

# Quality Engineering Test Report

**SERIES: SP-100 100 WATTS SIGLE OUTPUT SWITCHING POWER SUPPLY**

**SAMPLE: A.SP-100-3.3 3.3V / 20A D.SP-100-12 12V /8.5A G.SP-100-24 24V /4.2A**  
**B.SP-100-5 5V /20A E.SP-100-13.5 13.5V /7.5A H.SP-100-27 27V /3.8A**  
**C.SP-100-7.5 7.5V /13.5A F.SP-100-15 15V /6.7A I.SP-100-48 48V /2.1A**

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
1	AC INPUT VOLTAGE RANGE	I/P:TESTING SPEC:85~264VAC O/P:FULL LOAD	F : 54V~267VAC	P
2	LINE REGULATION	I/P:85~264VAC SPEC: O/P:FULL LOAD A: ±0.5% B: ±0.5% C:±0.5% D: ±0.5% E: ±0.5% G:±0.5% H: ±0.5% I: ±0.5%	A: 0.18% ~ 0.18% B: -0.36% ~ 0.36% C: 0% ~ 0% D: 0% ~ 0% E: 0% ~ 0% F: 0% ~ 0% G: 0% ~ 0.02% H: 0% ~ 0% I: -0.01% ~ -0.01%	P
3	LOAD REGULATION	I/P:230VAC SPEC: O/P:0% LOAD TO FULL LOAD A: ±1% B: ±1% C: ±1% D: ±0.5% E: ±0.5% F: ±0.5% G: ±0.5% H: ±0.5% I: ±0.5%	A: 0.35% ~ 0.17% B: -0.12% ~ 0.12% C: -0.24% ~ 0.16% D: -0.04 % ~ 0% E: 0% ~ 0.042% F: -0.07% ~ 0.07% G: 0% ~ 0.020% H: 0.06% ~ -0.04% I: 0% ~ 0.024%	P
4	OUTPUT VOLTAGE TOLERANCE	I/P:85~264VAC SPEC: O/P:0% LOAD TO FULL LOAD A: ±2% B: ±2% C: ±2% D: ±2% E: ±2% F: ±2% G: ±1% H: ±1% I: ±1%	A: -1.19% ~ 0% B: 1% ~ 1.3% C: -0.4% ~ 0.07% D: 0% ~ -0.05% E: 0.50% ~ 0.45% F: 0.10% ~ 0.74% G: 0.70% ~ 0.75% H: 0.67% ~ 0.6% I: 0.46% ~ 0.41%	P
5	RIPPLE & NOISE	I/P:230VAC SPEC: O/P: FULL LOAD A:100mV B:100mV C:100mV D:100mV E:100mV F:100mV G :150mV H:150mV I:250mV	A: 37mV B: 92mV C: 76mV D: 52mV E: 65mV F: 58mV G: 66mV H: 50mV I: 87mV	P
6	AC INPUT CURRENT	I/P:230VAC SPEC: 0.75A(3.3v:0.06A) O/P:FULL LOAD	F:0.55A	P
7	MAX. INRUSH CURRENT	I/P:230VAC SPEC: 40A O/P:FULL LOAD	F:14.8A	P

