

# Quality Engineering Test Report

**SERIES:PSP-500 500W AC-DC SINGLE OUTPUT SWITCHING POWER SUPPLY**

**SAMPLE:A.PSP-500-5 5V/80A D.PSP-500-15 15V/33A G. PSP-500-48 48V/10.5A  
 B.PSP-500-12 12V/41.5A E. PSP-500-24 24V/20.8A  
 C.PSP-500-13.5 13.5/37A F. PSP-500-27 27V/18.5A**

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
1	MAX. INRUSH CURREN	I/P:230VAC SPEC:40A O/P: FULL LOAD	A: 33.3A B: 31.8A C: 33.7A D: 31.5A E: 35.1A F: 31.9A G: 35.1A	P
2	SET UP TIME	I/P:230VAC SPEC:1.5S O/P:FULL LOAD	A: 381.1mS B: 413.8mS C: 396.6mS D: 417.2mS E: 400.8mS F: 387.8mS G: 397.0mS	P
3	RISE TIME	I/P:230VAC SPEC:50mS O/P:FULL LOAD	A: 1.09 mS B: 19.1 mS C: 20.2 mS D: 14.3 mS E: 20.9 mS F: 9.33 mS G: 26.1 mS	P
4	HOLD UP TIME	I/P:230VAC SPEC:15mS O/P:FULL LOAD	A: 24.77mS B: 24.21mS C: 31.0mS D: 32.59mS E: 35.06mS F: 30.47mS G: 33.37mS	P
5	LINE REGULATION	I/P:180~264VAC SPEC: A:± 0.5 % O/P:FULL LOAD B:± 0.3 % C:± 0.3 % D:± 0.3 % E:± 0.2 % F:± 0.2 % G:± 0.2 %	A. +0.00 % ~ +0.00 % B. +0.00 % ~ +0.05 % C. +0.00 % ~ +0.00 % D. -0.04 % ~ +0.04 % E. +0.00 % ~ +0.00 % F. +0.00 % ~ +0.22 % G. +0.01 % ~ +0.01 %	P
6	LOAD REGULATION	I/P:230VAC SPEC: A:± 2 % O/P:MIN. TO FULL LOAD B:± 0.5 % C:± 0.5 % D:± 0.5 % E:± 0.5 % F:± 0.5 % G:± 0.5 %	A. -0.49 % ~ -0.12 % B. -0.26 % ~ -0.05 % C. -0.18 % ~ +0.00 % D. -0.25 % ~ +0.08 % E. -0.1 % ~ +0.025 % F. -0.066 % ~ +0.044 % G. -0.089 % ~ +0.052 %	P
7	OUTPUT VOLTAGE TOLERANCE	I/P:180~264VAC SPEC: A:± 2% O/P:0% TO FULL LOAD B:± 1% C:± 1% D:± 1% E:± 1% F:± 1% G:± 1%	A. -0.38 % ~ 0.5 % B. -0.26 % ~ -0.06 % C. +0.04 % ~ +0.33 % D. -0.29 % ~ +0.04 % E. +0.00 % ~ +0.13 % F. 0.14 % ~ 0.048 % G. +0.077 % ~ +0.26 %	P
8	OVER LOAD PROTECTION	I/P:230VAC SPEC: A:115%~125% O/P:TESTING B:115%~125% C:115%~125% D:115%~125% E:115%~125% F:115%~125% G:115%~125%	A: 125% B: 121% C: 123% D: 118% E: 125% F: 130% G: 125%	P
9	AC INPUT VOLTAGE RANGE	I/P:TESTING SPEC:90~264VAC O/P:FULL LOAD	A. 56.7V ~ 264 VAC B. 61.64V ~ 264 VAC C. 56.63V ~ 264 VAC D. 59.59V ~ 264 VAC E. 56.6V ~ 264 VAC F. 58.59V ~ 264 VAC G. 57.6V ~ 264 VAC	P

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10	RIPPLE&NOISE	I/P:230VAC O/P:FULL LOAD SPEC: A: 100mV B: 150mV C: 150mV D: 150mV E: 150mV F: 150mV G: 200mV	A: 37 mV B: 97 mV C: 52 mV D: 44 mV E: 61 mV F: 77 mV G: 124 mV	P														
11	AC INPUT CURRENT	I/P:230VAC O/P:FULL LOAD SPEC:3.5A	A: 2.3 A B: 2.6 A C: 2.61 A D: 2.61 A E: 2.58 A F: 2.56 A G: 2.58 A	P														
