



Test Report: HLG-240H-42

240W Constant Voltage + Constant Current LED Driver

■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

Other Test

Component Stress Test

■ SAFETY & E.M.C. TEST

Safety Test

E.M.C. Test

■ RELIABILITY TEST

DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|----|-----------------------------|---|--|--|
| 1 | RIPPLE & NOISE | V1: 250 mVp-p (Max) | I/P: 230 VAC O/P:FULL LOAD Ta:25°C | V1: 77 mVp-p (Max) |
| 2 | OUTPUT VOLTAGE ADJUST RANGE | CH1: 39 V~ 45 V | I/P: 230 VAC I/P:115VAC O/P:MIN LOAD Ta:25°C | 38.17V~46.06 V /230VAC 38.17V~46.06 V /115VAC |
| 3 | CURRENT ADJ RANGE | 2.86 A~ 5.72A | I/P: 230 VAC O/P:FULL LOAD Ta:25°C | 0.639A~5.94A |
| 4 | CONSTANT CURRENT REGION | 21 V~ 42V | I/P: 230 VAC O/P:CV MODE Ta:25°C | O/P=21V: 5.79 A O/P=41V: 5.89 A |
| 5 | OUTPUT VOLTAGE TOLERANCE | V1: -1 % ~ 1 % (Max) | I/P: 100 VAC /305VAC O/P:FULL/ 0 % LOAD Ta:25°C | V1: 0.09 %~-0.09 % |
| 6 | LINE REGULATION | V1: - 0.5% ~ 0.5 % (Max) | I/P:100 VAC ~305 VAC O/P:FULL LOAD Ta:25°C | V1: 0.09 %~-0.09 % |
| 7 | LOAD REGULATION | V1: - 0.5% ~ 0.5 % (Max) | I/P: 230 VAC O/P:FULL ~MIN LOAD Ta:25°C | V1: 0.09 %~-0.09 % |
| 8 | 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/ 362 ms 115 VAC/ 704 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/ 34 ms 115 VAC/ 35 ms |
| 10 | HOLD UP TIME | 230VAC/ 12 ms (Typ) 115VAC/ 12 ms (Typ) | I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C | 230VAC/ 26 ms 115 VAC/ 25 ms |
| 11 | OVER/UNDERSHOOT TEST | < ±5% | I/P: 230 VAC O/P:FULL LOAD Ta:25°C | TEST:< 5 % |
| 12 | DYNAMIC LOAD | V1: 4200 mVp-p | I/P: 230 VAC O/P:(1)FULL /Min LOAD 90%DUTY/1KHZ Ta:25°C | 224mVp-p |

| | | | | | | | | | | | | | |
|----|------------------------------|---|------------------|--------|--------|--------|--------|--------|--------|--------|---------|--------|--------|
| 13 | DIMMER TEST (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 | 0.299A | 0.893A | 1.505A | 2.212A | 2.740A | 3.350A | 3.923A | 4.501A | 5.124A | 5.436A |
| % | 5.23% | | 15.61% | 26.31% | 38.67% | 47.90% | 58.57% | 68.58% | 78.69% | 89.58% | 95.03% | | |
| 2 | Dimming value | 1V | 2V | 3V | 4V | 5V | 6V | 7V | 8V | 9V | 10V | | |
| | Output current | 0.306A | 0.915A | 1.511A | 2.097A | 2.701A | 3.310A | 3.911A | 4.530A | 5.123A | 5.724A | | |
| | % | 5.35% | 16.00% | 26.42% | 36.66% | 47.22% | 57.87% | 68.37% | 79.20% | 89.56% | 100.07% | | |
| 3 | Duty value | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | | |
| | Output current | 0.361A | 0.979A | 1.583A | 2.185A | 2.780A | 3.369A | 3.954A | 4.539A | 5.127A | 5.719A | | |
| | % | 6.31% | 17.12% | 27.67% | 38.20% | 48.60% | 58.90% | 69.13% | 79.35% | 89.63% | 99.98% | | |

