# Test Report: HVGC-480-M

480W 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

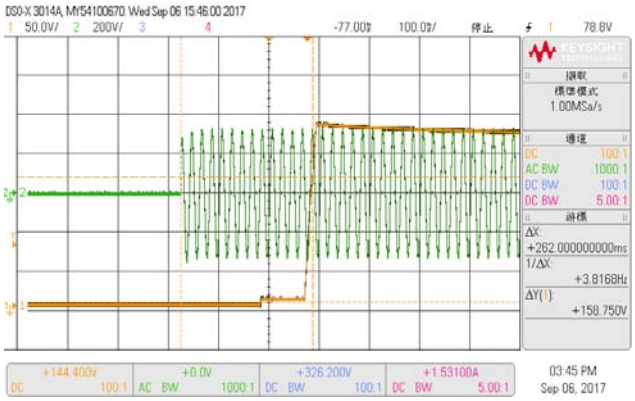
## ■ RELIABILITY TEST

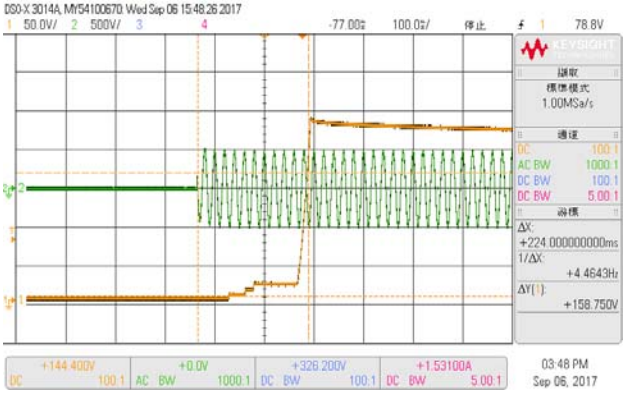
ENVIRONMENT TEST

## ■ DESIGN VERIFY TEST

### OUTPUT FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|---|---|---|---|---|
| 1 | CURRENT TOLERANCE | ±5% | I/P: 347VAC<br>I/P:480VAC<br>O/P:FULL LOAD<br>Io: 2.1A & 2.625A<br>Ta:25℃ | Io: 2.1A:<br>2.1024A/347VAC@LED MAX-2V<br>2.1028A/347VAC@LED MIN<br>2.1028A/480VAC@LED MAX-2V<br>2.1028A/480VAC@LED MIN<br>0.24%<br>Io: 2.625A:<br>2.6276A/347VAC@LED MAX-2V<br>2.6276A/347VAC@LED MIN<br>2.6272A/480VAC@LED MAX-2V<br>2.6272A/480VAC@LED MIN<br>0.17% |
| 2 | FULL POWER CURRENT RANGE | 2100~2625mA | I/P: 347VAC<br>O/P:FULL LOAD<br>Io: 2.1A & 2.625A<br>Ta:25℃ | 2.1A / 228.5V<br>2.625A/ 182.8V |
| 3 | OPEN CIRCUIT VOLTAGE (max) | 240V | I/P: 347VAC<br>O/P:NO LOAD<br>Io: Io Adj = 2.1A<br>Ta:25℃ | 232V |
| 4 | CONSTANT CURRENT REGION | CH1:92V~ 229V | I/P: 347VAC<br>O/P:FULL LOAD<br>Io: 2.1A & 2.625A<br>Ta:25℃ | Io: 2.1A:<br>0.6~228.5V/347VAC<br>Io: 2.625A:<br>0.6~182.8V/347VAC |
| 5 | CURRENT ADJ. RANGE | CH1: 210mA~2625mA | I/P: 347VAC<br>I/P:480VAC<br>O/P:LED MIN & LED MAX-2V<br>Io: 100k<br>Ta:25℃ | 206mA~2667mA/347VAC@LED=182.8V<br>209mA~2674mA /347VAC@LED=92V<br>204mA~2668mA /480VAC@ LED=182.8V<br>209m A~2675mA /480VAC@ LED=92V |
| 6 | CURRENT RIPPLE | 5% max. @rated current | I/P: 347VAC<br>O/P:FULL LOAD<br>Io: 2.1A & 2.625A<br>Ta:25℃ | Io: 2.1A:<br>3.81%<br>Io: 2.625A:<br>3.81% |
| 7 | SET UP TIME | 230VAC/ 500 ms (Max)<br>347VAC/ 500 ms (Max)<br>480VAC/ 500 ms (Max) | I/P: 230VAC<br>I/P: 347VAC<br>I/P: 480VAC<br>O/P:FULL LOAD<br>Ta:25℃ | 230VAC/262ms<br>347VAC/ 224ms<br>480VAC/ 202ms |
| | INPUT=230VAC/50HZ @ FULL LOAD<br>CH1 : Output Voltage CH2 : AC Input Voltage | | INPUT=347VAC/60HZ @ FULL LOAD<br>CH1 : Output Voltage CH2 : AC Input Voltage | |




**8** DIMMING OPERATION **(for B-Type)**

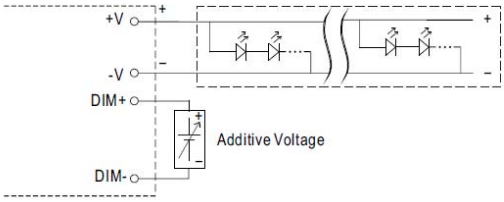
**※3 in 1 dimming function**

※Output constant current level can be adjusted by applying one of the three methodologies between DIM+ and DIM-: 0 ~ 10VDC, or 10V PWM signal or resistance.

