



Test Report: NSP-500-15

500W 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

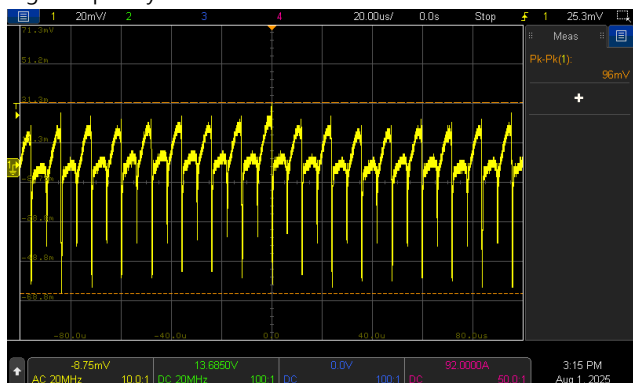
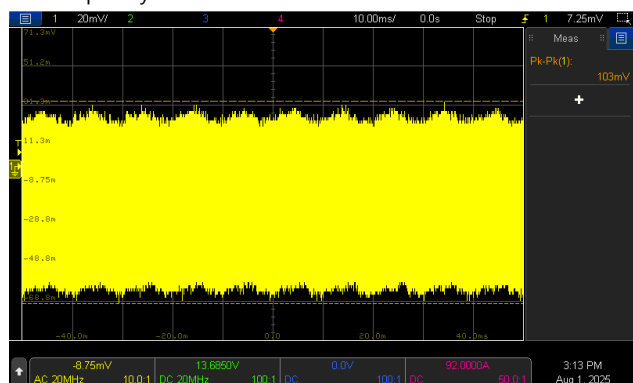
E.M.C. Test

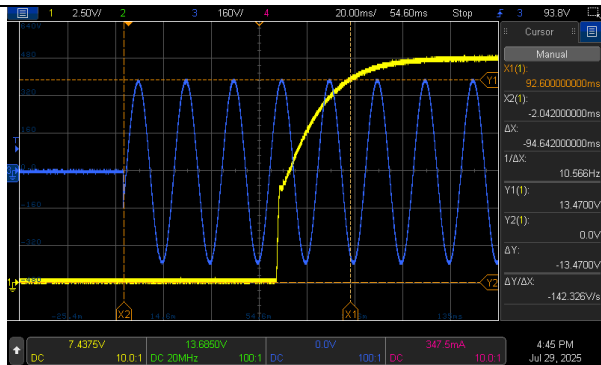
■ RELIABILITY TEST

ENVIRONMENT TEST

■ DESIGN VERIFY TEST

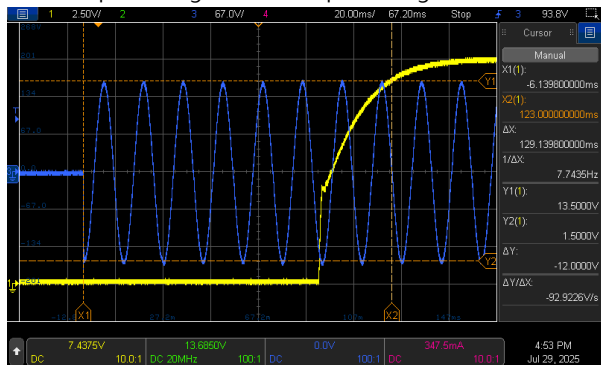
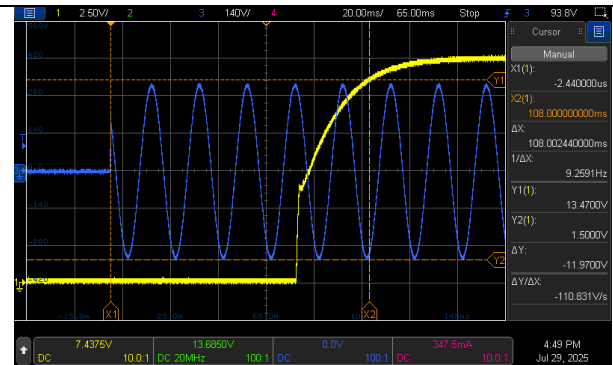
OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT VOLTAGE ADJUST RANGE	CH1: 15V~19V	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	14.301V~19.700V/277VAC 14.301V~19.700V/230VAC 14.301V~19.700V/115VAC
2	OUTPUT VOLTAGE TOLERANCE	V1: -2% ~ +2%	I/P: 85VAC~305VAC O/P:FULL~MIN. LOAD Ta:25°C	V1: -0.05% ~ 0.03%
3	LINE REGULATION	V1: -0.5% ~ +0.5%	I/P: 85VAC~ 305VAC O/P:FULL LOAD Ta:25°C	V1: -0% ~ 0%
4	LOAD REGULATION	V1: -0.5% ~ +0.5%	I/P: 230VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: -0.05% ~ 0.03%
5	OVER/UNDERSHOOT TEST	<± 5%	I/P: 230VAC O/P:FULL LOAD / NO LOAD/ PEAK LOAD Ta:25°C	3.17%
6	RIPPLE & NOISE (Max)	V1: 200mVp-p	I/P:230VAC O/P:FULL LOAD Ta:25°C	96mVp-p / high frequency 103mVp-p / low frequency
high frequency :				
low frequency :				
7	SET UP TIME(Max)	277VAC/900ms 230VAC/1000ms 115VAC/1500ms	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	277VAC/94.64ms 230VAC/108ms 115VAC/129.14ms
INPUT=277VAC/50HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage		INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage		



