Quality Engineering Test Report

SERIES: PS-65 60W WATTS SIGLE OUTPUT SWITCHING POWER SUPPLY OPEN FRAME TYPE

SAMPLE:

A.PS-65-5	**5V / 12A**	**D. PS-65-24**	**24V / 3A**
B.PS-65-12	**12V / 5.2A**	**E. PS-65-48**	**48V / 1.5A**
C.PS-65-15	**15V / 4.2A**		

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
1	AC INPUT VOLTAGE RANGE	I/P:TESTING SPEC:90~264VAC O/P:FULL LOAD	A:65.85VAC~267VAC	P
2	LINE REGULATION	I/P:85~264VAC SPEC: A: ±1% O/P:FULL LOAD B: ±1% C: ±1% D: ±1% E: ±1%	A: -0.12% % ~ 0% % B: 0% % ~ 0% % C: 0% % ~ 0% % D: 0% % ~ 0% % E: 0% % ~ 0.01% %	P
3	LOAD REGULATION	I/P:230VAC SPEC: A: ±3% O/P: B: ±2% MIN. TO FULL LOAD C: ±2% D: ±2% E: ±2%	A: -0.24% ~ +0.36% B: -0.05% ~ +0.05% C: 0% % ~ 0.04% D: -0.02% ~ 0% % E: -0.01% % ~ +0.01%	P
4	OUTPUT VOLTAGE TOLERANCE	I/P:85~264VAC SPEC: A: ±3% O/P: B: ±2% MIN. TO FULL LOAD C: ±2% D: ±2% E: ±2%	A: -0.5% ~ +0.24% B: 0 % ~ +0.1% C: 0 % ~ +0.04% D: -0.02% ~ +0.02% E: 0 % ~ +0.03%	P
5	RIPPLE＆NOISE	I/P:230VAC SPEC: A:100mV O/P: FULL LOAD B:100mV C:100mV D:100mV E:100mV	A: 66mV B: 77mV C: 21mV D: 28mV E: 43mV	P
6	AC INPUT CURRENT	I/P:230VAC SPEC: 0.9A O/P:FULL LOAD	A:0.7A	P
7	MAX. INRUSH CURRENT	I/P:230VAC SPEC: 40A O/P:FULL LOAD	A:32.39A	P
8	O/P VOLTAGE ADJ.RANGE	I/P:230VAC SPEC:-5%~+10% O/P:MIN. LOAD A:4.75V~5.5V B:11.4V~13.2V C:14.25V~16.5V D:22.8V~26.4V E:45.6V~52.8V	A:4.28V~6.18V B:9.33V~13.73V C:12.62V~18.85V D:17.23V~27.6V E:38.8V~53.6V	P
9	SET UP TIME	I/P:230VAC SPEC:800ms O/P:FULL LOAD	A:552.86mS	P
10	HOLD UP TIME	I/P:230VAC SPEC:20mS O/P:FULL LOAD	A:93.66mS	P

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
11	EFFICIENCY	I/P:230VAC O/P: FULL LOAD SPEC: A:76% B:79% C:79% D:80% E:80%	A: 76.5% B: 80.24% C: 81.83% D: 83.25% E: 83.95%	P
12	OVER LOAD PROTECTION	I/P:230VAC O/P: TESTING SPEC: A: 73~105W B: 73~105W C: 73~105W D: 73~105W E: 73~105W	A: 78.84W B: 83.56W C: 78.74W D: 93.44W E: 97.67W	P
13	OVER VOLTAGE PROTECTION	I/P:230VAC O/P:TESTING SPEC:115%~135% A : 5.5V~6.75V B : 13.2V~16.2V C : 16.5V~20.25V D : 26.4V~32.4V E : 52.8V~64.8V	A: 6.20V B: 14.08V C: 19.03V D: 28.3V E: 53.7V	P
14	GROUND LEAKAGE CURRENT	I/P:240VAC SPEC: L-FG--<0.5mA N-FG--<0.5mA	B: L-FG:0.4 mA N-FG:0.4mA	P
15	INSULATION RESISTANCE	SPEC: O/P-FG 500VDC/50MOhms MIN. I/P-O/P 500VDC/50MOhms MIN. I/P-FG 500VDC/50MOhms MIN.	A: O/P-FG >50MOhms I/P-O/P >50MOhms I/P-FG >50MOhms	P
16	DIELECTRIC / WITHSTAND VOLTAGE	SPEC: I/P- O/P: 3000VAC/ 1 sec (10mA CUT-OFF) I/P - FG: 1500VAC/ 1 sec (10mA CUT-OFF) O/P - FG : 500VAC/1sec (10mA CUT-OFF)	A: I/P-O/P :3.38mA I/P-FG :3.52mA O/P- FG :1.93mA	P
17	BURN-IN TEST	I/P: 230VAC O/P:FULL LOAD TA:25.4ºC BURN-IN DURATION : 1.33 hrs	A: NON BREAK	P
18	ENVIRONMENT TEST	1.LOW TEMPERATURE TEST I/P:80 VAC O/P:FULL LOAD AMBIENT TEMPERATURE:-8.5ºC	AFTER 2 hrs POWER ON OK	P
		2.HIGH AMBIENT TEMPERATURE FULL LOAD TEST I/P:230VAC O/P:FULL LOAD AMBIENT TEMPERATURE:45.1ºC	AFTER 14 hrs NON BREAK	
		3.ACCELERATED LIFE TEST I/P:267VAC O/P:FULL LOAD POWER ON :3 min POWER OFF :5 sec AMBIENT TEMPERATURE:85ºC AMBIENT HUMIDITY:95%	AFTER 3.5 hrs NON BREAK	

