

# Quality Engineering Test Report

**SERIES: PQ-100 100W AC-DC QUAD OUTPUT SWITCHING POWER SUPPLY**

<b>SAMPLE: A : PQ-100B</b>	V1: 5V / 10A	<b>C : PQ-100D</b>	V1: 5V / 5A
	V2: 12V / 3.5A		V2: 12V / 2A
	V3: -5V / 0.5A		V3: 24V / 2A
	V4: -12V / 0.5A		V4: -12V / 0.5A
<b>B : PQ-100C</b>	V1: 5V / 8A	<b>D : PQ-100E</b>	V1: 5V / 8A
	V2: 15V / 3.5A		V2: 12V / 3A
	V3: -5V / 0.5A		V3: 15V / 0.6A
	V4: -15V / 0.5A		V4: 24V / 0.6A

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
1	AC INPUT VOLTAGE RANGE	I/P:TESTING SPEC:100~264VAC O/P:FULL LOAD	A:81.96VAC~267VAC	P
2	LINE REGULATION	I/P:100~264VAC SPEC: O/P:FULL LOAD A: V1: ±1% V2: ±5% V3: ±1% V4: ±1% B: V1: ±1% V2: ±3% V3: ±1% V4: ±1% C: V1: ±1% V2: ±3% V3: ±1% V4: ±1% D: V1: ±1% V2: ±3% V3: ±1% V4: ±1%	A: V1: 0% ~ 0% V2: 0.009% ~ +1.96% V3: 0% ~ 0% V4: 0% ~ 0% B: V1: 0.119% ~ 0.119% V2: -0.08% ~ +1.3% V3: -0% ~ +0% V4: 0.039% ~ 0.039% C: V1: 0% ~ 0% V2: 0% ~ +0.36% V3: -0.46% ~ +0.05% V4: 0% ~ 0% D: V1: 0% ~ 0% V2: -0.01% ~ +0.64% V3: 0% ~ 0% V4: 0% ~ 0%	P
3	LOAD REGULATION	I/P:230VAC SPEC: O/P:MIN. TO FULL LOAD A: V1: ±2% V2: ±5% V3: ±1% V4: ±1% B: V1: ±1% V2: ±5% V3: ±1% V4: ±1% C: V1: ±1% V2: ±5% V3: ±5% V4: ±1% D: V1: ±1% V2: ±5% V3: ±1% V4: ±1%	A: V1: 0.49% ~ +0.85% V2: 0.05% ~ +1.78% V3: 0% ~ 0% V4: 0.049% ~ 0.148% B: V1: -0.1% ~ +0% V2: +0.17% ~ +1.6% V3: -0.12% ~ +0.12% V4: 0% ~ 0.04% C: V1: -0.11% ~ +0% V2: +0.47% ~ +0.52% V3: +0.33% ~ +1.10% V4: 0% ~ +0.05% D: V1: -0.12% ~ +0.12% V2: +0.74% ~ +1.28% V3: +0.08% ~ +0.04% V4: +0.02% ~ 0.02%	P
4	OUTPUT VOLTAGE TOLERANCE	I/P:100~264VAC SPEC: O/P:A:MIN TO FULL LOAD A: V1: ±3% V2: ±12% V3: ±6% V4: ±6% B:MIN TO FULL LOAD B: V1: ±2% V2: ±6% V3: ±6% V4: ±6% C:MIN TO FULL LOAD C: V1: ±2% V2: ±6% V3: ±10% V4: ±6% D:MIN TO FULL LOAD D V1: ±2% V2: ±6% V3: ±6% V4: ±6%	A: V1: -1.47% ~ +0.118% V2: -3.29% ~ +7.38% V3: -0.37% ~ +0.377% V4: -0.05% ~ +0.305% B: V1: -0.13% ~ +0.19% V2: -2.43% ~ +6.53% V3: -0.38% ~ +0.24% V4: +0.05% ~ +0.132% C: V1: -0.23% ~ +0.11% V2: -2.3% ~ +2.8% V3: -7.7% ~ +7.3% V4: -0.10% ~ +0.05% D: V1: +1.24% ~ +1.62% V2: -3.65% ~ +2.08% V3: +1.00% ~ +1.17% V4: +0.67% ~ +0.75%	P

