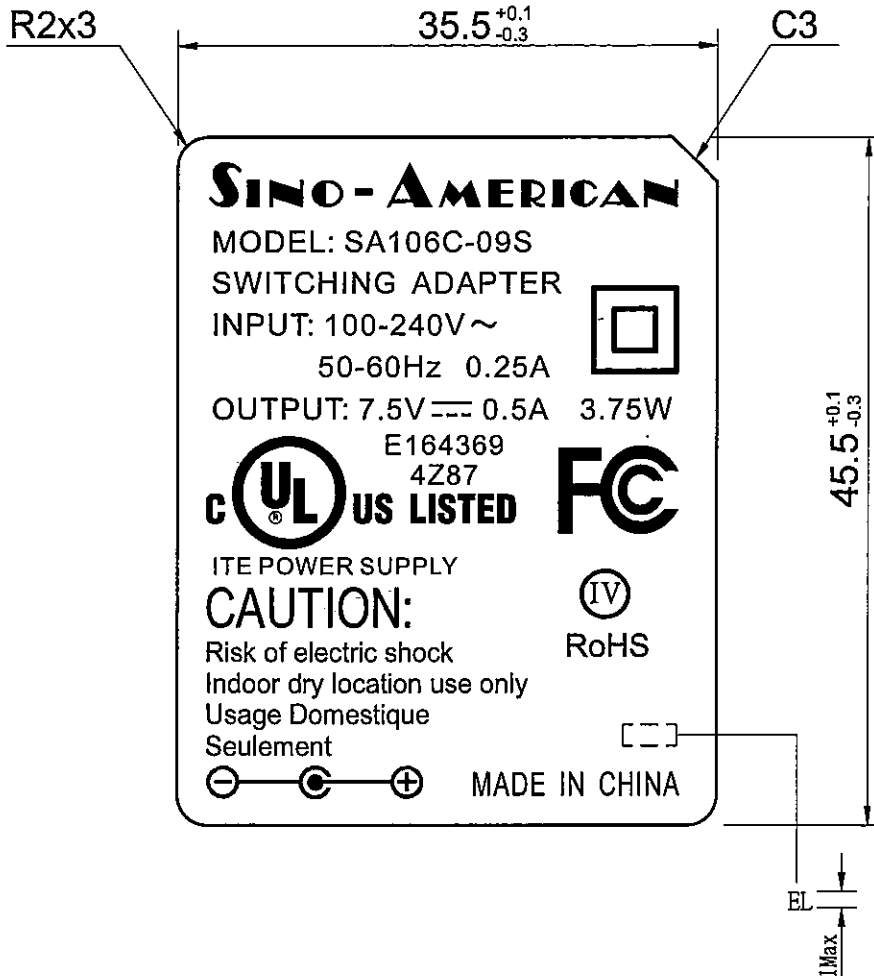
低鉛，鍺請依華美標準製作

The Lead/Cadmium content must be comply with regulation of SAC

REV.	DESCRIPTION				DWG. NAME	DC CORD
DRAWER	DESIGN	CHECK	APPROVED	DIMENSION TOLERANCE	MODEL	
Patrick	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	0 ~ 5 ±0.1 5 ~ 60 ±0.2 60 ~ 200 ±0.3 200 ~ 350 ±0.6	MATERIAL	P.V.C
				Q'TY	TREATMENT	
				UNIT	DWG. NO.	S89-L046-002%
				SCALE		
				ORIG. DATE		
				MANUFACTORY		
				DATE REVISER		
				2007.09.28		

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Wording " RoHS" is added per customer's request
 ("RoHS" 字眼是客户要求標上)

■ 使用中		□ 未使用	
安規	証書	期限	
■ FCC	FV950705H02		

製造商請在實物上自行標上自己UL的代號

We ask the manufacturers please mark your own code on the labels.

例:

Example:

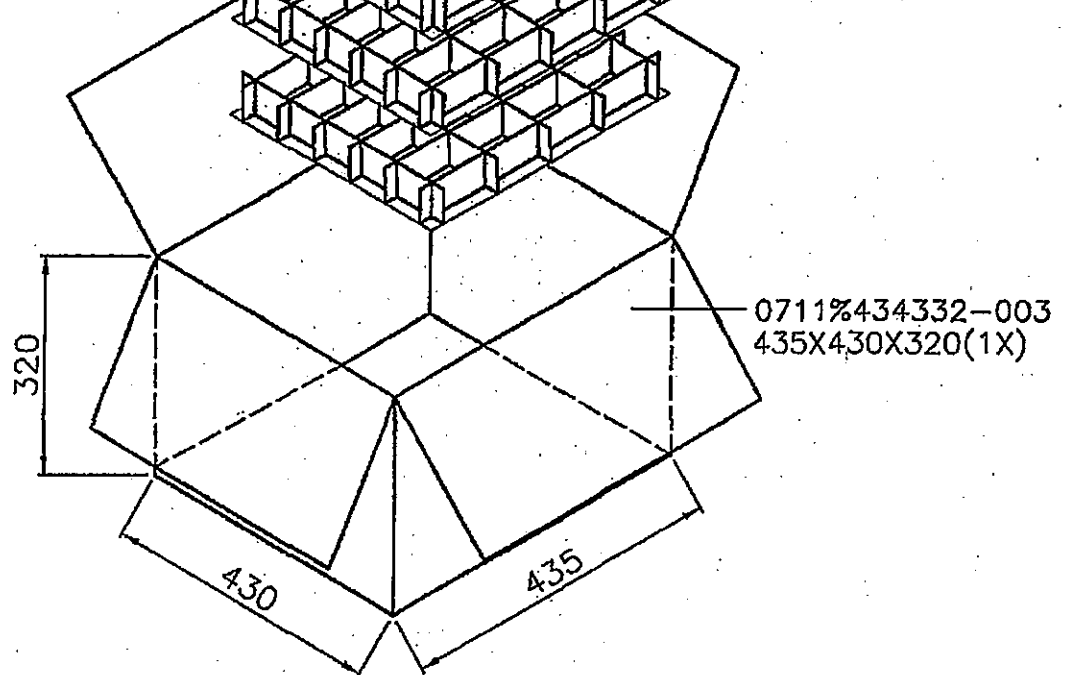
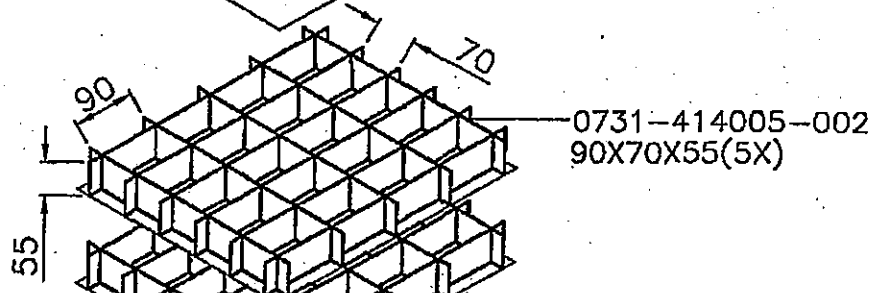
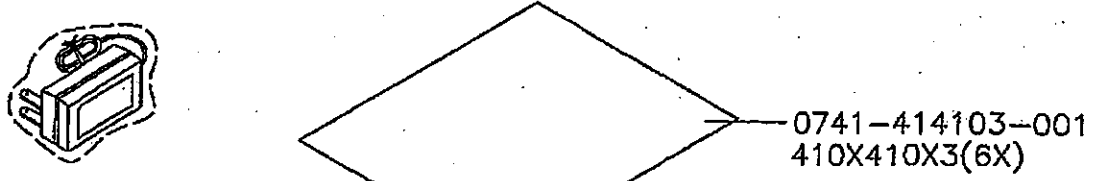
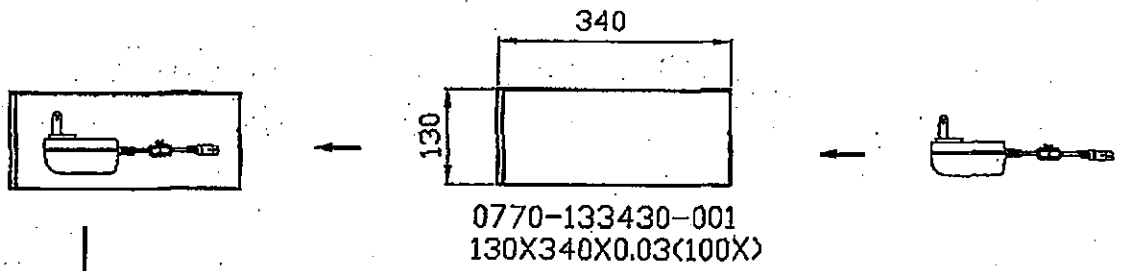
台灣廠 易信行:MF 大陸廠 藝林:EL
 TAIWAN 長濱:JPP CHINA
 高綺:GG

SILVER/BLACK BASE FOG SIDE
 (黑底銀字) (霧面)

福永/蘇州量產 (Assembly in ShenZhen/SuZhou)