INPUT FUNCTION TEST

| NO | TEST ITEM | SPECICATION | TEST CONDITION | RESULT |
|----|---------------------------|---|---|--|
| 1 | INPUT VOLTAGE RANGE | 90VAC~305 VAC | I/P:TESTING O/P:FULL LOAD Ta:25°C | 69V~305V |
| | | | I/P: (1)LOW-LINE-3V=87 V (2)HIGH-LINE=305 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: 100 VAC ~305VAC O/P:FULL~MIN LOAD Ta:25°C | OK |
| 3 | POWER FACTOR | 0.95/ 230 VAC FULL LOAD (TYP) 0.98/ 115 VAC FULL LOAD (TYP) 0.9/ 230 VAC 65% LOAD (TYP) 0.9/ 115 VAC 65%LOAD (TYP) | I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD / 65% LOAD Ta:25°C | PF=0.956 /230V/100%LOAD PF=1 /115V/100%LOAD PF=0.989 /230V/65%LOAD PF=0.995 /115V/65%LOAD |
| 4 | EFFICIENCY | 92.5% (TYP) | I/P: 230 VAC O/P:FULL LOAD Ta:25°C | 93.3 % |
| 5 | INPUT CURRENT | 277V/1.2 A (Typ) 230 V/ 2 A (Typ) 115 V/ 4 A (Typ) | I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C | I = 1.01A/ 277VAC I = 1.067 A/ 230VAC I = 2.082 A/ 115VAC |
| 6 | INRUSH CURRENT | 230 V/ 75A (Typ) COLD START | I/P: 230 VAC O/P:FULL LOAD Ta:25°C | I = 67 A/ 230VAC |
| 7 | TOTAL HARMONIC DISTORTION | THD< 20% when output loading \geq 50% at 115VAC/230VAC input and output loading \geq 75% at 277VAC input | I/P : 115 VAC I/P : 230 VAC O/P : 50% LOAD I/P : 277 VAC O/P : 75%LOAD Ta : 25°C | THD : 6.6 /115VAC THD : 10.64 /230VAC THD : 11.45 /277VAC |

PROTECTION FUNCTION TEST

| NO | TEST ITEM | SPECICATION | TEST CONDITION | RESULT |
|----|-------------------------|--------------|--|---|
| 1 | OVER LOAD PROTECTION | 95 %~108 % | I/P: 305 VAC I/P: 230 VAC I/P: 100 VAC O/P:TESTING Ta:25°C | 101 %/305VAC 101 %/ 230VAC 101%/100VAC Constant Current Limiting |
| 2 | OVER VOLTAGE PROTECTION | V1: 48V~ 54V | I/P: 305 VAC I/P: 230 VAC I/P: 90 VAC O/P:MIN LOAD Ta:25°C | 47.52V/305VAC 47.41V/ 230VAC 47.52V/ 90VAC Shunt down Re- power ON |

| | | | | |
|---|-----------------------------|--|--|--|
| 3 | OVER TEMPERATURE PROTECTION | NO DAMAGE | I/P: 230 VAC O/P: FULL LOAD | O.T.P. Active Shut down o/p volotage · recovers automatically after temperature goes down |
| 4 | SHORT PROTECTION | SHORT EVERY OUTPUT 1 HOUR NO DAMAGE | I/P: 305VAC O/P: FULL LOAD Ta:25°C | NO DAMAGE Hiccup Mode |

COMPONENT STRESS TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|----|--|--------------------------|--|---|
| 1 | Power Transistor (D to S) or (C to E) Peak Voltage | Q4 Rated 16A/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) 470 V (2) 468 V (3) 458 V |
| 2 | Diode Peak Voltage | Q101 Rated 43A/150V | 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) 141 V (2) 48 V (3) 105 V |
| | | Q102 Rated 43A/150V | 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) 150 V (2) 58 V (3) 101 V |
| 3 | Input Capacitor Voltage | C5 Rated: 150µ/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) 429.2 V (2) 432.2 V (3) 431.9 V |
| 4 | Control IC Voltage Test | U 70 Rated 8.85V~16 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) 12.94 V (2) 11.20 V (3) 11.20 V |
| 5 | P.F.C Transistor (D to S) or (C to E) Peak Voltage | Q1 Rated 20.7A/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) 510 V (2) 462 V (3) 500 V |

