



# Test Report: NSP-75-60

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75W AC/DC High Reliable Multi-Industries Enclosed 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

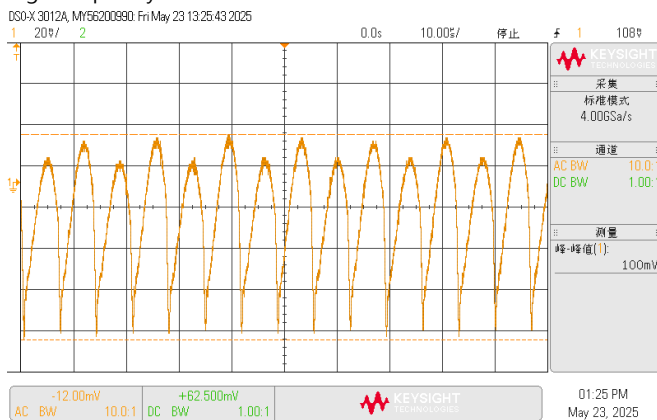
ENVIRONMENT TEST

■ DESIGN VERIFY TEST

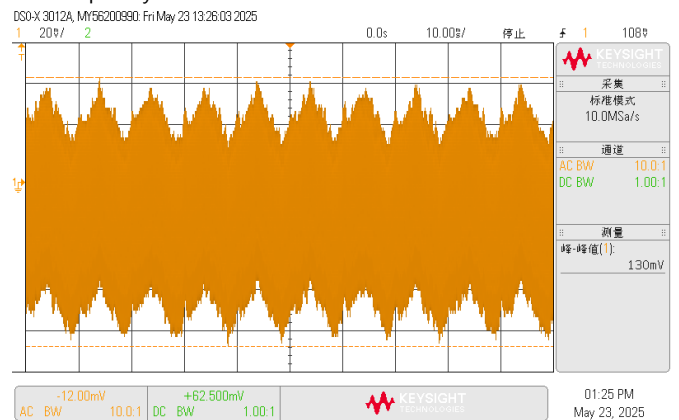
**OUTPUT FUNCTION TEST**

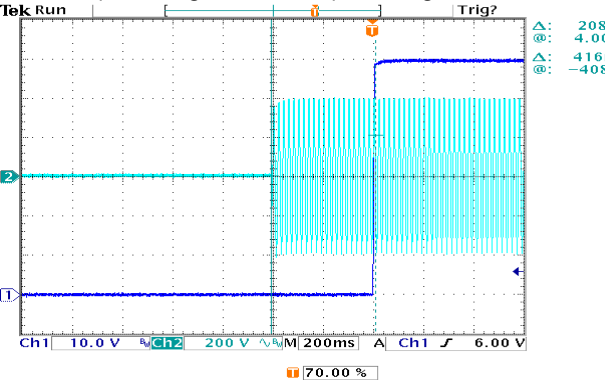
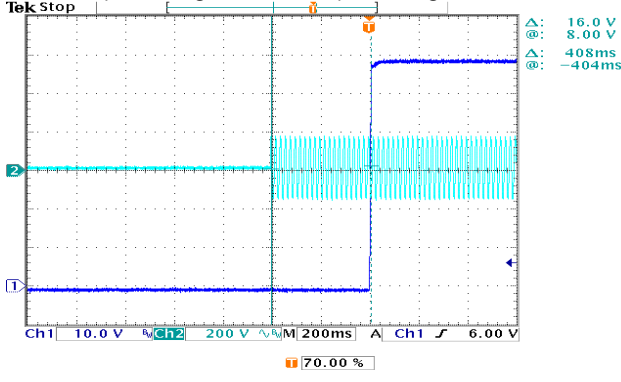
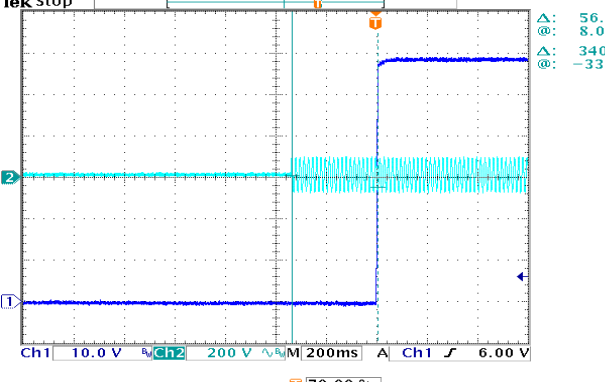
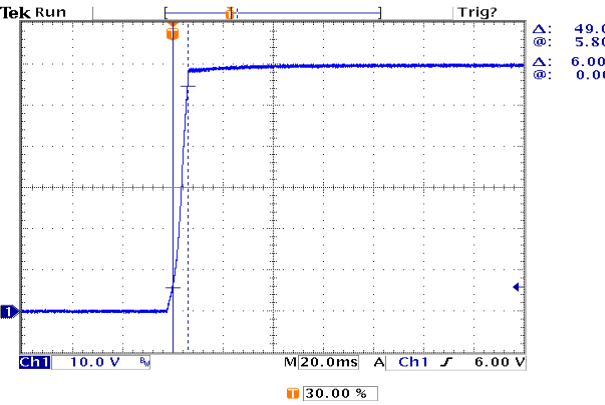
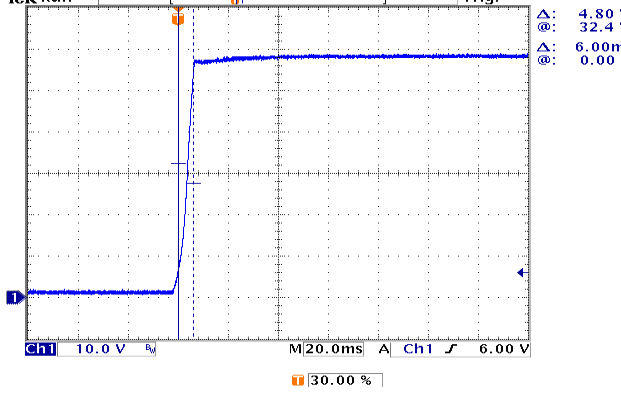
NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT VOLTAGE ADJUST RANGE	CH1: 54V~ 72V	I/P : 230 VAC O/P : MIN LOAD Ta : 25°C	52.5V~74.46V/230VAC
2	OUTPUT VOLTAGE TOLERANCE	V1: -1 %~ 1%	I/P: 85VAC /305VAC O/P:FULL/ MIN. LOAD Ta:25°C	V1: 0.13%~0.25%
3	LINE REGULATION	V1: -0.5%~ 0.5 %	I/P: 85VAC~ 305VAC O/P:FULL LOAD Ta:25°C	V1: 0%~ 0.02%
4	LOAD REGULATION	V1: -0.5%~ 0.5%	I/P: 230VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: 0 %~0.02%
5	OVER/UNDERSHOOT TEST	< ± 5%	I/P: 230VAC O/P:FULL LOAD Ta:25°C	0.75%
6	RIPPLE & NOISE (Max )	V1: 300 mVp-p	I/P: 230 VAC O/P: MIN LOAD—FULL LOAD Ta:25°C	V1: 130mVp-p / 100% load

high frequency :

