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# 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 / 2.2A**

**B.PS-45-12 12V / 3.7A**

**E. PS-45-48 48V / 1.1A**

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

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
1	AC INPUT VOLTAGE RANGE	I/P:TESTING O/P:FULL LOAD SPEC:90~264VAC	A : <u>61.86</u> VAC~267VAC	P
2	LINE REGULATION	I/P:85~264VAC O/P:FULL LOAD SPEC: A: ±1% B: ±1% C: ±1% D: ±1% E: ±1%	A: <u>+0.12%</u> ~ <u>+0.12%</u> B: <u>0%</u> ~ <u>0%</u> C: <u>0%</u> ~ <u>0%</u> D: <u>0%</u> ~ <u>0%</u> E: <u>-0.052%</u> ~ <u>0.0125%</u>	P
3	LOAD REGULATION	I/P:230VAC O/P: MIN. TO FULL LOAD SPEC: A: ±3% B: ±2% C: ±2% D: ±2% E: ±2%	A: <u>-0.12%</u> ~ <u>+0.12%</u> B: <u>-0.05%</u> ~ <u>+0.05%</u> C: <u>-0.03%</u> ~ <u>0%</u> D: <u>-0.02%</u> ~ <u>0%</u> E: <u>-0.025%</u> ~ <u>0.025%</u>	P
4	OUTPUT VOLTAGE TOLERANCE	I/P:90~264VAC O/P: MIN. TO FULL LOAD SPEC: A: ±3% B: ±2% C: ±2% D: ±2% E: ±2%	A: <u>-0.3%</u> ~ <u>+0.12%</u> B: <u>-0.05%</u> ~ <u>+0.05%</u> C: <u>+0.08%</u> ~ <u>+0.12%</u> D: <u>+0.02%</u> ~ <u>+0.07%</u> E: <u>-0.064%</u> ~ <u>+0.03%</u>	P
5	RIPPLE&NOISE	I/P:230VAC O/P: FULL LOAD SPEC: A:100mV B:100mV C:100mV D:100mV E:100mV	A: <u>66mV</u> B: <u>36mV</u> C: <u>18mV</u> D: <u>11mV</u> E: <u>36mV</u>	P
6	AC INPUT CURRENT	I/P:230VAC O/P:FULL LOAD SPEC: 0.7A	A: <u>0.47</u> A	P
7	MAX. INRUSH CURRENT	I/P:230VAC O/P:FULL LOAD SPEC: 40A	A: <u>36.90</u> A	P
8	O/P VOLTAGE ADJ.RANGE	I/P:230VAC O/P:MIN. LOAD SPEC: -5%~+10% 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: <u>4.34</u> ~ <u>6.11</u> B: <u>10.09</u> ~ <u>13.79</u> C: <u>13.7</u> ~ <u>19.05</u> D: <u>20.74</u> ~ <u>27.4</u> E: <u>43.4</u> ~ <u>61.9</u>	P
9	SET UP TIME	I/P:230VAC O/P:FULL LOAD SPEC:800ms	A: <u>518.86</u> mS	P
10	HOLD UP TIME	I/P:230VAC O/P:FULL LOAD SPEC:20mS	A: <u>82.18</u> mS	P
11	EFFICIENCY	I/P:230VAC O/P: FULL LOAD SPEC: A:74% B:76% C:77%	A: <u>76.15%</u> B: <u>78.62%</u> C: <u>80.70%</u> D: <u>82.55%</u>	P

		D:78%	E: 81.98%	
		E:78%		

[NEXT](#)