SAFETY & EMC TEST

SAFETY TEST

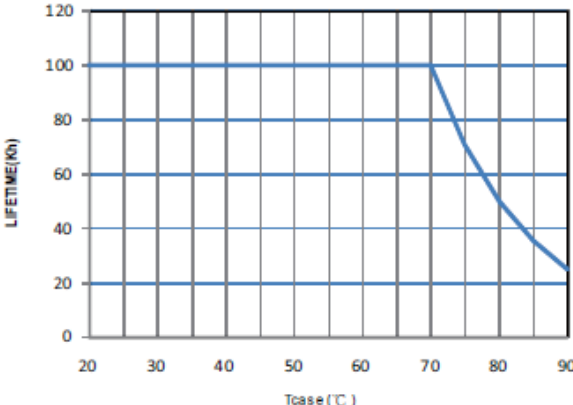
| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|----|----------------------|---|--|--|
| 1 | WITHSTAND VOLTAGE | IEC60950-1 I/P-O/P: 3.75KVAC/min I/P-FG:2KVAC/min<4.5mA O/P-FG:1.5KVAC/min | I/P-O/P: 4 KVAC/min I/P-FG: 2.4KVAC/min O/P-FG:1.8 KVAC/min Ta:25°C | I/P-O/P: 5 mA I/P-FG: 4.06 mA O/P-FG: 5.13 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 | I/P-O/P: 14 GΩ I/P-FG: 13.8 GΩ O/P-FG: 30 GΩ NO DAMAGE |
| 3 | GROUNDING CONTINUITY | IEC60950-1 FG(PE) TO CHASSIS OR TRACE < 100 mΩ | 40A / 2min Ta:25°C | 13 mΩ |
| 4 | LEAKAGE CURRENT | IEC60950-1 < 0.75 mA / 277VAC | I/P: 280 VAC O/P:Min LOAD Ta:25°C | L-FG: 0.35 mA N-FG: 0.34 mA |
| 5 | APPROVAL | TUV: Certificate NO : R50171244 UL: File NO : E127738 | | |

E.M.C TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|----|------------|--|--|-------------------------------|
| 1 | HARMONIC | EN61000-3-2 CLASS C | I/P: 230VAC/50HZ LOAD:LED/ELECTRONIC LOAD O/P:100% LOAD Ta:25°C | PASS |
| 2 | CONDUCTION | EN55022 EN55015 CLASS B | I/P: 230 VAC (50HZ) O/P:FULL/50% LOAD Ta:25°C | PASS Test by certified Lab |
| 3 | RADIATION | EN55022 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 |

