# Test Report: NSP-150-60

150W AC/DC High Reliable Multi-Industries Encolsed Type Power Supply

## ■ DESIGN VERIFY TEST

Output Function Test
Input Function Test
Protection Function Test
Control Function Test
Component Stress Test

## ■ SAFETY & E.M.C. TEST

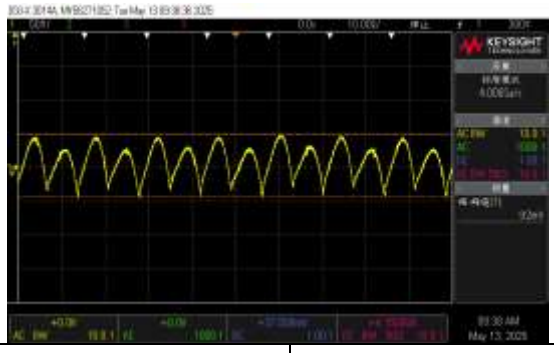
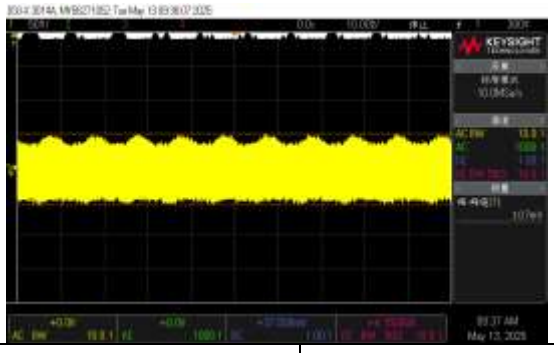
Safety Test
E.M.C. Test

## ■ RELIABILITY TEST

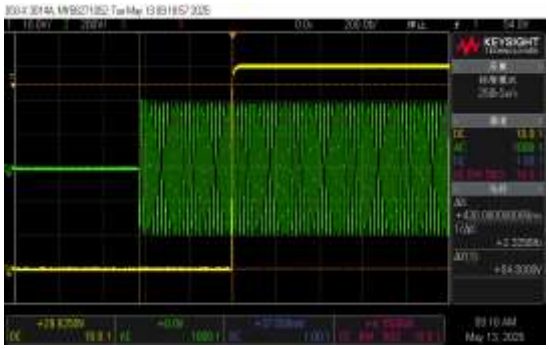
ENVIRONMENT TEST

# ■ DESIGN VERIFY TEST

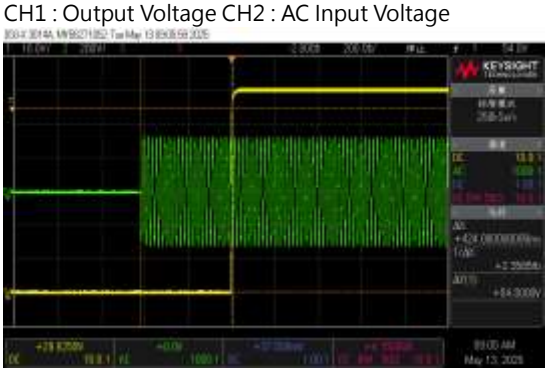
## OUTPUT FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|---|---|---|---|---|
| 1 | OUTPUT VOLTAGE ADJUST RANGE | CH1: 54V~ 72V | I/P： 230 VAC<br>O/P：MIN LOAD<br>Ta：25℃ | 52.1V~75.9V/230VAC |
| 2 | OUTPUT VOLTAGE TOLERANCE | V1: -1%~ +1% | I/P: 85VAC /305VAC<br>O/P:FULL/ MIN. LOAD<br>Ta:25℃ | V1: -0.15% +0.20% |
| 3 | LINE REGULATION | V1: -0.5%~ +0.5% | I/P: 85VAC~ 305VAC<br>O/P:FULL LOAD<br>Ta:25℃ | V1: -0.00%~+0.00 % |
| 4 | LOAD REGULATION | V1: -0.5%~ +0.5% | I/P: 230VAC<br>O/P:FULL ~MIN LOAD<br>Ta:25℃ | V1: -0.02%~ +0.03% |
| 5 | OVER/UNDERSHOOT TEST | <± 5% | I/P: 230VAC<br>O/P:FULL LOAD<br>Ta:25℃ | 0.85% |
| 6 | RIPPLE & NOISE (Max ) | V1: 300mVp-p | I/P: 230 VAC<br>O/P: MIN LOAD—FULL LOAD<br>Ta:25℃ | V1: 107mVp-p / 100% load |
| | high frequency：  | | low frequency：  | |
| 7 | SET UP TIME(Max) | 277VAC/1000ms<br>230VAC/1000ms<br>115VAC/1500ms | I/P： 277VAC<br>I/P： 230 VAC<br>I/P： 115 VAC<br>O/P：FULL LOAD<br>Ta：25℃ | 277VAC/430ms<br>230VAC/ 424ms<br>115VAC/ 388ms |