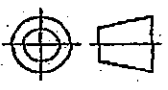
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角	✓
顏	✓
標	✓
種	✓
安	
入	✓
出	✓
極	✓
地	✓
商	✓
材	✓
號	✓

DESCRIPTION		-1	與-0 拿掉PSE安規				CL. OR. NO.	869
DRAWER	DESIGN	CHECK	APPROVED	DWG. NAME	NAME PLATE	MATERIAL	POLYESTER 0.25t	
Tsai		97.4.15 建杉		TOLERANCE	+0.1,-0.3	MODEL	SA106C-09S	
				SCALE	2/1	DWG. NO.	62-61417-1	
				DATE	2008.04.15			
				MFR.				
UNIT : mm								



SA105A-XXXX-T
SA106A-XXXX-6
SA110C-XXS

				SINO-AMERICAN ELECTRONIC CO., LTD.			
DRAWER	DESIGN	CHECK	APPROVED	UNIT	mm	DWG. NAME	PACKAGE
Patrick	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i> 95.9.13	Q'TY	100 PCS	DATE	7.12.2006
				N.W		MODEL	
				G.W		CTN ASS'Y	07%434332-01007



COVER PAGE FOR TEST REPORT

Product Category:	Power Supplies for Information Technology Equipment Including Electrical Business Equipment
Product Category CCN:	QQGQ, QQGQ7
Test Procedure:	Listing
Product:	Direct Plug-in Switching Adapter
Model/Type Reference:	SA106C-XXZ, where XX can be 05, 09 or 12, Z can be S or blank.
Rating(s):	Input: 100-240 Vac, 50-60 Hz, 0.25 A Output: Model SA106C-05Z: 4-7 Vdc, 0-1.2 A, 6 W Model SA106C-09Z: 7-11 Vdc, 0-0.7 A, 6.3 W Model SA106C-12Z: 10-14 Vdc, 0-0.5 A, 6 W
Standards:	UL 60950-1:2003, First Edition CSA C22.2 No. 60950-1-03 1st Ed. April 1, 2003
Applicant Name and Address:	SINO-AMERICAN ELECTRONIC CO LTD 305 YU LIN RD HSI LIN VILLAGE CHIAO TOU HSIANG KAOHSIUNG HSIEN 825 TAIWAN
This Report includes the following parts, in addition to this cover page:	
<ol style="list-style-type: none">1. Specific Inspection Criteria2. Specific Technical Criteria3. Clause Verdicts4. Critical Components5. Test Results6. National Differences7. Enclosures	

Issue Date: 2006-08-01

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Report Reference #

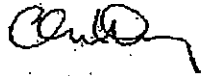
E164369-A24-UL-1

This is to certify that representative samples of the products covered by this Test Report have been investigated in accordance with the above referenced Standards. The products have been found to comply with the requirements covering the category and the products are judged to be eligible for Follow-Up Service under the indicated Test Procedure. The manufacturer is authorized to use the UL Mark on such products which comply with this Test Report and any other applicable requirements of Underwriters Laboratories Inc. ('UL') in accordance with the Follow-Up Service Agreement. Only those products which properly bear the UL Mark are considered as being covered by UL's Follow-Up Service under the indicated Test Procedure.

The applicant is authorized to reproduce the referenced Test Report provided it is reproduced in its entirety.

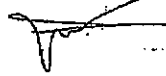
Any information and documentation provided to you involving UL Mark services are provided on behalf of Underwriters Laboratories Inc.

Test Report By:



Glenn Wang
Project Engineer
Underwriters' Laboratories of Canada

Reviewed By:



Joseph Petilla
Engineering Team Leader
Underwriters' Laboratories of Canada

CERTIFICATE OF CONFORMITY

Equipment: Switching adapter
Brand Name: Sino-American, SAC, SA, sAc
Test Model No.: SA106C-12GS, SA106C-12S, SA106C-12G
Multiple Listing: SA106C-XXYZ
Applicant: SINO-AMERICAN ELECTRONIC CO., LTD.
Test Report No.: FV950705H02



We, **Advance Data Technology Corp.** declare that the equipment above has been tested in our facility and found compliance with the requirement limits of applicable standards. The test record, data evaluation and Equipment Under Test (EUT) configurations represented herein are true and accurate under the standards herein specified.

FCC Part 15: 2005, Subpart B, Class B

(section 15.31, 15.107 and 15.109)

ICES-003: 2004, Class B (section 4 and 5)

ANSI C63.4-2003 (section 7 and 8)



May Chen / Deputy Manager Hsinchu EMC / RF Lab. ADT CORP.



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<http://www.adt.com.tw> E-Mail: service@adt.com.tw