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
8	O/P VOLTAGE ADJ.RANGE	I/P:230VAC O/P:MIN. LOAD SPEC: +10%~-5% A:3.1V~3.6V B:4.7V~5.5V C:7.12V~8.25V D:11.4V~13.2V E:12.8 V~14.8V F:14.2V~16.5V G:22.8V~26.4V H:25.6V~29.7V I:45.6V~52.8V	A:3.08V~3.8V B:4.39V~5.54V C:6.33V~9.06V D:10.1V~13.6V E:11.55V~14.89V F:12.79V~17.63V G:19.6V~27.4V H:20.15V~30.09V I:40V~54.3V	P
9	SET UP TIME	I/P:230VAC O/P:FULL LOAD SPEC:600ms	F:56mS	P
10	HOLD UP TIME	I/P:230VAC O/P:FULL LOAD SPEC:20mS	F:34mS	P
11	EFFICIENCY	I/P:230VAC O/P: FULL LOAD SPEC: A:70% B:76% C:78% D:80% E:80% F:82% G:84% H:83% I:82	A: 70.20% B: 78.01% C: 78.76% D: 83.05% E: 83.64% F: 81.37% G: 86.20% H: 87.07% I: 87.13%	P
12	OVER LOAD PROTECTION	I/P:230VAC O/P:TESTING SPEC:105%~150%	A: 130% B: 112% C: 130% D: 122% E: 118% F: 148% G: 124% H: 128% I: 133%	P
13	OVER VOLTAGE PROTECTION	I/P:230VAC O/P: TESTING SPEC:110%~135% A3.63~4.45 V B:5.5~6.75V C:8.25~10.12V D:13.2~16.2V E:14.8~18.2V F:16.5~20.2V G:26.4~32.4V H:29.7~36.4V I:52.8~64.8V	A: 4.2V B: 5.79V C: 9.3V D: 14.3V E: 15.8V F: 19.0V G: 29.1V H: 31.8V I: 56.8V	P
14	GROUND LEAKAGE CURRENT	I/P:240VAC SPEC: L-FG--<2mA N-FG--<2mA	A: L-FG:0.6mA N-FG:0.48mA	P
15	GROUNDING CONTINUITY	SPEC: FG--CHASSIS<0.1Ohms/2min	A: 52mOhms	P
16	INSULATION RESISTANCE	SPEC: O/P-FG 500VDC / 100MOhms MIN. I/P-O/P 500VDC / 100MOhms MIN. I/P-FG 500VDC / 100MOhms MIN.	A: O/P-FG >100MOhms I/P-O/P >100MOhms I/P-FG >100MOhms	P

