



# Test Report: NPP-1700-48

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1700W High Reliable Ultra Wide Output Range Battery  
Charger & Power Supply 2-in-1

## ■ 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

# Battery Charger mode

## ■ DESIGN VERIFY TEST

### OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	BOOST CHARGE VOLTAGE (default)	57.6V± 0.48V	I/P: 230 VAC O/P: CC=90% LOAD Ta:25°C	57.61V
2	FLOAT CHARGE VOLTAGE (default)	55.2V±0.48 V	I/P: 230 VAC O/P:NO LOAD Ta:25°C	55.28V
3	OUTPUT VOLTAGE ADJUST RANGE	CH1: 42V~ 80 V	I/P : 230 VAC O/P : CC=90% LOAD Ta : 25°C	39.761V~82.01V
4	CURRENT ADJUSTABLE RANGE	12.5~25A	I/P : 230 VAC O/P : C.V MODE-3V Ta : 25°C	10.261A ~ 25.465 A
5	MAX POWER	1680W	I/P: 230 VAC O/P:BAT. LOAD(CV=67.2V) Ta:25°C	<u>1681.2W</u>
6	MAX. OUTPUT CURRENT	25±0.25A	I/P : 230 VAC O/P : C.V MODE-3V Ta : 25°C	25.011A

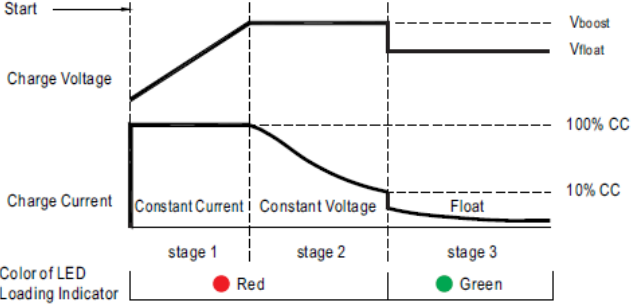
### PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE Constant current Range: 23.75~26.25A PROTECTION TYPE : Constant current limiting, charger will shut down, re-power on to recover	I/P: 264 VAC O/P: BAT. LOAD Ta:25°C	NO DAMAGE Constant current Range: <u>24.968 A</u> PROTECTION TYPE : Constant current limiting, charger will shut down, re-power on to recover
2	OVER VOLTAGE PROTECTION	82V~100V PROTECTION TYPE : Shut down and latch off o/p voltage, re-power on to recover	I/P: 264VAC I/P: 230VAC I/P: 90VAC O/P:MIN LOAD Ta:25°C	91.9V/ 264VAC 91.9V/ 230VAC 91.9V/ 90VAC PROTECTION TYPE : Shut down and latch off o/p voltage, re-power on to recover
3	OVER TEMPERATURE PROTECTION	Protection type : Shut down O/P voltage, recovers automatically after	I/P: 264VAC I/P: 90VAC O/P:FULL LOAD	O.T.P. Active OK PROTECTION TYPE : Shut down O/P voltage,