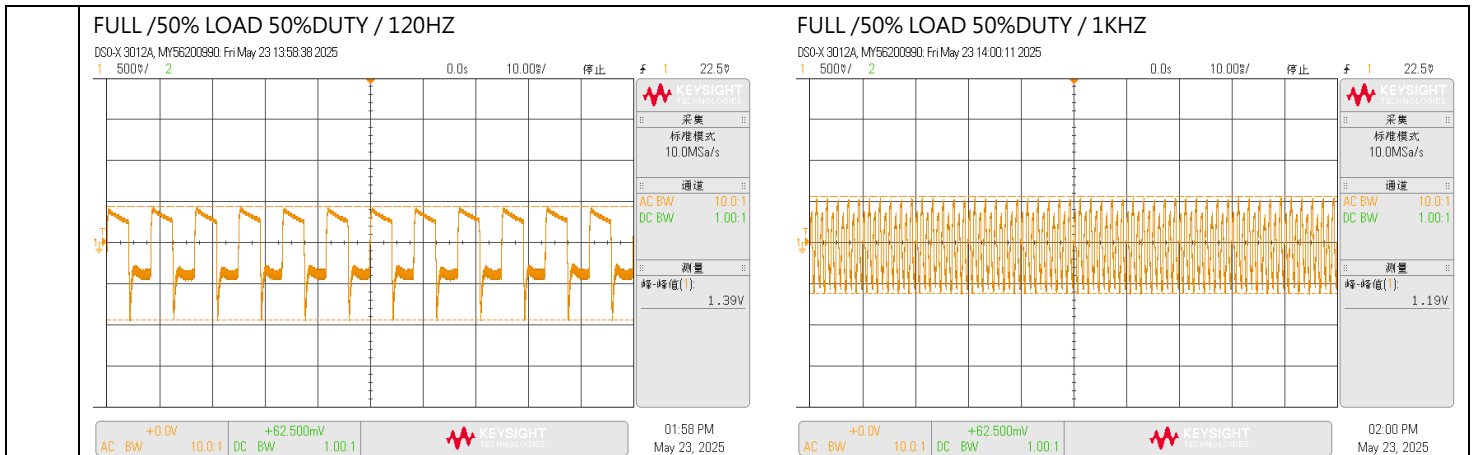


low frequency :



7	SET UP TIME(Max)	277VAC/1000ms 230VAC/1000ms 115VAC/1500ms	I/P : 277VAC I/P : 230VAC I/P : 115VAC O/P : FULL LOAD Ta : 25°C	277VAC/416ms 230VAC/408ms 115VAC/340 ms
<p>INPUT=277VAC/60HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage</p>  <p>INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage</p>  <p>INPUT=115VAC/60HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage</p> 				
8	RISE TIME (Max)	277VAC/80ms 230VAC/80ms 115VAC/80ms	I/P : 277 VAC I/P : 230 VAC I/P : 115VAC O/P : FULL LOAD Ta : 25°C	277VAC/6ms 230VAC/6ms 115VAC/5.6ms
<p>INPUT=277VAC/60HZ @ FULL LOAD CH1 : Output Voltage</p>  <p>INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage</p> 				

	<p>INPUT=115VAC/60HZ @ FULL LOAD CH1 : Output Voltage</p> <p>△: 49.6 V @: 6.20 V △: 5.60ms @: 0.00 s</p>			
9	HOLD UP TIME (Typ.)	<p>277VAC/16ms 230VAC/16ms 115VAC/16ms</p>	<p>I/P : 277 VAC I/P : 230 VAC I/P : 115VAC O/P : FULL LOAD Ta : 25°C</p>	<p>277VAC/35.2ms 230VAC/36.4ms 115VAC/36.4ms</p>
<p>INPUT=277VAC/60HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage</p> <p>△: 8.00 V @: 12.0 V △: 35.2ms @: -45.6ms</p>		<p>INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage</p> <p>△: 240 V @: 156 V △: 36.4ms @: -47.2ms</p> <p>INPUT=115VAC/60HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage</p> <p>△: 40.0 V @: -20.0 V △: 36.4ms @: -47.2ms</p>		
10	DYNAMIC LOAD	V1: 6000 mVp-p	<p>I/P: 230VAC O/P: (1)FULL /50% LOAD 50%DUTY / 120HZ (2)FULL /50% LOAD 50%DUTY / 1KHZ Ta:25°C</p>	<p>1390mVp-p 1190mVp-p</p>