INPUT=115VAC/60HZ @ FULL LOAD

CH1: Output Voltage CH3: AC Input Voltage



8 RISE TIME (Max)

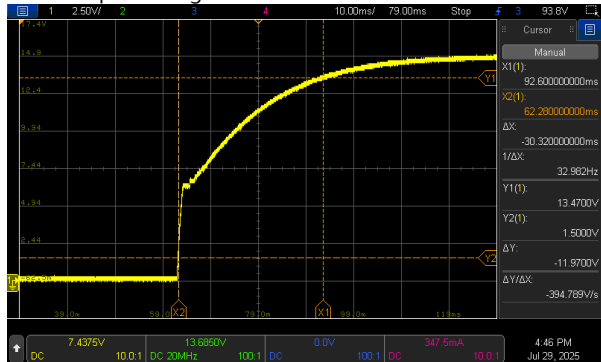
277VAC/80ms
230VAC/80ms
115VAC/80ms

I/P : 277 VAC
I/P : 230 VAC
I/P : 115 VAC
O/P : FULL LOAD
Ta : 25°C

277VAC/30.32ms
230VAC/30.128ms
115VAC/30.106ms

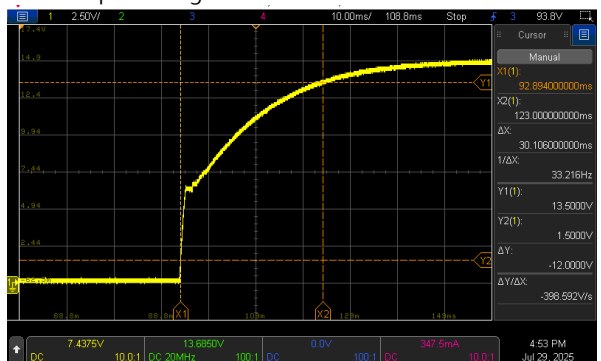
INPUT=277VAC/50HZ @ FULL LOAD