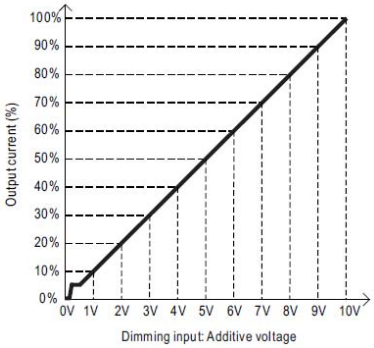
※Direct connecting to LEDs is suggested. It is not suitable to be used with additional drivers.

※Dimming source current from power supply: 100μ A (typ.)

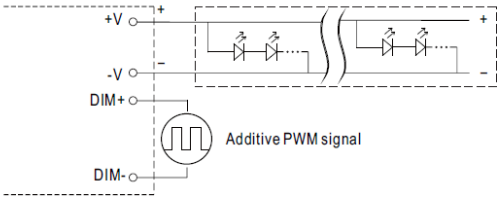
◎ Applying additive 0 ~ 10VDC



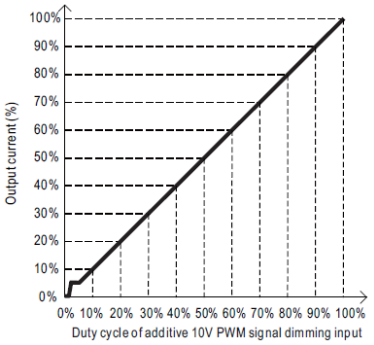

"DO NOT connect "DIM- to -V"



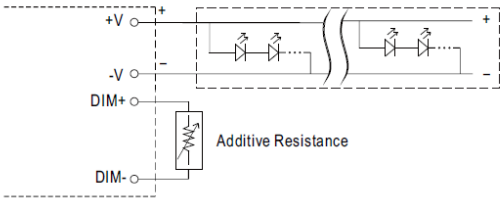

◎ Applying additive 10V PWM signal (frequency range 100Hz ~ 3KHz):



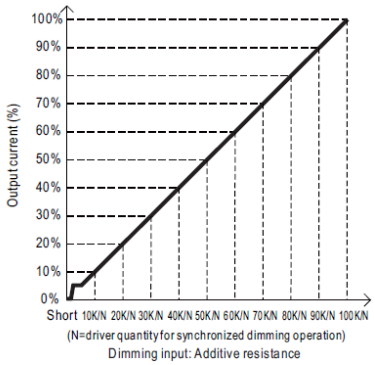

"DO NOT connect "DIM- to -V"




◎ Applying additive resistance:




"DO NOT connect "DIM- to -V"




Note : 1. Min. dimming level is about 5% and the output current is not defined when 0%< Iout<6%.

2. The output current could drop down to 0% when dimming input is about 0kΩ or 0Vdc, or 10V PWM signal with 0% duty cycle.

I/P：347VAC

O/P：DIMMING TEST
TA：25℃

| R | SHORT | 10K | 20K | 30K | 40K | 50K | 60K | 70K | 80K | 90K | 100K | OPEN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| O/P CURRENT | 0.0000A | 0.189A | 0.391A | 0.606A | 0.811A | 1.027A | 1.243A | 1.442A | 1.668A | 1.875A | 2.086A | 2.100A |
| % | 0.00% | 9.00% | 18.62% | 28.86% | 38.62% | 48.90% | 59.19% | 68.67% | 79.43% | 89.29% | 99.33% | 100.00% |

| V | 0V | 1V | 2V | 3V | 4V | 5V | 6V | 7V | 8V | 9V | 10V | OPEN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| O/P CURRENT | 0.0000A | 0.197A | 0.400A | 0.615A | 0.839A | 1.045A | 1.262A | 1.481A | 1.712A | 1.919A | 2.118A | 2.118A |
| % | 0.00% | 9.38% | 19.05% | 29.29% | 39.95% | 49.76% | 60.10% | 70.52% | 81.52% | 91.38% | 100.86% | 100.86% |

| PWM (100HZ) | SHORT | 10K | 20K | 30K | 40K | 50K | 60K | 70K | 80K | 90K | 100K | OPEN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| O/P CURRENT | 0.0000A | 0.253A | 0.505A | 0.769A | 1.021A | 1.287A | 1.555A | 1.805A | 2.068A | 2.320A | 2.600A | 2.644A |
| % | 0.00% | 9.64% | 19.24% | 29.30% | 38.90% | 49.03% | 59.24% | 68.76% | 78.78% | 88.38% | 99.05% | 100.72% |

