



Test Report: HLG-60H-15

60W Constant Voltage + Constant Current LED Driver

■ 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 |
|----|-----------------------------|---|---|--|
| 1 | CONSTANT CURRENT REGION | 9V-15V | I/P : 230VAC O/P : CV=9V-14V Ta : 25°C | TEST : OK |
| 2 | RIPPLE & NOISE | V1 : 150 mVp-p (Max) | I/P : 230VAC O/P : FULL LOAD Ta : 25°C | V1 : 11 mVp-p (Max) |
| 3 | OUTPUT VOLTAGE ADJUST RANGE | CH1 : 13.5 V ~ 17 V | I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C | 13.184 V ~ 17.561 V / 230 VAC 13.186 V ~ 17.566 V / 115 VAC |
| 4 | CURRENT ADJUST RANGE | CH1 : 2.4A ~ 4 A | I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C | 2.164 A ~ 4.291 A / 230 VAC 2.163 A ~ 4.293 A / 115 VAC |
| 5 | OUTPUT VOLTAGE TOLERANCE | V1 : 2 % ~ -2 % (Max) | I/P : 100 VAC / 305VAC O/P : FULL / MIN LOAD Ta : 25°C | V1 : 0.5 % ~ -0.5 % |
| 6 | LINE REGULATION | V1 : 0.5 % ~ -0.5 % (Max) | I/P : 100VAC ~ 305VAC O/P : FULL LOAD Ta : 25°C | V1 : 0.04 % ~ -0.04 % |
| 7 | LOAD REGULATION | V1 : 1.5 % ~ -1.5 % (Max) | I/P : 230 VAC O/P : FULL ~ MIN LOAD Ta : 25°C | V1 : 0.5 % ~ -0.5 % |
| 8 | SET UP TIME | 230VAC : 500 ms (Max) 115VAC : 500 ms(Max) | I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C | 230VAC/ 356 ms 115VAC/ 303 ms |
| 9 | 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/ 12 ms 115VAC/ 12 ms |
| 10 | 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/ 72 ms 115VAC/ 38 ms |
| 11 | OVER/UNDERSHOOT TEST | < ±5% | I/P : 230 VAC O/P : FULL LOAD Ta : 25°C | TEST : <5 % |
| 12 | 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)234 mVp-p (2)758 mVp-p |

| | | | | | | | | | | | | | |
|----|----------------------------------|---|------------------|--------|--------|--------|--------|--------|--------|--------|---------|--------|--------|
| 13 | DIMMER TEST (for B-type only) | SPEC: | | | | | | | | | | | |
| | | *Reference resistance value for output current adjustment (Typical) | | | | | | | | | | | |
| | | Resistance value | 10K | 20K | 30K | 40K | 50K | 60K | 70K | 80K | 90K | 100K | |
| | | Output current | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | |
| | | *1 ~ 10V dimming function for output current adjustment (Typical) | | | | | | | | | | | |
| | | Dimming value | 1V | 2V | 3V | 4V | 5V | 6V | 7V | 8V | 9V | 10V | |
| | | Output current | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | |
| | | *10V PWM signal for output current adjustment (Typical) | | | | | | | | | | | |
| | | Duty value | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | |
| | | Output current | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | |
| | | TEST RESULT: I/P : 230 VAC ; Ta : 25°C | | | | | | | | | | | |
| | | 1 | Resistance value | 10K | 20K | 30K | 40K | 50K | 60K | 70K | 80K | 90K | 100K |
| | | | Output current | 0.432A | 0.832A | 1.257A | 1.655A | 2.062A | 2.484A | 2.872A | 3.279A | 3.730A | 4.005A |
| % | 10.80% | | 20.80% | 31.43% | 41.38% | 51.55% | 62.10% | 71.80% | 81.98% | 93.25% | 100.13% | | |
| 2 | Dimming value | 1V | 2V | 3V | 4V | 5V | 6V | 7V | 8V | 9V | 10V | | |
| | Output current | 0.429A | 0.836A | 1.231A | 1.633A | 2.038A | 2.436A | 2.838A | 3.242A | 3.624A | 4.008A | | |
| | % | 10.73% | 20.90% | 30.78% | 40.83% | 50.95% | 60.90% | 70.95% | 81.05% | 90.60% | 100.20% | | |
| 3 | Duty value | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | | |
| | Output current | 0.506A | 0.928A | 1.338A | 1.733A | 2.420A | 2.498A | 2.872A | 3.241A | 3.612A | 3.984A | | |
| | % | 12.65% | 23.20% | 33.45% | 43.33% | 60.50% | 62.45% | 71.80% | 81.03% | 90.30% | 99.60% | | |

