



Test Report: LPF-60D-15

60W Single Output Switching 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 : 150 mVp-p (Max) | I/P : 230VAC O/P : FULL LOAD Ta : 25°C | V1 : 15.4 mVp-p (Max) | P |
| 2 | CONSTANT CURRENT REGION | V1= 9V~15V | I/P : 230VAC O/P : CV MODE Ta : 25°C | O/P= 9V : 4.21 A O/P= 14V : 4.21 A | P |
| 3 | OUTPUT VOLTAGE TOLERANCE | V1 : 4 %~ -4 % (Max) | I/P : 100 VAC / 305 VAC O/P : FULL/ MIN LOAD Ta : 25°C | V1 : 0.4 %~ -0.4 % | P |
| 4 | LINE REGULATION | V1 : 0.5 %~ -0.5 % (Max) | I/P : 100 VAC ~ 305 VAC O/P : FULL LOAD Ta : 25°C | V1 : 0.04 %~ -0.04 % | P |
| 5 | LOAD REGULATION | V1 : 1.5 %~ -1.5 % (Max) | I/P : 230 VAC O/P : FULL ~MIN LOAD Ta : 25°C | V1 : 0.4 %~ -0.4 % | P |
| 6 | SET UP TIME | 230VAC : 500 ms (Max) 115VAC : 1000 ms(Max) | I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C | 230VAC/ 274 ms 115VAC/ 350 ms | P |
| 7 | RISE TIME | 230VAC : 80 ms (Max) 115VAC : 80 ms (Max) | I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C | 230VAC/ 13 ms 115VAC/ 13 ms | P |
| 8 | HOLD UP TIME | 230VAC : 16 ms (TYP) 115VAC : 16 ms (TYP) | I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C | 230VAC/ 61 ms 115VAC/ 34 ms | P |
| 9 | OVER/UNDERSHOOT TEST | < ±5% | I/P : 230 VAC O/P : FULL LOAD Ta : 25°C | TEST : <5 % | P |
| 10 | DYNAMIC LOAD | V1 : 1500 mVp-p | I/P : 230 VAC (1).O/P : FULL /Min LOAD 90%DUTY/ 1KHZ (2).O/P : FULL /Min LOAD 50%DUTY/ 120HZ Ta : 25°C | (1)378 mVp-p (2)422 mVp-p | P |

