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Quality Engineering Test Report

SERIES: MPS-45 45W WATTS SIGLE OUTPUT SWITCHING POWER SUPPLY OPEN FRAME TYPE

SAMPLE: A.MPS-45-3.3 :3.3V/8A D.MPS-45-12 :12V/3.7A G.MPS-45-24 :24V/1.9A
B.MPS-45-5 :5V/8A E.MPS-45-13.5:13.5V/3.3A H.MPS-45-27 :27V/1.7A
C.MPS-45-7.5 :7.5V/5.4A F.MPS-45-15 :15V/3A I.MPS-45-48 :48V/1A

| NO | TEST ITEM | TEST CONDITION / SPECIFICATION | RESULT | VERDICT |
|----|--------------------------|---|--|---------|
| 1 | AC INPUT VOLTAGE RANGE | I/P:TESTING SPEC:90-264VAC O/P:FULL LOAD | A:50.875VAC~264VAC | 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: +0.12% ~ +0.12% C: -0.00% ~ +0.00% D: +0% ~ +0.05% E: +0.00% ~ +0.00% F: +0.00% ~ +0.04% G: +0.00% ~ +0.0% H: +0.00% ~ +0.00% I: -0.01% ~ +0.00% | 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: +0.179% ~ +0.179% B: -0% ~ +0.24% C: -0.24% ~ +0.08% D: -0.05% ~ +0.05% E: -0.08% ~ +0.04% F: -0.00% ~ +0.00% G: -0.025% ~ +0.025% H: -0.00% ~ +0.00% I: -0.01% ~ +0.00% | 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: +0.00% ~ +0.179% B: -0.36% ~ +0.00% C: -0.33% ~ +0.00% D: -0.11% ~ +0.08% E: -0.14% ~ 0.00% F: -0.04% ~ +0.00% G: -0.05% ~ +0.025% H: -0.048% ~ +0.00% I: -0.04% ~ +0.00% | 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: 13mV B: 14mV C: 7mV D: 13mV E: 7mV F: 16mV G: 9mV H: 5mV I: 10mV | P |

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| NO | TEST ITEM | TEST CONDITION / SPECIFICATION | RESULT | VERDICT |
|----|----------------------------|--|---|---------|
| 6 | AC INPUT CURRENT | I/P:230VAC SPEC: 0.7A O/P:FULL LOAD | <u>A:0.381A</u> | P |
| 7 | MAX. INRUSH CURRENT | I/P:230VAC SPEC: 40A O/P:FULL LOAD | <u>A:27.41A</u> | P |
| 8 | O/P VOLTAGE ADJ.RANGE | I/P:230VAC SPEC: $\pm 10\%$ O/P:MIN. LOAD 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:2.701V~4.016V B:4.3V~6.03V C:6.6V~9.01V D:10.155V~13.659V E:11.25V~16.29V F:12.43V~17.518V G:20.04V~27.33V H:22.28V~32.74V I:40.21V~55.42V | P |
| 9 | SET UP TIME | I/P:230VAC SPEC:800ms O/P:FULL LOAD | <u>A:280.26mS</u> | P |
| 10 | HOLD UP TIME | I/P:230VAC SPEC:20mS O/P:FULL LOAD | <u>A:120.3mS</u> | P |
| 11 | EFFICIENCY | I/P:230VAC SPEC: A:65% O/P: FULL LOAD B:72% C:75% D:76% E:76% F:77% G:78% H:78% I:78% | A: <u>66.69%</u> B: <u>74.19%</u> C: <u>76.89%</u> D: <u>77.69%</u> E: <u>78.62%</u> F: <u>79.95%</u> G: <u>81.3%</u> H: <u>81.97%</u> I: <u>82.72%</u> | P |
| 12 | OVER LOAD PROTECTION | I/P:230VAC SPEC: A: 36~55W O/P: TESTING B: 53~75W C: 53~75W D: 53~75W E: 53~75W F: 53~75W G: 53~75W H: 53~75W I: 53~75W | A: <u>45.86W</u> B: <u>66.29W</u> C: <u>66.38W</u> D: <u>68.42W</u> E: <u>63.86W</u> F: <u>65W</u> G: <u>60.89W</u> H: <u>68.25W</u> I: <u>66.47W</u> | P |
| 13 | OVER VOLTAGE PROTECTION | I/P:230VAC SPEC: 115%~135% O/P:TESTING 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>4.3V</u> B: <u>6.06V</u> C: <u>9.45V</u> D: <u>15.1V</u> E: <u>16.6V</u> F: <u>18.4V</u> G: <u>31.8V</u> H: <u>33.4V</u> I: <u>56.52V</u> | P |

