

# Quality Engineering Test Report

**SERIES: PPQ-1003**  
**SAMPLE:**

**100W AC-DC QUAD OUTPUT SWITCHING POWER SUPPLY**

**A : PPQ-100B V1: 5V / 10A V2: 12V / 3.4A V3: -12V / 0.6A V4: -5V / 0.6A**  
**C : PPQ-100D V1: 5V / 8A V2: 24V / 2A V3: 12V / 0.6A V4: -12V / 0.6A**

**B : PPQ-100C V1: 5V / 10A V2: 15V / 2.6A V3: -15V / 0.6A V4: -5V / 0.6A**

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
1	AC INPUT VOLTAGE RANGE	I/P:TESTING SPEC:90~264VAC O/P:FULL LOAD	A:60.64VAC~267VAC	P
2	LINE REGULATION	I/P:90~264VAC SPEC: O/P:FULL LOAD A: V1: ±1% V2: ±2% V3: ±2% V4: ±1% B: V1: ±1% V2: ±2% V3: ±2% V4: ±1% C: V1: ±1% V2: ±2% V3: ±2% V4: ±1%	A: V1: -0.00% ~ +0.00% V2: -0.00% ~ +0.05% V3: -0.00% ~ +0.00% V4: -0.00% ~ +0.00% B: V1: 0.18% ~ 0.18% V2: -0.00% ~ +0.00% V3: -0.00% ~ +0.00% V4: -0.05% ~ +0.00% C: V1: 0.00% ~ 0.00% V2: 0.00% ~ +0.00% V3: -0.00% ~ +0.00% V4: -0.00% ~ +0.00%	P
3	LOAD REGULATION	I/P:230VAC SPEC: O/P:MIN. TO FULL LOAD A: V1: ±2% V2: ±6% V3: ±2% V4: ±2% B: V1: ±2% V2: ±6% V3: ±2% V4: ±2% C: V1: ±2% V2: ±6% V3: ±2% V4: ±2%	A: V1: -0.000% ~ +0.118% V2: +0.154% ~ +0.908% V3: -0.049% ~ +0.099% V4: -0.12% ~ +0.12% B: V1: -0.00% ~ +0.18% V2: -0.118% ~ +0.00% V3: -1.20% ~ +2.04% V4: -0.05% ~ 0.00% C: V1: -0.00% ~ +0.00% V2: -0.00% ~ +0.18% V3: -1.12% ~ +2.08% V4: 0.00% ~ +0.03%	P
4	OUTPUT VOLTAGE TOLERANCE	I/P:100~264VAC SPEC: O/P:A:MIN TO FULL LOAD A: V1: ±3% V2: ±8% V3: ±5% V4: ±5% B:MIN TO FULL LOAD B: V1: ±3% V2: +10%~-6% V3: ±5% V4: ±5% C:MIN TO FULL LOAD C: V1: ±3% V2: ±8% V3: ±5% V4: ±5%	A: V1: -0.118% ~ +0.237% V2: -3.09% ~ +0.512% V3: -0.156% ~ +0.099% V4: -0.86% ~ +0.14% B: V1: -0.21% ~ +0.18% V2: -0.00% ~ +0.374% V3: -1.33% ~ +5.23% V4: -0.00% ~ +0.10% C: V1: -0.18% ~ +0.181% V2: -0.00% ~ +0.375% V3: -1.61% ~ +4.90% V4: 0.03% ~ +0.04%	P

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
5	RIPPLE & NOISE	I/P:230VAC O/P:FULL LOAD SPEC: A: V1: 100mV V2: 150mV V3: 100mV V4: 100mV B: V1: 100mV V2: 150mV V3: 100mV V4: 100mV C: V1: 100mV V2: 200mV V3: 100mV V4: 100mV	A: V1: 9mV V2: 10mV V3: 12mV V4: 17mV B: V1: 23mV V2: 12mV V3: 19mV V4: 5mV C: V1: 49mV V2: 48mV V3: 62mV V4: 55mV	P
6	AC INPUT CURRENT	I/P:230VAC O/P:FULL LOAD SPEC:0.85A	A:0.593A	P
7	MAX. INRUSH CURREN	I/P:230VAC O/P: FULL LOAD SPEC:40A	A:27.304A	P
8	O/P VOLTAGE ADJ.RANGE	I/P:230VAC O/P:MIN. LOAD SPEC:CH1.CH2:-5%~+10%	A: CH1:4.5390V~5.682V CH2:10.455V~13.539V B: CH1:2.968V~3.842V CH2:4.539V~5.807V C: CH1:3.03V~3.51V CH2:4.46V~5.83V	P
9	SET UP TIME	I/P:230VAC O/P:FULL LOAD SPEC:800mS	A: 317.68mS	P
10	HOLD UP TIME	I/P:230VAC O/P:FULL LOAD SPEC:16mS	B:B28.98mS	P
11	EFFICIENCY	I/P:230VAC O/P:FULL LOAD SPEC: A: 75% B: 76% C: 78%	A:73.68% B:73.40% C:74.62%	P
12	OVER LOAD PROTECTION	I/P:230VAC O/P:TESTING SPEC:105%~135%	A:1119 % B:118 % C:120 %	P
13	OVER VOLTAGE PROTECTION	I/P:230VAC O/P:TESTING SPEC: CH1:5.75V~6.75V	A:CH1: 6.27V B:CH1: 4.06V C:CH1: 4.15V	P