| 11 | DIMMER TEST | <p>SPEC:</p> <p>*Output constant current level can be adjusted through output cable by 1 ~ 10Vdc, PWM signal or resistor between ADJ1(+) and ADJ2(-).</p> <p>*Reference resistance value for output current adjustment (Typical)</p> <table border="1"> <tr> <th>Resistance value</th> <th>10K</th> <th>20K</th> <th>30K</th> <th>40K</th> <th>50K</th> <th>60K</th> <th>70K</th> <th>80K</th> <th>90K</th> <th>100K</th> </tr> <tr> <th>Output current</th> <td>10%</td> <td>20%</td> <td>30%</td> <td>40%</td> <td>50%</td> <td>60%</td> <td>70%</td> <td>80%</td> <td>90%</td> <td>100%</td> </tr> </table> <p>*1 ~ 10V dimming function for output current adjustment (Typical)</p> <table border="1"> <tr> <th>Dimming value</th> <th>1V</th> <th>2V</th> <th>3V</th> <th>4V</th> <th>5V</th> <th>6V</th> <th>7V</th> <th>8V</th> <th>9V</th> <th>10V</th> </tr> <tr> <th>Output current</th> <td>10%</td> <td>20%</td> <td>30%</td> <td>40%</td> <td>50%</td> <td>60%</td> <td>70%</td> <td>80%</td> <td>90%</td> <td>100%</td> </tr> </table> <p>*10V PWM signal for output current adjustment (Typical)</p> <table border="1"> <tr> <th>Duty value</th> <th>10%</th> <th>20%</th> <th>30%</th> <th>40%</th> <th>50%</th> <th>60%</th> <th>70%</th> <th>80%</th> <th>90%</th> <th>100%</th> </tr> <tr> <th>Output current</th> <td>10%</td> <td>20%</td> <td>30%</td> <td>40%</td> <td>50%</td> <td>60%</td> <td>70%</td> <td>80%</td> <td>90%</td> <td>100%</td> </tr> </table> | | | | | | | | | | Resistance value | 10K | 20K | 30K | 40K | 50K | 60K | 70K | 80K | 90K | 100K | Output current | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | Dimming value | 1V | 2V | 3V | 4V | 5V | 6V | 7V | 8V | 9V | 10V | Output current | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | Duty value | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | Output current | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% |
|----|----------------|---|------------------|--------|--------|--------|--------|--------|--------|--------|---------|------------------|--------|-----|-----|-----|-----|-----|-----|-----|-----|------|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|---------------|----|----|----|----|----|----|----|----|----|-----|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| | | Resistance value | 10K | 20K | 30K | 40K | 50K | 60K | 70K | 80K | 90K | 100K | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Output current | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Dimming value | 1V | 2V | 3V | 4V | 5V | 6V | 7V | 8V | 9V | 10V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Output current | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Duty value | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Output current | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | TEST RESULT: I/P : 230 VAC ; Ta : 25°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 1 | Resistance value | 10K | 20K | 30K | 40K | 50K | 60K | 70K | 80K | 90K | 100K | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | Output current | 0.448A | 0.836A | 1.232A | 1.628A | 2.017A | 2.409A | 2.786A | 3.170A | 3.597A | 3.975A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| % | 11.20% | | 20.90% | 30.80% | 40.70% | 50.43% | 60.23% | 69.65% | 79.25% | 89.93% | 99.38% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Dimming value | 1V | 2V | 3V | 4V | 5V | 6V | 7V | 8V | 9V | 10V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Output current | 0.463A | 0.867A | 1.278A | 1.680A | 2.091A | 2.493A | 2.896A | 3.302A | 3.705A | 4.015A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | % | 11.58% | 21.68% | 31.95% | 42.00% | 52.28% | 62.33% | 72.40% | 82.55% | 92.63% | 100.38% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Duty value | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Output current | 0.367A | 0.788A | 1.207A | 1.627A | 2.047A | 2.467A | 2.889A | 3.310A | 3.732A | 4.005A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | % | 9.18% | 19.70% | 30.18% | 40.68% | 51.18% | 61.68% | 72.23% | 82.75% | 93.30% | 100.13% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

INPUT FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|-----------------------|---|---|--|---------|
| 1 | INPUT VOLTAGE RANGE | 100VAC~305 VAC | I/P : TESTING O/P : FULL LOAD Ta : 25°C I/P : LOW-LINE-3V=97 V HIGH-LINE=305 V O/P : FULL/MIN LOAD ON : 30 Sec . OFF : 30 Sec 10MIN (AC POWER ON/OFF NO DAMAGE) | 73 V~305V TEST : OK | P |
| 2 | INPUT FREQUENCY RANGE | 47HZ ~63 HZ NO DAMAGE OSC | I/P : 100 VAC ~ 305 VAC O/P : FULL~MIN LOAD Ta : 25°C | TEST : OK | P |
| 3 | POWER FACTOR | 0.95 / 230 VAC(TYP) 0.98 / 115 VAC(TYP) 0.92 / 277 VAC(TYP) | I/P : 230 VAC I/P : 115 VAC I/P : 277 VAC O/P : FULL LOAD Ta : 25°C | PF= 0.972 / 100% PF= 0.997 / 100% PF= 0.93 /100% | P |
| 4 | EFFICIENCY | 87% (TYP) | I/P : 230 VAC O/P : FULL LOAD Ta : 25°C | 89.29 % | P |
| 5 | INPUT CURRENT | 230V/ 0.4 A (TYP) 115V/ 0.8 A (TYP) | I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C | I= 0.29 A/ 230 VAC I= 0.59 A/ 115 VAC | P |
| 6 | INRUSH CURRENT | 230V/ 55 A (TYP) COLD START | I/P : 230 VAC O/P : FULL LOAD Ta : 25°C | I= 45 A/ 230 VAC | P |
| 7 | LEAKAGE CURRENT | < 0.75 mA / 240 VAC | I/P : 277 VAC O/P : Min LOAD Ta : 25°C | L-CASE : 0.01 mA N-CASE : 0.01 mA | P |