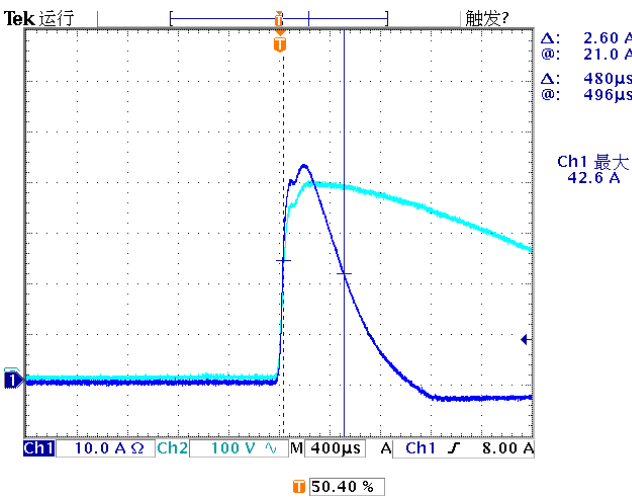
### INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	85VAC~305VAC 120VDC~ 431VDC	(1) I/P:TESTING O/P:FULL LOAD (2) I/P:DC TESTING(L:+ N:-) O/P: FULL / 50% LOAD (3) I/P:DC TESTING(L:- N:+) O/P: FULL / 50% LOAD Ta:25°C	(1) 82V~315V (2) 115Vdc~ 434Vdc/FULL LOAD 115Vdc~434Vdc/50% LOAD (3) 115Vdc~434Vdc/FULL LOAD 115 Vdc~434Vdc/50% LOAD
			I/P: LOW-LINE-3V=82 V HIGH-LINE+10V=315 V O/P:FULL/MIN LOAD (PLEASE CHECK DERATING CURVE) ON: 30 Sec OFF: 30 Sec 10MIN ( POWER ON/OFF NO DAMAGE )	TEST:OK
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE	I/P:85VAC ~305VAC O/P:FULL~MIN LOAD Ta:25°C	TEST: OK
3	INPUT CURRENT (Typ.)	277V/ 0.35 A 230V/ 0.4 A 115V/ 0.8A	I/P : 277VAC I/P : 230 VAC I/P : 115VAC O/P : FULL LOAD Ta : 25°C	I =0.31A/ 277VAC I =0.36A/ 230VAC I =0.74A/ 115VAC
4	LEAKAGE CURRENT	Earth leakage current <350μA(rms)@277Vac	I/P : 277 VAC O/P : Min LOAD Ta : 25°C	L-FG : 214μA N-FG : 212μA
		Touch current <100μA(rms)@277Vac	I/P : 277 VAC O/P : Min LOAD Ta : 25°C	L-V+ : 49 μA L-V- : 47 μA N-V+ : 49 μA N-V- : 47 μA

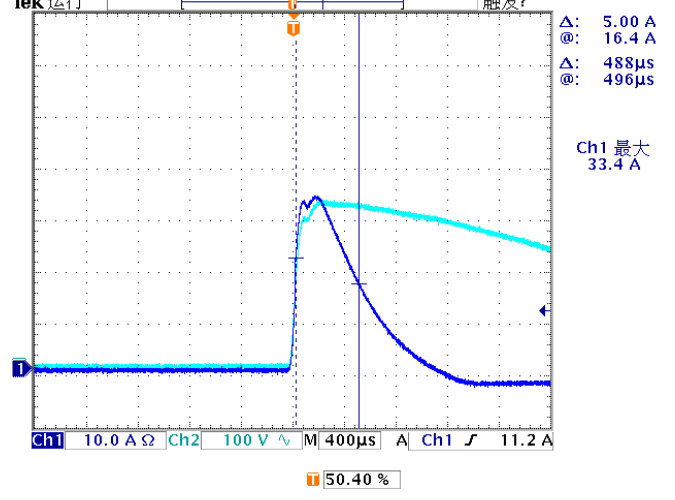
5	POWER FACTOR (Typ.)	<b>0.90/277VAC</b> 0.93/ 230VAC 0.98/ 115VAC	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	PF=0.993/277VAC PF=0.997/230VAC PF=0.998/115VAC																																												
<p>P.F vs LOAD</p> <table border="1"> <caption>P.F vs LOAD Data</caption> <thead> <tr> <th>LOAD (%)</th> <th>115VAC PF</th> <th>230VAC PF</th> <th>277VAC PF</th> </tr> </thead> <tbody> <tr><td>10%</td><td>0.98</td><td>0.60</td><td>0.42</td></tr> <tr><td>20%</td><td>0.99</td><td>0.88</td><td>0.68</td></tr> <tr><td>30%</td><td>0.99</td><td>0.95</td><td>0.82</td></tr> <tr><td>40%</td><td>0.99</td><td>0.97</td><td>0.90</td></tr> <tr><td>50%</td><td>0.99</td><td>0.98</td><td>0.95</td></tr> <tr><td>60%</td><td>0.99</td><td>0.98</td><td>0.97</td></tr> <tr><td>70%</td><td>0.99</td><td>0.98</td><td>0.98</td></tr> <tr><td>80%</td><td>0.99</td><td>0.98</td><td>0.98</td></tr> <tr><td>90%</td><td>0.99</td><td>0.98</td><td>0.98</td></tr> <tr><td>100%</td><td>0.99</td><td>0.98</td><td>0.98</td></tr> </tbody> </table>					LOAD (%)	115VAC PF	230VAC PF	277VAC PF	10%	0.98	0.60	0.42	20%	0.99	0.88	0.68	30%	0.99	0.95	0.82	40%	0.99	0.97	0.90	50%	0.99	0.98	0.95	60%	0.99	0.98	0.97	70%	0.99	0.98	0.98	80%	0.99	0.98	0.98	90%	0.99	0.98	0.98	100%	0.99	0.98	0.98
