



Test Report: NPF-200-12

200W Constant Voltage+Constant Current LED Driver

■ 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

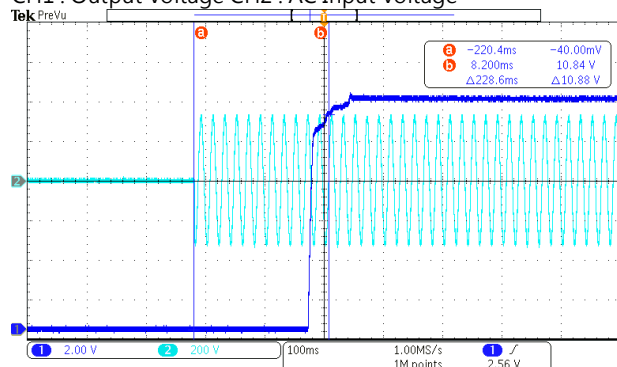
DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	CURRENT TOLERANCE	±5%	I/P: 230 VAC I/P:115VAC O/P:FULL LOAD Ta:25°C LEDH MODE TEST	1.4%~1.53%
2	CONSTANT CURRENT AND OUTPUT VOLTAGE REGION	CH1: 6V~ 12 V	I/P: 230 VAC O/P:FULL LOAD Ta:25°C LEDH MODE TEST	5.4V~ 11.2V /230VAC
3	OUTPUT VOLTAGE TOLERANCE	V1: -4% ~ 4% (Max)	I/P:110 /305 VAC O/P:FULL~MIN LOAD Ta:25°C	V1: -0.66%~0.5%
4	LINE REGULATION	V1: -0.5 % ~0.5% (Max)	I/P:110 /305 VAC O/P:FULL LOAD Ta:25°C	V1: -0.08%~0%
5	LOAD REGULATION	V1: -2% ~ 2% (Max)	I/P:110 /305 VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: -0.5%~0.58%
6	OVER/UNDERSHOOT TEST	< <u>±</u> 5%	I/P:110 /305 VAC O/P:FULL LOAD Ta:25°C	TEST: 3.08%
7	CURREN RIPPLE	V1: -5% ~ 5% (Max)	I/P:110VAC /305AC O/P:FULL/ MIN LOAD Ta:25°C	V1: 3.72%
8	SET UP TIME (Max)	230VAC/ 500ms 115VAC/ 500ms	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C LEDH MODE TEST	230VAC/ 228.6ms 115 VAC/349.9 ms