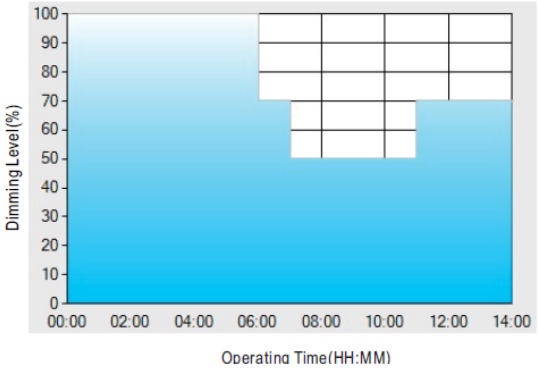
TEST RESULT：OK

**9** DIMMING OPERATION **(for Dxx-Type by User definition)**

**※Smart timer dimming function (for Dxx-Type by User definition)**

MEAN WELL Smart timer dimming primarily provides the adaptive proportion dimming profile for the output constant current level to perform up to 14 consecutive hours. 3 dimming profiles hereunder are defined accounting for the most frequently seen applications. If other options may be needed,please contact MEAN WELL for details.

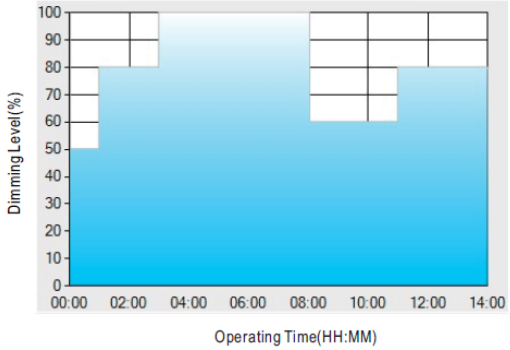
Ex：◎ D01-Type: the profile recommended for residential lighting




Set up for D01-Type in Smart timer dimming software program:

| | T1 | T2 | T3 | T4 |
|---|---|---|---|---|
| TIME** | 06:00 | 07:00 | 11:00 | --- |
| LEVEL** | 100% | 70% | 50% | 70% |

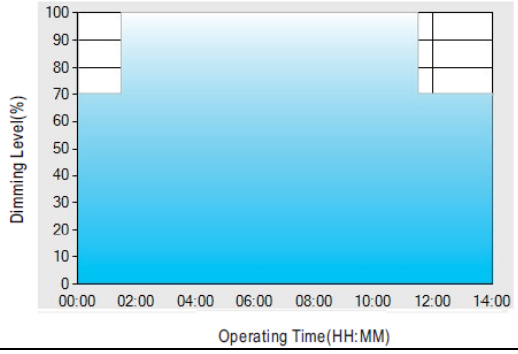
Ex: ◎ D02-Type: the profile recommended for street lighting




Set up for D02-Type in Smart timer dimming software program:

| | T1 | T2 | T3 | T4 | T5 |
|---|---|---|---|---|---|
| TIME** | 01:00 | 03:00 | 8:00 | 11:00 | --- |
| LEVEL** | 50% | 80% | 100% | 60% | 80% |

Ex: ◎ D03-Type: the profile recommended for tunnel lighting

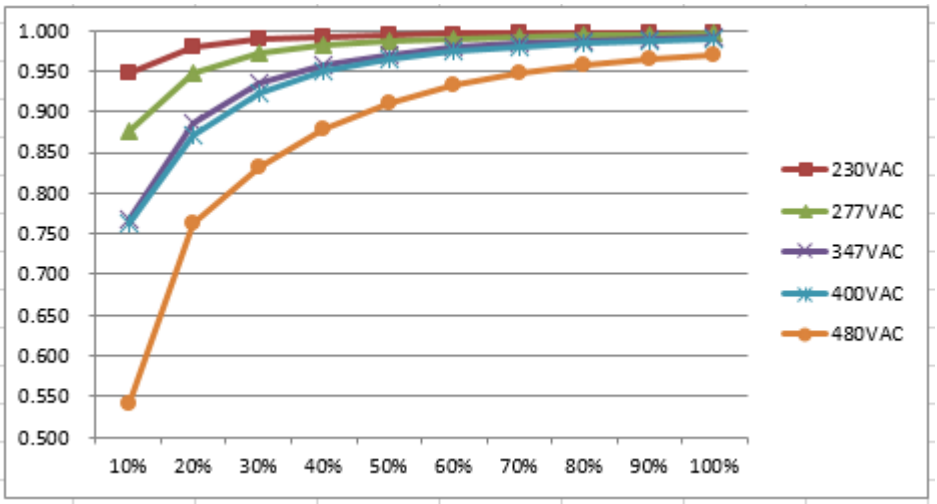



Set up for D03-Type in Smart timer dimming software program:

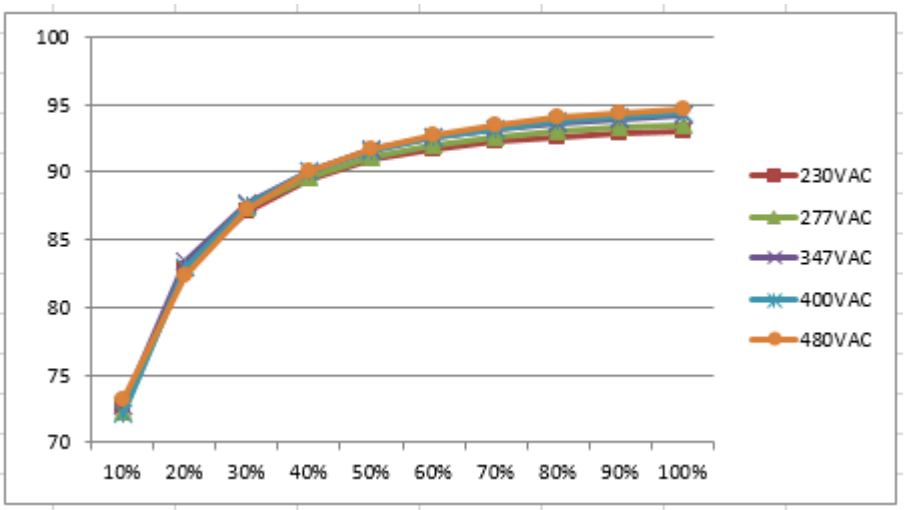
| | T1 | T2 | T3 |
|---|---|---|---|
| TIME** | 01:30 | 11:00 | --- |
| LEVEL** | 70% | 100% | 70% |

| | | |
|---|---|---|
| | | I/P：347VAC<br>O/P：DIMMING TEST<br>TA：25℃<br>TEST RESULT：OK |
| **10** | DALI interface(primary side) | DALI protocol including 16 groups and 64 addresses.<br>First step is fixed at 6% of output.<br>I/P：347VAC<br>O/P：DALI TEST<br>TA：25℃<br>TEST RESULT：OK |

## INPUT FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|---|---|---|---|---|
| **1** | INPUT VOLTAGE RANGE | 180VAC~528 VAC | I/P:TESTING<br>O/P:FULL LOAD<br>Ta:25℃ | 159V~528 V |
| | | | I/P:<br>LOW-LINE-3V=177 V<br>HIGH-LINE+10V=538 V<br>O/P:FULL/MIN LOAD<br>(PLEASE CHECK DERATING CURVE)<br>ON: 30 Sec OFF: 30 Sec 10MIN<br>( POWER ON/OFF NO DAMAGE ) | (1).TEST:OK<br>(2).TEST :OK |
| **2** | INPUT FREQUENCY RANGE | 47HZ ~63 HZ<br>NO DAMAGE | I/P: 180 VAC ~528VAC<br>O/P:FULL~MIN LOAD<br>Ta:25℃ | TEST:OK |
| **3** | INPUT CURRENT (TYP) | 347VAC/ 1.52 A<br>480VAC/ 1.11A | I/P: 347VAC/480VAC<br>O/P:FULL LOAD<br>Ta:25℃ | I =1.517A/ 347VAC<br>I =1.1086A/480VAC |
| **4** | POWER FACTOR(TYP) | 0.98/230 VAC FULL LOAD<br>0.98/277 VAC FULL LOAD<br>0.97/347VAC FULL LOAD<br>0.96/400 VAC FULL LOAD<br>0.95/480VAC FULL LOAD | I/P:<br>230VAC/277VAC/347VAC/400VAC/480VAC<br>O/P:FULL LOAD<br>Ta:25℃ | PF= 0.99/230V/100%LOAD<br>PF=0.99/277V/100%LOAD<br>PF=0.99 /347V/100%LOAD<br>PF=0.98/400V/100%LOAD<br>PF= 0.97/480V/100%LOAD |
| | P.F vs LOAD |  | | |
| **5** | EFFICIENCY (TYP) | 94.5% | I/P: 347VAC<br>O/P:FULL LOAD.<br>Ta:25℃ | 94.53% |