INPUT FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|----|---------------------------|--|---|--|
| 1 | INPUT VOLTAGE RANGE | 90VAC~305 VAC | I/P : TESTING O/P : FULL LOAD Ta : 25°C | 73 V~305V |
| | | | I/P : LOW-LINE-3V= 87 V HIGH-LINE+10V=315 V O/P : FULL/MIN LOAD ON : 30 Sec . OFF : 30 Sec 10MIN (AC POWER ON/OFF NO DAMAGE) | TEST : OK |
| 2 | INPUT FREQUENCY RANGE | 47HZ ~63 HZ NO DAMAGE | I/P : 90 VAC ~ 305 VAC O/P : FULL -MIN LOAD Ta : 25°C | TEST : OK |
| 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 O/P : FULL LOAD Ta : 25°C | PF= 0.968 / 230 VAC PF= 0.998 / 115 VAC PF= 0.9355 / 277 VAC |
| 4 | EFFICIENCY | 87.5% (TYP) | I/P : 230 VAC O/P : FULL LOAD Ta : 25°C | 87.81 % |
| 5 | INPUT CURRENT | 277V/ 0.3 A (TYP) 230V/ 0.32 A (TYP) 115V/ 0.64 A (TYP) | I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C | I = 0.262 A/ 277 VAC I = 0.306 A/ 230 VAC I = 0.599 A/ 115 VAC |
| 6 | INRUSH CURRENT | 230V/ 55 A (TYP) COLD START | I/P : 230 VAC O/P : FULL LOAD Ta : 25°C | I = 53 A/ 230 VAC |
| 7 | LEAKAGE CURRENT | < 0.75 mA / 277 VAC | I/P : 277 VAC O/P : Min LOAD Ta : 25°C | L-FG : 0.22 mA N-FG : 0.22 mA |
| 8 | TOTAL HARMONIC DISTORTION | THD< 20% when output loading ≥ 60% at 115VAC/230VAC input and output loading ≥ 75% at 277VAC input | I/P : 115 VAC I/P : 230 VAC O/P : 60% LOAD | THD : 6.55 /115VAC THD : 15.1 /230VAC |
| | | | I/P : 277 VAC O/P : 75%LOAD Ta : 25°C | THD : 16.46 /277VAC |

PROTECTION FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|----|-----------------------------|--|---|--|
| 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 |
| 2 | OVER VOLTAGE PROTECTION | CH1 : 18 V ~ 24 V | I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C | 18.8V/ 230 VAC 18.7 V/ 115 VAC Shut down o/p voltage, re-power on to recover |
| 3 | OVER TEMPERATURE PROTECTION | NO DAMAGE | I/P : 230 VAC O/P : FULL LOAD | O.T.P. Active Shut down o/p voltage, re-power on to recover |
| 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 |

COMPONENT STRESS TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|----|--|--------------------------|--|--|
| 1 | Power Transistor (D to S) or (C to E) Peak Voltage | Q 1 Rated : 10A/600V | 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) 504 V (2) 494 V (3) 490 V |
| 2 | Diode Peak Voltage | D101 Rated : 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) 65.2 V (2) 60.8 V (3) 64.4 V |
| 3 | Clamp Diode Peak Voltage | D2 Rated : 2A/800V | I/P : High-Line +3V = 308 V O/P : (1) Dynamic Load 90%Duty/1KHz (2)Full load continue Ta : 25°C | (1) 644 V (2) 640 V |
| 4 | Input Capacitor Voltage | C 5 Rated : 47u/450V | 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) 426.48 V (2) 438.81 V (3) 432.75 V |
| 5 | Control IC Voltage Test | U1 Rated : 11V~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) 21.724 V (2) 21.670 V (3) 21.681 V |
| 6 | Power Transistor (D to S) or (C to E) Peak Voltage | Q3 Rated : 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) 696 V (2) 584 V (3) 690 V |