PROTECTION FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|-----------------------------|---|---|---|---------|
| 1 | OVER LOAD PROTECTION | 95 % ~ 108 % | I/P : 230 VAC I/P : 115 VAC O/P : TESTING Ta : 25°C | 105 %/ 230 VAC 105 %/ 115 VAC Constant Current Limiting ,recovers automatically after fault condition is removed. | P |
| 2 | OVER VOLTAGE PROTECTION | CH1 : 17.5 V ~ 21 V | I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C | 19.35 V/ 230 VAC 19.35 V/ 115 VAC Shut down and latch off o/p voltage, re-power on to recover | P |
| 3 | OVER TEMPERATURE PROTECTION | SPEC : RTH2 : 90± 10°C O.T.P. NO DAMAGE | I/P : 230 VAC O/P : FULL LOAD | O.T.P. Active Shut down o/p voltage, re-power on to recover | P |
| 4 | SHORT PROTECTION | SHORT EVERY OUTPUT 1 HOUR NO DAMAGE | I/P : 305 VAC O/P : FULL LOAD Ta : 25°C | NO DAMAGE Hiccup mode, recovers automatically after fault condition is removed. | P |

COMPONENT STRESS TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|--|--|--|--|---------|
| 1 | Power Transistor (D to S) or (C to E) Peak Voltage | Q 3 Rated : 2SK3673-01MR 10A/700V | 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) 664 V (2) 536 V (3) 652 V | P |
| 2 | Diode Peak Voltage | D101 Rated : STPS30M100ST 30A/100V | 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) 71.2 V (2) 72 V (3) 70.8 V | P |
| 4 | Input Capacitor Voltage | C5 Rated : 47u/450V 105°C 16*25 KXJ | 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) 427.18 V (2) 421.30 V (3) 422.83 V | P |
| 5 | Control IC Voltage Test | U 1 Rated : PFC FAN6921MR 17V~30V | 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) 22.246 V (2) 22.050 V (3) 22.048 V | P |
| 6 | Power Transistor (D to S) or (C to E) Peak Voltage | Q1 Rated : STP11NK50ZFP 10A/500V | 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) 468 V (2) 418 V (3) 454 V | P |

SAFETY & E.M.C. TEST
SAFETY TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|----------------------|--|--------------------------------------|-------------------------------------|---------|
| 1 | WITHSTAND VOLTAGE | I/P-O/P : 3.75 KVAC/min | I/P-O/P : 4 KVAC/min Ta : 25°C | I/P-O/P : 2.508 mA NO DAMAGE | P |
| 2 | ISOLATION RESISTANCE | I/P-O/P : 500VDC>100MΩ | I/P-O/P : 500 VDC Ta : 25°C/70%RH | I/P-O/P : 30 GΩ NO DAMAGE | P |
| 3 | APPROVAL | TUV : Certificate NO : UL : File NO : | | | N/A |