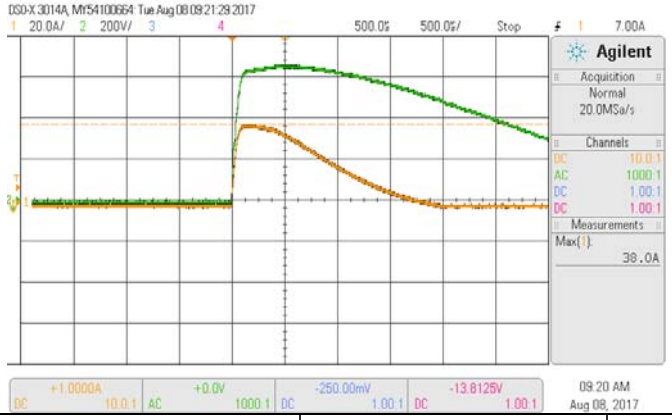
EFFICIENCY vs LOAD




| | | | | |
|---|---|---|---|---|
| 6 | INRUSH CURRENT (TYP) | 480V/ 40A<br>COLD START<br><br>(twidth=1100 us measured at 50% Ipeak) COLD START | I/P: 480VAC<br>O/P:FULL LOAD<br>Ta:25℃ | I =38A /480VAC<br><br>T50= 920 μS |

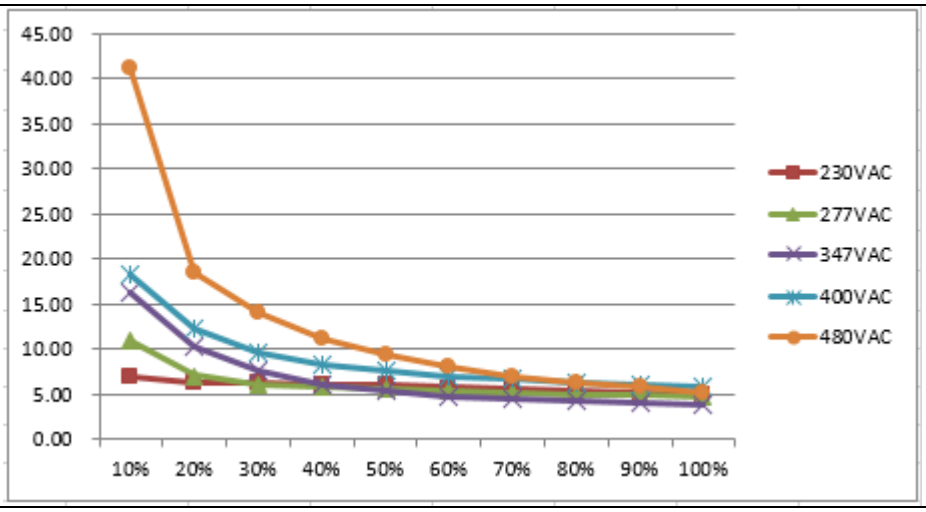
INPUT=480VAC/ 60HZ @ FULL LOAD

CH2 : AC Input Voltage CH1 : Input current




| | | | | |
|---|---|---|---|---|
| 7 | TOTAL HARMONIC DISTORTION | THD< 20% output load≧ 50% at 230VAC/277VAC/347VAC /480VAC input | I/P： 230V/277V/347V/480V/400VAC<br>O/P：100% LOAD<br>50% LOAD<br>Ta：25℃ | THD： 4.28 %/230V 50%<br>THD： 3.71 %/230V 100%<br>THD： 4.52 %/277V 50%<br>THD： 4.04 %/277V 100%<br>THD： 3.68 %/347V 50%<br>THD： 2.92 %/347V 100%<br>THD： 9.88 %480V 50%<br>THD： 7.19 %480V 100%<br>THD： 7.85 %400V 50%<br>THD： 5.99 %400V100% |

THD vs LOAD




## ROTECTION FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|---|---|---|---|---|
| 1 | OVER VOLTAGE PROTECTION | V1: 235V~265V<br>PROTECTION TYPE：<br>Shut down output voltage, re-power on to recovery | I/P: 528VAC<br>I/P: 347VAC<br>I/P: 180VAC<br>O/P:MIN LOAD<br>Ta:25℃ | 247.00V / 528VAC<br>246.44V/ 347VAC<br>246.49V/ 180VAC<br>PROTECTION TYPE：<br>Shut down output voltage, re-power on to recovery |
| 2 | OVER TEMPERATURE PROTECTION | PROTECTION TYPE：<br>Shut down output voltage, re-power on to recovery | I/P: 528 VAC<br>I/P: 180 VAC<br>O/P:FULL LOAD | O.T.P. Active<br>PROTECTION TYPE：<br>Shut down output voltage, re-power on to recovery |
| 3 | SHORT PROTECTION | SHORT EVERY OUTPUT<br>1 HOUR NO DAMAGE<br>PROTECTION TYPE：<br>Constant current, recovers automatically after fault condition is removed | I/P: 528VAC<br>I/P: 180 VAC<br>O/P: FULL LOAD<br>Io: 2.1A &2.625A<br>Ta:25℃ | Io: 2.1A<br>NO DAMAGE<br>PROTECTION TYPE：<br>Constant current, recovers automatically after fault condition is removed<br>Io: 2.625A<br>NO DAMAGE<br>PROTECTION TYPE：<br>Constant current, recovers automatically after fault condition is removed |