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17	DIELECTRIC / WITHSTAND VOLTAGE	SPEC : I/P- O/P: 3000VAC/ 60 sec (10mA CUT-OFF) I/P - FG: 1500VAC/ 60 sec (10mA CUT-OFF) O/P - FG: 500VAC/60sec (10mA CUT-OFF)	:F I/P-O/P : 4.00mA I/P-FG : 3.38mA O/P- FG : 3.56mA	P																																																												
18	BURN-IN TEST	I/P: 230VAC O/P:FULL LOAD with cooling FAN TA:26.7°C BURN-IN DURATION : 13.5 hrs	B: NON BREAK	P																																																												
19	ENVIRONMENT TEST	1.LOW TEMPERATURE TEST I/P : 230 VAC O/P : 80% LOAD AMBIENT TEMPERATURE : -10.1°C	B : AFTER 2 hrs POWER ON OK	P																																																												
		2.HIGH AMBIENT TEMPERATURE TEST I/P : 230VAC O/P: FULL LOAD TEMPERATURE : 40.3°C with cooling FAN	B : AFTER 2.5hrs NON BREAK																																																													
		3.HIGH HUMIDITY HIGH VOLTAGE ON/OFF TEST I/P : 272VAC O/P : FULL LOAD AMBIENT TEMPERATURE : 25°C AMBIENT HUMIDITY : 95%	I : AFTER 14.5 hrs POWER ON/OFF NON BREAK																																																													
20	TEMPERATURE RISE TEST Trise OF PARTS	B: I/P : 230VAC AFTER 13 hrs BURN-IN O/P : FULL LOAD TA : 26.2°C	<table border="1"> <thead> <tr> <th></th> <th>POSITION</th> <th>P/N</th> <th>TEMP</th> <th>Trise</th> </tr> </thead> <tbody> <tr> <td></td> <td>BD1</td> <td>BRIDGE DIODE</td> <td>51.5°C</td> <td>25.3°C</td> </tr> <tr> <td></td> <td>Q2</td> <td>MAIN TRANSISTOR</td> <td>60.0°C</td> <td>33.8°C</td> </tr> <tr> <td></td> <td>Q1</td> <td>PFC TRANSISTOR</td> <td>43.9°C</td> <td>17.7°C</td> </tr> <tr> <td></td> <td>T1</td> <td>MAIN TRANSFORMER COIL</td> <td>60.5°C</td> <td>34.3°C</td> </tr> <tr> <td></td> <td>T1</td> <td>MAIN TRANSFORMER CORE</td> <td>65.9°C</td> <td>39.7°C</td> </tr> <tr> <td></td> <td>D19</td> <td>O/P DIODE</td> <td>61.9°C</td> <td>35.7°C</td> </tr> <tr> <td></td> <td>C42</td> <td>O/P FILTER CAPACITOR</td> <td>60.3°C</td> <td>34.1°C</td> </tr> <tr> <td></td> <td>L2</td> <td>O/P CHOCK</td> <td>76.8°C</td> <td>50.6°C</td> </tr> <tr> <td></td> <td>C5</td> <td>I/P FILTER CAPACITOR</td> <td>43.6°C</td> <td>17.4°C</td> </tr> <tr> <td></td> <td>LF1</td> <td>LINE FILTER COIL</td> <td>42.1°C</td> <td>15.9°C</td> </tr> <tr> <td></td> <td>D2</td> <td>PFC DIODE</td> <td>36.9°C</td> <td>10.7°C</td> </tr> </tbody> </table>		POSITION	P/N	TEMP	Trise		BD1	BRIDGE DIODE	51.5°C	25.3°C		Q2	MAIN TRANSISTOR	60.0°C	33.8°C		Q1	PFC TRANSISTOR	43.9°C	17.7°C		T1	MAIN TRANSFORMER COIL	60.5°C	34.3°C		T1	MAIN TRANSFORMER CORE	65.9°C	39.7°C		D19	O/P DIODE	61.9°C	35.7°C		C42	O/P FILTER CAPACITOR	60.3°C	34.1°C		L2	O/P CHOCK	76.8°C	50.6°C		C5	I/P FILTER CAPACITOR	43.6°C	17.4°C		LF1	LINE FILTER COIL	42.1°C	15.9°C		D2	PFC DIODE	36.9°C	10.7°C	P
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21	LIFE CYCLE	SUPPOSE C42 IS THE MOST CRITICAL COMPONENT I/P : 230VAC O/P : FULL LOAD Ta : 25°C Tc42 : 59.1°C Life:143581hrs I/P : 230VAC O/P : FULL LOAD Ta : 40°C Tc42 : 72.2°C Life:57909hrs		P																																																												
22	CRITICAL COMPONENT RECORD ( FOR QC INSPECTION REFERENCE ONLY )	B : FUSE :4A/250V GFE/GMA BRIDGE DIODE : D3SB60 4A/800V GL LINE FILTER :TF-479 ET-24 10mH TRANSFOMER :TF-594 EI-33 OUTPUT DIODE :CTB34M 30A/40V ESAD83004 OUTPUT CAPACITOR :N.C.C 2200uF/10V 105°C RJH INPUT CAPACITOR :HITACHI 100uF/400V,85°C HP3/USC P.C.B :SP-100 CEM-3 20Z SS																																																														

DATE	SAMPLE	TEST RESULT	TEST	APPROVAL
19990904	RD SAMPLE	PASS	H.C.LIOU	Max Lin
19991014	PRODUCTION SAMPLE 3.3V,5V,7.5V 12V,13.5V,15V 24V,27V,48V	PASS	C.C.CHEN	Max Lin
20000619	PRODUCTION SAMPLE A006B09 3.3V,7.5V	PASS	VINCENT	Max Lin
20000828	PRODUCTION SAMPLE A008C04 12V	PASS	VINCENT	Max Lin
20020103	PRODUCTION SAMPLE A112D23 13.5V	PASS	VINCENT	Max Lin

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