INPUT=277VAC/60HZ @ FULL LOAD
CH1 : Output Voltage CH2 : AC Input Vltage



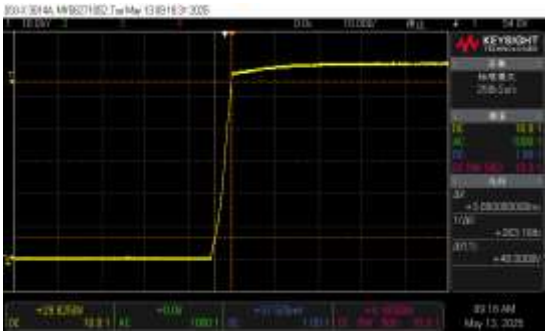
INPUT=230VAC/50HZ @ FULL LOAD
CH1 : Output Voltage CH2 : AC Input Voltage



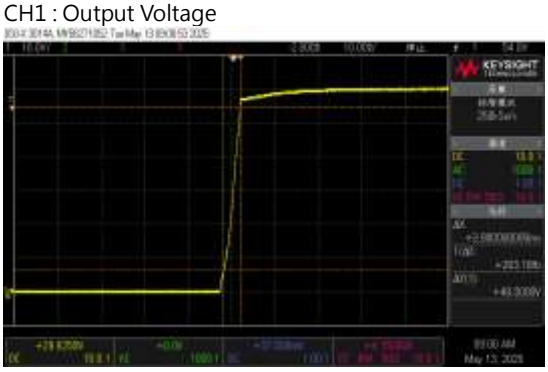
INPUT=115VAC/60HZ @ FULL LOAD
CH1 : Output Voltage CH2 : AC Input Voltage

| | | | | |
|---|---|---|---|---|
| 8 | RISE TIME (Max) | 277VAC/80ms<br>230VAC/80ms<br>115VAC/80ms | I/P : 277VAC<br>I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25℃ | 277VAC/3.8ms<br>230VAC/3.8ms<br>115VAC/3.8ms |

INPUT=277VAC/60HZ @ FULL LOAD
CH1 : Output Voltage



INPUT=230VAC/50HZ @ FULL LOAD
CH1 : Output Voltage



INPUT=230VAC/60HZ @ FULL LOAD
CH1 : Output Voltage CH2 : AC Input Voltage

| | | | | |
|---|---|---|---|---|
| 9 | HOLD UP TIME (Typ.) | 277VAC/16ms<br>230VAC/16ms<br>115VAC/16ms | I/P : 277VAC<br>I/P : 230 VAC<br>I/P : 115 VAC<br>O/P : FULL LOAD<br>Ta : 25℃ | 277VAC/29ms<br>230VAC/29ms<br>115VAC/29ms |

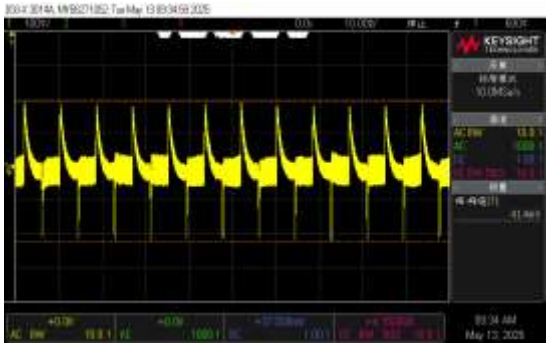
INPUT=277VAC/60HZ @ FULL LOAD
CH1 : Output Voltage CH2 : AC Input Voltage

INPUT=230VAC/50HZ @ FULL LOAD
CH1 : Output Voltage CH2 : AC Input Voltage

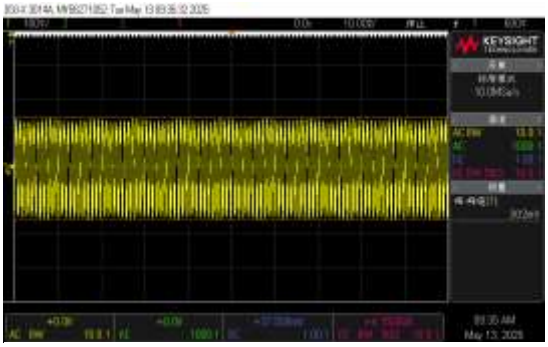
INPUT=115VAC/60HZ @ FULL LOAD
CH1 : Output Voltage CH2 : AC Input Voltage

| | | | | |
|---|---|---|---|---|
| 10 | DYNAMIC LOAD | V1: 6000mVp-p | I/P: 230VAC<br>O/P:<br>(1)FULL /50% LOAD 50%DUTY / 120HZ<br>(2)FULL /50% LOAD 50%DUTY / 1KHZ<br>Ta:25℃ | <br><br>414mVp-p<br><br>302mVp-p |

