



Test Report : LPC-150-1400

150W Single Output LED Power Supply

■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

Component Stress Test

■ SAFETY & E.M.C. TEST

Safety Test

E.M.C. Test

■ RELIABILITY TEST

ENVIRONMENT TEST

■ DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|--------------------------|-------------------------------|---|---------------------------------------|---------|
| 1 | RIPPLE & NOISE | V1 : 1 V _{p-p} (Max) | I/P : 230 VAC O/P : FULL LOAD Ta : 25°C | V1 : 0.120 V _{p-p} (Max) | PASS |
| 2 | RIPPLE CURRENT | < ±5% | I/P : 230 VAC O/P : FULL LOAD Ta : 25°C | TEST : 4.3 % | PASS |
| 3 | CONSTANT CURRENT REGION | V1: 54V ~108 V | I/P : 230VAC O/P:LED MODE Ta:25°C | OP= 54V / 1.404A OP= 107V / 1.403A | PASS |
| 4 | OUTPUT VOLTAGE TOLERANCE | V1 : -2.0 %~ 2.0 % (Max) | I/P : 180VAC / 305 VAC O/P : FULL/ MIN LOAD Ta : 25°C | V1 : 0.02 %~ 0.94 % | PASS |
| 5 | LINE REGULATION | V1 : -1.0 %~ 1.0% (Max) | I/P : 200VAC ~ 305 VAC O/P : FULL LOAD Ta : 25°C | V1 : 0 %~ 0 % | PASS |
| 6 | SET UP TIME | 230VAC : 1000 ms (Max) | I/P : 230 VAC O/P : FULL LOAD Ta : 25°C | 230VAC/ 666 ms | PASS |
| 7 | RISE TIME | 230VAC : 80 ms (Max) | I/P : 230 VAC O/P : FULL LOAD Ta : 25°C | 230VAC/ 29 ms | PASS |
| 8 | HOLD UP TIME | 230VAC : 16 ms (TYP) | I/P : 230 VAC O/P : FULL LOAD Ta : 25°C | 230VAC/ 25 ms | PASS |
| 9 | OVER/UNDERSHOOT TEST | < ±5% | I/P : 230 VAC O/P : FULL LOAD Ta : 25°C | TEST : < 5 % | PASS |
| 10 | CURRENT ACCURACY | < ±5% | I/P : 230 VAC O/P : FULL LOAD Ta : 25°C | TEST : 0.21 % | PASS |

INPUT FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|-----------------------|---|---|---|---------|
| 1 | INPUT VOLTAGE RANGE | 180 VAC~305 VAC | I/P : TESTING O/P : FULL LOAD Ta : 25°C | 177V~305 V | PASS |
| | | | I/P : (1)LOW-LINE-3V=177 V HIGH-LINE+10V=315 V O/P : FULL/MIN LOAD ON : 30 Sec OFF : 30 Sec 10MIN (2)230VAC ON : 0.5 Sec OFF : 0.5 Sec 20MIN (3)230VAC ON : 3Sec OFF : 3Sec 12HOURS (POWER ON/OFF NO DAMAGE) | TEST : (1) OK (2) OK (3) OK | |
| 2 | INPUT FREQUENCY RANGE | 47Hz ~63 Hz NO DAMAGE OSC | I/P : 180VAC ~ 305 VAC O/P : FULL ~MIN LOAD Ta : 25°C | TEST : OK | PASS |
| 3 | EFFICIENCY | 90% (TYP) | I/P : 230 VAC O/P : FULL LOAD Ta : 25°C | 91.06% | PASS |
| 4 | INPUT CURRENT | 230V/ 1.7 A (TYP) 277V/ 1.5 A (TYP) | I/P : 230 VAC I/P : 277 VAC O/P : FULL LOAD Ta : 25°C | I = 1.416 A / 230VAC I = 1.220 A / 277 VAC | PASS |
| 5 | INRUSH CURRENT | 230V/ 40 A (TYP) Twidth =750 us measured at 50% Ipeak COLD START | I/P : 230 VAC O/P : FULL LOAD Ta : 25°C | I = 31.0 A Twidth =696us | PASS |
| 6 | LEAKAGE CURRENT | < 0.25 mA / 277 VAC | I/P : 305 VAC O/P : NO LOAD Ta : 25°C | L-CASE : 0.003 mA N-CASE : 0.003 mA | PASS |

PROTECTION FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|-----------------------------|--|---|---|---------|
| 1 | OVER VOLTAGE PROTECTION | CH1 : 115 V ~ 135 V | I/P : 180 VAC I/P : 230 VAC I/P : 305 VAC O/P : TESTING Ta : 25°C | 122.53V/ 180 VAC 122.55V/ 230 VAC 122.70V/ 305 VAC Shut down and latch off o/p voltage, re-power on to recover | PASS |
| 2 | OVER TEMPERATURE PROTECTION | SPEC : O.T.P. NO DAMAGE | I/P : 230 VAC O/P : FULL LOAD | O.T.P. Active Shut down o/p voltage, recovers automatically after temperature goes down | PASS |
| 3 | SHORT PROTECTION | SHORT EVERY OUTPUT 1 HOUR NO DAMAGE | I/P : 305 VAC O/P : FULL LOAD Ta : 25°C | NO DAMAGE Constant current limiting, recovers automatically after fault condition is removed | PASS |