CH1: Output Voltage



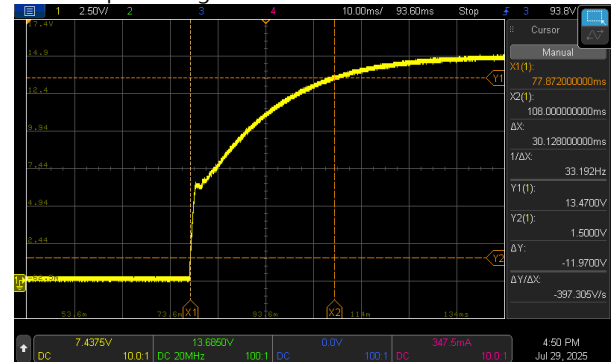
INPUT=115VAC/60HZ @ FULL LOAD

CH1: Output Voltage



INPUT=230VAC/50HZ @ FULL LOAD

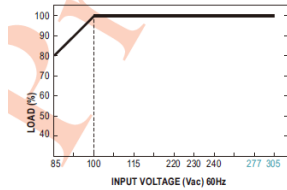
CH1: Output Voltage

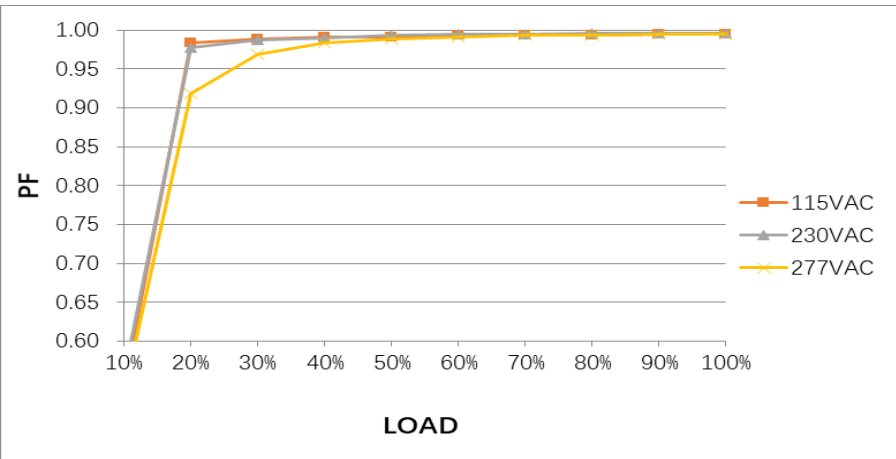
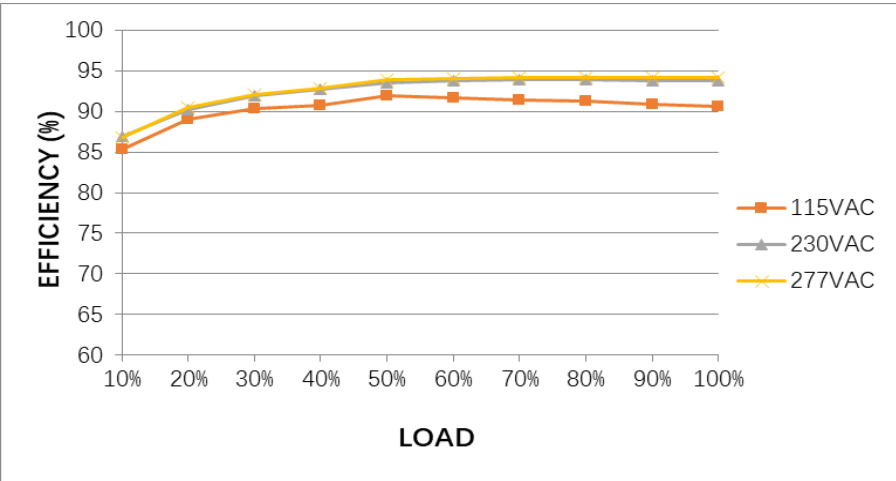
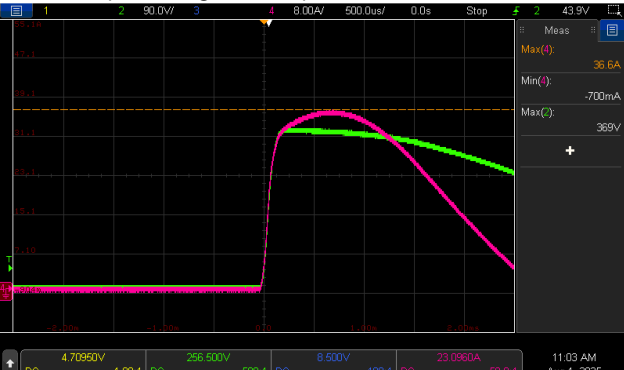