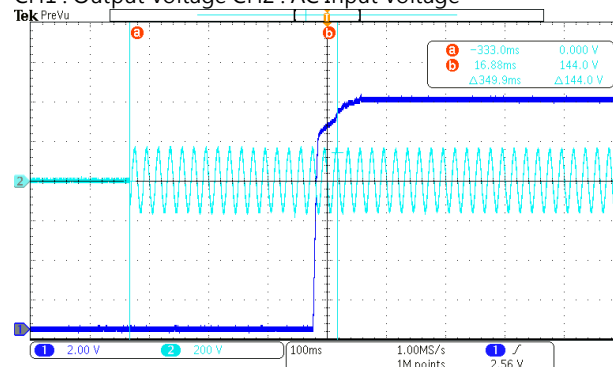
INPUT=230VAC/50HZ @ FULL LOAD

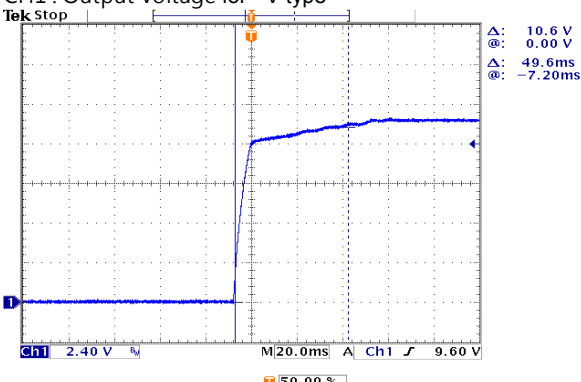
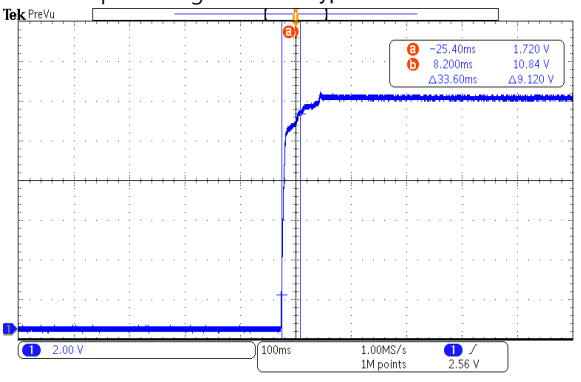
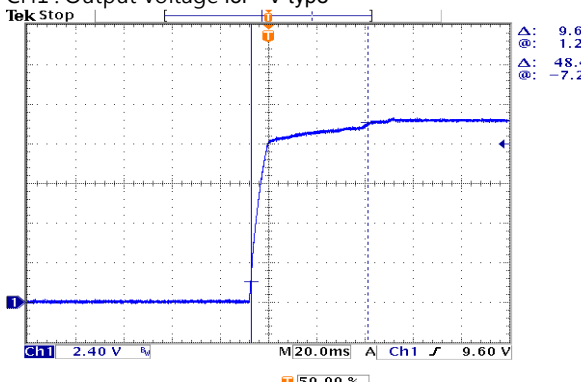
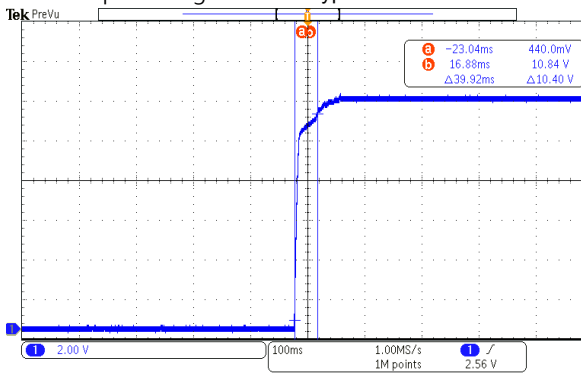
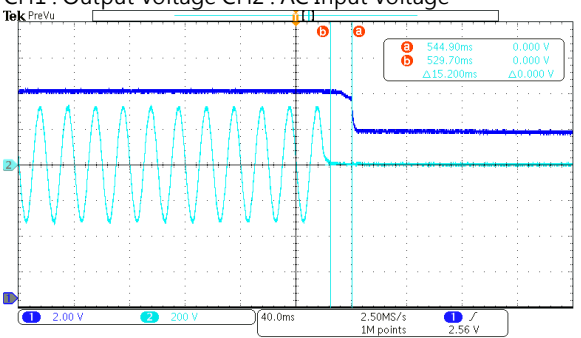
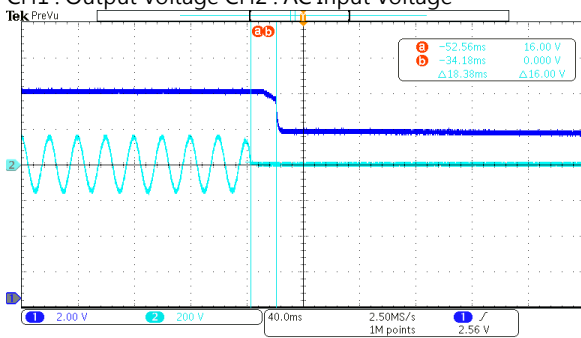
CH1 : Output Voltage CH2 : AC Input Voltage

