

Quality Engineering Test Report

SERIES: LPP-150 150 WATTS SIGLE OUTPUT SWITCHING POWER SUPPLY

SAMPLE: A.LPP-150-3.3 3.3V / 30A D.LPP-150-12 12V /12.5A G.LPP-150-24 24V /6.3A

B.LPP-150-5 5V /30A E.LPP-150-13.5 13.5V /11.2A H.LPP-150-27 27V /5.6A

C.LPP-150-7.5 7.5V /20A F.LPP-150-15 15V /10A I.LPP-150-48 48V /3.2A

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
1	AC INPUT VOLTAGE RANGE	I/P:TESTING SPEC:85-264VAC O/P:FULL LOAD	B: 58V-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% F: ±0.5% G:±0.5% H: ±0.5% I: ±0.5%	A: 0% - -0.18% B: 0% - 0% C: 0.08% - 0.08% D: 0% - 0.04% E: 0.00% - 0.04% F: 0% - 0% G: 0% - 0% H: -0.2% - 0% I: -0.07% - 0.08%	P
3	LOAD REGULATION	I/P:230VAC SPEC: O/P:0% LOAD TO FULL LOAD A: ±1% B: ±1% C: ±1% D: ±1% E: ±1% F: ±1% G: ±0.5% H: ±0.5% I: ±0.5%	A: 0% - 0% B: 0% - 0% C: -0.08% - 0% D: -0.14% - 0.09% E: 0.13% - -0.13% F: -0.204% - 0.165% G: -0.12% - 0% H: -0.2% - 0% I: -0.4% - 0.01%	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: 0.39% ~ 0% B: 0.1% ~ 0% C: 0.09% ~ 0.18% D: 0% ~ 0.3% E: 0.0% ~ 0.27% F: 0.039% ~ 0.37% G: 0% ~ -0.12% H: 0.02% ~ 0.3% I: -0.02% ~ 0.47 %	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: 59mV B: 26mV C: 46mV D: 51mV E: 45mV F: 42mV G: 56mV H: 81mV I: 185mV	P
6	AC INPUT CURRENT	I/P:230VAC SPEC: 1.1A O/P:FULL LOAD (3.3V:0.8A)	B:0.919A	P
7	MAX. INRUSH CURRENT	I/P:230VAC SPEC: 40A O/P:FULL LOAD	B:23A	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:3.07V~3.79V B:4.4V~5.87V C:6.40V~8.96V D:10.23V~13.7V E:10.6V~14.88V F:12.7V~17.4V G:19.7V~27.5V H:20.3V~30.1V I:40.6V~54.8V	P
9	SET UP TIME	I/P:230VAC O/P:FULL LOAD SPEC:600ms	B:233mS	P
10	HOLD UP TIME	I/P:230VAC O/P:FULL LOAD SPEC:20mS	B:35.9mS	P
11	EFFICIENCY	I/P:230VAC O/P: FULL LOAD SPEC: A:66% B:72% C:76% D:79% E:80% F:80% G:83% H:83% I:83%	A: 67.75% B: 73.59% C: 79.0% D: 79.5% E: 81.5% F: 81.2% G: 83.2% H: 83.1% I: 84.8%	P
12	OVER LOAD PROTECTION	I/P:230VAC O/P:TESTING SPEC:105%~150%	A: 128% B: 130% C: 133% D: 121% E: 111% F: 136% G: 132% H: 120% I: 134%	P
13	OVER VOLTAGE PROTECTION	I/P:230VAC O/P: TESTING 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: 4.09V B: 6.17V C: 9.00V D: 14.8V E: 17.8V F: 18.2V G: 30.0V H: 33.1V I: 56.0V	P
14	GROUND LEAKAGE CURRENT	I/P:240VAC SPEC: L-FG--<3.5mA N-FG--<3.5mA	B: L-FG:0.64mA N-FG:0.42mA	P
15	GROUNDING CONTINUITY	SPEC: FG--CHASSIS<0.1Ohms/2min	I: -----	N
16	INSULATION RESISTANCE	SPEC: O/P-FG 500VDC / 100MOhms MIN. I/P-O/P 500VDC / 100MOhms MIN. I/P-FG 500VDC / 100MOhms MIN.	B: 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 : 3KVAC/ 60 sec (10mA CUT-OFF) I/P - FG : 1.5KVAC/60 sec (10mA CUT-OFF) O/P - FG : 0.5KVAC/60sec (10mA CUT-OFF)	B: I/P-O/P: 0.003mA I/P-FG: 3.57mA O/P- FG: 1.55mA	P																																																												
18	BURN-IN TEST	I/P: 230VAC O/P:FULL LOAD with cooling FAN TA:24.0°C BURN-IN DURATION : 2.5 hrs	I: NON BREAK	P																																																												
19	ENVIRONMENT TEST	1.LOW TEMPERATURE TEST I/P : 230 VAC O/P : 80% LOAD AMBIENT TEMPERATURE : -9.5°C	I : AFTER 3.05 hrs POWER ON OK	P																																																												
