

# Quality Engineering Test Report

**SERIES: MPS-65 65W WATTS SIGLE OUTPUT SWITCHING POWER SUPPLY OPEN FRAME TYPE**

**SAMPLE: A.MPS-65-3.3 :3.3V/12A      D.MPS-65- 12 :12V/5.2A      G.MPS-65-24 :24V/2.7A**  
**B.MPS-65- 5 :5V/12A      E.MPS-65-13.5 :13.5V/4.7A      H.MPS-65-27 :27V/2.4A**  
**C.MPS-65-7.5 :7.5V/8A      F.MPS-65- 15 :15V/4.2A      I.MPS-65-48 :48V/1.35A**

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
1	AC INPUT VOLTAGE RANGE	I/P:TESTING      SPEC:90~264VAC O/P:FULL LOAD	B: <u>50.1VAC~264VAC</u>	P
2	LINE REGULATION	I/P:90~264VAC      SPEC: A: ±1% O/P:FULL LOAD      B: ±1% C: ±1% D: ±1% E: ±1% F: ±1% G: ±1% H: ±1% I: ±1%	A: -0.00% ~ +0.00% B: -0.00% ~ +0.00% C: -0.00% ~ +0.00% D: -0.00% ~ +0.00% E: -0.00% ~ +0.00% F: +0.00% ~ +0.04% G: -0.00% ~ +0.00% H: -0.00% ~ +0.00% I: -0.00% ~ +0.01%	P
3	LOAD REGULATION	I/P:230VAC      SPEC: A: ±3% O/P:      B: ±3% MIN. TO FULL LOAD      C: ±3% D: ±2% E: ±2% F: ±2% G: ±2% H: ±2% I: ±2%	A: -0.76% ~ +0.76% B: -0.24% ~ +0.12% C: -0.24% ~ +0.16% D: -0.1% ~ +0.1% E: -0.04% ~ +0.09% F: -0.08% ~ +0.08% G: -0.05% ~ +0.05% H: -0.02% ~ +0.02% I: -0.01% ~ +0.01%	P
4	OUTPUT VOLTAGE TOLERANCE	I/P:90~264VAC      SPEC: A: ±3% O/P:      B: ±3% MIN. TO FULL LOAD      C: ±3% D: ±2% E: ±2% F: ±2% G: ±2% H: ±2% I: ±2%	A: -1.15% ~ +0.18% B: -0.37% ~ +0.00% C: -0.49% ~ +0.00% D: -0.2% ~ +0.00% E: -0.04% ~ +0.09% F: -0.167% ~ +0.00% G: -0.16% ~ -0.05% H: -0.11% ~ -0.02% I: -0.01% ~ +0.01%	P
5	RIPPLE & NOISE	I/P:230VAC      SPEC: A:80mV O/P: FULL LOAD      B:100mV C:100mV D:100mV E:100mV F:100mV G:100mV H:100mV I:100mV	A: <u>16mV</u> B: <u>30mV</u> C: <u>18mV</u> D: <u>18mV</u> E: <u>16mV</u> F: <u>14mV</u> G: <u>18mV</u> H: <u>16mV</u> I: <u>13mV</u>	P
6	AC INPUT CURRENT	I/P:230VAC      SPEC: 0.9A O/P:FULL LOAD	B: <u>0.729A</u>	P

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
7	MAX. INRUSH CURRENT	I/P:230VAC O/P:FULL LOAD SPEC: 40A	<u>B:26.921A</u>	P
8	O/P VOLTAGE ADJ.RANGE	I/P:230VAC O/P:MIN. LOAD SPEC:±10% A:2.97V~3.63V B:4.5V~5.5V C:6.75V~8.25V D:10.8V~13.2V E:12.15V~14.85V F:13.5V~16.5V G:21.6V~26.4V H:24.3V~29.7V I:43.2V~52.8V	A:2.724V~4.01V B:4.173V~5.596V C:6.2V~9.00V D:10.081V~13.792V E:11.47V~16.34V F:12.2V~17.26V G:19.74V~27.29V H:22.37V~32.20V I:39.74V~54.68V	P
9	SET UP TIME	I/P:230VAC O/P:FULL LOAD SPEC:800ms	<u>B:276.14mS</u>	P
10	HOLD UP TIME	I/P:230VAC O/P:FULL LOAD SPEC:20mS	<u>B:85.126mS</u>	P
11	EFFICIENCY	I/P:230VAC O/P: FULL LOAD SPEC: A:66% B:74% C:76% D:77% E:78% F:79% G:80% H:80% I:80%	A: <u>69.79%</u> B: <u>75.65%</u> C: <u>77.47%</u> D: <u>78.68%</u> E: <u>79.25%</u> F: <u>80.62%</u> G: <u>82.89%</u> H: <u>82.45%</u> I: <u>83.33%</u>	P
12	OVER LOAD PROTECTION	I/P:230VAC O/P: TESTING SPEC: A: 51~75W B: 70~105W C: 73~105W D: 73~105W E: 73~105W F: 73~105W G: 73~105W H: 73~105W I: 73~105W	A: <u>63.39W</u> B: <u>86.51W</u> C: <u>89.07W</u> D: <u>88.98W</u> E: <u>86.67W</u> F: <u>94.95W</u> G: <u>95.99W</u> H: <u>90.92W</u> I: <u>80.96W</u>	P
13	OVER VOLTAGE PROTECTION	I/P:230VAC O/P:TESTING SPEC:115%~135% A : 3.795V~4.455V B : 5.75V~6.75V C : 8.625V~10.125V D : 13.8V~16.2V E : 15.525V~18.225V F : 17.25V~20.25V G : 27.6V~32.4V H : 31.05V~36.45V I : 55.2V~64.8V	A: <u>4.03V</u> B: <u>6.18V</u> C: <u>9.49V</u> D: <u>15.2V</u> E: <u>16.7V</u> F: <u>18.4V</u> G: <u>31.8V</u> H: <u>33.5V</u> I: <u>59.1V</u>	P