12	EFFICIENCY	I/P:230VAC O/P:FULL LOAD SPEC: A:76% B:82% C:82% D:82% E:84% F:84% G:86%	A: 76.33 % B: 85.16 % C: 84.98 % D: 84.17 % E: 85.99 % F: 86.5 % G: 86.85 %	P														
13	POWER GOOD SINGLE	I/P:230VAC O/P:FULL LOAD SPEC:10mS	A: 62.4 mS B: 50.6 mS C: 46.4 mS D: 54.6 mS E: 45.1 mS F: 58.7 mS G: 53.4 mS	P														
14	POWER FAIL SINGLE	I/P:230VAC O/P:FULL LOAD SPEC:1mS	A: 1.7 mS B: 9.1 mS C: 41.5 mS D: 20.2 mS E: 18.9 mS F: 17.3 mS G: 19.3 mS	P														
15	O/P VOLTAGE ADJ.RANGE	I/P:230VAC O/P:MIN. LOAD SPEC: A: 4.75 V ~ 5.5 V B: 10 V ~ 13.2 V C: 12 V ~ 15 V D: 13.5 V ~ 18 V E: 20 V ~ 26.4 V F: 24 V ~ 30 V G: 41 V ~ 56 V	A. 4.22 V ~ 6.29 V B. 9.04 V ~ 13.84 V C. 10.4 V ~ 16.1 V D. 12.7 V ~ 19.26 V E. 18.93 V ~ 27.79 V F. 21.79 V ~ 32.09 V G. 39.29 V ~ 58.18 V	P														
16	GROUND LEAKAGE CURRENT	I/P:240VAC SPEC: L-FG-<1mA N-FG-<1mA	<table border="1"> <tbody> <tr> <td>A:</td> <td>L-FG: 0.48mA N-FG: 0.48mA</td> </tr> <tr> <td>B:</td> <td>L-FG: 0.62mA N-FG: 0.6mA</td> </tr> <tr> <td>C:</td> <td>L-FG: 0.52mA N-FG: 0.5mA</td> </tr> <tr> <td>D:</td> <td>L-FG: 0.55mA N-FG: 0.5mA</td> </tr> <tr> <td>E:</td> <td>L-FG: 0.08mA N-FG: 0.08mA</td> </tr> <tr> <td>F:</td> <td>L-FG: 0.5mA N-FG: 0.5mA</td> </tr> <tr> <td>G:</td> <td>L-FG: 0.55mA N-FG: 0.54mA</td> </tr> </tbody> </table>	A:	L-FG: 0.48mA N-FG: 0.48mA	B:	L-FG: 0.62mA N-FG: 0.6mA	C:	L-FG: 0.52mA N-FG: 0.5mA	D:	L-FG: 0.55mA N-FG: 0.5mA	E:	L-FG: 0.08mA N-FG: 0.08mA	F:	L-FG: 0.5mA N-FG: 0.5mA	G:	L-FG: 0.55mA N-FG: 0.54mA	P
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17	DIELECTRIC / WITHSTAND VOLTAGE	SPEC: I/P- O/P: 3KVAC/ 1 min. (10mA CUT-OFF) I/P - FG: 1.5KVDC/ 1 min. (10mA CUT-OFF) O/P -FG: 0.5KVDC/ 1 min. (10mA CUT-OFF)	<table border="1"> <tr> <td>A:</td> <td>I/P-O/P:</td> <td>1.107mA</td> </tr> <tr> <td></td> <td>I/P-FG:</td> <td>3.56mA</td> </tr> <tr> <td></td> <td>O/P-FG:</td> <td>14.9mA</td> </tr> <tr> <td>B:</td> <td>I/P-O/P:</td> <td>1.09mA</td> </tr> <tr> <td></td> <td>I/P-FG:</td> <td>3.08mA</td> </tr> <tr> <td></td> <td>O/P-FG:</td> <td>14.95mA</td> </tr> <tr> <td>C:</td> <td>I/P-O/P:</td> <td>0.733mA</td> </tr> <tr> <td></td> <td>I/P-FG:</td> <td>2.213mA</td> </tr> <tr> <td></td> <td>O/P-FG:</td> <td>15.16mA</td> </tr> <tr> <td>D:</td> <td>I/P-O/P:</td> <td>0.79mA</td> </tr> <tr> <td></td> <td>I/P-FG:</td> <td>3.05