		temperature goes down		recovers automatically after temperature goes down
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**CONTROL FUNCTION TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT												
1	FAN SPEED CONTROL	Depends on internal temperature	I/P: 230 VAC O/P:BAT. LOAD Ta:25°C	TEST: <u>OK</u>												
2	REMOTE CONTROL	Rc+ / Rc- OPEN(-0.5V~0.5V) : Charger OFF ; SHORT(10.8V~13.2V):Charger ON	I/P: 230 VAC O/P:BAT. LOAD Ta:25°C	OPEN /SHORT TEST: <u>OK</u> Charger OFF: <u>-0.5~7.0V</u> Charger ON: <u>7.1~13.2V</u> (1) Remote off Pin= <u>6.26W</u> (2) Remote off Vo= <u>0.168 V</u>												
3	CHARGE OK SIGNAL	The TTL signal out, Charger OK = 4.5 ~ 5.5V; Charger failure or protection = -0.5 ~ 0.5V	I/P: 230 VAC O/P:BAT. LOAD Ta:25°C	TEST: Charger OK = <u>5.168 V</u> ; Charger failure or protection = <u>12.56 mV</u>												
4	BATTERY FULL SIGNAL	The TTL signal out, Battery full = 4.5 ~ 5.5V Charging = -0.5 ~ 0.5V	I/P: 230 VAC O/P:BAT. LOAD Ta:25°C	TEST: Battery full = <u>5.170 V</u> Charging = <u>12.52 mV</u>												
5	AUX POWER	OUTPUT VOLTAGE RANGE : 10.8~13.2V	I/P: 230 VAC O/P:BAT. LOAD Ta:25°C	TEST: <u>11.991 V</u>												
6	CHARGING CURVE	I/P:230Vac O/P:TESTING Ta:25°C  ◎ 3 stage charging curve (Default)    <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Taper Current</td> <td>2.5A±0.25A</td> </tr> <tr> <td>Io</td> <td>2.36A</td> </tr> </table>			Taper Current	2.5A±0.25A	Io	2.36A								
Taper Current	2.5A±0.25A															
Io	2.36A															
7	LED INDICATOR	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">LED Indicator</th> <th style="width: 40%;">Charger(Default)</th> <th style="width: 40%;">Power Supply</th> </tr> </thead> <tbody> <tr> <td>Green</td> <td>Float stage(stage 3) or full charged</td> <td>Normal working</td> </tr> <tr> <td>Red</td> <td>Charging(stage 1 or 2)</td> <td>—</td> </tr> <tr> <td>NO Light</td> <td>Abnormal</td> <td>Abnormal</td> </tr> </tbody> </table>		LED Indicator	Charger(Default)	Power Supply	Green	Float stage(stage 3) or full charged	Normal working	Red	Charging(stage 1 or 2)	—	NO Light	Abnormal	Abnormal	TEST : <u>OK</u>
LED Indicator	Charger(Default)	Power Supply														
Green	Float stage(stage 3) or full charged	Normal working														
Red	Charging(stage 1 or 2)	—														
NO Light	Abnormal	Abnormal														
		I/P: 230V O/P:TESTING LOAD Ta:25°C														

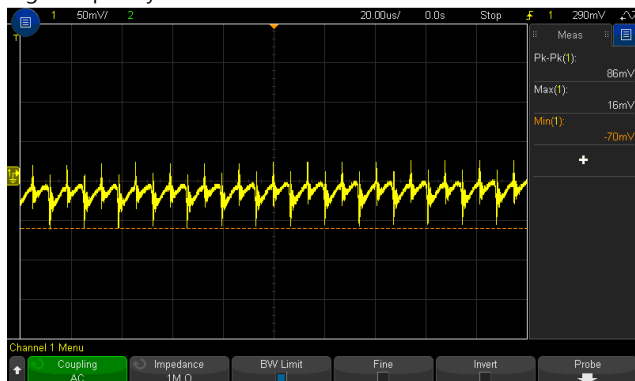
# Power Supply mode

## DESIGN VERIFY TEST

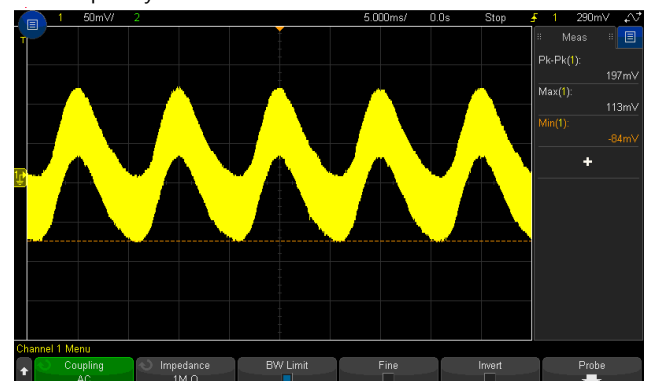
### OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT VOLTAGE ADJUST RANGE	CH1: 42 V~ 80V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	39.842V~82.121V/230VAC 39.841V~82.132V/115VAC
2	CURRENT ADJUSTABLE RANGE	12.5~25A	I/P : 230 VAC O/P : TEST LOAD Ta : 25°C	12.25A~25.55A
3	OUTPUT VOLTAGE(Max) TOLERANCE	V1: -1.0 %~ +1.0 %	I/P: 90VAC /264VAC O/P:FULL/ MIN. LOAD Ta:25°C	V1: -0.05%~0.03%
4	LINE REGULATION (Max)	V1: -0.5 %~ +0.5 %	I/P: 90VAC~ 264VAC O/P:FULL LOAD Ta:25°C	V1: 0.02%~0.03%
5	LOAD REGULATION(Max)	V1: -0.5%~ +0.5%	I/P: 230VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: -0.02%~0.03%
6	OVER/UNDERSHOOT TEST	< +5%	I/P: 230VAC O/P:FULL LOAD Ta:25°C	3.1%
7	RIPPLE & NOISE(Max)	V1: 480 mVp-p	I/P:230VAC O/P:FULL LOAD Ta:25°C	V1: 197mVp-p