9	HOLD UP TIME (Typ.)	277VAC/16ms 230VAC/16ms 115VAC/16ms	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	277VAC/28.502ms 230VAC/27.766ms 115VAC/26.85ms
INPUT=277VAC/50HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage INPUT=115VAC/60HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage				
10	DYNAMIC LOAD	V1: 1500mVp-p	I/P: 230VAC O/P: (1) FULL/ MIN LOAD 50%DUTY / 120HZ (2) FULL/ MIN LOAD 50%DUTY / 1KHZ Ta:25°C	700mVp-p 503mVp-p
FULL / MIN LOAD 50%DUTY / 120HZ FULL / MIN LOAD 50%DUTY / 1KHZ				

11	TRANSIENT RECOVERY TIME	V1: 1500mVp-p <500us	I/P: 230VAC O/P:40% LOAD CHANGE 50%DUTY/120HZ 1.25A/us	675mVp-p
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INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT												
1	INPUT VOLTAGE RANGE	85VAC~305VAC 120VDC~ 431VDC ■ Output Derating vs. Input Voltage 	(1) I/P: TESTING O/P: FULL / 80% LOAD (2) I/P: DC TESTING (L: + N: -) O/P: FULL / 80% LOAD (3) I/P: DC TESTING (L: - N: +) O/P: FULL / 80% LOAD Ta:25°C I/P: HIGH-LINE+10V=315V O/P:FULL/MIN LOAD (PLEASE CHECK DERATING CURVE) ON: 30 Sec OFF: 30 Sec 10MIN (POWER ON/OFF NO DAMAGE)	(1) 75V~305V/ FULL LOAD 75V~305V/ 80% LOAD (2) 106Vdc~431Vdc/FULL LOAD 106Vdc~431Vdc/80% LOAD (3) 106Vdc~431Vdc/FULL LOAD 106Vdc~431Vdc/80% LOAD 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/ 2.2A 230V/ 2.6A 115V/ 5.3A	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I =1.94A/ 277VAC I =2.35A/ 230VAC I =4.85A/ 115VAC												
4	LEAKAGE CURRENT	Earth leakage current < 350uA(rms)@277Vac Touch current < 100uA(rms)@277Vac	I/P : 277 VAC/60HZ O/P : Min LOAD Ta : 25°C	269 uA for Earth 27.7 uA for Touch												
5	NO LOAD CONSUMPTION	Remote Power OFF: 0.75W/115Vac 0.75W/230Vac 0.75W/277Vac Remote Power ON: 3.3W/115Vac 3W/230Vac 3W/277Vac	I/P : 115VAC I/P : 230VAC I/P : 277VAC O/P : NO LOAD Ta : 25°C	TEST: <table><tr><td></td><td>Remote Power OFF</td><td>Remote Power ON</td></tr><tr><td>115VAC</td><td>0.436W</td><td>2.64W</td></tr><tr><td>230VAC</td><td>0.493W</td><td>2.30W</td></tr><tr><td>277VAC</td><td>0.527W</td><td>2.23W</td></tr></table>		Remote Power OFF	Remote Power ON	115VAC	0.436W	2.64W	230VAC	0.493W	2.30W	277VAC	0.527W	2.23W
	Remote Power OFF	Remote Power ON														
115VAC	0.436W	2.64W														
230VAC	0.493W	2.30W														
277VAC	0.527W	2.23W														
6	POWER FACTOR (Typ.)	0.9/ 277VAC 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=0.9954/277VAC PF=0.9953/230VAC PF=0.9947/115VAC												

	P.F vs LOAD 			
7	EFFICIENCY(Typ.)	92%	I/P:230 VAC O/P:FULL LOAD Ta:25°C	93.6%
	EFFICIENCY vs LOAD 			
8	INRUSH CURRENT(Typ.)	277V/50A 230V/40A 115V/20A COLD START	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I =36.6A/ 277VAC I =27.7A/ 230VAC I =12.7A/ 115VAC T50= 1795us/230V
	INPUT=277VAC/50HZ @ FULL LOAD CH2: AC Input Voltage CH4: Input current 		INPUT=230VAC/50HZ @ FULL LOAD CH2: AC Input Voltage CH4: Input current 	