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
5	RIPPLE& NOISE	I/P:230VAC O/P:FULL LOAD SPEC: A: V1: 80mV V2: 250mV V3: 80mV V4: 120mV B: V1: 80mV V2: 150mV V3: 80mV V4: 150mV C: V1: 80mV V2: 120mV V3: 180mV V4: 120mV D: V1: 80mV V2: 120mV V3: 150mV V4: 120mV	A: V1: 5mV V2: 9V V3: 8mV V4: 9mV B: V1: 2mV V2: 6mV V3: 9mV V4: 5mV C: V1: 9mV V2: 9mV V3: 57mV V4: 26mV D: V1: 7mV V2: 16mV V3: 28mV V4: 39mV	P
6	AC INPUT CURRENT	I/P:230VAC O/P:FULL LOAD SPEC:1.5A	A:1.209A	P
7	MAX. INRUSH CURREN	I/P:230VAC O/P: FULL LOAD SPEC:50A	A:38.87A	P
8	O/P VOLTAGE ADJ.RANGE	I/P:230VAC O/P:MIN. LOAD SPEC:CH1:-5%~+10%	A: 4.54V~5.83V B: 4.41V~5.81V C: 4.42V~5.81V D: 4.48V~5.80V	P
9	SET UP TIME	I/P:230VAC O/P:FULL LOAD SPEC:1200mS	A: 795mS	P
10	HOLD UP TIME	I/P:230VAC O/P:FULL LOAD SPEC:20mS	A: 108mS	P
11	EFFICIENCY	I/P:230VAC O/P:FULL LOAD SPEC: A:72% B:74% C:77% D:74%	A:73.24% B:75.3% C:79.71% D:75.65%	P
12	OVER LOAD PROTECTION	I/P:230VAC O/P:TESTING SPEC:105%~135%	A:120% B:124% C:119% D:142%	P
13	OVER VOLTAGE PROTECTION	I/P:230VAC O/P:TESTING SPEC: CH15.75~6.75V	A:6.25V B:6.29V C:5.97V D:6.32V	P
14	GROUND LEAKAGE CURRENT	I/P:240VAC SPEC: L-FG--<1mA N-FG--<1mA	A: L-FG:0.32mA N-FG:0.34mA	P
15	GRUNDING CONTINUITY	SPEC: FG--CHASSIS<0.10hms/2min	B: -----mOhms	P
16	INSULATION RESISTANCE	SPEC: I/P-O/P: 500VDC/100MOhms MIN. I/P-FG: 500VDC/100MOhms MIN. O/P-FG: 500VDC/100MOhms MIN.	A: O/P-FG >100MOhms I/P-O/P >100MOhms I/P-FG >100MOhms	P
17	DIELECTRIC / WITHSTAND VOLTAGE	SPEC: I/P- O/P: 3KVAC/ 1 min. (10mA CUT-OFF) I/P - FG: 1.5KVAC/ 1 min. (10mA CUT-OFF) O/P - FG: 0.5KVAC/ 1 min. (10mA CUT-OFF)	A: I/P-O/P :6.33mA I/P-FG :2.37mA O/P-FG :0.95mA	P
18	BURN-IN TEST	I/P: 230VAC O/P: FULL LOAD TA:23.6°C BURN-IN DURATION :2hrs	A:NON BREAK	P

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
19	ENVIRONMENT TEST	1.LOW TEMPERATURE TEST I/P:230 VAC O/P:FULL LOAD AMBIENT TEMPERATURE:-10.0°C	C: AFTER 2 hrs POWER ON OK	P
		2.HIGH AMBIENT TEMPERATURE FULL LOAD TEST I/P:230VAC O/P:FULL LOAD AMBIENT TEMPERATURE:42.2°C	C : AFTER 17hrs NON BREAK	
		3.High Humidity, High Voltage After On/Off Test I/P:272VAC O/P:FULL LOAD AMBIENT TEMPERATURE:25°C AMBIENT HUMIDITY:95%	C : AFTER 15 hrs POWER ON/OFF OK	