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>TEST CONDITION / SPECIFICATION</th><th>RESULT</th><th>VERDICT</th></tr>
<tr><td>19</td><td>TEMPERATURE RISE TEST
Trise OF PARTS</td><td>I/P :230VAC AFTER 1.33 hrs BURN-IN
O/P :FULL LOAD TA:25.4ºC
<table>
<tr><th>POSITION</th><th>P/N</th><th>TEMP</th><th>Trise</th></tr>
<tr><td>BD1</td><td>BRIDGE DIODE</td><td>55.1ºC</td><td>29.7ºC</td></tr>
<tr><td>Q1</td><td>MAIN TRANSISTOR</td><td>78.3ºC</td><td>52.9ºC</td></tr>
<tr><td>T1</td><td>MAIN TRANSFORMER COIL</td><td>68.1ºC</td><td>42.7ºC</td></tr>
<tr><td>D4</td><td>O/P DIODE</td><td>94.1ºC</td><td>68.7ºC</td></tr>
<tr><td>C5</td><td>I/P FILTER CAPACITOR</td><td>45.8ºC</td><td>20.4ºC</td></tr>
<tr><td>C22</td><td>O/P FILTER CAPACITOR</td><td>74.1ºC</td><td>48.7ºC</td></tr>
<tr><td>T1</td><td>MAIN TRANSFORMER CORE</td><td>75.4ºC</td><td>50ºC</td></tr>
<tr><td>D1</td><td>CLAMP DIODE</td><td>92.8ºC</td><td>57.4ºC</td></tr>
<tr><td>LF1</td><td>LINE FILTER</td><td>49ºC</td><td>23.6ºC</td></tr>
</table></td><td>*
NOTE1</td></tr>
<tr><td>20</td><td>LIFE CYCLE</td><td colspan="2">SUPPOSE C22 IS THE MOST CRITICAL COMPONENT
I/P:230VAC O/P:FULL LOAD Ta:25ºC Tc22:73.7ºC Life: 23966 hrs
I/P:230VAC O/P:FULL LOAD Ta:40ºCTc22:81.9ºC Life: 13575 hrs</td><td>P</td></tr>
<tr><td>21</td><td>CRITICAL COMPONENT RECORD (FOR QC INSPECTION REFERENCE ONLY)</td><td colspan="3">FUSE :4A/250VAC GFE.
BRIDGE DIODE :LT KB408G.
LINE FILTER :LS TF-484.
TRANSFOMER :LS TF-461
POWER SWITCHER :K2545
OUTPUT DIODE :D83-004.
OUTPUT CAPACITOR :ELNA 1200uF/16V , 105ºC, RJH
INPUT CAPACITOR :HITACHI 150uF/400V,85ºC
P.C.B :PS-65,CEM-1 2 OZSS 127mm x 76.2mm</td></tr>
<tr><th>DATE</th><th>SAMPLE</th><th colspan="2">TEST RESULT</th><th>TEST</th><th>APPROVAL</th></tr>
<tr><td>971220</td><td>PS-65</td><td colspan="2">NOTE1:WORKING TEMPERATURE>=40ºC, OUTPUT SHOULD DERATING</td><td>H.C.LIOU</td><td>Max Lin</td></tr>
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