■ SAFETY & E.M.C. TEST

SAFETY TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|----|----------------------|---|---|---|
| 1 | WITHSTAND VOLTAGE | I/P-O/P : 3.75 KVAC/min I/P-FG : 2 KVAC/min<4.5mA O/P-FG : 1.5 KVAC/min | I/P-O/P : 4 KVAC/min I/P-FG : 2.4KVAC/min O/P-FG : 1.8KVAC/min Ta : 25°C | I/P-O/P : 2.362 mA I/P-FG : 2.457 mA O/P-FG : 0.547 mA NO DAMAGE |
| 2 | ISOLATION RESISTANCE | I/P-O/P : 500VDC>100MΩ I/P-FG : 500VDC>100MΩ O/P-FG : 500VDC>100MΩ | I/P-O/P : 500 VDC I/P-FG : 500 VDC O/P-FG : 500 VDC Ta : 25°C /70%RH | I/P-O/P : 30 GΩ I/P-FG : 30 GΩ O/P-FG : 30 GΩ NO DAMAGE |
| 3 | GROUNDING CONTINUITY | FG(PE) TO CHASSIS OR TRACE < 100 mΩ | 40 A / 2min Ta : 25°C / 70%RH | 9 mΩ |

E.M.C TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|----|---|--|---|-------------------------------|
| 1 | HARMONIC | EN61000-3-2 CLASS C | I/P: 230VA50HZ O/P:100% ELECTRONIC LOAD O/P:100%/LED LOAD Ta:25°C | PASS |
| 2 | CONDUCTION | EN55015 CLASS B | I/P: 230 VAC (50HZ) O/P:FULL LOAD Ta:25°C | PASS Test by certified Lab |
| 3 | RADIATION | EN55015 CLASS B | I/P: 230 VAC (50HZ) O/P:FULL LOAD Ta:25°C | PASS Test by certified Lab |
| 4 | E.S.D | EN61000-4-2 INDUSTRY AIR:8KV / Contact:4KV | I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C | CRITERIA A |
| 5 | E.F.T | EN61000-4-4 INDUSTRY INPUT: 2KV | I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C | CRITERIA A |
| 6 | SURGE | IEC61000-4-5 INDUSTRY L-N :2KV L,N-PE:4KV | I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C | CRITERIA A |
| 7 | Test by certified Lab & Test Report Prepare. Any contradictions of the test results, please refer to the latest EMC test report. | | | |

