

# Quality Engineering Test Report

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

**SAMPLE: A.LPP-100-3.3 3.3V / 20A      D.LPP-100-12 12V /8.5A      G.LPP-100-24 24V /4.2A**

**B.LPP-100-5 5V /20A      E.LPP-100-13.5 13.5V /7.5A      H.LPP-100-27 27V /3.8A**

**C.LPP-100-7.5 7.5V/13.5A      F.LPP-100-15 15V /6.7A      I.LPP-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	G: 62V-264VAC	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% F: ±0.5% G:±0.5% H: ±0.5% I: ±0.5%	A: 0.00% - 0.00% B: 0.00% - 0.00% C: 0.00% - 0.00% D: 0.00% - 0.049% E: 0.00% - 0.00% F: 0.00% - 0.00% G: 0.00% - 0.00% H: 0.00% - 0.00% I: 0.00% - 0.03.%	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: 0.18% - 0.00% B: 0.00% - 0.00% C: 0.00% - 0.00% D: -0.099% - 0.107% E: -0.04% - 0.04% F: 0.03% - 0.08% G: +0.00% - +0.00% H: 0.00% - 0.02% I: 0.012% - 0.02%	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: 0.00% ~ 0.36% B: 0.00% ~ 0.10% C: 0.00% ~ 0.08% D: -0.099% ~ 0.107% E: 0.00% ~ 0.13% F: -0.04% ~ 0.20% G: -0.02% ~ +0.00% H: 0.02% ~ 0.05% I: -0.012% ~ 0.012%	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: 33mV B: 29mV C: 18mV D: 12mV E: 15mV F: 15mV G: 21mV H: 19mV I: 24mV	P
6	AC INPUT CURRENT	I/P:230VAC SPEC: 0.75A O/P:FULL LOAD (3.3V:0.6A)	G:0.563A	P
7	MAX. INRUSH CURRENT	I/P:230VAC SPEC: 40A O/P:FULL LOAD	A:16.859A	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:3.04V~3.8V B:4.46V~5.8V C:6.40V~8.93V D:10.266V~13.9V E:10.73V~14.96V F:12.38V~17.56V G:19.37V~27.67V H:19.9V~30V I:39.7V~54.5V	P
9	SET UP TIME	I/P:230VAC O/P:FULL LOAD SPEC:600ms	G:398mS	P
10	HOLD UP TIME	I/P:230VAC O/P:FULL LOAD SPEC:20mS	G:37.2mS	P
11	EFFICIENCY	I/P:230VAC O/P: FULL LOAD SPEC: A:69% B:75% C:76% D:79% E:79% F:80% G:83% H:83% I :83%	A: 71.05% B: 77.8% C: 79.6% D: 81.3% E: 82.6% F: 82.7% G: 84.24% H: 85.5% I: 84.73%	P
12	OVER LOAD PROTECTION	I/P:230VAC O/P:TESTING SPEC:105%~150%	A: 125% B: 127% C: 123% D: 122.6% E: 118% F: 113% G: 138% H: 123% I: 138%	P
13	OVER VOLTAGE PROTECTION	I/P:230VAC O/P: 0% LOAD SPEC:110%~135% A:3.63~4.45 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: 3.98V B: 6.08V C: 9.08V D: 15.5V E: 16.65V F: 19.14V G: 30.1V H: 33.9V I: 61.2V	P
14	GROUND LEAKAGE CURRENT	I/P:240VAC SPEC: L-FG--< 2mA N-FG--< 2mA	G: L-FG:0.86mA N-FG:0.86mA	P
15	INSULATION RESISTANCE	SPEC: O/P-FG 500VDC / 100MOhms MIN. I/P-O/P 500VDC / 100MOhms MIN. I/P-FG 500VDC / 100MOhms MIN.	G: O/P-FG >100MOhms I/P-O/P >100MOhms I/P-FG >100MOhms	P