20	TEMPERATURE RISE TEST T rise OF PARTS	<p>C: I/P :230VAC O/P :FULL LOAD</p> <p>AFTER 2 hr BURN-IN WITH COOLING 17CFM FAN TA:23.6°C</p> <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>49.3°C</td> <td>25.7°C</td> </tr> <tr> <td>Q1</td> <td>MAIN TRANSISTOR</td> <td>54.9°C</td> <td>31.3°C</td> </tr> <tr> <td>T1</td> <td>MAIN TRANSFORMER COIL</td> <td>80.5°C</td> <td>56.9°C</td> </tr> <tr> <td>T1</td> <td>MAIN TRANSFORMER CORE</td> <td>55.5°C</td> <td>31.9°C</td> </tr> <tr> <td>C24</td> <td>O/P FILTER CAPACITOR</td> <td>42.6°C</td> <td>19.0°C</td> </tr> <tr> <td>LF1</td> <td>LINE FILTER TRANSFORMER</td> <td>42.8°C</td> <td>19.2°C</td> </tr> <tr> <td>C5</td> <td>I/P FILTER CAPACITOR</td> <td>44.5°C</td> <td>20.9°C</td> </tr> <tr> <td>D5</td> <td>O/P DIODE</td> <td>53.3°C</td> <td>29.7°C</td> </tr> </tbody> </table>	POSITION	P/N	TEMP	T rise	BD1	BRIDGE DIODE	49.3°C	25.7°C	Q1	MAIN TRANSISTOR	54.9°C	31.3°C	T1	MAIN TRANSFORMER COIL	80.5°C	56.9°C	T1	MAIN TRANSFORMER CORE	55.5°C	31.9°C	C24	O/P FILTER CAPACITOR	42.6°C	19.0°C	LF1	LINE FILTER TRANSFORMER	42.8°C	19.2°C	C5	I/P FILTER CAPACITOR	44.5°C	20.9°C	D5	O/P DIODE	53.3°C	29.7°C		P
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21	LIFE CYCLE	<p>C: SUPPOSE C24 IS THE MOST CRITICAL COMPONENT</p> <p>I/P:230VAC O/P:FULL LOAD Ta:25°C Tc24:44.0°C Life: 370404hrs</p> <p>I/P:230VAC O/P:FULL LOAD Ta:50°C Tc24:60.5°C Life: 118025hrs</p>		P
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22	CRITICAL COMPONENT RECORD ( FOR QC INSPECTION REFERENCE ONLY )	<p>C: FUSE :4AL/250V UL</p> <p>BRIDGE DIODE :D3SB60</p> <p>LINE FILTER :TF096-R2 EE-25</p> <p>TRANSFORMER TF571</p> <p>POWER SWITCHER :2SK727 TO-3P</p> <p>OUTPUT DIODE :D83-004 TO-3P</p> <p>OUTPUT CAPACITOR :ELNA 3300uF/10V RJH 105°C</p> <p>INPUT CAPACITOR :HITACHI 150uF/400V HP-3 85°C</p> <p>P.C.B PQ-100 CEM-1 2 OZ SS</p>		
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DATE	SAMPLE	TEST RESULT	TEST	APPROVAL
19990113	RD SAMPLE PQ100	PASS	H.C.LIOU	Max Lin
19990325	9903B18 PRODUCTION SAMPLE PQ-100 B,C,D,E	1.9903B18 O.L.P. RANGE:130% ~160% PASS	H.C.LIOU	Max Lin
19991021	9910B09 PRODUCTION SAMPLE PQ-100D	PASS	C.C.CHEN	Max Lin

20000517	A005B11 PRODUCTION SAMPLE PQ-100C	PASS	VINCENT	Max Lin
20000707	A007A16 PRODUCTION SAMPLE PQ-100B	PASS	VINCENT	Max Lin