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6	EFFICIENCY(Typ.)	92%	I/P:230 VAC O/P:FULL LOAD Ta:25°C	92.88%																																												
<p>EFFICIENCY vs LOAD</p> <table border="1"> <caption>EFFICIENCY vs LOAD Data</caption> <thead> <tr> <th>LOAD (%)</th> <th>115VAC Efficiency (%)</th> <th>230VAC Efficiency (%)</th> <th>277VAC Efficiency (%)</th> </tr> </thead> <tbody> <tr><td>10%</td><td>79</td><td>79</td><td>78</td></tr> <tr><td>20%</td><td>88</td><td>88</td><td>87</td></tr> <tr><td>30%</td><td>89</td><td>89</td><td>89</td></tr> <tr><td>40%</td><td>90</td><td>91</td><td>91</td></tr> <tr><td>50%</td><td>90</td><td>92</td><td>92</td></tr> <tr><td>60%</td><td>90</td><td>92</td><td>92</td></tr> <tr><td>70%</td><td>90</td><td>92</td><td>92</td></tr> <tr><td>80%</td><td>90</td><td>92</td><td>92</td></tr> <tr><td>90%</td><td>90</td><td>92</td><td>92</td></tr> <tr><td>100%</td><td>90</td><td>92</td><td>92</td></tr> </tbody> </table>					LOAD (%)	115VAC Efficiency (%)	230VAC Efficiency (%)	277VAC Efficiency (%)	10%	79	79	78	20%	88	88	87	30%	89	89	89	40%	90	91	91	50%	90	92	92	60%	90	92	92	70%	90	92	92	80%	90	92	92	90%	90	92	92	100%	90	92	92
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80%	90	92	92																																													
90%	90	92	92																																													
100%	90	92	92																																													
7	NO LOAD POWER CONSUMPTION(Typ.)	Remote Power ON : 2W/277VAC 2W/230VAC 2W/115VAC  Remote Power OFF : 0.5W/277VAC 0.5W/230VAC 0.3W/115VAC	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : RC ON/RC OFF Ta : 25°C	Remote Power ON : 0.9796W/277VAC 0.9723W/230VAC 0.9752W/115VAC  Remote Power OFF : 0.379W/277VAC 0.2966W/230VAC 0.1244W/115VAC																																												