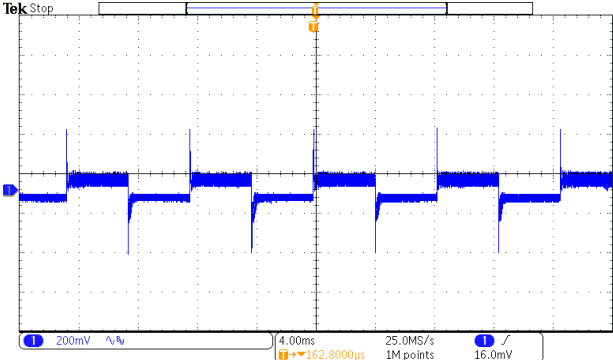
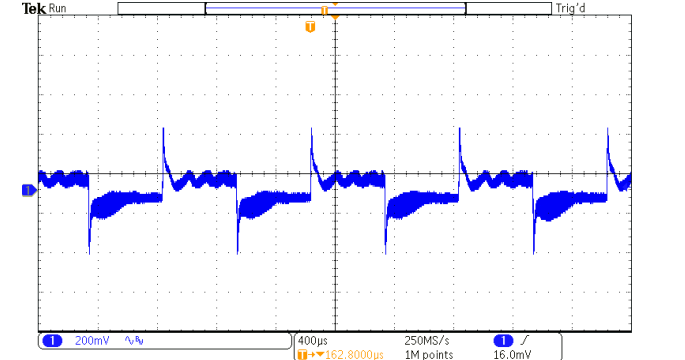
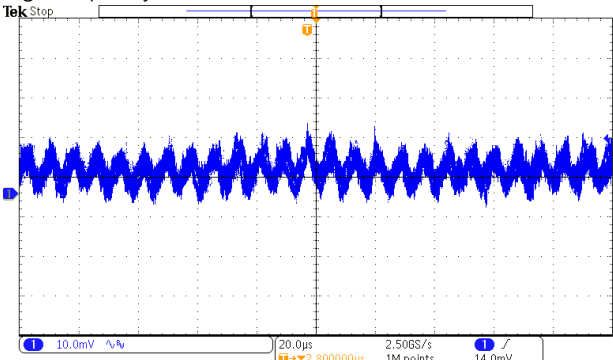
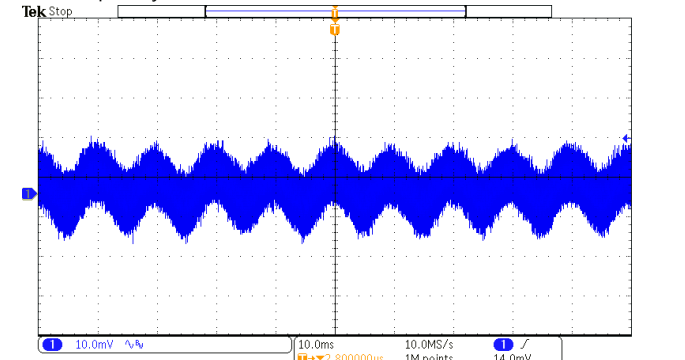


INPUT=115VAC/60HZ @ FULL LOAD

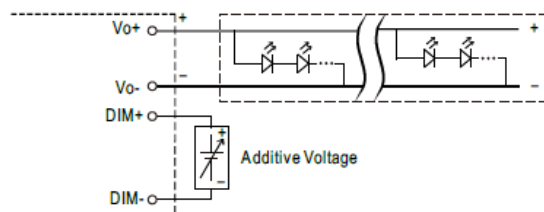
CH1 : Output Voltage CH2 : AC Input Voltage



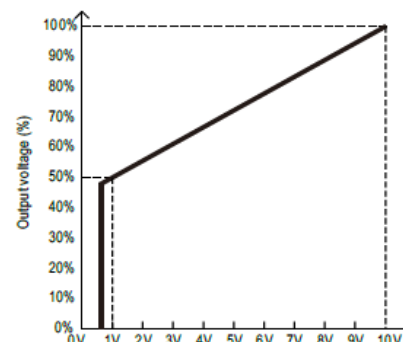
9	RISE TIME (Max)	230VAC/ 80ms for Blank type 115VAC/ 80ms for Blank type 230VAC/ 200ms for V type 115VAC/ 200ms for V type	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C LEDH MODE TEST	230VAC/33.6 ms for Blank type 115 VAC/39.92 ms for Blank type 230VAC/49.6 ms for V type 115 VAC/48.4 ms for V type
<div> <div> <p>INPUT=230VAC/50HZ @ FULL LOAD</p> <p>CH1 : Output Voltage for V type</p>  <p>Δ: 10.6 V @: 0.00 V Δ: 49.6ms @: -7.20ms</p> </div> <div> <p>INPUT=230VAC/50HZ @ FULL LOAD</p> <p>CH1 : Output Voltage for Blank type</p>  <p>a -25.40ms 1.720 V b 8.200ms 10.84 V Δ33.60ms Δ9.120 V</p> </div> </div> <div> <div> <p>INPUT=115VAC/60HZ @ FULL LOAD</p> <p>CH1 : Output Voltage for V type</p>  <p>Δ: 9.65 V @: 1.25 V Δ: 48.4ms @: -7.20ms</p> </div> <div> <p>INPUT=115VAC/60HZ @ FULL LOAD</p> <p>CH1 : Output Voltage for Blank type</p>  <p>a -23.04ms 440.0mV b 16.88ms 10.84 V Δ39.92ms Δ10.40 V</p> </div> </div>				
10	HOLD UP TIME	230VAC/ 10ms 115VAC/ 10ms	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C LEDH MODE TEST	230VAC/15.2 ms 115 VAC/18.38ms
<div> <div> <p>INPUT=230VAC/50HZ @ FULL LOAD</p> <p>CH1 : Output Voltage CH2 : AC Input Voltage</p>  <p>a 544.90ms 0.000 V b 529.70ms 0.000 V Δ15.200ms Δ0.000 V</p> </div> <div> <p>INPUT=230VAC/50HZ @ FULL LOAD</p> <p>CH1 : Output Voltage CH2 : AC Input Voltage</p>  <p>a -52.56ms 16.00 V b -34.18ms 0.000 V Δ18.38ms Δ16.00 V</p> </div> </div>				