FULL /50% LOAD 50%DUTY / 120HZ



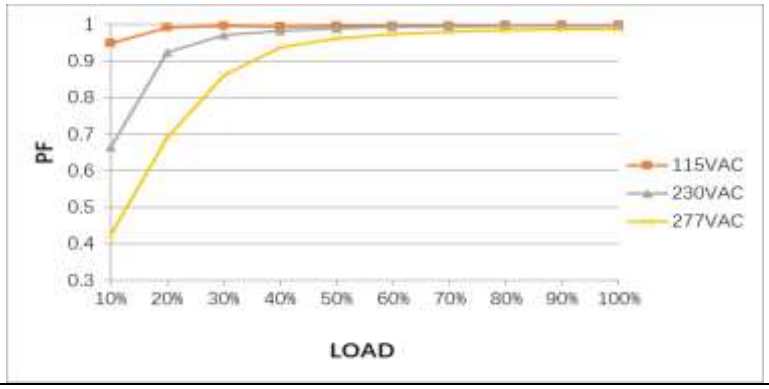
FULL /50% LOAD 50%DUTY / 1KHZ

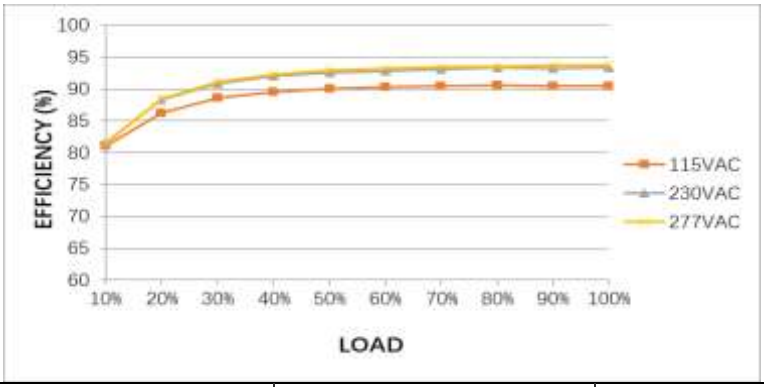
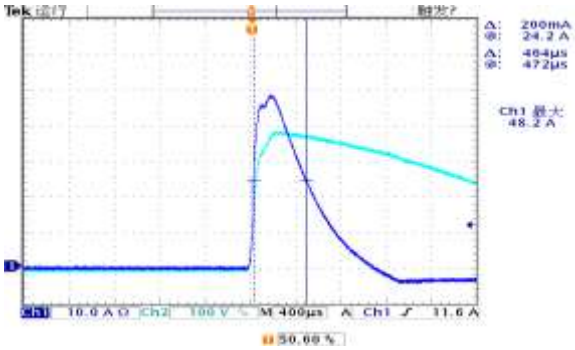
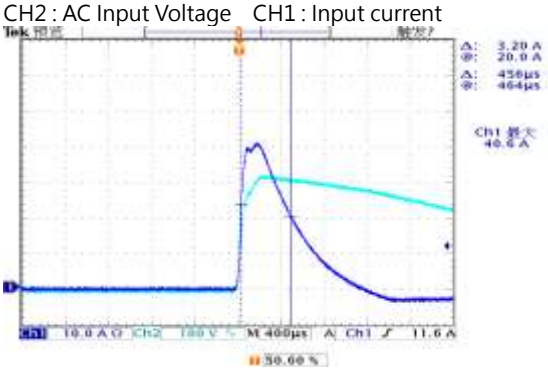