E.M.C TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|---|---------------------------------------|---|-------------------------------|---------|
| 1 | HARMONIC | EN61000-3-2 CLASS C | I/P:230VAC/240VAC/220VAC50HZ O/P:100%,75%,60%LOAD CLASS C \geq 60% Ta:25°C | PASS | P |
| 2 | CONDUCTION | EN55015 CLASS B | I/P: 230 VAC (50HZ)/115V[60HZ] O/P:FULL/60% LOAD Ta:25°C | PASS Test by certified Lab | P |
| 3 | RADIATION | EN55015 CLASS B | I/P: 230 VAC (50HZ)/115V[60HZ] O/P:FULL LOAD Ta:25°C | PASS Test by certified Lab | P |
| 4 | E.S.D | AIR:8KV / Contact:6KV INDUSTRY | I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C | CRITERIA A | P |
| 5 | E.F.T | EN61000-4-4 INDUSTRY INPUT: 2KV | I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C | CRITERIA A | P |
| 6 | SURGE | IEC61000-4-5 INDUSTRY L-N :2KV | I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C | CRITERIA A | P |
| 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 : LPF-60-12 1. ROOM AMBIENT BURN-IN : 4 HRS I/P : 230VAC O/P : 95%LOAD Ta=28.3℃ 2. HIGH AMBIENT BURN-IN : 2.5 HRS I/P : 230VAC O/P : 95% LOAD Ta=54.1℃ | | | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | <table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>P/N</th> <th>ROOM AMBIENT Ta=28.3 ℃</th> <th>HIGH AMBIENT Ta= 54.1 ℃</th> </tr> </thead> <tbody> <tr><td>1</td><td>L1</td><td>TR853A</td><td>51.8℃</td><td>75.5℃</td></tr> <tr><td>2</td><td>BD1</td><td>4A/800V SILICON UR4KB80</td><td>50.4℃</td><td>74.2℃</td></tr> <tr><td>3</td><td>Q1</td><td>STP11NK50ZFP 10A/500V</td><td>56.9℃</td><td>80.2℃</td></tr> <tr><td>4</td><td>D2</td><td>2A/800V GP20K</td><td>70.2℃</td><td>94.3℃</td></tr> <tr><td>5</td><td>Q3</td><td>2SK3673-01MR 10A/700V</td><td>70.5℃</td><td>94.2℃</td></tr> <tr><td>6</td><td>C16</td><td>22u/50V UL10Kh 5*11 YXM</td><td>61.2℃</td><td>84.7℃</td></tr> <tr><td>7</td><td>U1</td><td>PFC FAN6921MR</td><td>62.2℃</td><td>86.1℃</td></tr> <tr><td>8</td><td>C201</td><td>47u/50V UL10Kh 6.3*11 YXM</td><td>67.8℃</td><td>91.6℃</td></tr> <tr><td>9</td><td>RTH2</td><td>NTC 100KΩ 3Φ TTC3A104F4193EY 1%</td><td>59.5℃</td><td>82.9℃</td></tr> <tr><td>10</td><td>C5</td><td>47u/450V 105℃ 16*25 KXJ</td><td>58.3℃</td><td>81.5℃</td></tr> <tr><td>11</td><td>C105</td><td>820u/25V UL10Kh 10*20 ZLH</td><td>72.4℃</td><td>96.9℃</td></tr> <tr><td>13</td><td>D101</td><td>PFR30L60CT 30A/60V</td><td>75.7℃</td><td>100.7℃</td></tr> <tr><td>14</td><td>C111</td><td>330u/25V UL8Kh 8*11.5 ZLH</td><td>68.6℃</td><td>92.7℃</td></tr> <tr><td>15</td><td>LF100</td><td>TR895-R2</td><td>68.4℃</td><td>92.8℃</td></tr> <tr><td>16</td><td>D1</td><td>MUR460 4A/600V</td><td>58.8℃</td><td>82.0℃</td></tr> <tr><td>17</td><td>LF1</td><td>TR732A-R1</td><td>40.3℃</td><td>64.1℃</td></tr> <tr><td>18</td><td>T1</td><td>TF2222</td><td>53.6℃</td><td>77.5℃</td></tr> </tbody> </table> | NO | Position | | P/N | ROOM AMBIENT Ta=28.3 ℃ | HIGH AMBIENT Ta= 54.1 ℃ | 1 | L1 | TR853A | 51.8℃ | 75.5℃ | 2 | BD1 | 4A/800V SILICON UR4KB80 | 50.4℃ | 74.2℃ | 3 | Q1 | STP11NK50ZFP 10A/500V | 56.9℃ | 80.2℃ | 4 | D2 | 2A/800V GP20K | 70.2℃ | 94.3℃ | 5 | Q3 | 2SK3673-01MR 10A/700V | 70.5℃ | 94.2℃ | 6 | C16 | 22u/50V UL10Kh 5*11 YXM | 61.2℃ | 84.7℃ | 7 | U1 | PFC FAN6921MR | 62.2℃ | 86.1℃ | 8 | C201 | 47u/50V UL10Kh 6.3*11 YXM | 67.8℃ | 91.6℃ | 9 | RTH2 | NTC 100KΩ 3Φ TTC3A104F4193EY 1% | 59.5℃ | 82.9℃ | 10 | C5 | 47u/450V 105℃ 16*25 KXJ | 58.3℃ | 81.5℃ | 11 | C105 | 820u/25V UL10Kh 10*20 ZLH | 72.4℃ | 96.9℃ | 13 | D101 | PFR30L60CT 30A/60V | 75.7℃ | 100.7℃ | 14 | C111 | 330u/25V UL8Kh 8*11.5 ZLH | 68.6℃ | 92.7℃ | 15 | LF100 | TR895-R2 | 68.4℃ | 92.8℃ | 16 | D1 | MUR460 4A/600V | 58.8℃ | 82.0℃ | 17 | LF1 | TR732A-R1 | 40.3℃ | 64.1℃ | 18 | T1 | TF2222 | 53.6℃ | 77.5℃ | | |