11	DYNAMIC LOAD	V1: 1200mVp-p	I/P: 230VAC O/P: (1)FULL /50% LOAD 50%DUTY / 120HZ (2)FULL /50% LOAD 50%DUTY / 1KHZ Ta:25°C	640mVp-p FULL /50% LOAD 50%DUTY / 120HZ 632mVp-p FULL /50% LOAD 50%DUTY / 1KHZ
	<div style="display: flex; justify-content: space-around;"> <div data-bbox="146 577 790 996"> <p>FULL /50% LOAD 50%DUTY / 120HZ</p>  <p>200mV 4.00ms 25.0MS/s 16.0mV Peak-Peak 640mV</p> </div> <div data-bbox="805 577 1524 996"> <p>FULL /50% LOAD 50%DUTY / 1KHZ</p>  <p>200mV 400us 250MS/s 16.0mV Peak-Peak 632mV</p> </div> </div>			
12	RIPPLE & NOISE (Max)	V1: 150 mVp-p	I/P: 230 VAC O/P:FULL LOAD Ta:25°C CCH MODE TEST	V1: 27.2mVp-p
	<div style="display: flex; justify-content: space-around;"> <div data-bbox="146 1142 790 1579"> <p>high frequency :</p>  <p>10.0mV 20.0us 2.50GS/s 14.0mV Peak-Peak 20.0mV</p> </div> <div data-bbox="805 1142 1524 1579"> <p>low frequency :</p>  <p>10.0mV 10.0ms 10.0MS/s 14.0mV Peak-Peak 27.2mV</p> </div> </div>			
13	DIMMING OPERATION (forV-Type)	<p>※ 3 in 1 dimming function to adjust output voltage level</p> <ul style="list-style-type: none"> • Output constant voltage 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: 100μA (typ.) 		

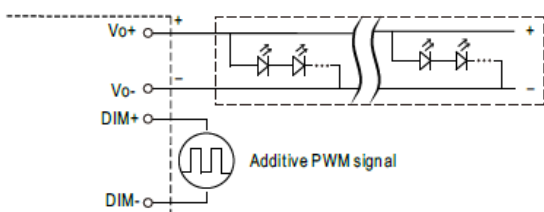
◎ Applying additive 0 ~ 10VDC



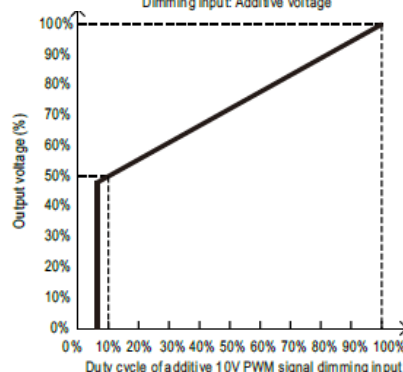
"DO NOT connect "DIM- to Vo-"



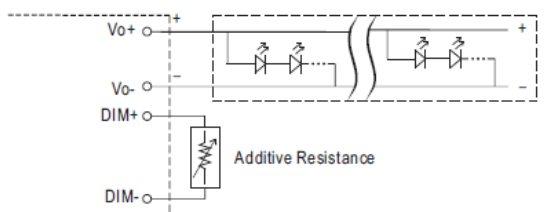
◎ Applying additive 10V PWM signal (frequency range 100Hz ~ 3KHz):



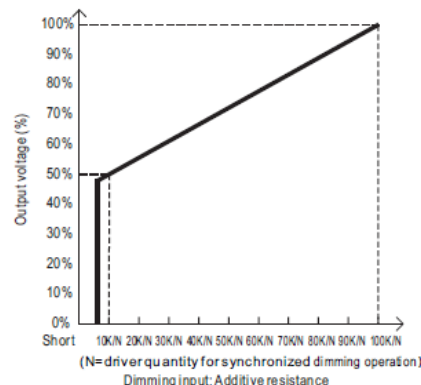
"DO NOT connect "DIM- to Vo-"



◎ Applying additive resistance:



"DO NOT connect "DIM- to Vo-"



Note : 1. Min. dimming level is about 50% of output voltage and the output voltage is not defined when $V_{out} < 50\%$
2. The output voltage could drop down to 0V when dimming input is about 0k or 0Vdc, or 10V PWM signal with 0% duty cycle.