COMPONENT STRESS TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|--|---------------------------|---|--|---------|
| 1 | Power Transistor (D to S) or (C to E) Peak Voltage | Q1 Rated 700 V /12A | I/P : High-Line +3V = 308 V O/P : (1)FULL LOAD Turn on (2) Output Short (3) FULL LOAD continue Ta : 25°C | (1) 644 V (2) 504 V (3) 616 V | PASS |
| 2 | Diode Peak Voltage | D102 Rated 1000 V /10A | I/P : High-Line +3V = 308 V O/P : (1) FULL LOAD Turn on (2)Output Short (3) FULL LOAD continue Ta : 25°C | (1) 596 V (2) 620 V (3) 446 V | PASS |
| 3 | Input Capacitor Voltage | C5 Rated 100uF / 450 V | I/P : High-Line +3V = 308 V O/P : (1) FULL LOAD Turn on /Off (2)MIN LOAD Turn on /Off (3) FULL LOAD /MIN LOAD Change Ta : 25°C | (1) 442 V (2) 444 V (3) 446 V | PASS |
| 4 | Control IC Voltage Test | U1 Rated 28V | I/P : High-Line +3V = 308 V O/P : (1) FULL LOAD Turn on /Off (2)MIN LOAD Turn on /Off (3) FULL LOAD /MIN LOAD Change Ta : 25°C | (1) 17.3 V (2) 17.1 V (3) 17.4 V | PASS |

■ SAFETY & E.M.C. TEST

SAFETY TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|----------------------|------------------------|--------------------------------------|---------------------------------|---------|
| 1 | WITHSTAND VOLTAGE | I/P-O/P : 3KVAC/min | I/P-O/P : 3.6 KVAC/min Ta : 25°C | I/P-O/P : 2.384 mA NO DAMAGE | PASS |
| 2 | ISOLATION RESISTANCE | I/P-O/P : 500VDC>100MΩ | I/P-O/P : 500 VDC Ta : 25°C/70%RH | I/P-O/P : >9999 MΩ NO DAMAGE | PASS |

E.M.C TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|---|--|--|-----------------------------|---------|
| 1 | HARMONIC | EN61000-3-2 CLASS A | I/P : 230VAC/50HZ O/P : 80% LOAD Ta:25°C | OK | PASS |
| 2 | CONDUCTION | EN55022 CLASS B | I/P : 230 VAC/50HZ O/P:FULL LOAD Ta:25°C | OK Test by certified Lab | PASS |
| 3 | RADIATION | EN55022 CLASS B | I/P : 230 VAC/50HZ O/P:FULL LOAD Ta:25°C | OK Test by certified Lab | PASS |
| 4 | E.S.D | EN61000-4-2 LIGHT INDUSTRY AIR:8KV / Contact:4KV | I/P : 230 VAC/50HZ O/P:FULL LOAD Ta:25°C | CRITERIA A | PASS |
| 5 | E.F.T | EN61000-4-4 LIGHT INDUSTRY INPUT : 1KV | I/P : 230 VAC/50HZ O/P:FULL LOAD Ta:25°C | CRITERIA A | PASS |
| 6 | SURGE | IEC61000-4-5 LIGHT INDUSTRY L-N :1KV | I/P : 230 VAC/50HZ O/P:FULL LOAD Ta:25°C | CRITERIA A | PASS |
| 7 | Test by certified Lab & Test Report Prepare | | | | |