| NO | TEST ITEM | TEST CONDITION / SPECIFICATION | RESULT | VERDICT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------|--|---|---|----------|-----|------|-------|-----|--------------|-------|------|----|-----------------|-------|--------|----|-----------------------|--------|--------|-----|-----------|--------|--------|----|----------------------|--------|--------|-----|----------------------|--------|--------|----|-----------------------|--------|--------|----|-------------|--------|--------|-----|-------------|--------|--------|---|
| 14 | GROUND LEAKAGE CURRENT | I/P:240VAC SPEC: L-FG-<0.3mA N-FG-<0.3mA | B: L-FG: 0.02mA N-FG:0.02mA | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | INSULATION RESISTANCE | SPEC: O/P-FG 500VDC/100MOhms MIN. I/P-O/P 500VDC/100MOhms MIN. I/P-FG 500VDC/100MOhms MIN. | A: O/P-FG >100MOhms I/P-O/P >100MOhms I/P-FG >100MOhms | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | DIELECTRIC / WITHSTAND VOLTAGE | SPEC: I/P - O/P: 4000VAC/ 1 sec I/P - FG: 1500VAC/ 1 sec O/P - FG : 500VAC/1sec | A: I/P-O/P :2.1mA I/P-FG :1.3mA O/P- FG 2.9mA | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | BURN-IN TEST | I/P: 230VAC O/P:FULL LOAD TA:25°C BURN-IN DURATION :2hrs | A: NON BREAK | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | ENVIRONMENT TEST (SAMPLE B) | 1.LOW TEMPERATURE TEST I/P:230VAC O/P:FULL LOAD AMBIENT TEMPERATURE:-10.1°C | AFTER 3.5 hrs POWER ON OK | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 2.HIGH AMBIENT TEMPERATURE FULL LOAD TEST I/P:230VAC O/P:FULL LOAD AMBIENT TEMPERATURE:40.5°C | AFTER 5 hrs NON BREAK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 3.High Humidity High Voltage On/Off Test I/P:267VAC O/P:FULL LOAD AMBIENT TEMPERATURE: 25 °C AMBIENT HUMIDITY: 95 % | AFTER 18 hrs POWER ON NON BREAK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | TEMPERATURE RISE TEST Trise OF PARTS | I/P :230VAC O/P :FULL LOAD AFTER 3 hrs BURN-IN TA:30.4°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>67.4C</td> <td>37°C</td> </tr> <tr> <td>Q1</td> <td>MAIN TRANSISTOR</td> <td>74.6C</td> <td>44.2°C</td> </tr> <tr> <td>T1</td> <td>MAIN TRANSFORMER COIL</td> <td>78.0°C</td> <td>47.6°C</td> </tr> <tr> <td>D40</td> <td>O/P DIODE</td> <td>95.8°C</td> <td>65.4°C</td> </tr> <tr> <td>C5</td> <td>I/P FILTER CAPACITOR</td> <td>81.3°C</td> <td>50.9°C</td> </tr> <tr> <td>C41</td> <td>O/P FILTER CAPACITOR</td> <td>58.8°C</td> <td>28.4°C</td> </tr> <tr> <td>T1</td> <td>MAIN TRANSFORMER CORE</td> <td>84.0°C</td> <td>53.6°C</td> </tr> <tr> <td>D1</td> <td>CLAMP DIODE</td> <td>91.2°C</td> <td>60.8°C</td> </tr> <tr> <td>LF1</td> <td>LINE FILTER</td> <td>49.3°C</td> <td>18.9°C</td> </tr> </tbody> </table> | POSITION | P/N | TEMP | Trise | BD1 | BRIDGE DIODE | 67.4C | 37°C | Q1 | MAIN TRANSISTOR | 74.6C | 44.2°C | T1 | MAIN TRANSFORMER COIL | 78.0°C | 47.6°C | D40 | O/P DIODE | 95.8°C | 65.4°C | C5 | I/P FILTER CAPACITOR | 81.3°C | 50.9°C | C41 | O/P FILTER CAPACITOR | 58.8°C | 28.4°C | T1 | MAIN TRANSFORMER CORE | 84.0°C | 53.6°C | D1 | CLAMP DIODE | 91.2°C | 60.8°C | LF1 | LINE FILTER | 49.3°C | 18.9°C | P |
| POSITION | P/N | TEMP | Trise | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BD1 | BRIDGE DIODE | 67.4C | 37°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Q1 | MAIN TRANSISTOR | 74.6C | 44.2°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T1 | MAIN TRANSFORMER COIL | 78.0°C | 47.6°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D40 | O/P DIODE | 95.8°C | 65.4°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C5 | I/P FILTER CAPACITOR | 81.3°C | 50.9°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C41 | O/P FILTER CAPACITOR | 58.8°C | 28.4°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T1 | MAIN TRANSFORMER CORE | 84.0°C | 53.6°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D1 | CLAMP DIODE | 91.2°C | 60.8°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LF1 | LINE FILTER | 49.3°C | 18.9°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | LIFE CYCLE | SUPPOSE C41 IS THE MOST CRITICAL COMPONENT I/P:230VAC O/P:FULL LOAD Ta:25°C Tc41:58.8°C Life: 155727 hrs I/P:230VAC O/P:FULL LOAD Ta:40°C Tc41:68.2°C Life: 57804 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-757 POWER SWITCHER :2SK2545 OUTPUT DIODE :MBR1545CT OUTPUT CAPACITOR : 1000uF/16V , 105°C INPUT CAPACITOR :HITACHI 150uF/400V,85°C P.C.B :MPS-65,CEM-3 2OZ SS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| DATE | SAMPLE | TEST RESULT | TEST | PROVAL |
|----------|---|-------------|---------|---------|
| 20010605 | RD SAMPLE MPS-45 3.3V,5V,7.5V,12V 13.5V,24V,27V,48V | PASS | VINCENT | Max Lin |
| 20010824 | PRODUCT A107C28 MPS-45 3.3V,5V,7.5V,12V 13.5V,24V,27V,48V | PASS | VINCENT | Max Lin |
| 20020411 | PRODUCT A203B04 MPS-45 5V,12V | PASS | VINCENT | Max Lin |
| 20020618 | PRODUCT A206B03 MPS-45 15V,27V | PASS | VINCENT | Max Lin |
| 20020919 | PRODUCT A208A02 MPS-45-3.3V | PASS | VINCENT | Max Lin |

[PREVIOUS](#)