Reliability Test

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----|---|---|---|-------------------|----------|-----------------------------|-----------------------------|---|-----|--------|--------|---|----|--------|--------|---|-----|--------|--------|---|-----|--------|--------|---|----|--------|--------|---|----|--------|--------|---|----|--------|--------|---|----|--------|--------|---|------|--------|--------|----|----|--------|--------|----|----|--------|---------|----|------|--------|--------|----|------|--------|--------|----|-------|--------|---------|--|
| 1 | TEMPERATURE RISE TEST | MODEL : HLG-240H-24 1. ROOM AMBIENT BURN-IN : 1.5 HRS I/P : 230VAC O/P : FULL LOAD Ta= 26.5 °C 2. HIGH AMBIENT BURN-IN : 12 HRS I/P : 230VAC O/P : FULL LOAD Ta= 61.7 °C | <table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta= 26.5 °C</th> <th>HIGH AMBIENT Ta= 61.7 °C</th> </tr> </thead> <tbody> <tr><td>1</td><td>LF1</td><td>64.0°C</td><td>91.1°C</td></tr> <tr><td>2</td><td>C1</td><td>61.3°C</td><td>89.3°C</td></tr> <tr><td>3</td><td>LF2</td><td>63.4°C</td><td>91.2°C</td></tr> <tr><td>4</td><td>BD1</td><td>64.0°C</td><td>92.7°C</td></tr> <tr><td>5</td><td>L2</td><td>62.7°C</td><td>90.9°C</td></tr> <tr><td>6</td><td>L1</td><td>61.5°C</td><td>89.9°C</td></tr> <tr><td>7</td><td>Q1</td><td>64.7°C</td><td>93.2°C</td></tr> <tr><td>8</td><td>U1</td><td>61.5°C</td><td>90.2°C</td></tr> <tr><td>9</td><td>TSW1</td><td>64.1°C</td><td>92.7°C</td></tr> <tr><td>10</td><td>Q3</td><td>65.1°C</td><td>93.3°C</td></tr> <tr><td>11</td><td>T1</td><td>79.0°C</td><td>106.6°C</td></tr> <tr><td>12</td><td>Q101</td><td>69.6°C</td><td>98.3°C</td></tr> <tr><td>13</td><td>C102</td><td>66.5°C</td><td>94.9°C</td></tr> <tr><td>14</td><td>LF101</td><td>71.8°C</td><td>100.1°C</td></tr> </tbody> </table> | NO | Position | ROOM AMBIENT Ta= 26.5 °C | HIGH AMBIENT Ta= 61.7 °C | 1 | LF1 | 64.0°C | 91.1°C | 2 | C1 | 61.3°C | 89.3°C | 3 | LF2 | 63.4°C | 91.2°C | 4 | BD1 | 64.0°C | 92.7°C | 5 | L2 | 62.7°C | 90.9°C | 6 | L1 | 61.5°C | 89.9°C | 7 | Q1 | 64.7°C | 93.2°C | 8 | U1 | 61.5°C | 90.2°C | 9 | TSW1 | 64.1°C | 92.7°C | 10 | Q3 | 65.1°C | 93.3°C | 11 | T1 | 79.0°C | 106.6°C | 12 | Q101 | 69.6°C | 98.3°C | 13 | C102 | 66.5°C | 94.9°C | 14 | LF101 | 71.8°C | 100.1°C | |
| NO | Position | ROOM AMBIENT Ta= 26.5 °C | HIGH AMBIENT Ta= 61.7 °C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | LF1 | 64.0°C | 91.1°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | C1 | 61.3°C | 89.3°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | LF2 | 63.4°C | 91.2°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | BD1 | 64.0°C | 92.7°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | L2 | 62.7°C | 90.9°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | L1 | 61.5°C | 89.9°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Q1 | 64.7°C | 93.2°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | U1 | 61.5°C | 90.2°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | TSW1 | 64.1°C | 92.7°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Q3 | 65.1°C | 93.3°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | T1 | 79.0°C | 106.6°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | Q101 | 69.6°C | 98.3°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | C102 | 66.5°C | 94.9°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | LF101 | 71.8°C | 100.1°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | OVER LOAD BURN-IN TEST | NO DAMAGE 1 HOUR (MIN) | I/P : 230 VAC O/P : O/P SHORT TEST Ta : 25°C | TEST : OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | LOW TEMPERATURE TURN ON TEST | TURN ON AFTER 2 HOUR | I/P : 230 VAC/100VAC O/P : CV=23V Ta= -40 °C | TEST : OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 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 : CV=23V Ta= 61.7 °C HUMIDITY= 95 %R.H | TEST : OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | TEMPERATURE COEFFICIENT | ± 0.03 %(0~50°C) | I/P : 230 VAC O/P : FULL LOAD | ± 0.003 %(0~50°C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | THERMAL SHOCK TEST | 1. Thermal shock Temperature : -40°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 | | OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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|----|-----------------------------|--|--|
| 8 | 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 |
| 9 | CAPACITOR LIFE CYCLE | HLG-240H-24: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= 60 °C LIFE TIME (3) I/P : 230VAC O/P : 75% LOAD Ta= 60 °C LIFE TIME | (1) 196640 HRS (2) 27898.3HRS (3) 54198.9HRS (4) 278122.7 HRS |
| 10 | MTBF | Conducted by Parts Stress Analysis Prediction 207.9K hrs min. MIL-HDBK-217F (25°C) | |
| 11 | DMTBF/Accelerated Life Test | Demonstration Mean Time Between Failure(Expected Life) : 62,000 hours @ Tcase 75°C  | |

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

2003/12/12 A50-F023