INPUT=115VAC/ 60HZ @ FULL LOAD

CH2: AC Input Voltage CH4: Input current



T50@230VAC:

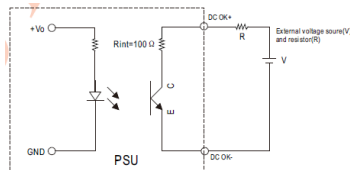
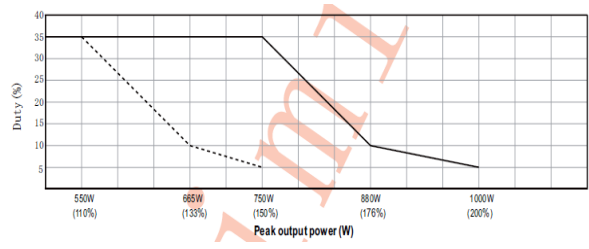


PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER LOAD PROTECTION	Protection type: Normally works within 105 ~ 200% rated output power for more than 5 seconds and then constant current limiting without shutdown($V_{out} > 30\%$), recovers automatically after fault condition is removed, or shut down o/p voltage when $V_{out} < 30\%$, AC re-power on to recover. Protection type: >200%(150%@100VAC) rated power, constant current limiting ($V_{out} > 30\%$)with auto-recovery after fault condition is removed, or shut down o/p voltage when $V_{out} < 30\%$, AC re-power on to recover.	I/P: 305VAC I/P: 230VAC I/P: 100VAC O/P: TESTING $T_a: 25^{\circ}\text{C}$	TEST : 148.5%/305VAC 148.5%/230VAC 148.5%/100VAC Protection type: Normally works within 105 ~ 200% rated output power for more than 5 seconds and then constant current limiting without shutdown($V_{out} > 30\%$), recovers automatically after fault condition is removed, or shut down o/p voltage when $V_{out} < 30\%$, AC re-power on to recover. <u>238.9</u> %/305VAC <u>239.5</u> %/230VAC <u>197.6</u> %/100VAC Protection type: constant current limiting ($V_{out} > 30\%$)with auto-recovery after fault condition is removed, or shut down o/p voltage when $V_{out} < 30\%$, AC re-power on to recover.
2	OVER VOLTAGE PROTECTION	20V ~ 25V Protection type: Shut down o/p voltage, AC re-power on to recover	I/P: 305VAC I/P: 85VAC O/P: MIN LOAD $T_a: 25^{\circ}\text{C}$	22.4V/ 305VAC 22.3V/ 85VAC PROTECTION TYPE : Shut down o/p voltage, AC re-power on to recover
3	OVER TEMPERATURE PROTECTION	Protection type: Shut down o/p voltage, AC re-power on to recover	I/P: 305VAC I/P: 85VAC O/P: FULL LOAD	<u>OK</u> O.T.P. Active Protection type : Shut down o/p voltage, AC re-power on to recover

4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE Protection type: Constant current limiting for more than 5 seconds ($V_{out} < 30\%$) and then shut down o/p voltage, AC re-power on to recover or Hiccup mode ,recovery automatically after fault conditon is removed. Depends on the user's wire impedance	I/P: 305VAC I/P: 85VAC O/P: FULL LOAD	NO DAMAGE PROTECTION TYPE : Constant current limiting for more than 5 seconds ($V_{out} < 30\%$) and then shut down o/p voltage, AC re-power on to recover or Hiccup mode ,recovery automatically after fault conditon is removed. Depends on the user's wire impedance
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CONTROL FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	REMOTE CONTROL	Power ON: Pin5 and Pin6 open or keep 0~0.8Vdc Power OFF: Pin5 and Pin6 keep 3.3~10Vdc	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	TEST: <u>OK</u>
2	REMOTE SENSE	S+ / S- The remote sensing compensates voltage drop on the load wiring up to 0.3V	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	TEST: <u>OK</u>
3	DC OK SIGNAL	15Vdc/10mA resistive load 	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	TEST: <u>OK</u>
4	FAN CONTROL	(1) Fan ON/OFF control: RTH4 ≥ 50°C ± 10°C FAN ON RTH4 ≤ 40°C ± 10°C FAN OFF (2) Fan & NOISE: < 45dB	I/P: 230VAC O/P: TESTING	TEST: (1) <u>OK</u> (2) <u>44.8</u> dB Ta: 25°C
5	PEAK Power	I/P: 100/305VAC O/P:  -----100VAC ————200VAC		TEST: <u>OK</u>

