

# Quality Engineering Test Report

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

<b>SAMPLE: A : QP-100-3A</b>	V1: 5 V / 8 A V2: 3.3 V / 8 A V3: 12 V / 2.5 A V4: -5 V / 0.6 A	<b>D : QP-100-3D</b>	V1: 5 V / 8 A V2: 3.3 V / 8 A V3: 24 V / 1.3 A V4: -12 V / 0.6 A
<b>SAMPLE: B : QP-100-3B</b>	V1: 5 V / 8 A V2: 3.3 V / 8 A V3: 12 V / 2.2 A V4: -12 V / 0.6 A	<b>E : QP-100D</b>	V1: 5 V / 8 A V2: 12 V / 2.4 A V3: 24 V / 1 A V4: -12 V / 0.6 A
<b>SAMPLE: C : QP-100-3C</b>	V1: 5 V / 8 A V2: 3.3 V / 8 A V3: 15 V / 1.7 A V4: -15 V / 0.6 A	<b>F : QP-100F</b>	V1: 5 V / 8 A V2: 15 V / 2 A V3: 24 V / 1 A V4: -15 V / 0.6 A

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
1	AC INPUT VOLTAGE RANGE	I/P:TESTING SPEC:90~264VAC O/P:FULL LOAD	B:69.1VAC~267VAC	P
2	LINE REGULATION	I/P:110~264VAC SPEC: O/P:FULL LOAD A: V1: ±1% V2: ±1% V3: ±2% V4: ±1% B: V1: ±1% V2: ±1% V3: ±2% V4: ±1% C: V1: ±1% V2: ±1% V3: ±2% V4: ±1% D: V1: ±1% V2: ±1% V3: ±2% V4: ±1% E: V1: ±1% V2: ±1% V3: ±2% V4: ±1% F: V1: ±1% V2: ±1% V3: ±2% V4: ±1%	A: V1: -0.12% ~ +0% V2: -0.00% ~ +0.00% V3: -0.1% ~ +0.00% V4: -0.00% ~ +0.00% B: V1: -0.00% ~ +0.00% V2: -0.00% ~ +0.00% V3: -0.00% ~ +0.51% V4: -0.00% ~ +0.00% C: V1: -0.00% ~ +0.00% V2: -0.00% ~ +0.00% V3: -0.04% ~ +0.00% V4: -0.00% ~ +0.00% D: V1: -0.12% ~ -0.12% V2: -0.00% ~ +0.00% V3: -0.00% ~ +0.00% V4: -0.00% ~ +0.00% E: V1: -0.00% ~ +0.00% V2: -0.00% ~ +0.00% V3: -0.00% ~ +0.03% V4: -0.00% ~ +0.00% F: 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: ±2% V3: ±6% V4: ±2% B: V1: ±2% V2: ±2% V3: ±6% V4: ±2% C: V1: ±2% V2: ±2% V3: ±6% V4: ±2% D: V1: ±2% V2: ±2% V3: ±6% V4: ±2% E: V1: ±2% V2: ±2% V3: ±6% V4: ±2% F: V1: ±2% V2: ±2% V3: ±6% V4: ±2%	A: V1: -0.24% ~ +0.24% V2: -0.18% ~ +0.36% V3: +0.35% ~ +0.35% V4: -0.24% ~ +0.12% B: V1: -0.35% ~ +0.24% V2: -0.36% ~ +0.18% V3: +0.58% ~ +0.36% V4: -0.05% ~ +0.10% C: V1: -0.36% ~ +0.23% V2: -0.36% ~ +0.18% V3: -0.64% ~ +1.32% V4: -0.04% ~ +0.00% D: V1: -0.12% ~ +0.24% V2: -0.18% ~ +0.18% V3: -1.39% ~ +1.66% V4: -0.00% ~ +0.00% E: V1: -0.24% ~ +0.12% V2: -0.05% ~ +0.05% V3: -1.16% ~ +1.52% V4: -0.10% ~ +0.05% F: V1: -0.236% ~ +0.12% V2: -0.08% ~ +0.12% V3: -1.05% ~ +1.4% V4: -0.04% ~ +0.04%	P