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14	GROUND LEAKAGE CURRENT	I/P:240VAC SPEC: L-FG--<3.5mA N-FG--<3.5mA	A: L-FG:1mA N-FG:0.95mA	P																																																							
16	INSULATION RESISTANCE	SPEC: I/P-O/P: 500VDC/50MOhms MIN. I/P-FG: 500VDC/50MOhms MIN. O/P-FG: 500VDC/50MOhms 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 :6.92mA I/P-FG :5.79mA O/P-FG :8.15mA	P																																																							
18	BURN-IN TEST	I/P: 230VAC O/P: FULL LOAD TA:23.6°C BURN-IN DURATION :2hrs	A:NON BREAK	P																																																							
19	ENVIRONMENT TEST	1.LOW TEMPERATURE TEST I/P:230 VAC O/P:FULL LOAD AMBIENT TEMPERATURE:-8.8°C	A: AFTER 1 hrs POWER ON OK	P																																																							
		2.HIGH AMBIENT TEMPERATURE FULL LOAD TEST I/P:230VAC O/P:FULL LOAD AMBIENT TEMPERATURE:55.8°C	A: AFTER 1.5 hrs NON BREAK																																																								
		3.High Humidity, High Voltage After On/Off Test I/P:272VAC O/P:FULL LOAD AMBIENT TEMPERATURE:26.6°C AMBIENT HUMIDITY:95%	A: AFTER 17 hrs POWER ON/OFF OK																																																								
20	TEMPERATURE RISE TEST T rise OF PARTS	A: I/P :230VAC AFTER 17hr BURN-IN WITH COOLING 18CFM FAN O/P :FULL LOAD TA:24.2°C	<table border="1"> <thead> <tr> <th></th> <th>POSITION</th> <th>P/N</th> <th>TEMP</th> <th>T rise</th> </tr> </thead> <tbody> <tr> <td></td> <td>BD1</td> <td>BRIDGE DIODE</td> <td>32.8°C</td> <td>8.6°C</td> </tr> <tr> <td></td> <td>Q1</td> <td>MAIN TRANSISTOR</td> <td>31.3°C</td> <td>7.1°C</td> </tr> <tr> <td></td> <td>T1</td> <td>MAIN TRANSFORMER COIL</td> <td>38.7°C</td> <td>14.5°C</td> </tr> <tr> <td></td> <td>T1</td> <td>MAIN TRANSFORMER CORE</td> <td>32.2°C</td> <td>8°C</td> </tr> <tr> <td></td> <td>LF2</td> <td>LINE FILTER TRANSFORMER</td> <td>27.8°C</td> <td>3.6°C</td> </tr> <tr> <td></td> <td>C5</td> <td>I/P FILTER CAPACITOR</td> <td>28.9°C</td> <td>6.7°C</td> </tr> <tr> <td></td> <td>C111</td> <td>O/P FILTER CAPACITOR</td> <td>29.2°C</td> <td>5°C</td> </tr> <tr> <td></td> <td>D17</td> <td>O/P DIODE</td> <td>52.5°C</td> <td>28.3°C</td> </tr> <tr> <td></td> <td>RG1</td> <td>REGULATER</td> <td>47.1C</td> <td>22.9°C</td> </tr> <tr> <td></td> <td>D15</td> <td>O/P DIODE</td> <td>48.4°C</td> <td>24.2°C</td> </tr> </tbody> </table>		POSITION	P/N	TEMP	T rise		BD1	BRIDGE DIODE	32.8°C	8.6°C		Q1	MAIN TRANSISTOR	31.3°C	7.1°C		T1	MAIN TRANSFORMER COIL	38.7°C	14.5°C		T1	MAIN TRANSFORMER CORE	32.2°C	8°C		LF2	LINE FILTER TRANSFORMER	27.8°C	3.6°C		C5	I/P FILTER CAPACITOR	28.9°C	6.7°C		C111	O/P FILTER CAPACITOR	29.2°C	5°C		D17	O/P DIODE	52.5°C	28.3°C		RG1	REGULATER	47.1C	22.9°C		D15	O/P DIODE	48.4°C	24.2°C	P
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21	LIFE CYCLE	A: SUPPOSE C111 IS THE MOST CRITICAL COMPONENT (with 18cfm fan) I/P:230VAC O/P:FULL LOAD Ta:25°C Tc111:29.2°C Life: 1106937hrs I/P:230VAC O/P:FULL LOAD Ta:55.8°C Tc111:59.8C Life: 209744hrs		P																																																							
22	CRITICAL COMPONENT RECORD ( FOR QC INSPECTION REFERENCE ONLY )	A: FUSE :F5 L/250V GFE/GMA BRIDGE DIODE :KBJ608G 6A/800V LINE FILTER :LF-201 ET-28 TRANSFOMER :TF-840-R1 ETD-34 POWER SWITCHER :2SK1940 OUTPUT DIODE SBL3040PT 30A/40V OUTPUT CAPACITOR :Rubycon 1200u/16v 105°C ZL INPUT CAPACITOR :HITACHI 100uF/400V HP-3 85°C P.C.B PPQ-1003 CEM-3 2OZ SS																																																									

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
DATE	SAMPLE	TEST RESULT	TEST	APPROVAL
20000203	RD SAMPLE PPQ1003D	PASS	VINCENT	Max Lin
20000512	A005A23 PPQ1003A PPQ1003B PPQ1003C PPQ1003D	PASS	VINCENT	Max Lin
20010410	A103D18 PPQ1003B PPQ1003D	PASS	VINCENT	Max Lin