■ RELIABILITY TEST

ENVIRONMENT TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----|---|--|---|------------------|---------|-----------------------------|-----------------------------|---|------|--------|--------|---|-----|--------|--------|---|----|--------|--------|---|----|--------|---------|---|-----|--------|--------|---|-----|--------|--------|---|----|--------|---------|---|------|--------|--------|---|----|--------|---------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|----|--------|--------|----|-------|--------|--------|----|----|--------|--------|--|--|
| 1 | TEMPERATURE RISE TEST | MODEL : LPC-150-1750 1. ROOM AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta=34.4 °C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta=53.2°C | | | PASS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | <table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta= 34.4 °C</th> <th>HIGH AMBIENT Ta= 53.2 °C</th> </tr> </thead> <tbody> <tr><td>1</td><td>ZNR1</td><td>68.0°C</td><td>85.6°C</td></tr> <tr><td>2</td><td>BD1</td><td>78.9°C</td><td>97.9°C</td></tr> <tr><td>3</td><td>C5</td><td>77.2°C</td><td>97.2°C</td></tr> <tr><td>4</td><td>Q1</td><td>86.7°C</td><td>107.7°C</td></tr> <tr><td>5</td><td>C24</td><td>78.6°C</td><td>99.3°C</td></tr> <tr><td>6</td><td>C25</td><td>76.8°C</td><td>97.6°C</td></tr> <tr><td>7</td><td>D5</td><td>84.3°C</td><td>106.4°C</td></tr> <tr><td>8</td><td>TSW1</td><td>78.8°C</td><td>99.3°C</td></tr> <tr><td>9</td><td>T1</td><td>80.4°C</td><td>102.2°C</td></tr> <tr><td>10</td><td>D100</td><td>78.2°C</td><td>98.2°C</td></tr> <tr><td>11</td><td>C102</td><td>67.0°C</td><td>86.3°C</td></tr> <tr><td>12</td><td>C104</td><td>67.4°C</td><td>86.8°C</td></tr> <tr><td>13</td><td>U1</td><td>74.8°C</td><td>94.8°C</td></tr> <tr><td>14</td><td>LF100</td><td>59.0°C</td><td>78.6°C</td></tr> <tr><td>15</td><td>Tc</td><td>65.2°C</td><td>84.8°C</td></tr> </tbody> </table> | NO | Position | | ROOM AMBIENT Ta= 34.4 °C | HIGH AMBIENT Ta= 53.2 °C | 1 | ZNR1 | 68.0°C | 85.6°C | 2 | BD1 | 78.9°C | 97.9°C | 3 | C5 | 77.2°C | 97.2°C | 4 | Q1 | 86.7°C | 107.7°C | 5 | C24 | 78.6°C | 99.3°C | 6 | C25 | 76.8°C | 97.6°C | 7 | D5 | 84.3°C | 106.4°C | 8 | TSW1 | 78.8°C | 99.3°C | 9 | T1 | 80.4°C | 102.2°C | 10 | D100 | 78.2°C | 98.2°C | 11 | C102 | 67.0°C | 86.3°C | 12 | C104 | 67.4°C | 86.8°C | 13 | U1 | 74.8°C | 94.8°C | 14 | LF100 | 59.0°C | 78.6°C | 15 | Tc | 65.2°C | 84.8°C | | |
| NO | Position | ROOM AMBIENT Ta= 34.4 °C | HIGH AMBIENT Ta= 53.2 °C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | ZNR1 | 68.0°C | 85.6°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | BD1 | 78.9°C | 97.9°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | C5 | 77.2°C | 97.2°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Q1 | 86.7°C | 107.7°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | C24 | 78.6°C | 99.3°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | C25 | 76.8°C | 97.6°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | D5 | 84.3°C | 106.4°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | TSW1 | 78.8°C | 99.3°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | T1 | 80.4°C | 102.2°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | D100 | 78.2°C | 98.2°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | C102 | 67.0°C | 86.3°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | C104 | 67.4°C | 86.8°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | U1 | 74.8°C | 94.8°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | LF100 | 59.0°C | 78.6°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Tc | 65.2°C | 84.8°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | LOW TEMPERATURE TURN ON TEST | TURN ON AFTER 2 HOUR | I/P : 305VAC/200VAC O/P : FULL LOAD Ta= -30°C | TEST : OK | PASS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST | AFTER 12 HOURS IN CHAMBER ON CONTROL 50 °C NO DAMAGE | I/P : 315VAC O/P : FULL LOAD Ta=50°C HUMIDITY= 95% R.H | TEST : OK | PASS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | TEMPERATURE COEFFICIENT | ±0.03 %(0~50°C) | I/P : 230 VAC O/P : FULL LOAD | ±0.006 %(0~50°C) | PASS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | STORAGE TEMPERATURE TEST | 1. Thermal shock Temperature : -45°C ~ +75°C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 5 CYCLE 5. Input/Output condition : STATIC | | OK | PASS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | THERMAL SHOCK TEST | 1. Thermal shock Temperature : -30°C ~ +55°C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 5CYCLE 5. Input/Output condition : 230VAC/FULL LOAD AC ON/OFF TEST turn on 58sec ; turn off 2sec | | OK | PASS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | VIBRATION TEST | 1 Carton & 1 Set (1) Waveform : Sine Wave (2) Frequency : 10~500Hz (3) Sweep Time : 10min/sweep cycle (4) Acceleration : 3G (5) Test Time : 90min in each axis (X.Y.Z) (6) Ta : 25°C | | TEST : OK | PASS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



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|----|-----------------------------|--|---|------|
| 8 | CAPACITOR LIFE CYCLE | LPC-150-1750 : SUPPOSE C102 IS THE MOST CRITICAL COMPONENT (1) I/P : 230VAC O/P : FULL LOAD Ta=25 °C LIFE TIME (2) I/P : 230VAC O/P : FULL LOAD Ta=50 °C LIFE TIME (3) I/P : 230VAC O/P : 75% LOAD Ta=50 °C LIFE TIME (4) I/P : 230VAC O/P : 50% LOAD Ta=50 °C LIFE TIME | (1) 296324 HRS (2) 50570 HRS (3) 51346 HRS (4) 60551 HRS | PASS |
| 9 | MTBF | MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE : 479KHRS | | PASS |
| 10 | DMTBF/Accelerated Life Test | Demonstration Mean Time Between Failure(Expected Life) : 20000hours @ Tcase 90 °C | | PASS |

| TEST RESULT | TESTER | REVIEW | APPROVAL |
|-------------|---------------|--------|----------|
| PASS | ZHOUB/ ZHUOKB | SKY | LIUWY |

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