I/P 230 VAC O/P DIMMING TEST

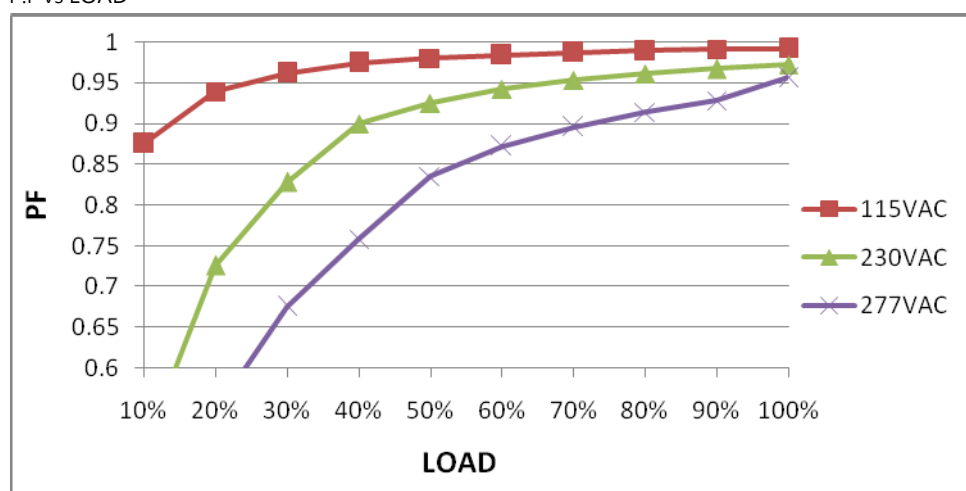
1	V	SHORT	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN
	Output Voltage	0.00000 V	6.01	6.58	7.23	7.86	8.64	9.22	9.94	10.63	11.42	11.98	12.01
	%	0.00%	50.08 %	54.83 %	60.25%	65.50%	72.00 %	76.83 %	82.83 %	88.58 %	95.17 %	99.83%	100.08 %
2	PWM	0V	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	OPEN
	Output Voltage (100Hz)	0.00000 V	6.03	6.57	7.21	7.85	8.62	9.23	9.96	10.62	11.51	11.99	12.10
	%	0.00%	50.25 %	54.75 %	60.08%	65.42%	71.83 %	76.92 %	83.00 %	88.50 %	95.92 %	99.92%	100.83 %
3	R	0%	10K	20K	30K	40K	50K	60K	70K	80K	90K	100K	OPEN
	Output Voltage	0.00000 V	6.07	6.71	7.39	8.22	8.89	9.54	10.21	10.83	11.45	11.90	12.01
	%	0.00%	50.59 %	55.92 %	61.58%	68.50%	74.08 %	79.50 %	85.08 %	90.25 %	95.42 %	99.17%	100.08 %

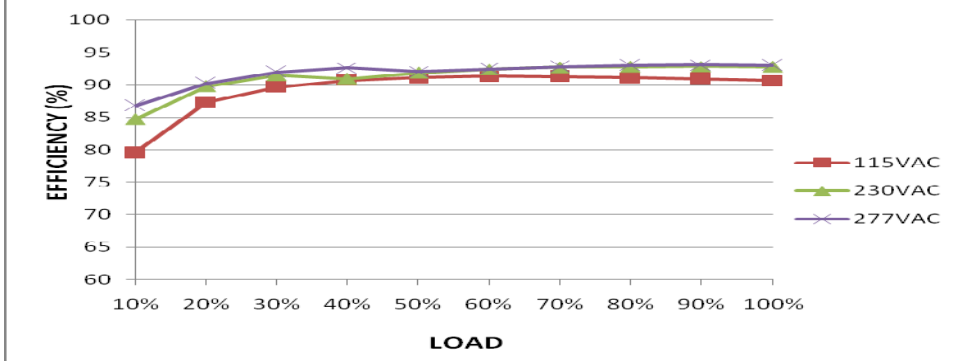
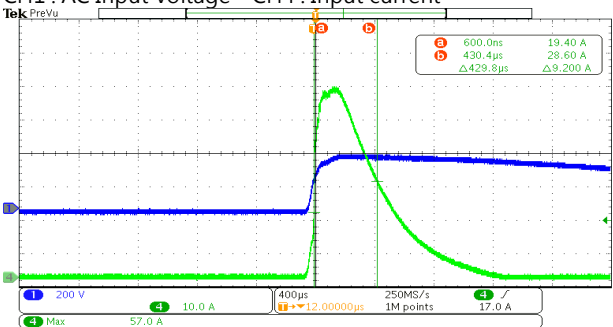
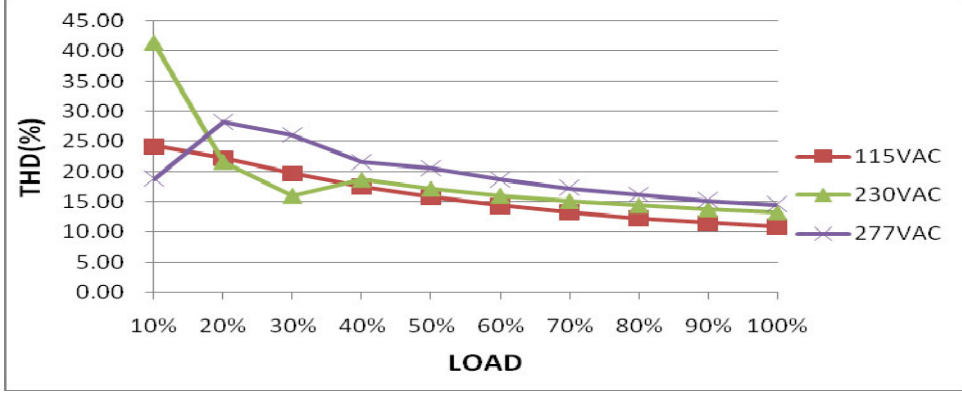
TEST RESULT OK