mA</td> </tr> <tr> <td></td> <td>O/P-FG:</td> <td>15.29mA</td> </tr> <tr> <td>E:</td> <td>I/P-O/P:</td> <td>0.962mA</td> </tr> <tr> <td></td> <td>I/P-FG:</td> <td>0.438mA</td> </tr> <tr> <td></td> <td>O/P-FG:</td> <td>15.29mA</td> </tr> <tr> <td>F:</td> <td>I/P-O/P:</td> <td>0.975mA</td> </tr> <tr> <td></td> <td>I/P-FG:</td> <td>0.125mA</td> </tr> <tr> <td></td> <td>O/P-FG:</td> <td>0.098mA</td> </tr> <tr> <td>G:</td> <td>I/P-O/P:</td> <td>1.311mA</td> </tr> <tr> <td></td> <td>I/P-FG:</td> <td>3.700mA</td> </tr> <tr> <td></td> <td>O/P-FG:</td> <td>15.13mA</td> </tr> </table>	A:	I/P-O/P:	1.107mA		I/P-FG:	3.56mA		O/P-FG:	14.9mA	B:	I/P-O/P:	1.09mA		I/P-FG:	3.08mA		O/P-FG:	14.95mA	C:	I/P-O/P:	0.733mA		I/P-FG:	2.213mA		O/P-FG:	15.16mA	D:	I/P-O/P:	0.79mA		I/P-FG:	3.05mA		O/P-FG:	15.29mA	E:	I/P-O/P:	0.962mA		I/P-FG:	0.438mA		O/P-FG:	15.29mA	F:	I/P-O/P:	0.975mA		I/P-FG:	0.125mA		O/P-FG:	0.098mA	G:	I/P-O/P:	1.311mA		I/P-FG:	3.700mA		O/P-FG:	15.13mA	P
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19	REMOTE CONTROL	I/P:230V O/P:FULL LOAD SPEC: 0V~0.8V POWER ON 4V~10V POWER OFF	<table border="1"> <tr> <td></td> <td>POWER ON</td> <td>POWER OFF</td> </tr> <tr> <td>A:</td> <td>OK</td> <td>OK</td> </tr> <tr> <td>B:</td> <td>OK</td> <td>OK</td> </tr> <tr> <td>C:</td> <td>OK</td> <td>OK</td> </tr> <tr> <td>D:</td> <td>OK</td> <td>OK</td> </tr> <tr> <td>E:</td> <td>OK</td> <td>OK</td> </tr> <tr> <td>F:</td> <td>OK</td> <td>OK</td> </tr> <tr> <td>G:</td> <td>OK</td> <td>OK</td> </tr> </table>		POWER ON	POWER OFF	A:	OK	OK	B:	OK	OK	C:	OK	OK	D:	OK	OK	E:	OK	OK	F:	OK	OK	G:	OK	OK	P																																							
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20	BURN-IN TEST	I/P: 230VAC O/P: FULL LOAD TA:30.8°C BURN-IN DURATION : 15 hrs	F:NON BREAK	P																																																															
21	ENVIRONMENT TEST (SAMPLE F:)	1.LOW TEMPERATURE TEST I/P:230VAC O/P:FULL LOAD AMBIENT TEMPERATURE:-10 °C 2.HIGH AMBIENT TEMPERATURE FULL LOAD TEST I/P:230VAC O/P:FULL LOAD AMBIENT TEMPERATURE: 51 °C 3.High Humidity High Voltage On/Off Test I/P:267VAC O/P:FULL LOAD AMBIENT TEMPERATURE: 25.7 °C AMBIENT HUMIDITY:95%	AFTER 2.5 hrs POWER ON OK AFTER 3 hrs NON BREAK AFTER 14 hrs POWER ON NON BREAK	P																																																															

