



Customer Design Service Report

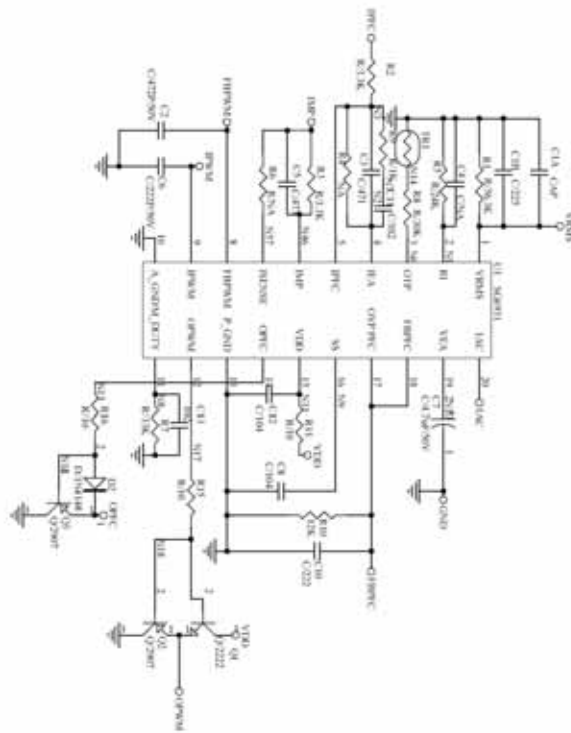
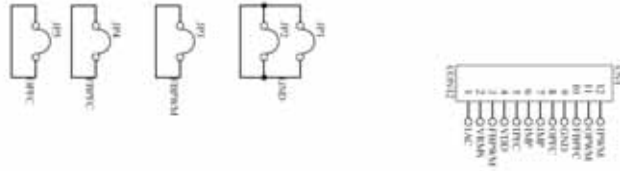
Title	SG6841+SG6931+SG6515
Application	LCD TV
Date	04-28-2006