| NO | Position | P/N | ROOM AMBIENT Ta=28.3 ℃ | HIGH AMBIENT Ta= 54.1 ℃ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | L1 | TR853A | 51.8℃ | 75.5℃ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | BD1 | 4A/800V SILICON UR4KB80 | 50.4℃ | 74.2℃ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Q1 | STP11NK50ZFP 10A/500V | 56.9℃ | 80.2℃ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | D2 | 2A/800V GP20K | 70.2℃ | 94.3℃ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Q3 | 2SK3673-01MR 10A/700V | 70.5℃ | 94.2℃ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | C16 | 22u/50V UL10Kh 5*11 YXM | 61.2℃ | 84.7℃ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | U1 | PFC FAN6921MR | 62.2℃ | 86.1℃ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | C201 | 47u/50V UL10Kh 6.3*11 YXM | 67.8℃ | 91.6℃ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | RTH2 | NTC 100KΩ 3Φ TTC3A104F4193EY 1% | 59.5℃ | 82.9℃ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | C5 | 47u/450V 105℃ 16*25 KXJ | 58.3℃ | 81.5℃ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | C105 | 820u/25V UL10Kh 10*20 ZLH | 72.4℃ | 96.9℃ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | D101 | PFR30L60CT 30A/60V | 75.7℃ | 100.7℃ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | C111 | 330u/25V UL8Kh 8*11.5 ZLH | 68.6℃ | 92.7℃ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | LF100 | TR895-R2 | 68.4℃ | 92.8℃ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | D1 | MUR460 4A/600V | 58.8℃ | 82.0℃ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | LF1 | TR732A-R1 | 40.3℃ | 64.1℃ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | T1 | TF2222 | 53.6℃ | 77.5℃ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | LOW TEMPERATURE TURN ON TEST | TURN ON AFTER 2 HOUR | I/P : 305VAC/100VAC O/P : 95 % LOAD Ta= -30 ℃ | TEST : OK | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST | AFTER 12 HOURS IN CHAMBER ON CONTROL 50 ℃ NO DAMAGE | I/P : 305 VAC O/P : 95% LOAD Ta= 50 ℃ HUMIDITY= 95 %R.H | TEST : OK | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | TEMPERATURE COEFFICIENT | ± 0.03 %(0~50℃) | I/P : 230 VAC O/P : 95% LOAD | ± 0.01 %(0~50℃) | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | STORAGE TEMPERATURE TEST | 1. Thermal shock Temperature : -45℃~ +90℃ 2. Temperature change rate : 25℃ / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 5 CYCLE 5. Input/Output condition : STATIC | | OK | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | THERMAL SHOCK TEST | 1. Thermal shock Temperature : -35℃~ +55℃ 2. Temperature change rate : 25℃ / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 10 CYCLE 5. Input/Output condition : 230VAC/Full Load AC ON/OFF TEST turn on 58sec : turn off 2sec | | OK | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| 7 | VIBRATION TEST | 1 Carton & 1 Set (1) Waveform : Sine Wave (2) Frequency : 10~500Hz (3) Sweep Time : 12min/sweep cycle (4) Acceleration : 5G (5) Test Time : 72min in each axis (X.Y.Z) (6) Ta : 25°C | TEST : OK | P |
| 8 | CAPACITOR LIFE CYCLE | LPF-60-12: SUPPOSE C105 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 | (1) 125577 HRS (2) 24302 HRS (3) 41094 HRS | P |
| 9 | MTBF | MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE : 440.5 HRS | | P |
| 10 | DMTBF/Accelerated Life Test | Demonstration Mean Time Between Failure(Expected Life) : 30,000 hours @ Tcase 80°C; 50,000 hours @ Tcase70°C | | P |

| DATE | SAMPLE | TEST RESULT | TESTER | APPROVAL |
|------------|----------------|-------------|------------|---------------|
| 2010/11/11 | RD SAMPLE | PASS | SANFORD SU | VINCENT TSENG |
| 2010/11/25 | PRODUCT SAMPLE | PASS | SANFORD SU | VINCENT TSENG |

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