8	INRUSH CURRENT(Typ.)	277V/45A	I/P : 277VAC	I =42.6A/ 277VAC
		230V/35A	I/P : 230 VAC	T50= 480 us/277V
		115V/20A	I/P : 115VAC	I =33.4A/ 230VAC
		COLD START	O/P : FULL LOAD	T50= 488 us/230V
			Ta : 25°C	I =15.5A/ 115VAC
				T50= 456us/115V

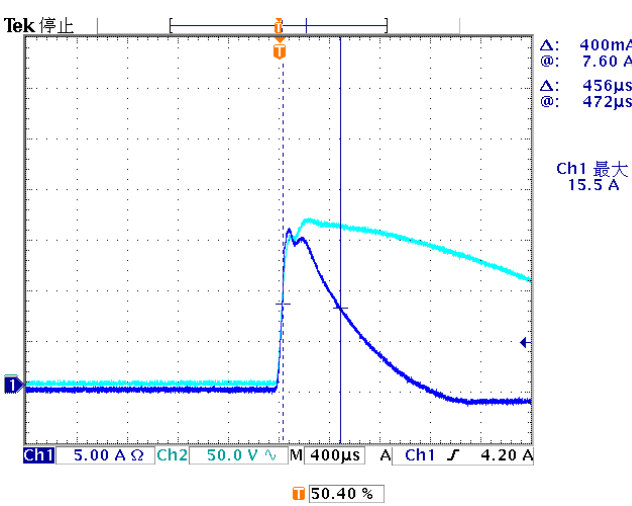
INPUT=277VAC/50HZ @ FULL LOAD  
CH2 : AC Input Voltage CH1 : Input current