INPUT FUNCTION TEST

N O	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	100VAC~305 VAC 142VDC~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 (PLEASE CHECK DERATING CURVE) Ta:25°C I/P: LOW-LINE-3V=97 VAC HIGH-LINE+10V=315 VAC O/P:FULL/MIN LOAD (PLEASE CHECK DERATING CURVE) ON: 30 Sec OFF: 30 Sec 10MIN (POWER ON/OFF NO DAMAGE)	(1) 97V~308VAC (2)242Vdc~431Vdc/FULL LOAD 142Vdc~431Vdc/50% LOAD (3) 242Vdc~431Vdc/FULL LOAD 142Vdc~431Vdc/50% LOAD TEST: OK
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE	I/P: 110 VAC ~305VAC O/P:FULL~MIN LOAD Ta:25°C	OK
3	INPUT CURRENT (TYP)	277VAC/ 0.9A 230 VAC/1.1A 115 VAC/2.2A	I/P: 277VAC/230 VAC/115 VAC O/P:FULL LOAD Ta:25°C	I= 0.64A/277VAC I = 0.77A/ 230VAC I = 1.55A/ 115VAC
4	STANDBY POWER CONSUMPTION	<0.5W for V-type only	I/P : 230 VAC O/P : Output voltage dim to off Ta : 25°C	0.4225W
5	POWER FACTOR(TYP)	0.96/230 VAC FULL LOAD 0.97/115 VAC FULL LOAD 0.94/277 VAC FULL LOAD	I/P: 230 VAC/115VAC/277VAC O/P:FULL LOAD Ta:25°C	PF= 0.972/230V/100%LOAD PF=0.992/115V/100%LOAD PF=0.96/277V/100%LOAD

P.F vs LOAD



6	EFFICIENCY (TYP)	92%	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	92.77 %
EFFICIENCY vs LOAD 				
7	INRUSH CURRENT (TYP)	230 V/65A (twid=550us measured at 50% Ipeak) COLD START	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	I = 57A/ 230VAC T50= 429.8 us
INPUT=230VAC/50HZ @ FULL LOAD CH1 : AC Input Voltage CH4 : Input current 				
8	TOTAL HARMONIC DISTORTION	THD<20%(@load ≧ 60%/115VC,230VAC; @load ≧ 75%/277VAC)	I/P : 115/230VAC O/P : 60% LOAD Ta : 25°C I/P : 277VAC O/P : 75% LOAD Ta : 25°C	THD : 14.41%/ 60% Load/115VAC THD : 16.03%/ 60% Load/230VAC THD : 16.92%/75% Load/277VAC
THD vs LOAD 				

ROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER CURRENT PROTECTION	95%~108%	I/P: 305VAC I/P: 230VAC I/P: 110VAC O/P: TESTING Ta:25°C	101.7%/ 305VAC 101.3%/ 230VAC 101.2%/100VAC PROTECTION TYPE : Hiccup mode or Constant current limiting, recovers automatically after fault condition is removed
2	OVER VOLTAGE PROTECTION	V1: 13V~18V	I/P: 305VAC I/P: 230VAC I/P: 110VAC O/P: MIN LOAD Ta:25°C	14.43V/ 305VAC 14.43V/ 230VAC 14.44V/ 110VAC PROTECTION TYPE : Shut down o/p voltage, re-power on to recover
3	OVER TEMPERATURE PROTECTION	NO DAMAGE	I/P: 305 VAC I/P: 110 VAC 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: 110 VAC O/P: FULL LOAD Ta:25°C	NO DAMAGE PROTECTION TYPE : Hiccup mode or Constant current limiting, recovers automatically after fault condition is removed