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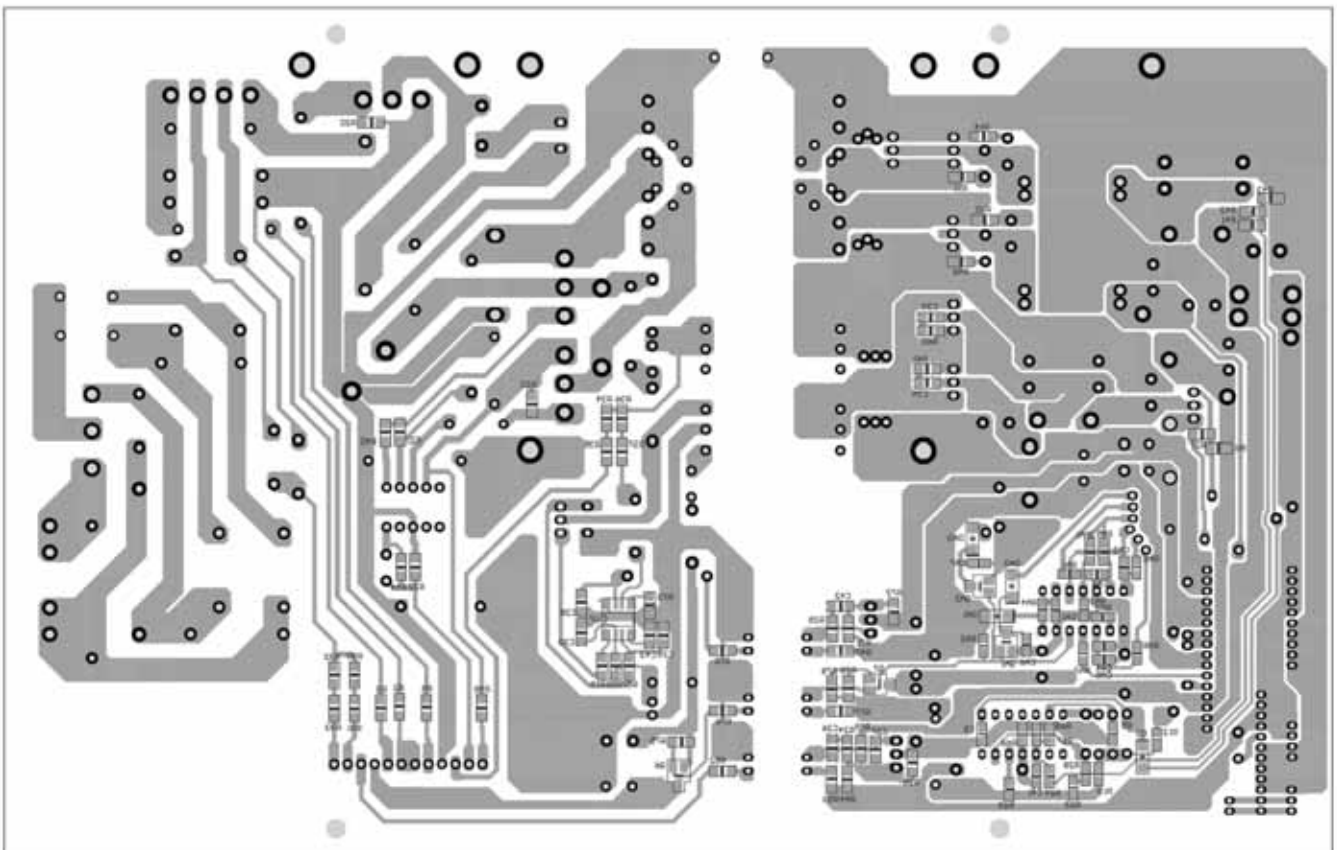
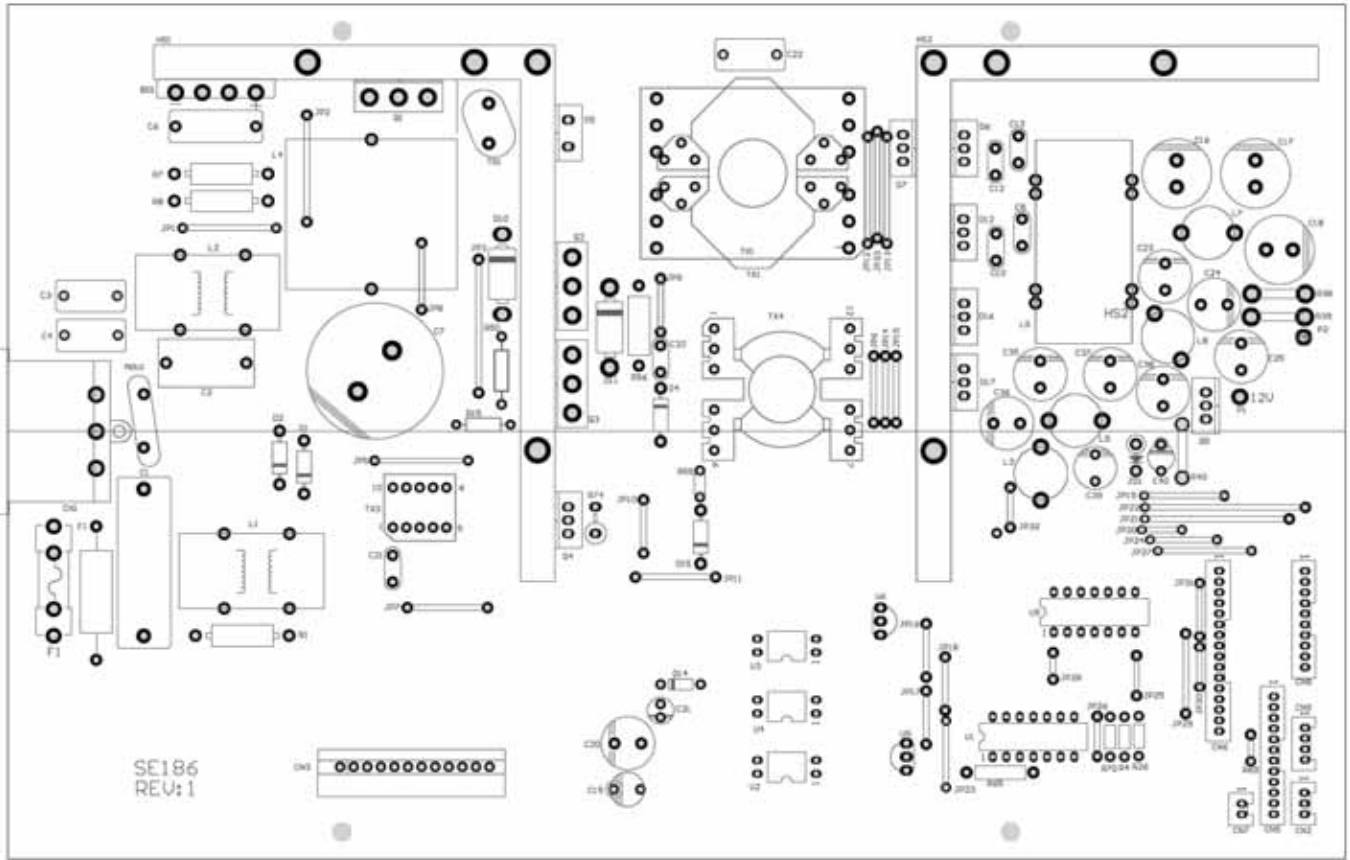
A. General Spec.