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



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 I/P: 230VAC I/P: 85VAC O/P:TESTING Ta:25°C	138.03%/ 305VAC 138.03%/ 230VAC 138.03%/85VAC Protection type : 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 when Vout<30%,AC re-power on to recover 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<30%,AC re-power on to recover
2	OVER VOLTAGE PROTECTION	73V~86V	I/P: 305VAC I/P: 230VAC I/P: 85VAC O/P:MIN LOAD Ta:25°C	80.4V/ 305VAC 80.4V/ 230VAC 80.4V/ 85VAC Protection type : Shut down o/p voltage, AC re-power on to recover
3	OVER TEMPERATURE PROTECTION	NO DAMAGE	I/P: 305VAC I/P: 85VAC O/P:FULL LOAD	O.T.P Active Protection type : Shut down o/p voltage, re-power on to recover
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 305VAC I/P: 85VAC O/P: FULL LOAD Ta:25°C	NO DAMAGE Protection type : Constant current limiting for more than 5 seconds (Vout<30%) and then shut down a/p voltage, AC re-power on to recover



## CONTROL FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT												
1	REMOTE ON/OFF CONTROL	<p><b>2.Remote Control</b> The PSU can be turned ON/OFF by using the "Remote Control" function with external switch and auxiliary power</p> <table border="1"> <tr> <td>PSU Vo Status</td> <td>Between RC-(pin1) and RC+(pin2) on CN1</td> </tr> <tr> <td>POWER ON</td> <td>Keep 0~0.8Vdc or open</td> </tr> <tr> <td>POWER OFF</td> <td>Keep 3.3~10Vdc by external voltage</td> </tr> </table> <p>I/P: 230 VAC O/P:FULL LOAD Ta:25°C Test Result :</p> <table border="1"> <tr> <td>Between ON/OFF</td> <td>Power Output Status</td> </tr> <tr> <td>SW ON (0~0.8V)</td> <td>ON</td> </tr> <tr> <td>SW OFF (3.3~10V)</td> <td>OFF</td> </tr> </table>	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	Between ON/OFF	Power Output Status	SW ON (0~0.8V)	ON	SW OFF (3.3~10V)	OFF		
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															
Between ON/OFF	Power Output Status															
SW ON (0~0.8V)	ON															
SW OFF (3.3~10V)	OFF															
2	PEAK POWER	<p><b>1. Peak Power</b></p> $P_{av} = \frac{P_{pk} \times t + P_{npk} \times (T-t)}{T} \leq P_{rated}$ $Duty = \frac{t}{T} \times 100\% \leq 35\%$ $t \leq 5 \text{ sec}$ <p> <math>P_{pk}</math>: Peak output power (W)  <math>P_{npk}</math>: Non-peak output power (W)  <math>P_{rated}</math>: Rated output power (W)  <math>t</math>: Peak power width (sec)  <math>T</math>: Period (sec)         </p> <p><b>For example (24V model) :</b>  <math>V_{in} = 200V_{ac}</math>   <math>Duty_{max} = 5\%</math>  <math>P_{npk} = P_{rated} = 100W</math>  <math>P_{pk} = 200W</math>  <math>t \leq 5 \text{ sec}</math>  <math>T \geq \frac{5 \text{ sec}}{5\%} \geq 100 \text{ sec}</math>  <math>P_{npk} \leq \frac{TP_{av} - tP_{pk}}{T-t}</math>  <math>P_{npk} \leq 94.7W</math> </p> <p>Note:When the output voltage is adjusted to the upper limit, the peak power is 150% rated power</p> <p>I/P: 100/305VAC O/P:PEAK LOAD (1Hour NO DAMGE) Ta:25°C Test Result: PASS</p>														

## COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Transistor ( D to S) or (C to E) Peak Voltage	Q6 Rated 650 V/11 A	<p>AC ON/OFF I/P:High-Line +3V =308V VDS: O/P: (1)Full Load (2)Output Short (3)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (4)Dynamic Load Full Load/ Min. Load 90%Duty/3KHz (5)Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (6)Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz (7)0%→400% Load.</p> <p>I/P:Low-Line -3V = 82V O/P: (1)Full Load (2)Output Short (3)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (4)Dynamic Load Full Load/ Min. Load 90%Duty/3KHz (5)Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (6)Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz (7)0%→400% Load. Ta:25°C</p>	<p>VDS: (1) 450V (2) 470V (3) 446V (4) 446V (5) 446V (6) 450V (7) 470V</p> <p>VDS: (1) 434V (2) 434V (3) 426V (4) 426V (5) 426V (6) 442V (7) 466V</p>
2	P.F.C Transistor ( D to S) or (C to E) Peak Voltage	Q1 Rated 650 V/15 A	<p>I/P:High-Line +3V =308V AC ON/OFF O/P: (1)Full Load (2)Output Short (3)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (4)Dynamic Load Full Load/ Min. Load 90%Duty/3KHz (5)Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (6)Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz (7)0%→400% Load.</p>	<p>VDS: (1) 438V (2) 474V (3) 446V (4) 456V (5) 460V (6) 442V (7) 470V</p>