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22	TEMPERATURE RISE TEST Trise OF PARTS	<p>F: I/P :230VAC AFTER 15 hr BURN-IN O/P :FULL LOAD TA:30.8°C</p> <table border="1"> <thead> <tr> <th>POSITION</th> <th>P/N</th> <th>TEMP</th> <th>Trise</th> </tr> </thead> <tbody> <tr> <td>BD1</td> <td>BRIDGE DIODE</td> <td>60.3°C</td> <td>29.5°C</td> </tr> <tr> <td>Q1</td> <td>MAIN TRANSISTOR</td> <td>65.9°C</td> <td>35.1°C</td> </tr> <tr> <td>T1</td> <td>MAIN TRANSFORMER WIRE</td> <td>67.7°C</td> <td>36.9°C</td> </tr> <tr> <td>D63</td> <td>O/P DIODE</td> <td>51.6°C</td> <td>20.8°C</td> </tr> <tr> <td>C64</td> <td>O/P FILTER CAPACITOR</td> <td>45.0°C</td> <td>14.2°C</td> </tr> <tr> <td>L1</td> <td>O/P CHOCK</td> <td>56.6°C</td> <td>25.8°C</td> </tr> <tr> <td>C5</td> <td>I/P FILTER CAPACITOR</td> <td>51.9°C</td> <td>21.1°C</td> </tr> <tr> <td>LF1</td> <td>I/P FILTER TRANSFORMER</td> <td>48.3°C</td> <td>17.5°C</td> </tr> </tbody> </table>	POSITION	P/N	TEMP	Trise	BD1	BRIDGE DIODE	60.3°C	29.5°C	Q1	MAIN TRANSISTOR	65.9°C	35.1°C	T1	MAIN TRANSFORMER WIRE	67.7°C	36.9°C	D63	O/P DIODE	51.6°C	20.8°C	C64	O/P FILTER CAPACITOR	45.0°C	14.2°C	L1	O/P CHOCK	56.6°C	25.8°C	C5	I/P FILTER CAPACITOR	51.9°C	21.1°C	LF1	I/P FILTER TRANSFORMER	48.3°C	17.5°C		P
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23	CRITICAL COMPONENT RECORD ( FOR QC INSPECTION REFERENCE ONLY )	<p>F: FUSE :10A/250V BRIDGE DIODE :GBJ2506 25A/600V LINE FILTER :LF 36T40060V TRANSFOMER TF-647-R3 ETD-44 POWER SWITCHER :IRFP460 20A/500V OUTPUT DIODE :ESAD92-02 20A/200V OUTPUT CAPACITOR :RUBYCON 1000uF/35V 105°C YXG INPUT CAPACITOR :HITACH 470uF/400V 85°C P.C.B :PSP-500-R1 FR-4 20Z DS</p>		
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24	LIFE CYCLE	<p>F: SUPPOSE C64 IS THE MOST CRITICAL COMPONENT I/P:230VAC O/P:FULL LOAD Ta:25°C Tc64:45.0°C Life: 582152hrs I/P:230VAC O/P:FULL LOAD Ta:50°C Tc64:61.8°C Life: 131192hrs</p>		P
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DATE	SAMPLE	TEST RESULT	TEST	APPROVAL
20010402	RD SAMPLE 12V,13.5V,15V 24V,27V,48V	PASS	VINCENT	MAX LIN
20010520	PRODUCTION SAMPLE A104B23 5V,12V,13.5V 15V,24V,27V,48V	PASS	VINCENT	MAX LIN
20010912	PRODUCTION SAMPLE A107B24 12V,15V,27V	PASS	VINCENT	MAX LIN
20010925	PRODUCTION SAMPLE A108C27A 5V,13V,24V,48V	PASS	VINCENT	MAX LIN
20010930	PRODUCTION SAMPLE A1109C22 13.5V	PASS	VINCENT	MAX LIN
20011015	PRODUCTION SAMPLE A110A20 27V	PASS	VINCENT	MAX LIN
20011115	PRODUCTION SAMPLE A110C20 48V	PASS	VINCENT	MAX LIN