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

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>TEST CONDITION / SPECIFICATION</th><th>RESULT</th><th>VERDICT</th></tr>
<tr><td>17</td><td>DIELECTRIC / WITHSTAND VOLTAGE</td><td>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)</td><td>B: I/P-O/P: 0.003mA
I/P-FG: 3.57mA
O/P- FG: 1.55mA</td><td>P</td></tr>
<tr><td>18</td><td>BURN-IN TEST</td><td>I/P: 230VAC O/P:FULL LOAD with cooling FAN
TA:24.0℃ BURN-IN DURATION : 2.5 hrs</td><td>I: NON BREAK</td><td>P</td></tr>
<tr><td rowspan="3">19</td><td rowspan="3">ENVIRONMENT TEST</td><td>1.LOW TEMPERATURE TEST
I/P：230 VAC O/P：80% LOAD
AMBIENT TEMPERATURE：-9.5ºC</td><td>I :
AFTER 3.05 hrs POWER ON OK</td><td rowspan="3">P</td></tr>
<tr><td>2.HIGH AMBIENT TEMPERATURE FULL LOAD TEST
I/P：230VAC O/P：FULL LOAD
AMBIENT TEMPERATURE：54.2ºC with cooling FAN</td><td>I :
AFTER 14 hrs NON BREAK</td></tr>
<tr><td>3.HIGH HUMIDITY HIGH VOLTAGE ON/OFF TEST
I/P：272VAC O/P：FULL LOAD
AMBIENT TEMPERATURE：25ºC
AMBIENT HUMIDITY：95%</td><td>I :
AFTER14 hrs POWER ON/OFFNON BREAK</td></tr>
<tr><td>20</td><td>TEMPERATURE RISE TEST Trise OF PARTS</td><td colspan="2">I: I/P ：230VAC AFTER 2.5 hrs BURN-IN
O/P ：FULL LOAD TA：24.0ºC with cooling FAN
<table>
<tr><th></th><th>POSITION</th><th>P/N</th><th>TEMP</th><th>Trise</th></tr>
<tr><td></td><td>BD1</td><td>BRIDGE DIODE</td><td>41.5ºC</td><td>17.5ºC</td></tr>
<tr><td></td><td>Q2</td><td>MAIN TRANSISTOR</td><td>33.0ºC</td><td>9ºC</td></tr>
<tr><td></td><td>Q1</td><td>PFC TRANSISTOR</td><td>37.5ºC</td><td>13.5ºC</td></tr>
<tr><td></td><td>T1</td><td>MAIN TRANSFORMER COIL</td><td>32.1ºC</td><td>8.1ºC</td></tr>
<tr><td></td><td>T1</td><td>MAIN TRANSFORMER CORE</td><td>32.2ºC</td><td>8.2ºC</td></tr>
<tr><td></td><td>D11</td><td>O/P DIODE</td><td>36.6ºC</td><td>12.6ºC</td></tr>
<tr><td></td><td>C42</td><td>O/P FILTER CAPACITOR</td><td>35ºC</td><td>11ºC</td></tr>
<tr><td></td><td>L2</td><td>O/P CHOCK</td><td>27.4ºC</td><td>3.4ºC</td></tr>
<tr><td></td><td>C5</td><td>I/P FILTER CAPACITOR</td><td>25.7ºC</td><td>1.7ºC</td></tr>
<tr><td></td><td>LF1</td><td>LINE FILTER COIL</td><td>26.3ºC</td><td>2.3ºC</td></tr>
<tr><td></td><td>D2</td><td>PFC DIODE</td><td>39.4ºC</td><td>15.4ºC</td></tr>
</table></td><td>P</td></tr>
<tr><td>21</td><td>LIFE CYCLE</td><td colspan="2">SUPPOSE C42 IS THE MOST CRITICAL COMPONENT WITH COOLING FAN
I/P：230VAC O/P：FULL LOAD Ta：25ºC Tc42：35ºC Life:785705hrs
I/P：230VAC O/P：FULL LOAD Ta：50ºC Tc42：57.7ºC Life:162909hrs</td><td></td></tr>
<tr><td>22</td><td>CRITICAL COMPONENT RECORD
(FOR QC INSPECTION REFERENCE ONLY)</td><td colspan="3">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 105ºC RJH
INPUT CAPACITOR :HITACHI 150uF/400V,85ºC HP3/USC
P.C.B :LPP-150 CEM-1 20Z SS</td></tr>
</table>

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