			<p>I/P:Low-Line -3V =82V  AC ON/OFF  O/P: (1)Full Load  (2)Output Short  (3)Dynamic Load Full Load/  Min. Load 90%Duty/1KHz  (4)Dynamic Load Full Load/  Min. Load 90%Duty/3KHz  (5)Dynamic Load Full Load/  Min. Load 90%Duty/5KHz  (6)Dynamic Load 100% Load/  Min. Load 50%Duty/120Hz  (7)0%→400% Load.  Ta:25°C</p>	<p>VDS:  (1) 446V  (2) 430V  (3) 442V  (4) 464V  (5) 468V  (6) 442V  (7) 438V</p>
3	P.F.C DIODE	D8 Rated 4 A/650V	<p>I/P:High-Line +3V =308 V  AC ON/OFF  O/P: (1)Full Load  (2)Output Short  (3)Dynamic Load Full Load/  Min. Load 90%Duty/5KHz  (4)Dynamic Load 100% Load/  Min. Load 50%Duty/120Hz  I/P:Low-Line -3V = 82V  AC ON/OFF  O/P: (1)Full Load  (2)Output Short  (3)Dynamic Load Full Load/  Min. Load 90%Duty/5KHz  (4)Dynamic Load 100% Load/  Min. Load 50%Duty/120Hz  Ta:25°C</p>	<p>(1) 432V  (2) 468V  (3) 436V  (4) 428V  (1) 444V  (2) 440V  (3) 444V  (4) 444V</p>
4	Diode Peak Voltage	D101 Rated 20 A/200V	<p>AC ON/OFF  I/P:High-Line +3V =308 V  O/P: (1)Full Load  (2)Output Short  (3)Dynamic Load Full Load/  Min. Load 90%Duty/1KHz  (4)Dynamic Load Full Load/  Min. Load 90%Duty/3KHz  (5)Dynamic Load Full Load/  Min. Load 90%Duty/5KHz  (6)Dynamic Load 100% Load/  Min. Load 50%Duty/120Hz  (7)0%→400% Load.  (8).NO LOAD  Ta:25°C</p>	<p>D101:  (1) 159V  (2) 13.5V  (3) 157V  (4) 159V  (5) 162V  (6) 159V  (7) 175V  (8) 151 V 54</p>



5	Input Voltage	Capacitor C5 Rated: 68μ/ 450V Surge voltage:500V	I/P:High-Line +3V =308V O/P: (1)Full Load input on/off (2) Min load input on /Off (3)Full Load /Min load Change (4)Full load continue Ta:25°C	(1)426V (2)426V (3)438V (4) 426V
6	Control IC Voltage Test	PWM IC U2 Rated -0.4 V~ 30 V	AC ON/OFF I/P:High-Line +3V =308 V O/P(1)FULL LOAD (2) Output Short (3)O.L.P (4)O.V.P. (5)NO LOAD VRmin(LOW LINE) Ta:25°C	U2 (1) 18.9V (2) 18.9V (3) 18.9V (4) 19.3V (5) 12.7V

■ **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 I/P-FG : 2.1 K VAC/min O/P-FG: 1.5 KVAC/min	I/P-O/P: 4.62 KVAC/min I/P-FG: 2.52 KVAC/min O/P-FG: 1.8 KVAC/min Ta:25°C	I/P-O/P: 1.916 mA I/P-FG: 1.934 mA O/P-FG: 1.555 mA
2	ISOLATION RESISTANCE	I/P-O/P: 500 VDC>100MΩ I/P-FG: 500 VDC>100MΩ O/P-FG: 500 VDC >100MΩ	I/P-O/P: 500 VDC I/P-FG: 500 VDC O/P-FG: 500 VDC Ta:25°C	I/P-O/P: >9999 MΩ I/P-FG: >9999 MΩ O/P-FG: >9999 MΩ NO DAMAGE
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40A / 2min Ta:25°C	10mΩ