Input voltage.....	90Vac~264Vac
Output voltage/current.....	24V/8A ; 12V/7A ; 5V/7A ; 5Vsb/8A
Efficiency.....	80% at full load and 100Vac
Green mode.....	<1W at 0.4W load
Over load protection.....	Latch Off
Short circuit protection.....	Latch Off



Rev. Description	DATE	BY	CHKD	1 of 1	Approved By
0	INITIAL	3/17/2006	SC-UE		Richard Liu
			SYSTEM GENERAL		
			Doc. No.		IC 8091
			Prepared By		Richard Liu
			Developed By		Ston

C. PCB Layout



D. BOM
MainBoard :

Designator	Part	Designator	Part	Designator	Part
C2	0.33UF	C23	1000uF/25V	C38	C/1000uF/10V
RA3	1.5K	C25	1000uF/25V	CN7	CON2
L3	1.5uH	C17	1000uF/35V	CN2	CON3
R79	1K	C18	1000uF/35V	CN1	CON3
R78	1K	C16	1000uF/35V	CN9	CON4
R19	1N4148	Q6	2907	CN8	CON10A
DA2	1N4148	Q7	2907	CN5	CON12
QA1	2N7002	BD1	BD/6A/600V	CN3	CON12
F1	7A/250V	L7	Bar choke/2.8uH	CN6	CON16
L1	9mH	L9	Bar choke/2.8uH	L5	CS270060
L2	9mH	C1	C/0.68uF/X2	D14	D/1N4148
R45	10	C6	C/1uF/630V	DA1	D/1N4148
RA1	10K	C31	C/4.7uF/50V	D5	D/BYC8-600
RA2	10K	C19	C/10uF/50V	D15	D/FR103
R60	10R/1206	CA1	C/47uF/50V	D1	D/FR107
R61	10R/1206	C29	C/102	D4	D/FR107
C40	10uF/10V	C28	C/102	D2	D/FR107
P1	12V	C42	C/103	D10	D/MUR460
TR1	14D/2R	C26	C/103	D11	D/MUR460
P2	24V	C32	C/103P/1KV	TX3	EI 12.5
C43	47	C30	C/104	HS2	HS2
C34	102/100V	C21	C/104	HS1	HS2
C33	102/100V	C7	C/180uF/450V	Q1	IRFP460A
C4	222/Y2	C20	C/220uF/50V	Q5	IRL7833
C3	222/Y2	CA4	C/225	R59	L/6.8uF
C10	391/500V	CA2	C/225	L4	MPP*2/850uH
C8	391/500V	CA3	C/225	U3	PC-817
MOV1	471/14D	CA5	C/225	U4	PC-817
C24	1000uF/25V	C12	C/391/500V	U2	PC-817
C39	C/470uF/10V	C13	C/391/500V	TX4	PQ2620
C22	C/472/Y1	C35	C/1000uF/10V	R7	R/0.2R/2W
C36	C/1000uF/10V	R8	R/0.2R/2W	R50	R/0.22OHM/2W
C37	C/1000uF/10V	R74	R/0.3ohm 1W	R77	R/1K 0805
R76	R/1K 0805	R22	R/10K	R49	R/470

