Quality Engineering Test Report

SERIES: PS-45 40W SINGLE OUTPUT SWITCHING POWER SUPPLY

SAMPLE: A.PS-45-5 5V / 8A D. PS-45-24 24V / 1.9A

B.PS-45-12 12V / 3.7A E. PS-45-48 48V / 1A

C.PS-45-15 15V / 3A

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
1	AC INPUT VOLTAGE RANGE	I/P:TESTING SPEC:90~264VAC O/P:FULL LOAD	A :61.86VAC~267VAC	P
2	LINE REGULATION	I/P:85~264VAC SPEC: O/P:FULL LOAD A: ±1% B: ±1% C: ±1% D: ±1% E: ±1%	A: +0.12% ~ +0.12% B: 0% % ~ 0 % C: 0% % ~ 0 % D: 0% % ~ 0 % E: -0.05 % ~ 0.012 %	P
3	LOAD REGULATION	I/P:230VAC SPEC: O/P: MIN. TO FULL LOAD A: ±3% B: ±2% C: ±2% D: ±2% E: ±2%	A: -0.12% ~ +0.12% B: -0.05% ~ +0.05% C: -0.03% ~ 0 % D: -0.02% ~ 0 % E: -0.025% ~ 0.025 %	P
4	OUTPUT VOLTAGE TOLERANCE	I/P:90~264VAC SPEC: O/P: MIN. TO FULL LOAD A: ±3% B: ±2% C: ±2% D: ±2% E: ±2%	A: -0.3% ~ +0.12% B: -0.05% ~ +0.05% C: +0.08% ~ +0.12% D: +0.02% ~ +0.07% E: -0.064% ~ +0.03%	P
5	RIPPLE&NOISE	I/P:230VAC SPEC: O/P: FULL LOAD A:100mV B:100mV C:100mV D:100mV E:100mV	A: 66mV B: 36mV C: 18mV D: 11mV E: 36mV	P
6	AC INPUT CURRENT	I/P:230VAC SPEC: 0.7A O/P:FULL LOAD	A:0.47A	P
7	MAX. INRUSH CURRENT	I/P:230VAC SPEC: 40A O/P:FULL LOAD	A:36.90A	P
8	O/P VOLTAGE ADJ.RANGE	I/P:230VAC SPEC: -5%~+10% O/P:MIN. LOAD A:5.5~4.75V B:13.2~11.4V C:16.5~14.25V D:26.4~22.8V D:52.8~45.6V	A: 4.34 ~ 6.11 B: 10.09 ~ 13.79 C: 13.7 ~ 19.05 D: 20.74 ~ 27.4 E: 43.4 ~ 61.9	P
9	SET UP TIME	I/P:230VAC SPEC:800ms O/P:FULL LOAD	A:518.86mS	P
10	HOLD UP TIME	I/P:230VAC SPEC:20mS O/P:FULL LOAD	A:82.18mS	P
11	EFFICIENCY	I/P:230VAC SPEC: O/P: FULL LOAD A:74% B:76% C:77% D:78% E:78%	A: 76.15% B: 78.62% C: 80.70% D: 82.55% E: 81.98%	P

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>TEST CONDITION / SPECIFICATION</th><th>RESULT</th><th>VERDICT</th></tr>
<tr><td>12</td><td>OVER CURRENT PROTECTION</td><td>I/P:230VAC
O/P: TESTING

SPEC:
A: 53~75W
B: 53~75W
C: 53~75W
D: 53~75W
E: 53~75W</td><td>A: 59.92W
B: 63.05W
C: 60.88W
D: 66.71W
E: 57.43W</td><td>P</td></tr>
<tr><td>13</td><td>OVER VOLTAGE PROTECTION</td><td>I/P:230VAC
O/P:MIN. LOAD