		2.HIGH AMBIENT TEMPERATURE FULL LOAD TEST I/P : 230VAC O/P : FULL LOAD AMBIENT TEMPERATURE : 54.2°C with cooling FAN	I : AFTER 14 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%	I : AFTER 14 hrs POWER ON/OFFNON BREAK																																																													
20	TEMPERATURE RISE TEST Trise OF PARTS	I: I/P : 230VAC AFTER 2.5 hrs BURN-IN O/P : FULL LOAD TA : 24.0°C with cooling FAN		P																																																												
		<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>41.5°C</td> <td>17.5°C</td> </tr> <tr> <td></td> <td>Q2</td> <td>MAIN TRANSISTOR</td> <td>33.0°C</td> <td>9°C</td> </tr> <tr> <td></td> <td>Q1</td> <td>PFC TRANSISTOR</td> <td>37.5°C</td> <td>13.5°C</td> </tr> <tr> <td></td> <td>T1</td> <td>MAIN TRANSFORMER COIL</td> <td>32.1°C</td> <td>8.1°C</td> </tr> <tr> <td></td> <td>T1</td> <td>MAIN TRANSFORMER CORE</td> <td>32.2°C</td> <td>8.2°C</td> </tr> <tr> <td></td> <td>D11</td> <td>O/P DIODE</td> <td>36.6°C</td> <td>12.6°C</td> </tr> <tr> <td></td> <td>C42</td> <td>O/P FILTER CAPACITOR</td> <td>35°C</td> <td>11°C</td> </tr> <tr> <td></td> <td>L2</td> <td>O/P CHOCK</td> <td>27.4°C</td> <td>3.4°C</td> </tr> <tr> <td></td> <td>C5</td> <td>I/P FILTER CAPACITOR</td> <td>25.7°C</td> <td>1.7°C</td> </tr> <tr> <td></td> <td>LF1</td> <td>LINE FILTER COIL</td> <td>26.3°C</td> <td>2.3°C</td> </tr> <tr> <td></td> <td>D2</td> <td>PFC DIODE</td> <td>39.4°C</td> <td>15.4°C</td> </tr> </tbody> </table>		POSITION	P/N	TEMP	Trise		BD1	BRIDGE DIODE	41.5°C	17.5°C		Q2	MAIN TRANSISTOR	33.0°C	9°C		Q1	PFC TRANSISTOR	37.5°C	13.5°C		T1	MAIN TRANSFORMER COIL	32.1°C	8.1°C		T1	MAIN TRANSFORMER CORE	32.2°C	8.2°C		D11	O/P DIODE	36.6°C	12.6°C		C42	O/P FILTER CAPACITOR	35°C	11°C		L2	O/P CHOCK	27.4°C	3.4°C		C5	I/P FILTER CAPACITOR	25.7°C	1.7°C		LF1	LINE FILTER COIL	26.3°C	2.3°C		D2	PFC DIODE	39.4°C	15.4°C		
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21	LIFE CYCLE	SUPPOSE C42 IS THE MOST CRITICAL COMPONENT WITH COOLING FAN I/P : 230VAC O/P : FULL LOAD Ta : 25°C Tc42 : 35°C Life:785705hrs I/P : 230VAC O/P : FULL LOAD Ta : 50°C Tc42 : 57.7°C Life:162909hrs																																																														
22	CRITICAL COMPONENT RECORD (FOR QC INSPECTION REFERENCE ONLY)	I: FUSE :4A/250V GFE/GNA BRIDGE DIODE : KBJ608J 6A/800V LINE FILTER :LF201 TRANSFOMER :TF-642 OUTPUT DIODE :C16P40F 16A/400V OUTPUT CAPACITOR :ELNA 220uF/63V 105°C RJH INPUT CAPACITOR :HITACHI 150uF/400V,85°C HP3/USC P.C.B :LPP-150 CEM-1 20Z SS																																																														

DATE	SAMPLE	TEST RESULT	TEST	APPROVAL
19990923	RD SAMPLE 5V,12V,24V,48V	PASS	C.C.CHEN	MAX LIN
20000112	PRDUCTION SAMPLE A001A21 3.3V,5V,7.5V 12V,13.5V,15V 24V,27V,48V	PASS	C.C.CHEN	Max Lin
20000313	PRDUCTION SAMPLE A003A07 12V,48V	PASS	VINCENT	Max Lin
20000326	PRDUCTION SAMPLE A003C07 13.5V	PASS	VINCENT	Max Lin
20000707	PRDUCTION SAMPLE A007A06 15V	PASS	VINCENT	Max Lin
20020108	PRDUCTION SAMPLE A201A19 5V	PASS	VINCENT	Max Lin