## COMPONENT STRESS TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | |
|---|---|---|---|---|---|
| 1 | PWM Transistor<br>( D to S) or (C to E) **Peak Voltage** | Q11 Rated<br>9A/ 950V | I/P:High-Line +3V =531v<br>AC ON/OFF<br>**Io: 2.1A&2.625A**<br>VDS:<br>O/P: (1)Full Load<br>(2)Output Short<br>(3) Full Load continue | **Io: 2.1A**<br>Q11<br>VDS:<br>(1)888V<br>(2) 864V<br>(3) 836V<br><br>VDS: | **Io: 2.625A**<br>Q11<br>VDS:<br>(1) 872V<br>(2) 856V<br>(3) 832V<br><br>VDS: |

| | | | | | |
|---|---|---|---|---|---|
| | | Q13 Rated<br>9A/ 950V | I/P:Low-Line -3V = 177V<br>O/P: (1)Full Load<br>(2)Output Short<br>(3) Full Load continue<br>Ta:25℃ | (1) 884V<br>(2) 824V<br>(3) 852V<br><br>Q13<br>VDS:<br>(1) 880V<br>(2) 864V<br>(3) 836V<br><br>VDS:<br>(1) 892V<br>(2) 820V<br>(3)860V | (1) 896V<br>(2) 832V<br>(3) 840V<br><br>Q13<br>VDS:<br>(1) 876V<br>(2)844V<br>(3) 832V<br><br>VDS:<br>(1) 880V<br>(2) 828V<br>(3) 801V |
| **2** | P.F.C Transistor<br>( D to S) or (C to E) **Peak Voltage** | Q4 Rated<br>9A/ 1050V | I/P:High-Line +3V =531V<br>AC ON/OFF<br>**Io: 2.1A**<br>VDS:<br>O/P: (1)Full Load<br>(2)Output Short<br>(3) Full Load continue<br><br>I/P:Low-Line -3V = 177V<br>O/P: (1)Full Load<br>(2)Output Short<br>(3) Full Load continue<br>Ta:25℃ | **Io: 2.1A**<br>Q4<br>VDS:<br>(1)880V<br>(2)836V<br>(3)856V<br><br>VDS:<br>(1)920V<br>(2)824V<br>(3)912V | |
| **3** | P.F.C DIODE | D8 Rated<br>8 A/ 1200 V | I/P:High-Line +3V =531 V<br>AC ON/OFF<br>**Io: 2.1A**<br>O/P: (1)Full Load<br>(2)Output Short<br>(3) Full Load continue<br><br>I/P:Low-Line -3V = 177V<br>AC ON/OFF<br>O/P: (1)Full Load<br>(2)Output Short<br>(3) Full Load continue<br>Ta:25℃ | **Io: 2.1A**<br><br>(1)852V<br>(2)832V<br>(3)832V<br><br>(1)900V<br>(2)820V<br>(3)860V | |
| **4** | Diode Peak **Voltage** | D104 Rated<br>3A/400 V<br><br>D114 Rated<br>3A/ 400V | **Io: 2.1A& 2.625A**<br>I/P:High-Line +3V =531 V<br>D104：<br>AC ON/OFF<br>O/P: (1)Full Load<br>(2)Output Short<br>(3) Full Load continue<br>D112：<br>AC ON/OFF<br>O/P: (1) Full Load<br>(2)Output Short<br>(3) Full Load continue<br><br>Ta:25℃ | Io: 2.1A<br>D104<br>VDS:<br>(1)243V<br>(2)4.10V<br>(3)241V<br><br>D114<br>VDS:<br>(1)241V<br>(2)3.90V<br>(3)239V | Io: 2.625A<br>D104<br>VDS:<br>(1)198V<br>(2)3.72V<br>(3)196V<br><br>D114<br>VDS:<br>(1)201V<br>(2)4.08V<br>(3)195V |
| **5** | **Input Capacitor Voltage** | C5 Rated:<br>150 μ/ 450V 105℃ | I/P:High-Line +3V =531V<br>O/P: (1)Full Load input on/off<br>(2) Min load input on /Off<br>(3)Full Load /Min load Change | **Io: 2.1A**<br>(1)424V<br>(2)406V<br>(3)410V | |

| | | | | |
|---|---|---|---|---|
| | | | (4)Full load continue<br>Ta:25℃ | (4)392V |
| 6 | **Control IC Voltage Test** | PFC IC U1 Rated<br>20V~10.5V(MIN.)<br><br>PWM IC U2 Rated<br>16V~ 8.85V(MIN.) | I/P:High-Line +3V =531 V<br>AC ON/OFF<br>**Io: 2.1A**<br>O/P(1)FULL LOAD<br>(2) Output Short<br>(3)O.L.P<br>(4)O.V.P.<br>(5)NO LOAD VRmin.LOW LINE<br>Ta:25℃ | **Io: 2.1A** **Io: 2.1A**<br>U1 U2<br>(1) 13.5V (1) 13.6V<br>(2) 13.5V (2) 13.9V<br>(3) 13.4V (3) 13.5V<br>(4) 13.5V (4) 13.5V<br>(5) 13.3V (5) 13.6V |