SPEC:115%~135%
A : 5.75V~6.75V
B :13.8V~16.2V
C :17.25V~20.25V
D :27.6V~32.4V
E :55.2V~64.8V</td><td>A: 6.10V
B: 13.89V
C: 19.06V
D: 28.2V
E: 61.2V</td><td>P</td></tr>
<tr><td>14</td><td>GROUND LEAKAGE CURRENT</td><td>I/P:240VAC SPEC:L-FG--<0.75mA
N-FG--<0.75mA</td><td>A: L-FG:0.46mA
N-FG:0.48mA</td><td>P</td></tr>
<tr><td>15</td><td>INSULATION RESISTANCE</td><td>SPEC:O/P-FG 500VDC/100M Ohms MIN.
I/P-O/P 500VDC/100M Ohms MIN.
I/P-FG 500VDC/100M Ohms MIN.</td><td>A: O/P-FG :>100M Ohms
I/P-O/P :>100M Ohms
I/P-FG :>100M Ohms</td><td>P</td></tr>
<tr><td>16</td><td>DIELECTRIC / WITHSTAND VOLTAGE</td><td>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)</td><td>A : NO BREAK
I/P-O/P :3.29mA
I/P-FG :3.49mA
O/P- FG :1.88mA</td><td>P</td></tr>
<tr><td>17</td><td>BURN-IN TEST</td><td>I/P: 230VAC O/P:FULL LOAD
TA:22.6ºC BURN-IN DURATION : 2 hrs</td><td>A : NON BREAK</td><td>P</td></tr>
<tr><td>18</td><td>ENVIRONMENT TEST</td><td>1.LOW TEMPERATURE TEST
I/P:83 VAC O/P:FULL LOAD
AMBIENT TEMPERATURE:-9.4ºC</td><td>AFTER 1 hrs
POWER ON OK</td><td>P</td></tr>
<tr><td></td><td></td><td>2.HIGH AMBIENT TEMPERATURE FULL LOAD TEST
I/P:230 VAC O/P:FULL LOAD
AMBIENT TEMPERATURE:43.2ºC</td><td>AFTER 16.5 hrs
NON BREAK</td><td></td></tr>
<tr><td></td><td></td><td>3.ACCELERATED LIFE TEST
I/P:267 VAC O/P:FULL LOAD
POWER ON :3 min POWER OFF :5 sec
AMBIENT TEMPERATURE:85ºC
AMBIENT HUMIDITY:95%</td><td>AFTER 6 hrs
NON BREAK</td><td></td></tr>
<tr><td>19</td><td>TEMPERATURE RISE TESTT rise OF PARTS</td><td colspan="2">I/P :230VAC AFTER 2 hrs BURN-IN
O/P :FULL LOAD TA:22.6ºC
<table>
<tr><th>POSITION</th><th>P/N</th><th>TEMP</th><th>T rise</th></tr>
<tr><td>BD1</td><td>BRIDGE DIODE</td><td>48.3ºC</td><td>25.7ºC</td></tr>
<tr><td>Q1</td><td>MAIN TRANSFORMER COIL</td><td>73.4ºC</td><td>50.8ºC</td></tr>
<tr><td>T1</td><td>MAIN TRANSISTOR</td><td>63.1ºC</td><td>40.5ºC</td></tr>
<tr><td>T1</td><td>MAIN TRANSFORMER CORE</td><td>71.6ºC</td><td>49ºC</td></tr>
<tr><td>D4</td><td>O/P DIODE</td><td>77.1ºC</td><td>54.5ºC</td></tr>
<tr><td>C5</td><td>I/P FILTER CAPACITOR</td><td>51.1ºC</td><td>28.5ºC</td></tr>
<tr><td>C22</td><td>O/P FILTER CAPACITOR</td><td>53.6ºC</td><td>31ºC</td></tr>
<tr><td>D1</td><td>CLAMP DIODE</td><td>80.1ºC</td><td>57.5ºC</td></tr>
<tr><td>LF1</td><td>LINE FILTER</td><td>37.3ºC</td><td>14.7ºC</td></tr>
</table></td><td>P</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: 56ºC Life time: 92025.54 hrs
I/P:230VAC O/P:FULL LOAD Ta:40ºC Tc22: 71ºC Life time: 32535.94 hrs</td><td>P</td></tr>
<tr><td>21</td><td>CRITICAL COMPONENT RECORD (FOR QC INSPECTION REFERENCE ONLY)</td><td colspan="2">FUSE : 4A/250V GFE
BRIDGE DIODE : LT KBJ408G
LINE FILTER : TF484 ET-20V
TRANSFOMER : TF470 ER-28
POWER SWITCHER : K2545 TO3P
OUTPUT DIODE : D15SC4M TO-220
OUTPUT CAPACITOR : ELNA 105ºC RJH 820uF/ 16V
INPUT CAPACITOR : HITACHI 85ºC 100uF/ 400V
P.C.B : PS-65 CEM-1 2 OZ SS 127mmx76mmx30mm</td><td></td></tr>
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DATE	SAMPLE	TEST RESULT	TEST	APPROVAL
19971210	PS-45	PASS	H.C.LIOU	Max Lin
20010216	PS-45-48	PASS	SAM	Max Lin