high frequency :



low frequency :



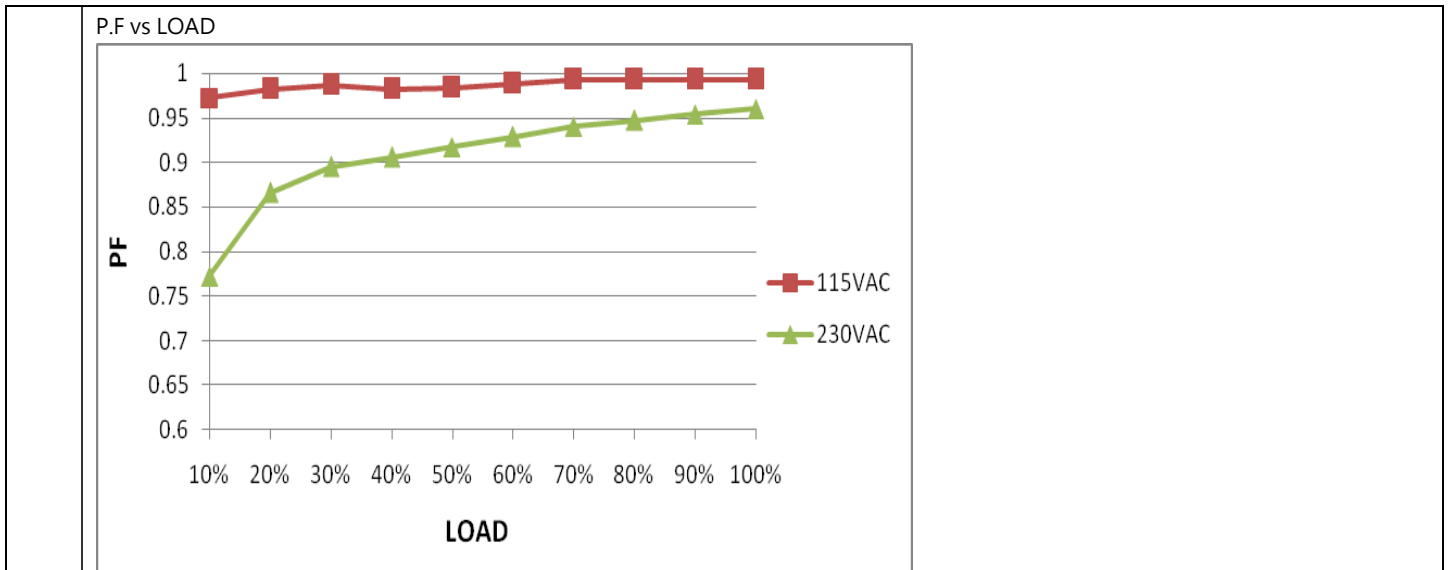
8	SET UP TIME(Max)	230VAC/1800ms	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	230VAC/233.6ms
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<p>INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage</p>				
9	RISE TIME (Max)	230VAC/60ms	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	230VAC/6.38ms
<p>INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage</p>				
10	HOLD UP TIME (Typ.)	230VAC/FULL LOAD /10ms 230VAC/75% LOAD /16ms	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	230VAC/FULL LOAD /18.8ms 230VAC/75% LOAD / 28.4ms
<p>INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage</p>				
<p>INPUT=230VAC/50HZ @ 75% LOAD CH1 : Output Voltage CH2 : AC Input Voltage</p>				
11	DYNAMIC LOAD	V1: 5760 mVp-p	I/P: 230VAC O/P: (1)FULL /50% LOAD 50%DUTY / 120HZ (2)FULL /50% LOAD 50%DUTY / 1KHZ Ta:25°C	1280mVp-p 750mVp-p