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
4	OUTPUT VOLTAGE TOLERANCE	I/P:90~264VAC O/P:20% TO FULL LOAD SPEC: A: V1: $\pm 3\%$ V2: $\pm 3\%$ V3: $\pm 6\%$ V4: $\pm 5\%$ B: V1: $\pm 3\%$ V2: $\pm 3\%$ V3: $\pm 6\%$ V4: $\pm 5\%$ C: V1: $\pm 3\%$ V2: $\pm 3\%$ V3: $-6\%$ ~ $+8\%$ V4: $\pm 5\%$ D: V1: $\pm 3\%$ V2: $\pm 3\%$ V3: $\pm 6\%$ V4: $\pm 5\%$ E: V1: $\pm 3\%$ V2: $\pm 3\%$ V3: $\pm 6\%$ V4: $\pm 5\%$ F: V1: $\pm 3\%$ V2: $\pm 3\%$ V3: $\pm 6\%$ V4: $\pm 5\%$	A: V1: -0.5% ~ +0.12% V2: -0.18% ~ +0.4% V3: -2.76% ~ +2.98% V4: -0.38% ~ +0.12% B: V1: +0.12% ~ +0.61% V2: -0.57% ~ +0.36% V3: -0.03% ~ +3.81% V4: -1.76% ~ +0.00% C: V1: -0.118% ~ -0.610% V2: +0.177% ~ -0.385% V3: +3.311% ~ -0.6% V4: +0.121% ~ +0.04% D: V1: -0.26% ~ +0.24% V2: -0.18% ~ +0.36% V3: -0.92% ~ +4.54% V4: +0.00% ~ +0.05% E: V1: -0.36% ~ +0.14% V2: -0.05% ~ +0.11% V3: -0.84% ~ +3.56% V4: -2.43% ~ +0.11% F: V1: -0.37% ~ +0.12% V2: -0.29% ~ +0.28% V3: +1.5% ~ +3.4% V4: +0.09% ~ +1.2%	P
5	RIPPLE&NOISE	I/P:230VAC O/P:FULL LOAD SPEC: A: V1: 100mV V2: 100mV V3: 150mV V4: 150mV B: V1: 100mV V2: 100mV V3: 150mV V4: 150mV C: V1: 100mV V2: 100mV V3: 150mV V4: 150mV D: V1: 100mV V2: 100mV V3: 150mV V4: 150mV E: V1: 120mV V2: 150mV V3: 200mV V4: 150mV F: V1: 120mV V2: 180mV V3: 200mV V4: 150mV	A: V1: 55mV V2: 18mV V3: 48mV V4: 5mV B: V1: 39mV V2: 9mV V3: 42mV V4: 50mV C: V1: 53mV V2: 16mV V3: 19mV V4: 50mV D: V1: 56mV V2: 15mV V3: 85mV V4: 50mV E: V1: 48mV V2: 71mV V3: 34mV V4: 8mV F: V1: 58mV V2: 103mV V3: 83mV V4: 50mV	P
6	AC INPUT CURRENT	I/P:230VAC O/P:FULL LOAD SPEC:0.75A	B:0.598A	P
7	MAX. INRUSH CURREN	I/P:230VAC O/P: FULL LOAD SPEC:40A	B:30.281A	P
8	O/P VOLTAGE ADJ.RANGE	I/P:230VAC O/P:MIN. LOAD SPEC:CH1,CH2:-5%~+10%	A: V1 4.51V~5.81V : V2 3.09V~3.82V B: V1 4.499V~5.799V V2 3.052V~3.787V C: V1 4.487V~5.811V V2 3.083V~3.781V D: V1 4.467V~5.833V V2 3.038V~3.774V E: V1 4.506V~5.838V V2 10.11V~13.758V F: V1 4.479V~5.805V V2 12.33V~17.368V	P