## ■ SAFETY & EMC TEST

### SAFETY TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|---|---|---|---|---|
| 1 | WITHSTAND VOLTAGE | IEC60950-1<br>I/P-O/P: 3.75KVAC/min<br>I/P-FG: 2 KVAC/min<4.5mA<br>O/P-FG:1.5KVAC/min | I/P-O/P: 4.125 KVAC/min<br>I/P-FG: 2.4KVAC/min<br>O/P-FG: 1.8 KVAC/min<br>Ta:25℃ | I/P-O/P: 2.74mA<br>I/P-FG: 1.67mA<br>O/P-FG: 6.3mA<br>NO DAMAGE |
| 2 | ISOLATION RESISTANCE | I/P-O/P:500VDC>100MΩ<br>I/P-FG: 500VDC>100MΩ<br>O/P-FG:500VDC>100MΩ | I/P-O/P: 500 VDC<br>I/P-FG: 500 VDC<br>O/P-FG: 500 VDC<br>Ta:25℃ | I/P-O/P: 30GΩ<br>I/P-FG: 24.8G Ω<br>O/P-FG:28.3 G Ω<br>NO DAMAGE |
| 3 | GROUNDING CONTINUITY | IEC60950-1<br>FG(PE) TO CHASSIS<br>OR TRACE < 100 mΩ | 40A / 2min<br>Ta:25℃ | 28 mΩ |
| 4 | LEAKAGE CURRENT | IEC60950-1<br>< 0.75mA / 480VAC | I/P: 480 VAC<br>O/P:Min LOAD<br>Ta:25℃ | L-FG:0.22mA<br>N-FG: 0.22mA |
| 6 | Test by certified Lab & Test Report Prepare | | | |

### E.M.C TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|---|---|---|---|---|
| 1 | HARMONIC | EN61000-3-2<br>CLASS A | I/P:230VAC/50HZ<br>O/P:FULL LOAD<br>Ta:25℃ | PASS |
| 2 | CONDUCTION | FCC Part 15 Subpart B | I/P:230/400/480VAC (50HZ/60HZ)<br>O/P:FULL/80% LOAD<br>Ta:25℃ | PASS<br>Test by certified Lab |
| 3 | RADIATION | FCC Part 15 Subpart B | I/P:230/400/480VAC (50HZ/60HZ)<br>O/P:FULL/80% LOAD<br>Ta:25℃ | PASS<br>Test by certified Lab |
| 4 | E.S.D | EN61000-4-2<br>LIGHT INDUSTRY<br>AIR:8KV / Contact:4KV | I/P: 230/400VAC (50HZ)<br>O/P:FULL LOAD<br>Ta:25℃ | CRITERIA A |
| 5 | E.F.T | EN61000-4-4<br>LIGHT INDUSTRY<br>INPUT: 1KV | I/P: 230/400VAC (50HZ)<br>O/P:FULL LOAD<br>Ta:25℃ | CRITERIA A |

| | | | | |
|---|---|---|---|---|
| 6 | SURGE | IEC61000-4-5<br>INDUSTRY<br>L-N :2KV<br>L,N-PE:4KV | I/P: 230/400VAC (50HZ)<br>O/P:FULL LOAD<br>Ta:25℃ | CRITERIA A |
| 6 | Test by certified Lab & Test Report Prepare | | | |

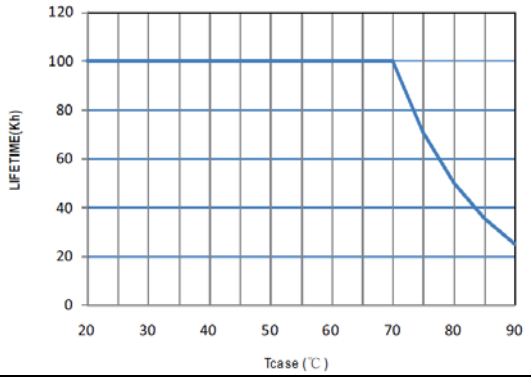
## ■ RELIABILITY TEST

### ENVIRONMENT TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|---|---|---|---|---|
| 1 | TEMPERATURE RISE TEST | MODEL： HVGC-480-M<br>1. ROOM AMBIENT BURN-IN： 3 HRS<br>I/P： 347VAC O/P： FULL LOAD<br>2. HIGH AMBIENT BURN-IN： 2 HRS<br>I/P： 347VAC O/P： FULL LOAD | | |