COMPONENT STRESS TEST

N O	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Transistor (D to S) or (C to E) Peak Voltage	Q73 Rated 11 A/ 600V	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) LEDmax (9) LEDmin	VDS: (1) 468V (2) 498V (3) 472V (4) 476V (5) 468V (6) 474V (7) 501V (8) 464V (9) 476V

			I/P:Low-Line -3V = 97V 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) LEDmax (9)LEDmin Ta:25°C	VDS: (1) 476V (2) 480V (3) 505V (4) 460V (5) 452V (6) 492V (7) 497V (8) 448V (9) 460V
2	P.F.C Transistor (D to S) or (C to E) Peak Voltage	Q1 Rated 26A/ 600V	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) LEDmax (9)LEDmin I/P:Low-Line -3V = 97V 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) LEDmax (9)LEDmin Ta:25°C	VDS: (1) 522V (2) 468V (3) 513V (4) 525V (5) 513V (6) 508V (7) 472V (8) 532V (9) 535V VDS: (1) 515V (2) 472V (3) 519V (4) 513V (5) 508V (6) 513V (7) 527V (8) 511V (9) 508V

3	P.F.C DIODE	D5 Rated 9A/600V	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/5KHz (4)Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz (5) LEDmax (6)LEDmin I/P:Low-Line -3V = 97V 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) LEDmax (6)LEDmin Ta:25°C	(1) 492V (2) 436V (3) 508V (4) 513V (5) 505V (6) 508V (1) 452V (2) 476V (3) 454V (4) 448V (5) 446V (6) 462V
4	Diode Peak Voltage	Q101 Rated 100A/ 40V Q100 Rated 100A/ 40V	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 (9) LEDmax (10)LEDmin Ta:25°C	Q101: VDS: (1) 29.V (2) 9.1V (3) 29.3V (4) 29.7V (5) 29.5V (6) 29.1V (7) 22.5V (8) 27.9V (9) 29.3V (10) 23.1V Q100 VDS: (1) 28.9V (2) 6.7V (3) 29.1V (4) 29.3V (5) 28.9V (6) 29.1V (7) 19.9V (8) 26.9V (9) 28.7V (10) 23.5V

5	Input Capacitor Voltage	C5 Rated: 100uF / 450 V	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) 446V (2) 434V (3) 442V (4) 442V
6	Control IC Voltage Test	U1 Rated – 0.3V~35V U2 Rated – 0.3V to 20V U100 Rated – 0.3V~32V	AC ON/OFF I/P:High-Line +3V =308 V FOR C.V MODE TYPE O/P(1)FULL LOAD (2) Output Short (3)O.L.P (4)O.V.P. (5)NO LOAD VRmin.LOW LINE FOR C.C MODE TYPE O/P(6)LEDmax (7)LEDmin	U2: (1) 17.7V (2) 17.9V (3) 17.7V (4) 16.1V (5) 15.7V U1: (1) 17.6V (2) 17.5V (3) 17.7V (4) 16.9V (5) 13.9V (6) 17.9V (7) 17.7V U100: (1) 11.3V (2) 11.3V (3) 11.3V (4) 14.3V (5) 11.5V (6) 11.9V (7) 11.3V

SAFETY & EMC TEST

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P: 3.75KVAC/min	I/P-O/P: 4.125 KVAC/min Ta:25°C	I/P-O/P: 0.238mA NO DAMAGE
2	ISOLATION RESISTANCE	I/P-O/P:500VDC>100MΩ	I/P-O/P: 500 VDC Ta:25°C	I/P-O/P:9999MΩ NO DAMAGE
3	LEAKAGE CURRENT	<0.25mA / 277VAC	I/P: 277 VAC O/P:Min LOAD Ta:25°C	L-FG:0.048mA N-FG:0.043 mA

