Quality Engineering Test Report

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

SAMPLE:	**A : QP-100-3A**	**V1:**	**5**	**V**	**/**	**8**	**A**	**D : QP-100-3D**	**V1:**	**5**	**V**	**/**	**8**	**A**
		V2:	**3.3**	**V**	**/**	**8**	**A**		**V2:**	**3.3**	**V**	**/**	**8**	**A**
		V3:	**12**	**V**	**/**	**2.5**	**A**		**V3:**	**24**	**V**	**/**	**1.3**	**A**
		V4:	**-5**	**V**	**/**	**0.6**	**A**		**V4:**	**-12**	**V**	**/**	**0.6**	**A**
SAMPLE:	**B : QP-100-3B**	**V1:**	**5**	**V**	**/**	**8**	**A**	**E : QP-100D**	**V1:**	**5**	**V**	**/**	**8**	**A**
		V2:	**3.3**	**V**	**/**	**8**	**A**		**V2:**	**12**	**V**	**/**	**2.4**	**A**
		V3:	**12**	**V**	**/**	**2.2**	**A**		**V3:**	**24**	**V**	**/**	**1**	**A**
		V4:	**-12**	**V**	**/**	**0.6**	**A**		**V4:**	**-12**	**V**	**/**	**0.6**	**A**
SAMPLE:	**C : QP-100-3C**	**V1:**	**5**	**V**	**/**	**8**	**A**	**F : QP-100F**	**V1:**	**5**	**V**	**/**	**8**	**A**
		V2:	**3.3**	**V**	**/**	**8**	**A**		**V2:**	**15**	**V**	**/**	**2**	**A**
		V3:	**15**	**V**	**/**	**1.7**	**A**		**V3:**	**24**	**V**	**/**	**1**	**A**
		V4:	**-15**	**V**	**/**	**0.6**	**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: -0236% ~ +0.12% V2: -008% ~ +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: ±3% V2: ±3% V3: ±6% V4: ±5% B: V1: ±3% V2: ±3% V3: ±6% V4: ±5% C: V1: ±3% V2: ±3% V3: -6%~+8% V4: ±5% D: V1: ±3% V2: ±3% V3: ±6% V4: ±5% E: V1: ±3% V2: ±3% V3: ±6% V4: ±5% F: V1: ±3% V2: ±3% V3: ±6% V4: ±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

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>TEST CONDITION / SPECIFICATION</th><th>RESULT</th><th>VERDICT</th></tr>
<tr><td>9</td><td>SET UP TIME</td><td>I/P:230VAC SPEC:800mS
O/P:FULL LOAD</td><td>B: 504.79mS</td><td>P</td></tr>
<tr><td>10</td><td>HOLD UP TIME</td><td>I/P:230VAC SPEC:16mS
O/P:FULL LOAD</td><td>B: 30.389mS</td><td>P</td></tr>
<tr><td>11</td><td>EFFICIENCY</td><td>I/P:230VAC SPEC:
O/P:FULL LOAD A:74%
B:74%
C:75%
D:75%
E:78%
F:78%</td><td>A:76.27%
B:75.73%
C:76.15%
D:77.02%
E:79.08%
F:79.368%</td><td>P</td></tr>
<tr><td>12</td><td>OVER LOAD PROTECTION</td><td>I/P:230VAC SPEC:105%~150%
O/P:TESTING</td><td>A:133.53%
B:122.0%
C:129.4%
D:125.34%
E:141%
F:133.77%</td><td>P</td></tr>
<tr><td>13</td><td>OVER VOLTAGE PROTECTION</td><td>I/P:230VAC SPEC: CH1:5.75~6.75V
O/P:FULL LOAD CH2:3.8V~4.4V</td><td>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</td><td>P</td></tr>
<tr><td>14</td><td>GROUND LEAKAGE CURRENT</td><td>I/P:240VAC SPEC: L-FG--<3.5mA
N-FG--<3.5mA</td><td>B: L-FG:2.1mA
N-FG:2.2mA</td><td>P</td></tr>
<tr><td>15</td><td>INSULATION RESISTANCE</td><td>SPEC: I/P-O/P: 500VDC/100M Ohms MIN.
I/P-FG: 500VDC/100M Ohms MIN.
O/P-FG: 500VDC/100M Ohms MIN.</td><td>B: 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: 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)</td><td>B: I/P-O/P :5.18mA
I/P-FG :3.97mA
O/P-FG :7.89mA</td><td>P</td></tr>
<tr><td>17</td><td>BURN-IN TEST</td><td>I/P: 230VAC O/P: FULL LOAD
TA:23.1ºC BURN-IN DURATION : 1.5 hrs</td><td>B:NON BREAK</td><td>P</td></tr>
<tr><td>18</td><td>ENVIRONMENT TEST
(SAMPLE B:)</td><td>HIGH AMBIENT TEMPERATURE FULL LOAD TEST
I/P:230VAC O/P:FULL LOAD
AMBIENT TEMPERATURE:39.8ºC</td><td>AFTER 18.5 hrs
NON BREAK</td><td>P</td></tr>
<tr><td>19</td><td>TEMPERATURE RISE TEST T rise OF PARTS</td><td colspan="2">B: I/P :230VAC AFTER 1.5 hr BURN-IN
O/P :FULL LOAD TA:23.1ºC
<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>68.1ºC</td><td>45ºC</td></tr>
<tr><td>Q1</td><td>MAIN TRANSISTOR</td><td>67.1ºC</td><td>44ºC</td></tr>
<tr><td>T1</td><td>MAIN TRANSFORMER WIRE</td><td>91.6ºC</td><td>68.5ºC</td></tr>
<tr><td>D51</td><td>O/P DIODE</td><td>72.7ºC</td><td>49.6ºC</td></tr>
<tr><td>C57</td><td>O/P FILTER CAPACITOR</td><td>83.3ºC</td><td>60.2ºC</td></tr>
<tr><td>L51</td><td>O/P CHOCK</td><td>96.7ºC</td><td>73.6ºC</td></tr>
<tr><td>C5</td><td>I/P FILTER CAPACITOR</td><td>59.7ºC</td><td>36.6ºC</td></tr>
<tr><td>LF2</td><td>LIME FILTER TRANSFORMER</td><td>56.2ºC</td><td>33.1ºC</td></tr>
</table></td><td>P</td></tr>
<tr><td>20</td><td>LIFE CYCLE</td><td colspan="2">B: SUPPOSE C57 IS THE MOST CRITICAL COMPONENT
I/P:230VAC O/P:FULL LOAD Ta:25ºC Tc57:85.2ºC Life: 24034hrs
I/P:230VAC O/P:FULL LOAD Ta:40ºC Tc57:94.9ºC Life: 12261hrs</td><td>P</td></tr>
<tr><td>21</td><td>CRITICAL COMPONENT RECORD (FOR QC INSPECTION REFERENCE ONLY)</td><td colspan="3">B: FUSE :4A/250V
BRIDGE DIODE :D4SB80
LINE FILTER :LF-201 EF-28
TRANSFOMER TF-741
POWER SWITCHER :2SK1940 12A/600V
OUTPUT DIODE :BYQ28X-200
OUTPUT CAPACITOR :2200u/10V RUBYCON YXG
INPUT CAPACITOR :100uF/400V 85ºC
P.C.B :QTP-150-R2</td></tr>
</table>

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