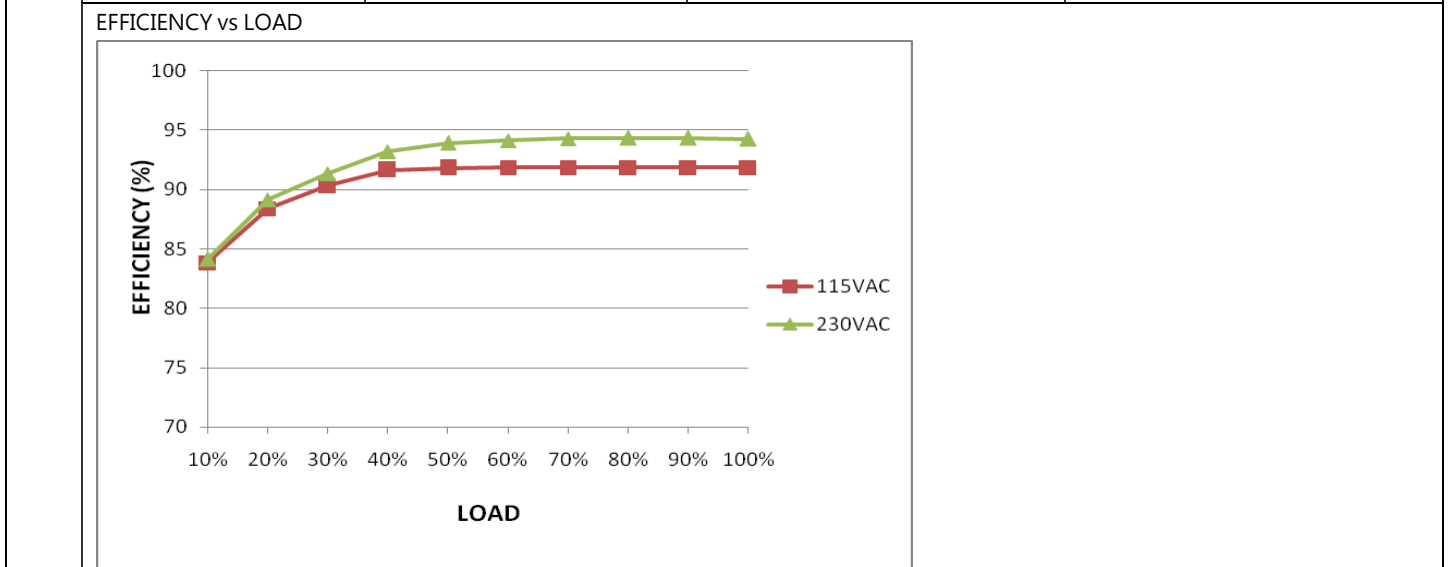
12	TRANSIENT RECOVERY TIME	V1: 5760 mVp-p	I/P: 230VAC O/P:40% LOAD CHANGE 50%DUTY/120HZ 1.25A/us	3220mVp-p

### INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	90VAC~264VAC 250VDC~ 370VDC	(1) I/P:TESTING O/P: RATED POWER	(1) 83.4V ~264V/70%load 169.8V~264V/FULL LOAD
			(2) I/P:DC TESTING(L:+ N:-) O/P: RATED POWER	(2) 190Vdc~370Vdc/FULLLOAD 160Vdc~370Vdc/70% LOAD
			(3) I/P:DC TESTING(L:- N:+) O/P: RATED POWER Ta:25°C	(3) 190Vdc~370Vdc/FULL LOAD 160Vdc~370Vdc/70% LOAD
			I/P: LOW-LINE-3V=87 V HIGH-LINE+15%=300 V O/P: RATED POWER /MIN LOAD (PLEASE CHECK DERATING CURVE) ON: 30 Sec OFF: 30 Sec 10MIN	TEST:OK
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE	I/P:90 VAC ~264 VAC O/P:FULL~MIN LOAD Ta:25°C	TEST: OK
3	INPUT CURRENT (Typ.)	230V/ 9.3 A 115V/ 14.8A	I/P : 230 VAC I/P : 115 VAC O/P : RATED POWER (Vo=67.2V) Ta : 25°C	I =7.985A/ 230VAC I =11.16A/ 115VAC
4	LEAKAGE CURRENT	Charger /Power: 0.75mA/240VAC (60335-1/2-29), 1.5mAPeak/240VAC (62368-1)	I/P: 240 VAC O/P:Min LOAD Ta:25°C	Charger/ Power 60335: 0.087mA 62368: 1.39 mA
5	POWER FACTOR (Typ.)	0.95/ 230VAC 0.98/115VAC	I/P : 230 VAC I/P : 115 VAC O/P : RATED POWER (Vo=67.2V) Ta : 25°C	PF=0.968/230VAC PF=0.994/115VAC