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12	OVER CURRENT PROTECTION	I/P:230VAC O/P: TESTING SPEC: A: 53~75W B: 53~75W C: 53~75W D: 53~75W E: 53~75W	A: 59.92W B: 63.05W C: 60.88W D: 66.71W E: 57.43W	P																																								
13	OVER VOLTAGE PROTECTION	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	A: 6.10V B: 13.89V C: 19.06V D: 28.2V E: 61.2V	P																																								
14	GROUND LEAKAGE CURRENT	I/P:240VAC SPEC:L-FG--<0.5mA N-FG--<0.5mA	A: L-FG:0.46mA N-FG:0.48mA	P																																								
15	INSULATION RESISTANCE	SPEC:O/P-FG 500VDC/100M Ohms MIN. I/P-O/P 500VDC/100M Ohms MIN. I/P-FG 500VDC/100M Ohms MIN.	A: O/P-FG >100M Ohms I/P-O/P >100M Ohms I/P-FG >100M Ohms	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 : NO BREAK I/P-O/P :3.29mA I/P-FG :3.49mA O/P- FG :1.88mA	P																																								
17	BURN-IN TEST	I/P: 230VAC O/P:FULL LOAD TA:22.6°C BURN-IN DURATION : 2 hrs	A : NON BREAK	P																																								
18	ENVIRONMENT TEST	1.LOW TEMPERATURE TEST I/P:83 VAC O/P:FULL LOAD AMBIENT TEMPERATURE:-9.4°C	AFTER 1 hrs POWER ON OK	P																																								
		2.HIGH AMBIENT TEMPERATURE FULL LOAD TEST I/P:230 VAC O/P:FULL LOAD AMBIENT TEMPERATURE:43.2°C	AFTER 16.5 hrs NON BREAK																																									
		3.ACCELERATED LIFE TEST I/P:267 VAC O/P:FULL LOAD POWER ON :3 min POWER OFF :5 sec AMBIENT TEMPERATURE:85°C AMBIENT HUMIDITY:95%	AFTER 6 hrs NON BREAK																																									
19	TEMPERATURE RISE TESTT rise OF PARTS	I/P :230VAC AFTER 2 hrs BURN-IN O/P : FULL LOAD TA:22.6°C	<table border="1"> <thead> <tr> <th>POSITION</th> <th>P/N</th> <th>TEMP</th> <th>T rise</th> </tr> </thead> <tbody> <tr> <td>BD1</td> <td>BRIDGE DIODE</td> <td>48.3°C</td> <td>25.7°C</td> </tr> <tr> <td>Q1</td> <td>MAIN TRANSFORMER COIL</td> <td>73.4°C</td> <td>50.8°C</td> </tr> <tr> <td>T1</td> <td>MAIN TRANSISTOR</td> <td>63.1°C</td> <td>40.5°C</td> </tr> <tr> <td>T1</td> <td>MAIN TRANSFORMER CORE</td> <td>71.6°C</td> <td>49°C</td> </tr> <tr> <td>D4</td> <td>O/P DIODE</td> <td>77.1°C</td> <td>54.5°C</td> </tr> <tr> <td>C5</td> <td>I/P FILTER CAPACITOR</td> <td>51.1°C</td> <td>28.5°C</td> </tr> <tr> <td>C22</td> <td>O/P FILTER CAPACITOR</td> <td>53.6°C</td> <td>31°C</td> </tr> <tr> <td>D1</td> <td>CLAMP DIODE</td> <td>80.1°C</td> <td>57.5°C</td> </tr> <tr> <td>LF1</td> <td>LINE FILTER</td> <td>37.3°C</td> <td>14.7°C</td> </tr> </tbody> </table>	POSITION	P/N	TEMP	T rise	BD1	BRIDGE DIODE	48.3°C	25.7°C	Q1	MAIN TRANSFORMER COIL	73.4°C	50.8°C	T1	MAIN TRANSISTOR	63.1°C	40.5°C	T1	MAIN TRANSFORMER CORE	71.6°C	49°C	D4	O/P DIODE	77.1°C	54.5°C	C5	I/P FILTER CAPACITOR	51.1°C	28.5°C	C22	O/P FILTER CAPACITOR	53.6°C	31°C	D1	CLAMP DIODE	80.1°C	57.5°C	LF1	LINE FILTER	37.3°C	14.7°C	P
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20	LIFE CYCLE	SUPPOSE C22 IS THE MOST CRITICAL COMPONENT I/P:230VAC O/P:FULL LOAD Ta:25°C Tc22: 56°C Life time: 92025.54 hrs I/P:230VAC O/P:FULL LOAD Ta:40°C Tc22: 71°C Life time: 32535.94 hrs		P																																								
21	CRITICAL COMPONENT RECORD ( FOR QC INSPECTION REFERENCE ONLY)	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 105°C RJH 820uF/ 16V INPUT CAPACITOR : HITACHI 85°C 100uF/ 400V P.C.B : PS-65 CEM-1 2 OZ SS 127mmx76mmx30mm																																										

<b>DATE</b>	<b>SAMPLE</b>	<b>TEST RESULT</b>	<b>TEST</b>	<b>APPROVAL</b>
<b>19971210</b>	<b>PS-45</b>	<b>PASS</b>	<b>H.C.LIOU</b>	<b>Max Lin</b>
<b>20010216</b>	<b>PS-45-48</b>	<b>PASS</b>	<b>SAM</b>	<b>Max Lin</b>

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