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT																																								
14	GROUND LEAKAGE CURRENT	I/P:264VAC SPEC: L-FG--<0.3mA N-FG--<0.3mA	A: L-FG:0.22 mA N-FG:0.23mA	P																																								
15	INSULATION RESISTANCE	SPEC: O/P-FG 500VDC/100MOhms MIN. I/P-O/P 500VDC/100MOhms MIN. I/P-FG 500VDC/100MOhms MIN.	B: O/P-FG >100MOhms I/P-O/P >100MOhms I/P-FG >100MOhms	P																																								
16	DIELECTRIC / WITHSTAND VOLTAGE	SPEC: I/P- O/P: 4000VAC/ 60 sec (10mA CUT-OFF) I/P - FG: 1500VAC/ 60 sec (10mA CUT-OFF) O/P - FG : 500VAC/ 60sec (10mA CUT-OFF)	B: I/P-O/P :2.44mA I/P-FG :1.539mA O/P- FG :3.56mA	P																																								
17	BURN-IN TEST	I/P: 230VAC O/P:FULL LOAD TA:25°C BURN-IN DURATION : 1 hrs	B: NON BREAK	P																																								
18	ENVIRONMENT TEST	1.LOW TEMPERATURE TEST I/P:230VAC O/P:FULL LOAD AMBIENT TEMPERATURE:-7.3°C	AFTER 5.5 hrs POWER ON <u>OK</u>	P																																								
		2.HIGH AMBIENT TEMPERATURE FULL LOAD TEST I/P:230VAC O/P:FULL LOAD AMBIENT TEMPERATURE:44.3°C	AFTER 12.5 hrs NON BREAK																																									
		3.ACCELERATED LIFE TEST I/P:267VAC O/P:FULL LOAD AMBIENT TEMPERATURE: 25 °C AMBIENT HUMIDITY: 95 %	AFTER 14.5 hrs NON BREAK																																									
19	TEMPERATURE RISE TEST Trise OF PARTS	I/P :230VAC O/P :FULL LOAD AFTER 3 hrs BURN-IN TA:31.0°C	<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>72.0°C</td> <td>41°C</td> </tr> <tr> <td>Q1</td> <td>MAIN TRANSISTOR</td> <td>83.3°C</td> <td>52.3°C</td> </tr> <tr> <td>T1</td> <td>MAIN TRANSFORMER COIL</td> <td>76.4°C</td> <td>45.4°C</td> </tr> <tr> <td>D40</td> <td>O/P DIODE</td> <td>97.9°C</td> <td>66.9°C</td> </tr> <tr> <td>C5</td> <td>I/P FILTER CAPACITOR</td> <td>86.5°C</td> <td>55.5°C</td> </tr> <tr> <td>C41</td> <td>O/P FILTER CAPACITOR</td> <td>76.6°C</td> <td>45.6°C</td> </tr> <tr> <td>T1</td> <td>MAIN TRANSFORMER CORE</td> <td>88.5°C</td> <td>57.5°C</td> </tr> <tr> <td>D1</td> <td>CLAMP DIODE</td> <td>98.6°C</td> <td>67.6°C</td> </tr> <tr> <td>LF1</td> <td>LINE FILTER</td> <td>55.3°C</td> <td>24.3°C</td> </tr> </tbody> </table>	POSITION	P/N	TEMP	Trise	BD1	BRIDGE DIODE	72.0°C	41°C	Q1	MAIN TRANSISTOR	83.3°C	52.3°C	T1	MAIN TRANSFORMER COIL	76.4°C	45.4°C	D40	O/P DIODE	97.9°C	66.9°C	C5	I/P FILTER CAPACITOR	86.5°C	55.5°C	C41	O/P FILTER CAPACITOR	76.6°C	45.6°C	T1	MAIN TRANSFORMER CORE	88.5°C	57.5°C	D1	CLAMP DIODE	98.6°C	67.6°C	LF1	LINE FILTER	55.3°C	24.3°C	P
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20	LIFE CYCLE	SUPPOSE C41 IS THE MOST CRITICAL COMPONENT I/P:230VAC O/P:FULL LOAD Ta:25°C Tc41:76.6°C Life: 47045.6 hrs I/P:230VAC O/P:FULL LOAD Ta:40°C Tc41:89.2°C Life: 17474.1 hrs		P																																								
21	CRITICAL COMPONENT RECORD ( FOR QC INSPECTION REFERENCE ONLY )	FUSE :4A/250VAC MET BRIDGE DIODE :D3SB60 LINE FILTER :TF-484. TRANSFOMER :LS TF-765 POWER SWITCHER :2SK2628 OUTPUT DIODE :D83-004. OUTPUT CAPACITOR :ELNA 1200uF/16V , 105°C, ZL INPUT CAPACITOR :HITACHI 150uF/400V,85°C P.C.B :MPS-65,CEM-3 2OZ SS																																										

DATE	SAMPLE	TEST RESULT	TEST	PROVAL
20010605	RD SAMPLE 3.3V,5V,7.5V,12V 13.5V,24V,27V,48V	PASS	VINCENT	Max Lin
20010824	PRODUCT A107C28 3.3V,5V,7.5V,12V 13.5V,24V,27V,48V	PASS	VINCENT	Max Lin
20020411	PRODUCT A203B04 5V,12V	PASS	VINCENT	Max Lin
20020620	PRODUCT A205D03B 27V	PASS	VINCENT	Max Lin