| CH. | Position | ROOM AMBIENT Ta= 25 ℃ | HIGH AMBIENT Ta= 60 ℃ |
|---|---|---|---|
| 1 | BD1 | 63.9℃ | 98.3℃ |
| 2 | C11 | 62.4℃ | 96.8℃ |
| 3 | Q1 | 63.3℃ | 98.0℃ |
| 4 | D8 | 69.2℃ | 106.8℃ |
| 5 | L3 | 68.6℃ | 104.7℃ |
| 6 | LF3 | 64.1℃ | 99.4℃ |
| 7 | LF2 | 62.4℃ | 97.0℃ |
| 8 | C1 | 60.0℃ | 94.4℃ |
| 9 | Q10 | 68.9℃ | 105.6℃ |
| 10 | Q12 | 71.6℃ | 107.4℃ |
| 11 | C5 | 66.4℃ | 99.4℃ |
| 12 | RY1 | 66.0℃ | 101.3℃ |
| 13 | T1-1 | 74.5℃ | 110.0℃ |
| 14 | T1-2 | 66.8℃ | 100.6℃ |
| 15 | D103 | 65.1℃ | 100.9℃ |
| 16 | D114 | 66.3℃ | 101.6℃ |
| 17 | C105 | 60.3℃ | 94.8℃ |
| 18 | C120 | 55.3℃ | 89.2℃ |
| 19 | U501 | 79.3℃ | 114.5℃ |
| 20 | C93 | 72.2℃ | 104.9℃ |
| 21 | RTH2 | 67.8℃ | 100.6℃ |

| | | | | |
|---|---|---|---|---|
| 2 | LOW TEMPERATURE<br>TURN ON TEST | TURN ON AFTER 2 HOUR | I/P： 528VAC/180VAC<br>O/P： 100 % LOAD<br>Ta= -45℃ | TEST：OK |
| 3 | HIGH HUMIDITY<br>HIGH TEMPERATURE<br>HIGH VOLTAGE<br>TURN ON TEST | AFTER 12 HOURS<br>IN CHAMBER ON<br>CONTROL 60 ℃<br>NO DAMAGE | I/P： 538VAC<br>O/P：FULL LOAD<br>Ta= 60 ℃<br>HUMIDITY= 95 %R.H | TEST：OK |
| 4 | TEMPERATURE<br>COEFFICIENT | ± 0.03%/℃(0~60℃) | I/P：347 VAC<br>O/P：FULL LOAD | ± 0.013 %/℃(0~60℃) |
| 5 | STORAGE TEMPERATURE TEST | 1. Thermal shock Temperature： -50℃~ +125℃<br>2. Temperature change rate ：25℃ / MIN<br>3. Dwell time low and high temperature ： 30 MIN/EACH<br>4. Total test cycle：100 CYCLE<br>5. Input/Output condition： STATIC | | OK |

| | | | |
|---|---|---|---|
| 6 | THERMAL SHOCK TEST | 1. Thermal shock Temperature： -45℃~ +65℃<br>2. Temperature change rate ：25℃ / MIN<br>3. Dwell time low and high temperature ： 30 MIN/EACH<br>4. Total test cycle：16 CYCLE<br>5. Input/Output condition：<br>15cycle:347V/ FULL LOAD AC ON 3sec/AC OFF 1sec TEST<br>1cycle:347V/ FULL LOAD Burn In Test | OK |
| 7 | VIBRATION TEST | 1 Carton & 1 Set<br>(1) Waveform： Sine Wave<br>(2) Frequency：10~500Hz<br>(3) Sweep Time：12min/sweep cycle<br>(4) Acceleration：5G<br>(5) Test Time：72min in each axis (X.Y.Z)<br>(6) Ta：25℃ | TEST：OK |
| 8 | CAPACITOR<br>LIFE CYCLE | SUPPOSE C105 IS THE MOST CRITICAL COMPONENT<br>(1) I/P： 347VAC O/P：FULL LOAD Ta= 25 ℃ LIFE TIME<br>(2) I/P： 347VAC O/P：FULL LOAD Ta= 60 ℃ LIFE TIME<br>(3) I/P： 347VAC O/P：75% LOAD Ta= 60 ℃ LIFE TIME<br>(4) I/P： 347VAC O/P：50% LOAD Ta= 60 ℃ LIFE TIME | (1) 411768 HRS<br>(2) 34713 HRS<br>(3) 38855HRS<br>(4) 39690HRS |
| 9 | MTBF | Conducted by Parts Stress Analysis Prediction<br>286.1K hrs min. Telcordia SR-332(Bellcore) ; 72.9K hrs min. MIL-HDBK-217F (25℃) | |
| 10 | DMTBF/Accelerated Life Test | Demonstration Mean Time Between Failure(Expected Life) :<br>50,000 hours @ Tcase 80℃<br>  | |



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

**12.10.30 A50-F031**