RA7	R/1K	R27	R/10K	R33	R/750K
R2	R/1K	R71	R/20K	R34	R/750K
R24	R/1K	R72	R/20K	R32	R/750K
R3	R/1K	R73	R/27K	R35	R/750K
R29	R/1K	RA9	R/30K	R36	R/750K
R6	R/1K	R75	R/33K 0805	R37	R/750K
R1	R/1M/1W	R18	R/47	R69	RES1
R30	R/2.4M	R11	R/47	TX1	RM-14
R31	R/2.4M	R14	R/47	D16	SB1660F
R58	R/4.7	R52	R/47	D17	SBL1660F
R53	R/4.7K	R10	R/47	D12	SBL3060CT
RA4	R/10	R46	R/47	U9	SG6515
R15	R/10	R57	R/100	U7	SG6841
R9	R/10	R56	R/100K//100K/2W	Q4	SK2843
R19	R/10	R54	R/120K	U6	TL431
R20	R/10K	RA8	R/180	U5	TL431
R23	R/10K	RA6	R/220	ZD1	TVS/6.2V
R21	R/10K	R55	R/240K	Q3	W20NM50
R25	R/10K	R48	R/470	Q2	W20NM50
D7	YG865C15	R40	錳銅線	R39	錳銅線
D6	YG865C15	L8	錳銅線	R38	錳銅線

6931 :

Designator	Part	Designator	Part	Designator	Part
R10	12K	C1B	C/225	Q2	Q/2907
C13	102	C3	C/471	R9	R/1K
C7	C/4.7uF/50V	C2	C/472P/50V	R2	R/3.3K
C11	C/102	C5	C/473	R3	R/3.3K
C12	C/104	CN1	CON12	R15	R/10
C8	C/104	D2	D/1N4148	R11	R/10
C10	C/222	Q1	Q/2222	R16	R/10
C6	C/222P/50V	Q3	Q/2907	R5	R/24K
R8	R/30K	R7	R/33K	R1	R/56.3K
U1	SG6931				

E. Function Check Report

Test Model	LCD TV 320W	S/N : XXX
Test Date:	4.28.2006	
Test Temperature	Ambient	
Test Equipment	AC Source: EXTECH 6220 Electronic Load: Chroma 63030 Multimeter: IDRC CP660 Oscilloscope: Tektronix TDS3032	
	1 Inrush Current:	
	2 Over current protection:	
	3 Input Wattage at Stand-by:	
	4 Line Regulation & Load Regulation:	
	5 Current Harmonic test:	
	6 Efficiency:	
	7 Ripple & noise:	
	8 DC output rise time:	
	9 Over shoot & Under Shoot:	
	10 Hold up time:	
	11 Short circuit protection:	
	12 Brown out test:	
	13 AC Trim up & Trim down:	
Note		

Inrush Current:
Test Condition:

Measure the startup input current waveform at maximum loading

Test Result:

<i>Input Voltage</i>	<i>Inrush Current</i>	<i>Test Specifications</i>
115V/60Hz	10.4A	
230V/50Hz	23A	

Over current protection:
Test Result:

<i>Input Voltage</i>	<i>24V</i>	<i>12V</i>	<i>5V</i>	<i>Test Condition</i>
115V/47Hz	12.5A	9.1A	8.6A	
230V/63Hz	12.7A	9.1A	8.4A	

Input Wattage at Stand-by:
Test Condition:

The input wattage should be less than 1W at standby mode with 0.4W loading
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Test Result:

<i>Input Voltage</i>	<i>Input Power</i>	<i>Stability</i>	<i>Test Specifications</i>
120V/60Hz	0.715W	5.02V	<1W
230V/50Hz	0.98W	5.02V	
240V/50Hz	1W	5.02V	

Line Regulation & Load Regulation:
Test Condition:

Line regulation: 1% Max. Load regulation: 5% Max.
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Test Result:

<i>Input Voltage</i>	<i>20% Load</i>				<i>100% Load</i>			
	<i>24V</i>	<i>12V</i>	<i>5V</i>	<i>5Vsb</i>	<i>24V</i>	<i>12V</i>	<i>5V</i>	<i>5Vsb</i>
115V/60Hz	24.83	12.25	5.00	5.02	24.54	11.73	4.91	5.00
230V/50Hz	24.82	12.25	5.00	5.02	24.53	11.73	4.91	5.00
<i>Line Regulation</i>	0.04%	0%	0%	0%	0.04%	0%	0%	0%
<i>Load Regulation</i>	<i>24V</i>		<i>12V</i>		<i>5V</i>		<i>5Vsb</i>	
	1.16%		4.3%		1.8%		0.4%	

Current Harmonic test:
Test Condition:

Measure input current power factor (PF) and total harmonic distortion (THD) at various line and output loading
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Test Result:

Input Voltage		PF	THD (%)	Test Specifications
120V/60Hz	75W. Load	0.94	7.5	
	Max. Load	0.99	4.13	
230V/50Hz	75W Load	0.86	12.2	
	Max. Load	0.99	4.04	

Efficiency:
Test Condition:

Measure efficiency at Min., Mid. and Max. loading

Test Result

Input	20% Load	50% Load	100% load
90V/60Hz	Pin : 80.15W Pout : 66.14W Eff : 82.53%	Pin : 192.6W Pout : 165W Eff : 85.66%	Pin : 393.9W Pout : 329.5W Eff : 83.65%
100V/60Hz	Pin : 79.68W Pout : 66.14W Eff : 83.0%	Pin : 191.1W Pout : 165W Eff : 86.3%	Pin : 389.0W Pout : 329.5W Eff : 84.7%
230V/50Hz	Pin : 77.6W Pout : 66.14W Eff : 85.23%	Pin : 185.3W Pout : 165W Eff : 89.04%	Pin : 371.4W Pout : 329.5W Eff : 88.81%

Ripple & noise:
Test Condition:

Tested by DC loading side parallel with a 10uF/EC and 0.1uF/CC capacitor and Measured Band-width with DC-20MHz
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Test Result:

Input Voltage	Max. Load				Test Spec.(mV)		
	24V	12V	5V	5VSB	24V	12V	5V
90V/60Hz	85	115	70	55	240	120	50
115V/60Hz	65	113	70	53			
230V/50Hz	65	110	65	49			

DC output rise time:
Test Condition:

Load: Max. load & Min. load DC Output rise time: 20mS max.

Test Result:

Input Voltage	Max. Load			
	24V	12V	5V	5VSB
120V/60Hz	14.6mS	13.82mS	4.85mS	0.9mS
230V/50Hz	14.37mS	14.08mS	4.78mS	1mS

Over shoot & Under Shoot:
Test Condition:

Less than 5% of nominal voltage value Load: Max. load
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Test Result:

Input Voltage	Over Shoot			Under Shoot		
	24V	12V	5V	24V	12V	5V
230V/50Hz Max load	0mV	0mV	0mV	0mV	0mV	0mV
230V/50Hz Min load	0mV	0mV	0mV	0mV	0mV	0mV

Short circuit protection:
Test Condition:

In case of short circuit on any DC output, the power supply should be protected without damage.

Test Result:

Input Voltage	24V	12V	5V	5VSB	Test Condition
90V/47Hz	PASS	PASS	PASS	PASS	
264V/63Hz	PASS	PASS	PASS	PASS	

Brown out test:
Test Condition:

Decrease input AC voltage gradually and measure the turn-off threshold. After DC power off, increase input voltage and measure the recovery threshold.

Test Result:

<i>Turn off Voltage</i>		<i>Turn on voltage</i>		<i>Test Spec.</i>
<i>Max. Load</i>	<i>Min. load</i>	<i>Max. Load</i>	<i>Min. load</i>	
77V	75V	85V	85V	

AC Trim up & Trim down:
Test Condition:

Switch the input voltage from 120V to 240V or from 240V to 120V, the output voltages should be normal and the output of PFC bus should be less than 450V.

Test Result:

<i>Input Voltage</i>	<i>Max. Load</i>	<i>Min. Load</i>	<i>Test Condition</i>
120V→240V	PASS	PASS	
240V→120V	PASS	PASS	