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT																																				
9	SET UP TIME	I/P:230VAC O/P:FULL LOAD SPEC:800mS	B: 504.79mS	P																																				
10	HOLD UP TIME	I/P:230VAC O/P:FULL LOAD SPEC:16mS	B: 30.389mS	P																																				
11	EFFICIENCY	I/P:230VAC O/P:FULL LOAD SPEC: A:74% B:74% C:75% D:75% E:78% F:78%	A:76.27% B:75.73% C:76.15% D:77.02% E:79.08% F:79.368%	P																																				
12	OVER LOAD PROTECTION	I/P:230VAC O/P:TESTING SPEC:105%~150%	A:133.53% B:122.0% C:129.4% D:125.34% E:141% F:133.77%	P																																				
13	OVER VOLTAGE PROTECTION	I/P:230VAC O/P:FULL LOAD SPEC: CH1:5.75~6.75V CH2:3.8V~4.4V	A : CH1:6.01V CH2:4.02V B : CH1:6.07V CH2:4.2V C : CH1:5.98V CH2:4.1V D : CH1:6.05V CH2:4.2V E : CH1:6.06V CH2:4.2V F : CH1:5.91V CH2:4.05V	P																																				
14	GROUND LEAKAGE CURRENT	I/P:240VAC SPEC: L-FG--<3.5mA N-FG--<3.5mA	B: L-FG:2.1mA N-FG:2.2mA	P																																				
15	INSULATION RESISTANCE	SPEC: I/P-O/P: 500VDC/100M Ohms MIN. I/P-FG: 500VDC/100M Ohms MIN. O/P-FG: 500VDC/100M Ohms MIN.	B: 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: 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)	B: I/P-O/P :5.18mA I/P-FG :3.97mA O/P-FG :7.89mA	P																																				
17	BURN-IN TEST	I/P: 230VAC O/P: FULL LOAD TA:23.1°C BURN-IN DURATION : 1.5 hrs	B:NON BREAK	P																																				
18	ENVIRONMENT TEST ( SAMPLE B:)	HIGH AMBIENT TEMPERATURE FULL LOAD TEST I/P:230VAC O/P:FULL LOAD AMBIENT TEMPERATURE:39.8°C	AFTER 18.5 hrs NON BREAK	P																																				
19	TEMPERATURE RISE TEST T rise OF PARTS	B: I/P :230VAC AFTER 1.5 hr BURN-IN O/P :FULL LOAD TA:23.1°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>68.1°C</td> <td>45°C</td> </tr> <tr> <td>Q1</td> <td>MAIN TRANSISTOR</td> <td>67.1°C</td> <td>44°C</td> </tr> <tr> <td>T1</td> <td>MAIN TRANSFORMER WIRE</td> <td>91.6°C</td> <td>68.5°C</td> </tr> <tr> <td>D51</td> <td>O/P DIODE</td> <td>72.7°C</td> <td>49.6°C</td> </tr> <tr> <td>C57</td> <td>O/P FILTER CAPACITOR</td> <td>83.3°C</td> <td>60.2°C</td> </tr> <tr> <td>L51</td> <td>O/P CHOCK</td> <td>96.7°C</td> <td>73.6°C</td> </tr> <tr> <td>C5</td> <td>I/P FILTER CAPACITOR</td> <td>59.7°C</td> <td>36.6°C</td> </tr> <tr> <td>LF2</td> <td>LIME FILTER TRANSFORMER</td> <td>56.2°C</td> <td>33.1°C</td> </tr> </tbody> </table>	POSITION	P/N	TEMP	T rise	BD1	BRIDGE DIODE	68.1°C	45°C	Q1	MAIN TRANSISTOR	67.1°C	44°C	T1	MAIN TRANSFORMER WIRE	91.6°C	68.5°C	D51	O/P DIODE	72.7°C	49.6°C	C57	O/P FILTER CAPACITOR	83.3°C	60.2°C	L51	O/P CHOCK	96.7°C	73.6°C	C5	I/P FILTER CAPACITOR	59.7°C	36.6°C	LF2	LIME FILTER TRANSFORMER	56.2°C	33.1°C	P
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20	LIFE CYCLE	B: SUPPOSE C57 IS THE MOST CRITICAL COMPONENT I/P:230VAC O/P:FULL LOAD Ta:25°C Tc57:85.2°C Life: 24034hrs I/P:230VAC O/P:FULL LOAD Ta:40°C Tc57:94.9°C Life: 12261hrs		P																																				
21	CRITICAL COMPONENT RECORD ( FOR QC INSPECTION REFERENCE ONLY )	B: FUSE :4A/250V BRIDGE DIODE :D4SB80 LINE FILTER :LF-201 EF-28 TRANSFORMER TF-741 POWER SWITCHER :2SK1940 12A/600V OUTPUT DIODE :BYQ28X-200 OUTPUT CAPACITOR :2200u/10V RUBYCON YXG INPUT CAPACITOR :100uF/400V 85°C P.C.B :QTP-150-R2																																						

DATE	SAMPLE	TEST RESULT	TEST	APPROVAL
20000105	RD SAMPLE QP-100-3A QP-100-3B QP-100-3C QP-100-3D QP-100D QP-100E	PASS	VINCENT	Max Lin
20000408	PRODUCTION SAMPLE A203A32 QP-100-3A	PASS	VINCENT	Max Lin
20000905	PRODUCTION SAMPLE A208A14 QP-100F	PASS	VINCENT	Max Lin
20010301	PRODUCTION SAMPLE A211B20A QP-100D	PASS	VINCENT	Max Lin