6	EFFICIENCY(Typ.)	94%	I/P:230 VAC O/P: RATED POWER (Vo=67.2V) Ta:25°C	94.43%
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7	INRUSH CURRENT(Typ.)	230V/50A COLD START	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	I =37.4A/ 230VAC T50=2.570ms/230V
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### PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER LOAD PROTECTION	105 %~ 115 % PROTECTION TYPE : Constant current limiting, unit will shut down after 5 sec, re-power on to recover	I/P: 264VAC I/P: 230VAC I/P: 180VAC O/P:TESTING Ta:25°C	107.84%/ 264VAC 107.84%/ 230VAC 107.84%/180VAC PROTECTION TYPE : Constant current limiting, unit will shut down after 5 sec, re-power on to recover
2	OVER VOLTAGE PROTECTION	82V~100V PROTECTION TYPE : Shut down and latch off o/p voltage, re-power on to recover	I/P: 264VAC I/P: 230VAC I/P: 90VAC O/P:MIN LOAD Ta:25°C	91.9V/ 264VAC 91.9V/ 230VAC 91.9V/ 90VAC PROTECTION TYPE : Shut down and latch off o/p voltage, re-power on to recover
3	OVER TEMPERATURE PROTECTION	Protection type : Shut down O/P voltage, recovers automatically after temperature goes down	I/P: 264VAC I/P: 90VAC O/P:FULL LOAD	O.T.P. Active OK PROTECTION TYPE : Shut down O/P voltage, recovers automatically after temperature goes down
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE PROTECTION TYPE : Constant current limiting, charger will shut down, re-power on to recover	I/P: 264 VAC O/P: FULL LOAD Ta:25°C	NO DAMAGE PROTECTION TYPE : Constant current limiting, charger will shut down, re-power on to recover

### CONTROL FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	FAN SPEED CONTROL	Depends on internal temperature	I/P: 230 VAC O/P:testing Ta:25°C	TEST: <u>OK</u>
2	REMOTE CONTROL	OPEN : POWER OFF ; SHORT : POWER ON	I/P: 230 VAC O/P:FULL. LOAD Ta:25°C	OPEN/SHORT TEST: <u>OK</u>
3	DC OK	The TTL signal out, DC OK = 4.5 ~ 5.5V; Power supply failure or protection = -0.5 ~ 0.5V	I/P: 230 VAC O/P:BAT. LOAD Ta:25°C	TEST: Charger OK = <u>5.181</u> V; Charger failure or protection = <u>0.037</u> V





### COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Transistor ( D to S) or (C to E) Peak Voltage	Q 901/Q903 Rated : 600V/ 34A	AC ON/OFF I/P: High-Line +3V =267V 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. Ta:25°C	Q901                  Q903 VDS: (1) 438V              (1) 451V (2) 427V              (2) 455V (3) 446V              (3) 459V (4) 438V              (4) 447V (5) 438V              (5) 451V (6) 434V              (6) 443V (7) 458V              (7) 467V
2	P.F.C Transistor ( D to S) or (C to E) Peak Voltage	Q1/Q3 Rated: 600V /34 A	I/P: High-Line +3V =267 V AC ON/OFF 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. Ta:25°C	Q1                      Q3 VDS: (1) 476V              (1) 500V (2) 459V              (2) 484V (3) 472V              (3) 492V (4) 472V              (4) 492V (5) 467V              (5) 492V (6) 455V              (6) 472V (7) 463V              (7) 480V
3	AUX MOS	U600 Rated: 800V /4.9 A	I/P: High-Line +3V =267 V 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	U600 VDS: (1) 568V (2) 552V (3) 560V (4) 552V (5) 556V (6) 544V (7) 576V