# INPUT FUNCTION TEST

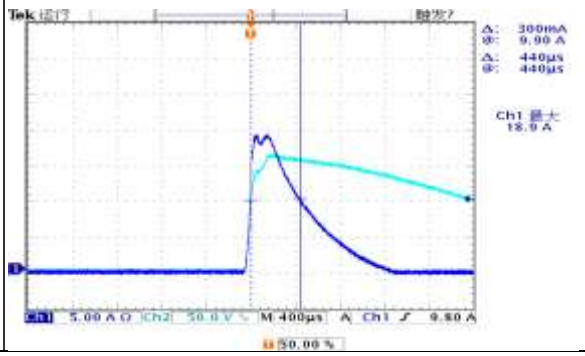
| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|---|---|---|---|---|
| 1 | INPUT VOLTAGE RANGE | 85VAC~305VAC<br>120VDC~ 431VDC | (1) I/P:TESTING<br>O/P:FULL LOAD<br>(2) I/P:DC TESTING(L:+ N:-)<br>O/P: FULL / 50% LOAD<br>(3) I/P:DC TESTING(L:- N:+)<br>O/P: FULL / 50% LOAD<br>Ta:25℃ | (1) 85 V~305V<br>(2) 120Vdc~ 431 Vdc/FULL LOAD<br>120 Vdc~ 431Vdc/50% LOAD<br>(3) 120Vdc~ 431Vdc/FULL LOAD<br>120Vdc~431 Vdc/50% LOAD |
| | | | I/P:<br>LOW-LINE-3V=82 V<br>HIGH-LINE+10V=315 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 ) | TEST:OK |
| 2 | INPUT FREQUENCY RANGE | 47HZ ~63 HZ<br>NO DAMAGE | I/P:85VAC ~305VAC<br>O/P:FULL~MIN LOAD<br>Ta:25℃ | TEST: OK |
| 3 | INPUT CURRENT (Typ.) | 277V/ 0.63 A<br>230V/ 0.75 A<br>115V/ 1.55 A | I/P： 277 VAC<br>I/P： 230 VAC<br>I/P： 115 VAC<br>O/P：FULL LOAD<br>Ta：25℃ | I =0.59A/ 277VAC<br>I =0.71A/ 230VAC<br>I =1.46A/ 115VAC |
| 4 | LEAKAGE CURRENT | Earth leakage current <350μA(rms)@277Vac | I/P： 277 VAC<br>O/P：Min LOAD<br>Ta：25℃ | L-FG： 205μA<br>N-FG： 195μA |
| | | Touch current <100μA(rms)@277Vac | I/P： 277 VAC<br>O/P：Min LOAD<br>Ta：25℃ | L-V+： 45μA<br>L-V-: 45μA<br>N-V+： 45μA<br>N-V-: 45μA |
| 5 | POWER FACTOR (Typ.) | 0.90/277VAC<br>0.93/ 230VAC<br>0.98/ 115VAC | I/P： 277 VAC<br>I/P： 230 VAC<br>I/P： 115 VAC<br>O/P：FULL LOAD<br>Ta：25℃ | PF=0.987/277VAC<br>PF=0.996/230VAC<br>PF=0.998/115VAC |

P.F vs LOAD



| | | | | |
|---|---|---|---|---|
| 6 | EFFICIENCY(Typ.) | 93% | I/P:230 VAC<br>O/P:FULL LOAD<br>Ta:25℃ | 93.3% |
| | EFFICIENCY vs LOAD<br>  <br> | | | |
| 7 | NO LOAD POWER CONSUMPTION(Typ.) | Remote Power ON：<br>3W/277VAC<br>3W/230VAC<br>3W/115VAC<br><br>Remote Power OFF：<br>0.5W/277VAC<br>0.5W/230VAC<br>0.3W/115VAC | I/P： 277 VAC<br>I/P： 230 VAC<br>I/P： 115 VAC<br>O/P：RC ON/RC OFF<br>Ta：25℃ | Remote Power ON：<br>0.72W/277VAC<br>0.72W/230VAC<br>0.73W/115VAC<br><br>Remote Power OFF：<br>0.39W/277VAC<br>0.31W/230VAC<br>0.13W/115VAC |
| 8 | INRUSH CURRENT(Typ.) | 277VAC/55A<br>230VAC/45A<br>115VAC/23A<br>COLD START | I/P： 277 VAC<br>I/P： 230 VAC<br>I/P： 115 VAC<br>O/P：FULL LOAD<br>Ta：25℃ | I =48.2A/ 277VAC<br>T50=464us/277VAC<br><br>I =40.6A/ 230VAC<br>T50= 456us/230VAC<br><br>I =18.9A/ 115VAC<br>T50= 440us/115VAC |
| | INPUT=277VAC/50HZ @ FULL LOAD<br>CH2 : AC Input Voltage CH1 : Input current<br>  | | INPUT=230VAC/50HZ @ FULL LOAD<br>CH2 : AC Input Voltage CH1 : Input current<br>  | |