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	
1	PWM Transistor (D to S) or (C to E) Peak Voltage	Q2/Q3 : Rated: 24A/650V	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.133.6/25 (8) Peak Load Ta:25°C	Q2 VDS: (1) 542V (2) 518V (3) 538V (4) 542V (5) 542V (6) 542V (7) 514V (8) 538V	Q3 VDS: (1) 493V (2) 501V (3) 497V (4) 489V (5) 489V (6) 489V (7) 501V (8) 509V
2	P.F.C Transistor (D to S) or (C to E) Peak Voltage	Q1 : Rated: 34A/650V	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. (8) Peak Load Ta:25°C	Q1 VDS: (1) 465V (2) 453V (3) 465V (4) 465V (5) 473V (6) 453V (7) 441V (8) 489V	
3	P.F.C DIODE	D5 : Rated: 14A/650V	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 (5) Peak Load Ta:25°C	(1) 470V (2) 458V (3) 474V (4) 458V (5) 482V	
4	Diode Peak Voltage	Q100 / Q104: Rated: 145A/80V	AC ON/OFF I/P: High-Line +3V =308 V VO=Vomax	Q100: VO=Vomax VDS:	Q104: VO=Vomax 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. (8).NO LOAD (9) Peak Load <u>VO=Vnormal</u> O/P: (1) Full Load Ta:25°C	(1) 53.4V (2) 47.6V (3) 51.2V (4) 51.2V (5) 51.2V (6) 53.8V (7) 51.2V (8) 51.2V (9) 52.7V <u>VO=Vnormal</u> (1) 42.5V	(1) 49.8V (2) 46.9V (3) 48.7V (4) 48.7V (5) 48.7V (6) 53.4V (7) 50.9V (8) 46.2V (9) 53.4V <u>VO=Vnormal</u> (1)40.7V
5	Input Capacitor Voltage	C5 : Rated: 100 μ /450V	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 (5) Peak Load on/off (6) Peak Load continue Ta:25°C	(1) 441V (2) 437V (3) 441V (4)437 V (5) 445V (6) 441V	
6	Control IC Voltage Test	PFC/PWM IC U1 : Rated : 12.5V~ 27.9V IC U2 : Rated : 4.5V~18V O/P IC U101 : Rated : 4.75V~38V IC U103 : Rated : 3~30 V IC U104 : Rated : 3V ~30V	AC ON/OFF I/P: High-Line +3V =308V O/P: (1) Full Load (2) Output Short (3) O.L.P (4) O.V.P. (5) No Load VR min (Low Line) Ta:25°C	U1/U2 (1) 13.81V (2) 14.22V (3) 14.30V (4) 13.97V (5) 13.89V U101 (1) 15.5V (2) 15.4V (3) 15.1V (4) 15.1V (5) 15.5V U103/U104 (1) 12.7V (2) 12.7V (3) 12.7V (4) 12.7V (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: 2.43 mA I/P-FG: 3.25 mA O/P-FG: 1.64 mA NO DAMAGE
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: 600 VDC I/P-FG: 600 VDC O/P-FG: 600 VDC Ta:25°C	I/P-O/P: 50 GΩ I/P-FG: 50 GΩ O/P-FG: 18151 MΩ NO DAMAGE
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40A / 2min Ta:25°C	10 mΩ