450W High Reliable Ultra Wide Output Range  
Battery Charger & Power Supply 2-in-1

NPP-1700 series

4	P.F.C DIODE	D 17/D13 Rated:6 A/ 650 V	I/P:High-Line +3V =267 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 Ta:25°C	D13 (1) 508V (2) 500V (3) 500V (4) 500V	D17 (1) 516V (2) 512V (3) 516V (4) 512V
5	Diode Peak Voltage	Q210 / Q214/ Q218/ Q222 Rated:200V 36A	AC ON/OFF I/P:High-Line +3V =267 V Vo=Vmax 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  Vo=Normal O/P: (1)Full Load (2) Before Burst Mode Ta:25°C	Q210 Vo=Vmax VDS: (1) 176V (2) 176V (3) 178V (4) 178V (5) 178V (6) 178V (7) 176V (8) 176V Vo=Normal (1) 167V (2) 158V  Q214 Vo=Vmax VDS: (1) 178V (2) 178V (3) 180V (4) 180V (5) 180V (6) 180V (7) 178V (8) 178V Vo=Normal (1) 169V (2) 158V	Q218 Vo=Vmax VDS: (1) 178V (2) 178V (3) 180V (4) 178V (5) 178V (6) 180V (7) 180V (8) 178V Vo=Normal (1) 168V (2) 156V  Q222 Vo=Vmax VDS: (1) 178V (2) 178V (3) 178V (4) 178V (5) 178V (6) 180V (7) 178V (8) 174V Vo=Normal (1) 170V (2) 160V
6	Input Capacitor Voltage	C 5 Rated: 220u /450 V	I/P:High-Line +3V =267V 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) 403V (2) 419V (3) 419V (4) 403V	
7	Control IC Voltage Test	PWM IC U800Rated 8.9V~15.5V  PFC IC U401Rated 10.6V~22V	AC ON/OFF I/P:High-Line +3V =267 V O/P(1)FULL LOAD (2) Output Short (3)O.L.P	U800 (1) 13.03V (2) 12.55V (3) 12.63V (4) 13.03V	U250 (1) 13.37V (2) 15.14V (3) 13.13V (4) 13.05V



		U250 Rated -0.3V~37V	(4)O.V.P. (5)NO LOAD VRmin(Low LINE) Ta:25°C	(5) 12.55V U401 (1) 13.35V (2) 13.03V (3) 12.95V (4) 13.03V (5) 13.35V	(5) 13.35V U801 (1) 12.24V (2) 12.08V (3) 12.16V (4) 12.00V (5) 12.24V
		O/P IC U801 Rated 4.5V~36V			

## ■ SAFETY & E.M.C. TEST

### SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P: 3KVAC/min I/P-FG :2KVAC/min O/P-FG:0.5KVAC/min	I/P-O/P: 3.6 KVAC/min I/P-FG: 2.4 KVAC/min O/P-FG:0.6 KVAC/min Ta:25°C	I/P-O/P: 6.78mA I/P-FG: 6.35mA O/P-FG: 4.13 m A 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: 9999MΩ I/P-FG: 9999MΩ O/P-FG: 9999MΩ NO DAMAGE
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40A / 2min Ta:25°C	8 mΩ

### E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	BS EN/EN61000-3-2 CLASS A	I/P:230VAC/50HZ O/P:FULL LOAD Ta:25°C	PASS
2	CONDUCTION	BS EN/EN 55032 (CISPR32), BS EN / EN55014-1 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL/50% LOAD Ta:25°C	PASS Test by certified Lab
3	RADIATION	BS EN/EN 55032 (CISPR32), BS EN / EN55014-1 CLASS A	I/P:230VAC/50HZ O/P:FULL/50% LOAD Ta:25°C	PASS Test by certified Lab
4	E.S.D	BS EN/EN61000-4-2 AIR : 8KV / Contact : 4KV	I/P:230VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A
5	E.F.T	BS EN/EN61000-4-4 INPUT: 1KV	I/P:230VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A
6	SURGE	BS EN/EN 61000-4-5 L-N :1KV L,N-PE:2KV	I/P:230VAC/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
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## ■ RELIABILITY TEST

### ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	TEMPERATURE RISE TEST	MODEL : NPP-1700-24 1. ROOM AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta= 25.1 °C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta= 52.2 °C		



				NO	Position	ROOM AMBIENT Ta= 25.1 °C	HIGH AMBIENT Ta=52.2°C
				1	ZNR1	35.4°C	59.4°C
				2	LF1	44.4°C	65.1°C
				3	Q903	43.0°C	69.3°C
				4	Q902	50.7°C	66.6°C
				5	C1	36.6°C	58.6°C
				6	RY1	48.3°C	63.9°C
				7	L2	60.8°C	75.4°C
				8	RTH1	47.4°C	65.1°C
				9	C2	42.4°C	62.7°C
				10	LF3	50.0°C	68.4°C
				11	C11	48.4°C	65.0°C
				12	T52	50.7°C	65.5°C
				13	BD2	67.2°C	83.2°C
				14	BD1	64.5°C	81.4°C
				15	Q1	62.2°C	82.3°C
				16	Q3	62.2°C	81.2°C
				17	U401	49.7°C	63.5°C
				18	C920	41.9°C	62.0°C
				19	RTH3	45.2°C	62.6°C
				20	C7	47.1°C	64.1°C
				21	L3	60.7°C	79.4°C
				22	C620	48.2°C	61.6°C
				23	T2coil	69.4°C	84.7°C
				24	T2core	47.4°C	62.2°C
				25	C122	51.1°C	64.1°C
				26	T601	55.3°C	71.3°C
				27	U800	42.8°C	59.0°C
				28	C128	27.5°C	51.5°C
				29	T1 coil	68.2°C	82.0°C
				30	T1 core	47.9°C	63.2°C
				31	C116	50.4°C	64.3°C
				32	LF10	42.1°C	55.9°C
				33	D651	44.1°C	81.7°C
				34	Q215	49.5°C	70.8°C
				35	J103	62.2°C	73.3°C
				36	U270	52.6°C	74.3°C
				37	Q221	49.7°C	70.6°C
				38	U600	59.6°C	77.6°C
				39	D14	58.5°C	79.3°C
				40	U150	36.9°C	56.8°C
				41	RG5	45.7°C	62.5°C
				42	RG51	41.7°C	59.2°C
				43	RTH5	48.3°C	69.6°C
2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 230VAC/180VAC O/P : 100 %LOAD Ta= -35°C	TEST : OK			
3	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50 °C NO DAMAGE	I/P : 272 VAC O/P : FULL LOAD Ta= 49 °C HUMIDITY= 95 %R.H	TEST : OK			
4	TEMPERATURE COEFFICIENT	± 0.05%/ (0°C~50°C)	I/P : 230 VAC O/P : FULL LOAD	0.0096 %/°C(0~50°C)			
5	STORAGE TEMPERATURE TEST	-40~85°C	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 : 10CYCLE 5. Input/Output condition : STATIC				



6	THERMAL SHOCK TEST	-30~50°C	1. Thermal shock Temperature : -35°C~ +55°C 2. Temperature change rate : 25°C / 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
7	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°C
8	CAPACITOR LIFE CYCLE	SUPPOSE C113 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= 50 °C LIFE TIME (3) I/P : 230VAC O/P : 75% LOAD Ta= 50 °C LIFE TIME (4) I/P : 230VAC O/P : 50% LOAD Ta= 50 °C LIFE TIME	(1) 555347.7HRS (2) 260880.9HRS (3) 389632.6HRS (4) 498140.3HRS
9	MTBF	Conducted by Parts Stress Analysis Prediction 577.4K hrs min. Telcordia SR-332 (Bellcore) ; 58.5K hrs min. MIL-HDBK-217F (25°C)	
10	Ongoing Reliability Test	I/P : 230VAC O/P : FULL LOAD TA=50°C Demonstration Mean Time Between Failure : 30,000 hours	

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	LIUTT		Wangdz

2020.10.1 TAG-QA-009