INPUT=115VAC/50HZ @ FULL LOAD
CH2 : AC Input Voltage CH1 : Input current




# PROTECTION FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|---|---|---|---|---|
| 1 | OVER LOAD PROTECTION | 105%~ 200% | I/P: 305VAC<br>I/P: 230VAC<br>I/P: 85VAC<br>O/P:TESTING<br>Ta:25℃ | 125.49%/ 305VAC<br>125.49%/ 230VAC<br>125.49%/85VAC<br>Protection type :<br>1、Normally works within 105 ~ 200% rated output power for more than 5 seconds and then constant current limiting without shutdown(Vout>30%), recovers automatically after fault condition is removed, or shut down o/p voltage<br>when Vout<30%,AC re-power on to recover<br>2、>200% rated power, constant current limiting (Vout>30%)with auto-recovery after fault condition is removed, or shut down o/p voltage when Vout t<30%,AC re-power on to recover |
| 2 | OVER VOLTAGE PROTECTION | 73V~86V | I/P: 305VAC<br>I/P: 230VAC<br>I/P: 85VAC<br>O/P:MIN LOAD<br>Ta:25℃ | 80V/ 305VAC<br>80V/ 230VAC<br>80V/ 85VAC<br>Protection type :<br>Shut down o/p voltage, re-power on to recover |
| 3 | OVER TEMPERATURE PROTECTION | NO DAMAGE | I/P: 305VAC<br>I/P: 85VAC<br>O/P:FULL LOAD | O.T.P. Active<br>Protection type :<br>Shut down o/p voltage, re-power on to recover |
| 4 | SHORT PROTECTION | SHORT EVERY OUTPUT<br>1 HOUR NO DAMAGE | I/P: 305VAC<br>I/P: 85VAC<br>O/P: FULL LOAD<br>Ta:25℃ | NO DAMAGE<br>Protection type :<br>Constant current limiting for more than 5 seconds (Vout<30% ) and then shut down o/p voltage, AC re-power on to recover |

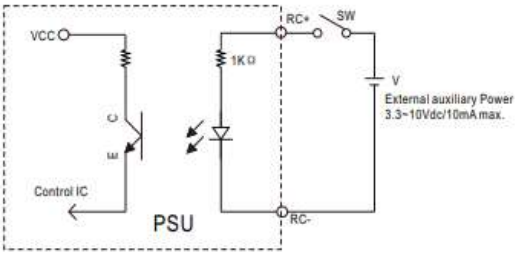
# CONTROL FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|---|---|---|---|---|
| 1 | REMOTE ON/OFF CONTROL | | | |

**2.Remote Control**

The PSU can be turned ON/OFF by using the "Remote Control" function with external switch and auxiliary power

| PSU Vo Status | Between RC-(pin1) and RC+(pin2) on CN1 |
|---|---|
| POWER ON | Keep 0~0.8Vdc or open |
| POWER OFF | Keep 3.3~10Vdc by external voltage |




I/P: 230 VAC

O/P:FULL LOAD

Ta:25℃

Test Result：PASS

| Between ON/OFF | Power Output Status |
|---|---|
| POWER OFF（0~0.8V） | ON |
| POWER ON （3.3~10V） | OFF |

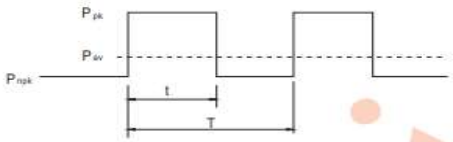
| 2 | **PEAK POWER** | | | |
|---|---|---|---|---|

1. Peak Power

$$P_{av} = \frac{P_{pk} \times t + P_{npk} \times (T-t)}{T} \leq P_{rated}$$

$$Duty = \frac{t}{T} \times 100\% \leq 35\%$$

$t \leq 5$ sec




$P_{av}$ : Average output power (W)

$P_{pk}$ : Peak output power (W)

$P_{npk}$ : Non-peak output power (W)

$P_{rated}$ : Rated output power (W)

t : Peak power width (sec)

T : Period (sec)

**For example (24V model) :**

Vin = 200Vac Duty_max = 5%

$P_{av} = P_{rated} = 200W$

$P_{pk} = 400W$

$t \leq 5$ sec

$$T \geq \frac{5\ sec}{5\%} \geq 100sec$$

$$P_{npk} \leq \frac{T P_{av} - t P_{pk}}{T-t}$$

$P_{npk} \leq 189W$

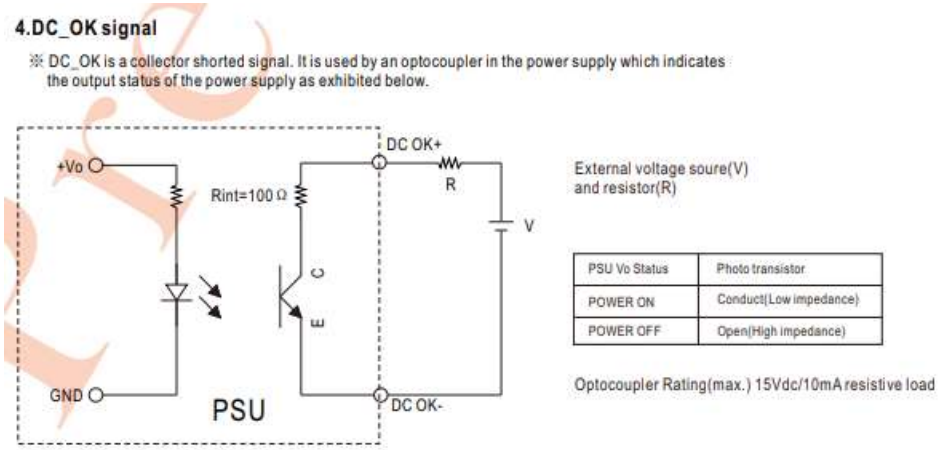
Note:When the output voltage is adjusted to the upper limit, the peak power is 150% rated power