■ RELIABILITY TEST

ENVIRONMENT TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----|---|--|---|--------------------|----------|----------------------------|---------------------------|---|-----|--------|--------|---|-----|--------|--------|---|----|--------|--------|---|----|--------|--------|---|-----|--------|--------|---|----|--------|--------|---|----|--------|--------|---|----|--------|--------|---|------|--------|--------|----|----|--------|--------|----|----|--------|--------|----|-----|--------|--------|----|----|--------|--------|----|------|--------|--------|----|------|--------|--------|----|------|--------|--------|----|-------|--------|--------|----|------|--------|--------|--|
| 1 | TEMPERATURE RISE TEST | MODEL : HLG-60H-15 1. ROOM AMBIENT BURN-IN : 0.5 HRS I/P : 230VAC O/P : 95% LOAD Ta= 29.4°C 2. HIGH AMBIENT BURN-IN : 18 HRS I/P : 230VAC O/P : 95% LOAD Ta= 67.6°C | <table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta= 29.4°C</th> <th>HIGH AMBIENT Ta=67.6°C</th> </tr> </thead> <tbody> <tr><td>1</td><td>BD1</td><td>52.6°C</td><td>86.1°C</td></tr> <tr><td>2</td><td>LF2</td><td>51.8°C</td><td>85.5°C</td></tr> <tr><td>3</td><td>L1</td><td>52.1°C</td><td>85.7°C</td></tr> <tr><td>4</td><td>L3</td><td>50.7°C</td><td>84.3°C</td></tr> <tr><td>5</td><td>C10</td><td>51.3°C</td><td>85.1°C</td></tr> <tr><td>6</td><td>Q1</td><td>54.0°C</td><td>88.0°C</td></tr> <tr><td>7</td><td>Q3</td><td>62.6°C</td><td>98.9°C</td></tr> <tr><td>8</td><td>U1</td><td>52.8°C</td><td>86.7°C</td></tr> <tr><td>9</td><td>RTH2</td><td>50.6°C</td><td>83.7°C</td></tr> <tr><td>10</td><td>D2</td><td>61.2°C</td><td>96.6°C</td></tr> <tr><td>11</td><td>C5</td><td>53.7°C</td><td>86.6°C</td></tr> <tr><td>12</td><td>C16</td><td>52.8°C</td><td>85.7°C</td></tr> <tr><td>13</td><td>T1</td><td>60.4°C</td><td>94.1°C</td></tr> <tr><td>14</td><td>D101</td><td>62.8°C</td><td>96.2°C</td></tr> <tr><td>15</td><td>C106</td><td>56.1°C</td><td>89.2°C</td></tr> <tr><td>16</td><td>C203</td><td>51.1°C</td><td>84.0°C</td></tr> <tr><td>17</td><td>LF100</td><td>55.3°C</td><td>88.3°C</td></tr> <tr><td>18</td><td>C111</td><td>53.1°C</td><td>86.1°C</td></tr> </tbody> </table> | NO | Position | ROOM AMBIENT Ta= 29.4°C | HIGH AMBIENT Ta=67.6°C | 1 | BD1 | 52.6°C | 86.1°C | 2 | LF2 | 51.8°C | 85.5°C | 3 | L1 | 52.1°C | 85.7°C | 4 | L3 | 50.7°C | 84.3°C | 5 | C10 | 51.3°C | 85.1°C | 6 | Q1 | 54.0°C | 88.0°C | 7 | Q3 | 62.6°C | 98.9°C | 8 | U1 | 52.8°C | 86.7°C | 9 | RTH2 | 50.6°C | 83.7°C | 10 | D2 | 61.2°C | 96.6°C | 11 | C5 | 53.7°C | 86.6°C | 12 | C16 | 52.8°C | 85.7°C | 13 | T1 | 60.4°C | 94.1°C | 14 | D101 | 62.8°C | 96.2°C | 15 | C106 | 56.1°C | 89.2°C | 16 | C203 | 51.1°C | 84.0°C | 17 | LF100 | 55.3°C | 88.3°C | 18 | C111 | 53.1°C | 86.1°C | |
| NO | Position | ROOM AMBIENT Ta= 29.4°C | HIGH AMBIENT Ta=67.6°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | BD1 | 52.6°C | 86.1°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | LF2 | 51.8°C | 85.5°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | L1 | 52.1°C | 85.7°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | L3 | 50.7°C | 84.3°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | C10 | 51.3°C | 85.1°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Q1 | 54.0°C | 88.0°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Q3 | 62.6°C | 98.9°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | U1 | 52.8°C | 86.7°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | RTH2 | 50.6°C | 83.7°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | D2 | 61.2°C | 96.6°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | C5 | 53.7°C | 86.6°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | C16 | 52.8°C | 85.7°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | T1 | 60.4°C | 94.1°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | D101 | 62.8°C | 96.2°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | C106 | 56.1°C | 89.2°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | C203 | 51.1°C | 84.0°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | LF100 | 55.3°C | 88.3°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | C111 | 53.1°C | 86.1°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | LOW TEMPERATURE TURN ON TEST | TURN ON AFTER 2 HOUR | I/P : 305VAC/100VAC O/P : 95% LOAD Ta= -40°C / -25°C | TEST : OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST | AFTER 12 HOURS IN CHAMBER ON CONTROL 60 °C NO DAMAGE | I/P : 305 VAC O/P : 95% LOAD Ta= 60 °C HUMIDITY= 95 %R.H | TEST : OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | TEMPERATURE COEFFICIENT | ± 0.03 % (0-50°C) | I/P : 230 VAC O/P : 95% LOAD | ± 0.002 % (0-50°C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | STORAGE TEMPERATURE TEST | 1. Thermal shock Temperature : -45°C~ +90°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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | THERMAL SHOCK TEST | 1. Thermal shock Temperature : -45°C~ +65°C 2. Temperature change rate : 25°C / 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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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 |
| 8 | CAPACITOR LIFE CYCLE | HLG-60H-15 :SUPPOSE C106 IS THE MOST CRITICAL COMPONENT (1) I/P : 230VAC O/P : FULL LOAD Tc=75 °C LIFE TIME (2) I/P : 230VAC O/P : 75% LOAD Tc= 75 °C LIFE TIME (3) I/P : 230VAC O/P : 50% LOAD Tc= 75 °C LIFE TIME | (1) 75153 HRS (2) 95274 HRS (3) 115162 HRS |
| 9 | MTBF | Conducted by Parts Stress Analysis Prediction 1132K hrs min. Telcordia SR-332 (Bellcore) ; 338K hrs min. MIL-HDBK-217F (25°C) | |
| 10 | Ongoing Reliability Test | I/P : 230VAC O/P : FULL LOAD TA=50°C Demonstration Mean Time Between Failure : 62,000 hours | |

| TEST RESULT | TESTER | REVIEW | APPROVAL |
|-------------|------------|------------|---------------|
| PASS | DANIEL GAO | SANFORD SU | VINCENT TSENG |

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