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	BS EN/EN61000-3-2 (IEC61000-3-2) ■ CLASS A	I/P:230VAC/50HZ O/P:FULL LOAD Ta:25°C	■ PASS
2	CONDUCTION	BS EN/EN55032(CISPR32), CNS 15936 CLASS B BS EN/EN55011 (CISPR11) CLASS B	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 CLASS B BS EN/EN55011 (CISPR11) 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 AIR : 15KV / Contact : 8KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	■ CRITERIA A
5	E.F.T	BS EN/EN 61000-4-4 INPUT : 2KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	■ CRITERIA A
6	SURGE	BS EN/EN 1000-4-5 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-500-24 1. ROOM AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta= 26.5°C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta= 60.1 °C <table><tr><th>NO</th><th>Position</th><th>ROOM AMBIENT Ta=26.5°C</th><th>HIGH AMBIENT Ta=60.1°C</th></tr><tr><td>1</td><td>ZNR1</td><td>32.6°C</td><td>65.7°C</td></tr><tr><td>2</td><td>LF1</td><td>34.9°C</td><td>67.1°C</td></tr><tr><td>3</td><td>LF2</td><td>37.8°C</td><td>69.7°C</td></tr><tr><td>4</td><td>C2</td><td>36.1°C</td><td>68.8°C</td></tr><tr><td>5</td><td>LF3</td><td>42.6°C</td><td>75.0°C</td></tr><tr><td>6</td><td>RTH1</td><td>41.5°C</td><td>71.8°C</td></tr><tr><td>7</td><td>BD1</td><td>53.9°C</td><td>86.9°C</td></tr><tr><td>8</td><td>C8</td><td>47.3°C</td><td>77.0°C</td></tr><tr><td>9</td><td>Q1</td><td>55.9°C</td><td>86.7°C</td></tr><tr><td>10</td><td>RY1</td><td>52.9°C</td><td>80.6°C</td></tr><tr><td>11</td><td>C109</td><td>44.3°C</td><td>75.4°C</td></tr><tr><td>12</td><td>C116</td><td>41.0°C</td><td>72.1°C</td></tr><tr><td>13</td><td>C108</td><td>43.6°C</td><td>75.3°C</td></tr><tr><td>14</td><td>U103</td><td>38.5°C</td><td>71.4°C</td></tr><tr><td>15</td><td>RTH5</td><td>48.4°C</td><td>78.8°C</td></tr><tr><td>16</td><td>L3</td><td>52.8°C</td><td>77.3°C</td></tr><tr><td>17</td><td>C42</td><td>44.1°C</td><td>74.8°C</td></tr><tr><td>18</td><td>C7</td><td>43.8°C</td><td>73.3°C</td></tr><tr><td>19</td><td>C45</td><td>44.1°C</td><td>74.9°C</td></tr><tr><td>20</td><td>D5</td><td>53.7°C</td><td>85.2°C</td></tr><tr><td>21</td><td>VR1</td><td>36.4°C</td><td>68.2°C</td></tr><tr><td>22</td><td>C180</td><td>35.3°C</td><td>66.4°C</td></tr><tr><td>23</td><td>U104</td><td>36.9°C</td><td>67.6°C</td></tr><tr><td>24</td><td>T2</td><td>39.0°C</td><td>72.4°C</td></tr><tr><td>25</td><td>U6</td><td>58.7°C</td><td>83.3°C</td></tr><tr><td>26</td><td>U1</td><td>54.1°C</td><td>84.3°C</td></tr><tr><td>27</td><td>C92</td><td>45.1°C</td><td>78.3°C</td></tr><tr><td>28</td><td>Q2</td><td>49.1°C</td><td>82.7°C</td></tr><tr><td>29</td><td>C6</td><td>43.6°C</td><td>74.4°C</td></tr><tr><td>30</td><td>Q3</td><td>48.6°C</td><td>81.7°C</td></tr><tr><td>31</td><td>T1coil</td><td>64.0°C</td><td>95.5°C</td></tr><tr><td>32</td><td>T1core</td><td>54.3°C</td><td>85.6°C</td></tr></table>			