I/P: 100/305VAC

O/P:PEAK LOAD (1Hour NO DAMGE)

Ta:25℃

Test Result：PASS

| | | | | |
|---|---|---|---|---|
| 3 | REMOTE SENSE | The remote sensing compensates voltage drop on the load wiring up to 0.3V. | I/P: 230 VAC<br>O/P:FULL LOAD<br>Ta:25℃ | > 0.3 V |
| 4 | DC_OK Signal |  <br>I/P:230VAC<br>O/P:FULL LOAD<br>Ta:25℃<br>TEST :OK | | |

# COMPONENT STRESS TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|---|---|---|---|---|
| 1 | PWM Transistor<br>( D to S) or (C to E)<br>Peak Voltage | Q6<br>Rated : 650V/11A | AC ON/OFF<br>I/P:High-Line +3V =308V<br>VDS:<br>O/P: (1)Full Load<br>(2)Output Short<br>(3)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz<br>(4)Dynamic Load Full Load/ Min. Load 90%Duty/3KHz<br>(5)Dynamic Load Full Load/ Min. Load 90%Duty/5KHz<br>(6)Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz<br>(7)0%→400% Load. | VDS:<br>(1) 461V<br>(2) 497V<br>(3) 461V<br>(4) 461V<br>(5) 461V<br>(6) 461V<br>(7) 501V |

| | | | | |
|---|---|---|---|---|
| | | | I/P:Low-Line -3V = 82V<br>O/P: (1)Full Load<br>(2)Output Short<br>(3)Dynamic Load Full Load/<br>Min. Load 90%Duty/1KHz<br>(4)Dynamic Load Full Load/<br>Min. Load 90%Duty/3KHz<br>(5)Dynamic Load Full Load/<br>Min. Load 90%Duty/5KHz<br>(6)Dynamic Load 100% Load/<br>Min. Load 50%Duty/120Hz<br>(7)0%→400% Load.<br>Ta:25℃ | VDS:<br>(1) 437V<br>(2) 481V<br>(3) 437V<br>(4) 441V<br>(5) 437V<br>(6) 437V<br>(7) 485V |
| 2 | P.F.C Transistor<br>( D to S) or (C to E)<br>Peak Voltage | Q1 Rated<br>: 650V/15A | I/P:High-Line +3V =308V<br>AC ON/OFF<br>O/P: (1)Full Load<br>(2)Output Short<br>(3)Dynamic Load Full Load/<br>Min. Load 90%Duty/1KHz<br>(4)Dynamic Load Full Load/<br>Min. Load 90%Duty/3KHz<br>(5)Dynamic Load Full Load/<br>Min. Load 90%Duty/5KHz<br>(6)Dynamic Load 100% Load/<br>Min. Load 50%Duty/120Hz<br>(7)0%→400% Load.<br><br>I/P:Low-Line -3V =82V<br>AC ON/OFF<br>O/P: (1)Full Load<br>(2)Output Short<br>(3)Dynamic Load Full Load/<br>Min. Load 90%Duty/1KHz<br>(4)Dynamic Load Full Load/<br>Min. Load 90%Duty/3KHz<br>(5)Dynamic Load Full Load/<br>Min. Load 90%Duty/5KHz<br>(6)Dynamic Load 100% Load/<br>Min. Load 50%Duty/120Hz<br>(7)0%→400% Load.<br>Ta:25℃ | VDS:<br>(1) 449V<br>(2) 561V<br>(3) 449V<br>(4) 449V<br>(5) 449V<br>(6) 449V<br>(7) 565V<br><br>VDS:<br>(1) 513V<br>(2) 557V<br>(3) 505V<br>(4) 505V<br>(5) 501V<br>(6) 493V<br>(7) 557V |
| 3 | P.F.C DIODE | D8 Rated<br>: 4 A/650V | I/P:High-Line +3V =308 V<br>AC ON/OFF<br>O/P: (1)Full Load<br>(2)Output Short<br>(3)Dynamic Load Full Load/<br>Min. Load 90%Duty/5KHz<br>(4)Dynamic Load 100% Load/<br>Min. Load 50%Duty/120Hz | (1) 441V<br>(2) 457V<br>(3) 441V<br>(4) 433V |