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	EN61000-3-2 CLASS C	I/P: 230VAC/50HZ O/P:FULL LOAD Ta:25°C	PASS
2	CONDUCTION	EN55032 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL/50% LOAD Ta:25°C	PASS Test by certified Lab
3	RADIATION	EN55032 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 LIGHT INDUSTRY AIR : 8KV / Contact : 4KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A
5	E.F.T	EN61000-4-4 LIGHT INDUSTRY INPUT: 1KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A
6	SURGE	IEC61000-4-5 INDUSTRY L-N :2KV	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 : NPF-200V-12 1. ROOM AMBIENT BURN-IN : 2HRS I/P : 230VAC O/P : FULL LOAD Ta=30 °C 2. HIGH AMBIENT BURN-IN : 2HRS I/P : 230VAC O/P : FULL LOAD Ta=47.8 °C																																																																										
		<table><tr><th>NO</th><th>Position</th><th>ROOM AMBIENT Ta=30°C</th><th>HIGH AMBIENT Ta=47.8°C</th></tr><tr><td>1</td><td>RTH1</td><td>66.4°C</td><td>79.7°C</td></tr><tr><td>2</td><td>BD1</td><td>67.2°C</td><td>83.4°C</td></tr><tr><td>3</td><td>Q1</td><td>68.8°C</td><td>85.2°C</td></tr><tr><td>4</td><td>C5</td><td>64.3°C</td><td>80.3°C</td></tr><tr><td>5</td><td>L2</td><td>66.1°C</td><td>82.2°C</td></tr><tr><td>6</td><td>C86</td><td>67.9°C</td><td>84.1°C</td></tr><tr><td>7</td><td>Q71</td><td>65.8°C</td><td>82.3°C</td></tr><tr><td>8</td><td>Q73</td><td>66.5°C</td><td>83.2°C</td></tr><tr><td>9</td><td>U1</td><td>64.5°C</td><td>80.4°C</td></tr><tr><td>10</td><td>C36</td><td>65.8°C</td><td>82.4°C</td></tr><tr><td>11</td><td>T1</td><td>75.6°C</td><td>93.0°C</td></tr><tr><td>12</td><td>C106</td><td>68.6°C</td><td>86.6°C</td></tr><tr><td>13</td><td>Q100</td><td>74.8°C</td><td>92.9°C</td></tr><tr><td>14</td><td>Q101</td><td>74.5°C</td><td>92.5°C</td></tr><tr><td>15</td><td>U101</td><td>75.6°C</td><td>92.6°C</td></tr><tr><td>16</td><td>RTH5</td><td>65.0°C</td><td>81.4°C</td></tr><tr><td>17</td><td>TC</td><td>58.0°C</td><td>74.0°C</td></tr></table>			NO	Position	ROOM AMBIENT Ta=30°C	HIGH AMBIENT Ta=47.8°C	1	RTH1	66.4°C	79.7°C	2	BD1	67.2°C	83.4°C	3	Q1	68.8°C	85.2°C	4	C5	64.3°C	80.3°C	5	L2	66.1°C	82.2°C	6	C86	67.9°C	84.1°C	7	Q71	65.8°C	82.3°C	8	Q73	66.5°C	83.2°C	9	U1	64.5°C	80.4°C	10	C36	65.8°C	82.4°C	11	T1	75.6°C	93.0°C	12	C106	68.6°C	86.6°C	13	Q100	74.8°C	92.9°C	14	Q101	74.5°C	92.5°C	15	U101	75.6°C	92.6°C	16	RTH5	65.0°C	81.4°C	17	TC	58.0°C	74.0°C
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2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P : 230 VAC O/P : 103 % LOAD Ta : 25°C	TEST : OK																																																																								
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 305VAC/110VAC O/P : FULL LOAD Ta= -45/-30 °C	TEST : OK																																																																								
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 45 °C NO DAMAGE	I/P : 305 VAC O/P : FULL LOAD Ta= 45 °C HUMIDITY= 95 %R.H	TEST : OK																																																																								
5	TEMPERATURE COEFFICIENT	± 0.03 %/(0°C~50°C)	I/P : 230 VAC O/P : FULL LOAD	± 0.01 %/°C(0~50°C)																																																																								

6	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
7	THERMAL SHOCK TEST	-40~45°C	1. Thermal shock Temperature : -45°C~ +50°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
8	VIBRATION TEST	10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes	1 Carton & 1 Set (1) Waveform : Sine Wave (2) Frequency : 10~500Hz (3) Sweep Time : 12min/sweep cycle (4) Acceleration : 6G (5) Test Time : 180min in each axis (X.Y.Z) (6) Ta : 25°C
9	CAPACITOR LIFE CYCLE	SUPPOSE C106 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=45 °C LIFE TIME (3) I/P : 230VAC O/P : 75% LOAD Ta=45 °C LIFE TIME (4) I/P : 230VAC O/P : 50% LOAD Ta=45 °C LIFE TIME	(1) 183069HRS (2) 45137HRS (3) 113601HRS (4) 208682 HRS
10	MTBF	Conducted by Parts Stress Analysis Prediction 829.6K hrs min. Telcordia SR-332 (Bellcore) ; 247.5K 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	WUWQ/HUANGMK	WENF	LINKX

2018.4.30

GP-A50-F010