NO	Position	ROOM AMBIENT Ta=26.5°C	HIGH AMBIENT Ta=60.1°C	1	ZNR1	32.6°C	65.7°C	2	LF1	34.9°C	67.1°C	3	LF2	37.8°C	69.7°C	4	C2	36.1°C	68.8°C	5	LF3	42.6°C	75.0°C	6	RTH1	41.5°C	71.8°C	7	BD1	53.9°C	86.9°C	8	C8	47.3°C	77.0°C	9	Q1	55.9°C	86.7°C	10	RY1	52.9°C	80.6°C	11	C109	44.3°C	75.4°C	12	C116	41.0°C	72.1°C	13	C108	43.6°C	75.3°C	14	U103	38.5°C	71.4°C	15	RTH5	48.4°C	78.8°C	16	L3	52.8°C	77.3°C	17	C42	44.1°C	74.8°C	18	C7	43.8°C	73.3°C	19	C45	44.1°C	74.9°C	20	D5	53.7°C	85.2°C	21	VR1	36.4°C	68.2°C	22	C180	35.3°C	66.4°C	23	U104	36.9°C	67.6°C	24	T2	39.0°C	72.4°C	25	U6	58.7°C	83.3°C	26	U1	54.1°C	84.3°C	27	C92	45.1°C	78.3°C	28	Q2	49.1°C	82.7°C	29	C6	43.6°C	74.4°C	30	Q3	48.6°C	81.7°C	31	T1coil	64.0°C	95.5°C	32	T1core	54.3°C	85.6°C
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			NO	Position	ROOM AMBIENT Ta=26.5℃	HIGH AMBIENT Ta=60.1℃
			33	D6	46.2℃	76.3℃
			34	Q102	48.6℃	81.2℃
			35	U101	50.5℃	81.5℃
			36	Q104	48.2℃	81.2℃
			37	U5	47.8℃	80.0℃
			38	R5	46.4℃	78.6℃
			39	J102	47.6℃	79.7℃
			40	RTH4	45.2℃	76.7℃
			41	D108	38.3℃	70.3℃
			42	D101	43.0℃	70.2℃
			43	D30	48.1℃	75.9℃
			44	RTH3	38.7℃	67.4℃
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)		I/P : 230 VAC O/P : 126%LOAD Ta : 25℃	TEST : OK	
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR		I/P : 305VAC/100VAC O/P : 80%/100%LOAD Ta= -45℃/-35℃	TEST : OK	
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 60℃/95 %R.H NO DAMAGE		I/P : 315 VAC O/P : FULL LOAD Ta= 60℃ HUMIDITY= 95 %R.H	TEST : OK	
5	TEMPERATURE COEFFICIENT	± 0.05%/℃(0~60℃)		I/P : 230 VAC O/P : FULL LOAD	± 0.006%/℃(0~60℃)	
6	STORAGE TEMPERATURE TEST	-40~85℃		1. Thermal shock Temperature : -45℃~ +90℃ 2. Temperature change rate : 25℃ / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 10 CYCLE 5. Input/Output condition : STATIC		
7	THERMAL SHOCK TEST	-30~60℃		1. Thermal shock Temperature : -35℃~ +65℃ 2. Temperature change rate : 25℃ / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 16 CYCLE 5. Input/Output condition : 15cycle:230V/ FULL LOAD AC ON 3sec/AC OFF 1sec TEST 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 (1) Waveform : Sine Wave (2) Frequency : 10~500Hz (3) Sweep Time : 10min/sweep cycle (4) Acceleration : 3G (5) Test Time : 180min in each axis (X.Y.Z) (6) Ta : 25℃		
9	CAPACITOR LIFE CYCLE	SUPPOSE C109 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 (4) I/P : 230VAC O/P : 50% LOAD Ta= 60 °C LIFE TIME			(1) 1024704.7HRS (2) 107708.8HRS (3) 150198.4HRS (4) 198847.5HRS	



10	MTBF	Conducted by Parts Stress Analysis Prediction 1213.4K hrs min. Telcordia SR-332 (Bellcore) ; 212.1K hrs min. MIL-HDBK-217F (25°C)
11	Ongoing Reliability Test	I/P : 230VAC O/P : FULL LOAD TA=50°C Demonstration Mean Time Between Failure : 50,000 hours

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	Yuwei	Liutt	Wangzd

2020.10.1 TAG-QA-009