**E.M.C TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	EN61000-3-2 CLASS A	I/P:230VAC/50HZ O/P:FULL LOAD Ta:25°C	PASS
2	CONDUCTION	BS EN/EN55032(CISPR32),CNS 15936 EN/EN55014-1(CISPR14-1) EN/EN55011(CISPR11)	I/P : 230 VAC (50HZ) O/P : FULL/50% LOAD Ta : 25°C	PASS Test by certified Lab
3	RADIATION	BS EN/EN55032(CISPR32),CNS 15936 EN/EN55014-1(CISPR14-1) EN/EN55011(CISPR11)	I/P : 230 VAC (50HZ) O/P : FULL LOAD Ta : 25°C	PASS Test by certified Lab
4	E.S.D	EN61000-4-2 AIR : 15KV / Contact : 8KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A
5	E.F.T	EN61000-4-4 INPUT : 2KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A
6	SURGE	IEC61000-4-5 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 : NSP-75-48 1. ROOM AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta=26 °C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta=60.8 °C																																																																																						
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2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR ( MIN )	I/P : 230 VAC O/P : 129 % LOAD Ta : 25°C	TEST : OK																																																																																				
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 85VAC/305VAC O/P : 80/100 % LOAD Ta=-35/-45 °C	TEST : OK																																																																																				
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50 °C/95 %R.H NO DAMAGE	I/P : 315 VAC O/P : FULL LOAD Ta= 50 °C HUMIDITY= 95 %R.H	TEST : OK																																																																																				
5	TEMPERATURE COEFFICIENT	± 0.05 %/°C(0~60°C)	I/P : 230 VAC O/P : FULL LOAD	± 0.016 %/°C(0~60°C)																																																																																				

6	STORAGE TEMPERATURE TEST	-40~85°C	<ol style="list-style-type: none"> <li>1. Thermal shock Temperature : -45°C~ +90°C</li> <li>2. Temperature change rate : 25°C / MIN</li> <li>3. Dwell time low and high temperature : 30 MIN/EACH</li> <li>4. Total test cycle : 10 CYCLE</li> <li>5. Input/Output condition : STATIC</li> </ol>
7	THERMAL SHOCK TEST	-40~60°C	<ol style="list-style-type: none"> <li>1. Thermal shock Temperature : -45°C~ +65°C</li> <li>2. Temperature change rate : 25°C / MIN</li> <li>3. Dwell time low and high temperature : 30 MIN/EACH</li> <li>4. Total test cycle : 16 CYCLE</li> <li>5. Input/Output condition : 15cycle:230V/ FULL LOAD AC ON 3sec/AC OFF 1sec TEST 1cycle:230V/ FULL LOAD Burn In Test</li> </ol>
8	VIBRATION TEST	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes	<ol style="list-style-type: none"> <li>1 Carton &amp; 1 Set</li> <li>(1) Waveform : Sine Wave</li> <li>(2) Frequency : 10~500Hz</li> <li>(3) Sweep Time : 10min/sweep cycle</li> <li>(4) Acceleration : 3G</li> <li>(5) Test Time : 180min in each axis (X.Y.Z)</li> <li>(6) Ta : 25°C</li> </ol>
9	CAPACITOR LIFE CYCLE	<p>SUPPOSE C105 IS THE MOST CRITICAL COMPONENT</p> <p>(1) I/P : 230VAC O/P : FULL LOAD Ta=25 °C LIFE TIME (1) 431932HRS</p> <p>(2) I/P : 230VAC O/P : FULL LOAD Ta=60 °C LIFE TIME (2) 42360HRS</p> <p>(3) I/P : 230VAC O/P : 75% LOAD Ta=60 °C LIFE TIME (3) 66983HRS</p> <p>(4) I/P : 230VAC O/P : 50% LOAD Ta=60 °C LIFE TIME (4) 106488HRS</p>	
10	MTBF	<p>Conducted by Parts Stress Analysis Prediction</p> <p>2163.5K hrs min. Telcordia SR-332 (Bellcore) ; 250.4K hrs min. MIL-HDBK-217F (25°C)</p>	
11	Ongoing Reliability Test	<p>I/P : 230VAC O/P : FULL LOAD TA=50°C</p> <p>Demonstration Mean Time Between Failure : 50,000 hours</p>	

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	WUWQIN/ZHOUBIAO	WENF	WUWQ

2020.10.1 TAG-QA-009