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16	DIELECTRIC / WITHSTAND VOLTAGE	SPEC : I/P- O/P: 3000VAC/ 60 sec I/P - FG: 1500VAC/60 sec O/P - FG: 500VAC/60sec	G: I/P-O/P 6mA I/P-FG :5.2mA O/P- FG :8.18mA	P																																																
17	BURN-IN TEST	I/P: 230VAC O/P:FULL LOAD TA:25.8°C BURN-IN DURATION : 1.5 hrs	G : NON BREAK	P																																																
18	ENVIRONMENT TEST	1.LOW TEMPERATURE TEST I/P:230 VAC O/P:100% LOAD AMBIENT TEMPERATURE:-9.0°C	G : AFTER 3 hrs POWER ON OK	P																																																
		2.HIGH AMBIENT TEMPERATURE FULL LOAD TEST I/P:230VAC O/P:FULL LOAD AMBIENT TEMPERATURE:47.8°C	G : AFTER 16 hrs NON BREAK																																																	
		3.HIGH HUMIDITY HIGH VOLTAGE ON/OFF TEST I/P:272VAC O/P:FULL LOAD AMBIENT TEMPERATURE : 25°C AMBIENT HUMIDITY : 95%	G : AFTER 15 hrs POWER ON/OFF NO BREAK																																																	
19	TEMPERATURE RISE TEST Trise OF PARTS	G: I/P :230VAC AFTER 1.5 hrs BURN-IN O/P :FULL LOAD TA:25.8°C	<table border="1"> <thead> <tr> <th>POSITION</th> <th>P/N</th> <th>TEMP</th> <th>Trise</th> </tr> </thead> <tbody> <tr> <td>BD1</td> <td>BRIDGE DIODE</td> <td>74.7°C</td> <td>48.9°C</td> </tr> <tr> <td>Q2</td> <td>MAIN TRANSISTOR</td> <td>67.3°C</td> <td>41.5°C</td> </tr> <tr> <td>Q1</td> <td>PFC TRANSISTOR</td> <td>67.3°C</td> <td>41.5°C</td> </tr> <tr> <td>T1</td> <td>MAIN TRANSFORMER COIL</td> <td>50.9°C</td> <td>25.1°C</td> </tr> <tr> <td>T1</td> <td>MAIN TRANSFORMER CORE</td> <td>57.2°C</td> <td>31.2°C</td> </tr> <tr> <td>D20</td> <td>O/P DIODE</td> <td>60.7°C</td> <td>34.9°C</td> </tr> <tr> <td>C52</td> <td>O/P FILTER CAPACITOR</td> <td>62.3°C</td> <td>36.5°C</td> </tr> <tr> <td>L2</td> <td>O/P CHOCK</td> <td>53.2°C</td> <td>27.4°C</td> </tr> <tr> <td>C5</td> <td>I/P FILTER CAPACITOR</td> <td>51.4°C</td> <td>25.6°C</td> </tr> <tr> <td>LF1</td> <td>LINE FILTER COIL</td> <td>47.8°C</td> <td>22°C</td> </tr> <tr> <td>D7</td> <td>PFC DIODE</td> <td>74.6°C</td> <td>48.8°C</td> </tr> </tbody> </table>	POSITION	P/N	TEMP	Trise	BD1	BRIDGE DIODE	74.7°C	48.9°C	Q2	MAIN TRANSISTOR	67.3°C	41.5°C	Q1	PFC TRANSISTOR	67.3°C	41.5°C	T1	MAIN TRANSFORMER COIL	50.9°C	25.1°C	T1	MAIN TRANSFORMER CORE	57.2°C	31.2°C	D20	O/P DIODE	60.7°C	34.9°C	C52	O/P FILTER CAPACITOR	62.3°C	36.5°C	L2	O/P CHOCK	53.2°C	27.4°C	C5	I/P FILTER CAPACITOR	51.4°C	25.6°C	LF1	LINE FILTER COIL	47.8°C	22°C	D7	PFC DIODE	74.6°C	48.8°C	P
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20	LIFE CYCLE	SUPPOSE C52 IS THE MOST CRITICAL COMPONENT I/P:230VAC O/P:FULL LOAD Ta:25.8°C Tc52:62.3°C Life:75055.6hrs I/P:230VAC O/P:FULL LOAD Ta:47.8°C Tc52:80.8°C Life:16895.8hrs																																																		
21	CRITICAL COMPONENT RECORD (FOR QC INSPECTION REFERENCE ONLY)	G : FUSE : 4A/250V BRIDGE DIODE : D2SB60 LINE FILTER :LF101 TRANSFOMER :TF-682 OUTPUT DIODE :1N5406 OUTPUT CAPACITOR :NIPPON 330uF/35V 105°C LXJ INPUT CAPACITOR : 100uF/400V,85°C USC RUBYCON P.C.B :LPP-100																																																		

DATE	SAMPLE	TEST RESULT	TEST	APPROVAL
20000624	R.D. SAMPLE A0009A22 LPP-100-3.3,5,7.5 ,12,13.5,15,24,27,48	PASS	VINCENT	Max Lin
20000920	PRDUCTION SAMPLE A0009A22	PASS	VINCENT	Max Lin
20010222	PRDUCTION SAMPLE A102B19 24V	PASS	SAM	Max Lin
20010407	PRDUCTION SAMPLE A104A08A 12V	PASS	VINCENT	Max Lin
20020605	PRDUCTION SAMPLE A205B23 24V	PASS	VINCENT	Max Lin