| | | | | |
|---|---|---|---|---|
| | | | I/P:Low-Line -3V = 82V<br>AC ON/OFF<br>O/P: (1)Full Load<br>(2)Output Short<br>(3)Dynamic Load Full Load/<br>Min. Load 90%Duty/5KHz<br>(4)Dynamic Load 100% Load/<br>Min. Load 50%Duty/120Hz<br>Ta:25℃ | (1) 437V<br>(2) 457V<br>(3) 441V<br>(4) 441V |
| 4 | Diode Peak Voltage | D101<br>20A/200V | AC ON/OFF<br>I/P:High-Line +3V =308 V<br>O/P: (1)Full Load<br>(2)Output Short<br>(3)Dynamic Load Full Load/<br>Min. Load 90%Duty/1KHz<br>(4)Dynamic Load Full Load/<br>Min. Load 90%Duty/3KHz<br>(5)Dynamic Load Full Load/<br>Min. Load 90%Duty/5KHz<br>(6)Dynamic Load 100% Load/<br>Min. Load 50%Duty/120Hz<br>(7)0%→400% Load.<br>(8).NO LOAD<br>Ta:25℃ | D101:<br>VDS:<br>(1) 156V<br>(2) 160V<br>(3) 156V<br>(4) 156V<br>(5) 158V<br>(6) 158V<br>(7) 160V<br>(8) 152V |
| 5 | Input Capacitor Voltage | C5 Rated:<br>82μ/ 450V<br>Surge voltage: 500V | I/P:High-Line +3V =308V<br>O/P: (1)Full Load input on/off<br>(2) Min load input on /Off<br>(3)Full Load /Min load Change<br>(4)Full load continue<br>Ta:25℃ | (1)437V<br>(2)437V<br>(3)445V<br>(4)433V |
| 6 | Control IC Voltage Test | PWM IC U2 Rated<br>9.6V~ 36V | AC ON/OFF<br>I/P:High-Line +3V =308 V<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℃ | U2<br>(1) 19.0V<br>(2) 19.0V<br>(3) 19.0V<br>(4) 19.0V<br>(5) 19.0V |

# ■ SAFETY& E.M.C. TEST

## SAFETY TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT |
|---|---|---|---|---|
| 1 | WITHSTAND VOLTAGE | I/P-O/P: 4.2 K VAC/min<br>I/P-FG : 2.1 K VAC/min<br>O/P-FG: 1.5 KVAC/min | I/P-O/P: 4.62 KVAC/min<br>I/P-FG: 2.52 KVAC/min<br>O/P-FG: 1.8 KVAC/min<br>Ta:25℃ | I/P-O/P: 1.725 mA<br>I/P-FG: 1.608 mA<br>O/P-FG: 1.80 m A |
| 2 | ISOLATION RESISTANCE | I/P-O/P: 500 VDC>100MΩ<br>I/P-FG: 500 VDC>100MΩ<br>O/P-FG: 500 VDC >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: >9999 MΩ<br>I/P-FG: >9999 MΩ<br>O/P-FG: >9999 MΩ<br>NO DAMAGE |
| 3 | GROUNDING CONTINUITY | FG(PE) TO CHASSIS<br>OR TRACE < 100 mΩ | 40A / 2min<br>Ta:25℃ | 10mΩ |

## 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 | BS EN/EN55032(CISPR32),CNS 15936<br>EN/EN55014-1(CISPR14-1)<br>EN/EN55011(CISPR11) | I/P : 230 VAC (50HZ)<br>O/P : FULL/50% LOAD<br>Ta : 25℃ | PASS<br>Test by certified Lab |
| 3 | RADIATION | BS EN/EN55032(CISPR32),CNS 15936<br>EN/EN55014-1(CISPR14-1)<br>EN/EN55011(CISPR11) | I/P : 230 VAC (50HZ)<br>O/P : FULL LOAD<br>Ta : 25℃ | PASS<br>Test by certified Lab |
| 4 | E.S.D | EN61000-4-2<br>AIR : 15KV / Contact : 8KV | I/P : 230 VAC/50HZ<br>O/P : FULL LOAD<br>Ta : 25℃ | CRITERIA A |
| 5 | E.F.T | EN61000-4-4<br>INPUT : 2KV | I/P : 230 VAC/50HZ<br>O/P : FULL LOAD<br>Ta : 25℃ | CRITERIA A |
| 6 | SURGE | IEC61000-4-5<br>L-N : 2KV<br>L,N-PE : 4KV | I/P : 230 VAC/50HZ<br>O/P : FULL LOAD<br>Ta : 25℃ | CRITERIA A |
| 7 | Test by certified Lab & Test Report Prepare<br>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 : NSP-150-48<br>1. ROOM AMBIENT BURN-IN : 2 HRS<br>I/P : 230VAC O/P : FULL LOAD Ta=28 ℃<br>2. HIGH AMBIENT BURN-IN : 2 HRS<br>I/P : 230VAC O/P : FULL LOAD Ta=61.4 ℃ | | |
| 2 | OVER LOAD BURN-IN TEST | NO DAMAGE<br>1 HOUR ( MIN ) | I/P : 230 VAC<br>O/P : 125 % LOAD<br>Ta : 25℃ | TEST : OK |
| 3 | LOW TEMPERATURE<br>TURN ON TEST | TURN ON AFTER 2 HOUR | I/P : 85VAC/305VAC<br>O/P : 75/100 % LOAD<br>Ta=-35/-45 ℃ | TEST : OK |
| 4 | HIGH HUMIDITY<br>HIGH TEMPERATURE<br>HIGH VOLTAGE<br>TURN ON TEST | AFTER 12 HOURS<br>IN CHAMBER ON<br>CONTROL 60 ℃/95 %R.H<br>NO DAMAGE | I/P : 315 VAC<br>O/P : FULL LOAD<br>Ta=60 ℃<br>HUMIDITY= 95 %R.H | TEST : OK |

| NO | Position | ROOM AMBIENT Ta=28 ℃ | HIGH AMBIENT Ta=61.4 ℃ |
|---|---|---|---|
| 1 | LF1 | 51.1℃ | 83.5℃ |
| 2 | C2 | 51.7℃ | 84.0℃ |
| 3 | RTH1 | 77.7℃ | 101.0℃ |
| 4 | BD2 | 60.8℃ | 91.4℃ |
| 5 | L1 | 73.4℃ | 103.1℃ |
| 6 | D8 | 53.7℃ | 85.8℃ |
| 7 | Q1 | 61.2℃ | 92.8℃ |
| 8 | R5 | 64.1℃ | 95.3℃ |
| 9 | C5 | 56.8℃ | 88.9℃ |
| 10 | C36 | 59.1℃ | 91.1℃ |
| 11 | C14 | 59.8℃ | 91.9℃ |
| 12 | U2 | 64.9℃ | 96.6℃ |
| 13 | Q5 | 54.9℃ | 87.4℃ |
| 14 | Q6 | 55.5℃ | 88.4℃ |
| 15 | U4 | 57.4℃ | 89.3℃ |
| 16 | T1 | 72.2℃ | 104.8℃ |
| 17 | C200 | 54.9℃ | 87.0℃ |
| 18 | C106 | 59.2℃ | 90.4℃ |
| 19 | U121 | 56.5℃ | 88.1℃ |
| 20 | D100 | 63.6℃ | 93.4℃ |
| 21 | D101 | 65.3℃ | 95.7℃ |
| 22 | RTH3 | 59.9℃ | 92.4℃ |
| 23 | TC | 49.2℃ | 80.6℃ |

| | | | | |
|---|---|---|---|---|
| 5 | TEMPERATURE COEFFICIENT | ± 0.05 %/℃(0~60℃) | I/P： 230 VAC<br>O/P：FULL LOAD | ± 0.0012 %/℃(0~60℃) |
| 6 | STORAGE TEMPERATURE TEST | -40~85℃ | 1. Thermal shock Temperature： -45℃~ +90℃<br>2. Temperature change rate ：25℃ / MIN<br>3. Dwell time low and high temperature ： 30 MIN/EACH<br>4. Total test cycle：10 CYCLE<br>5. Input/Output condition： STATIC | |
| 7 | THERMAL SHOCK TEST | -30~60℃ | 1. Thermal shock Temperature： -35℃~ +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:230V/ FULL LOAD AC ON 3sec/AC OFF 1sec TEST<br>1cycle:230V/ FULL LOAD Burn In Test | |
| 8 | VIBRATION TEST | 10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes | 1 Carton & 1 Set<br>(1) Waveform： Sine Wave<br>(2) Frequency：10~500Hz<br>(3) Sweep Time：10min/sweep cycle<br>(4) Acceleration：3G<br>(5) Test Time：180min in each axis (X.Y.Z)<br>(6) Ta：25℃ | |
| 9 | CAPACITOR LIFE CYCLE | SUPPOSE C106 IS THE MOST CRITICAL COMPONENT<br>(1) I/P： 230VAC O/P：FULL LOAD Ta=60 ℃ LIFE TIME<br>(2) I/P： 230VAC O/P：FULL LOAD Ta=60 ℃ LIFE TIME<br>(3) I/P： 230VAC O/P：75% LOAD Ta=60 ℃ LIFE TIME<br>(4) I/P： 230VAC O/P：50% LOAD Ta=60 ℃ LIFE TIME | | (1) 408694HRS<br>(2) 42074HRS<br>(3) 68515HRS<br>(4) 109051HRS |
| 10 | MTBF | Conducted by Parts Stress Analysis Prediction<br>2159.4K hrs min. Telcordia SR-332 (Bellcore) ; 258.3K hrs min. MIL-HDBK-217F (25℃) | | |
| 11 | Ongoing Reliability Test | I/P：230VAC O/P：FULL LOAD TA=50℃<br>Demonstration Mean Time Between Failure : 50,000 hours | | |

| TEST RESULT | TESTER | REVIEW | APPROVAL |
|---|---|---|---|
| PASS | WUWQIN/ZHOUBIAO | WENF | WUWQ |

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