



Test Report: NPF-200-24

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

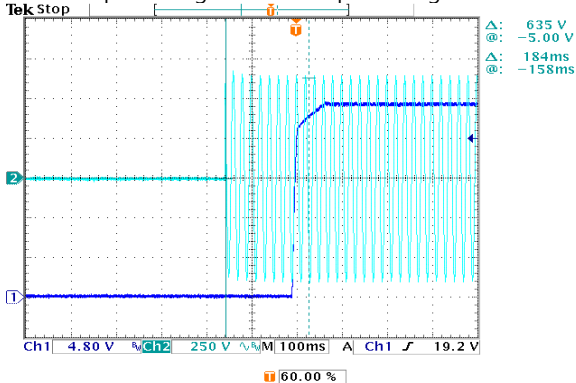
■ **DESIGN VERIFY TEST**

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	-0.36~3.6%
2	CONSTANT CURRENT AND OUTPUT VOLTAGE REGION	CH1: 12V ~ 24V	I/P: 230 VAC O/P:FULL LOAD Ta:25°C LEDH MODE TEST	10.8V~23.1V /230VAC
3	OUTPUT VOLTAGE TOLERANCE	V1: -4% ~ +4% (Max)	I/P:110 /305 VAC O/P:FULL~MIN LOAD Ta:25°C	V1: 0.25%~0.75%
4	LINE REGULATION	V1: -0.5% ~ +0.5 % (Max)	I/P:110 /305 VAC O/P:FULL LOAD Ta:25°C	V1: -0.04%~ 0%
5	LOAD REGULATION	V1: -0.5% ~ +0.5% (Max)	I/P:110 /305 VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: -0.248%~ 0.248%
6	OVER/UNDERSHOOT TEST	< +5%	I/P:110 /305 VAC O/P:FULL LOAD Ta:25°C	TEST: 2.04%
7	CURREN RIPPLE	V1: -5% ~ 5% (Max)	I/P:110VAC /305AC O/P:FULL/ MIN LOAD Ta:25°C	V1: 2.98 %
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/ 184ms 115 VAC/358ms

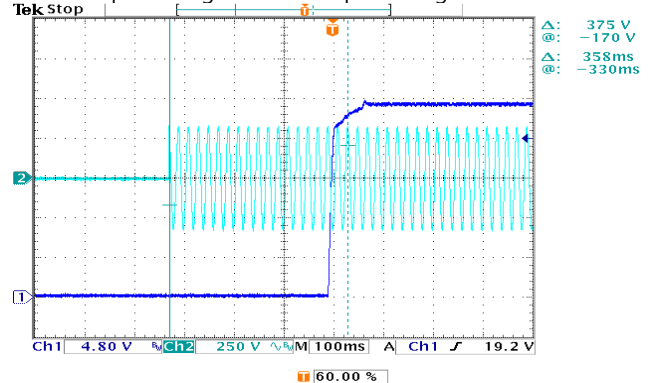
INPUT=230VAC/50HZ @ FULL LOAD

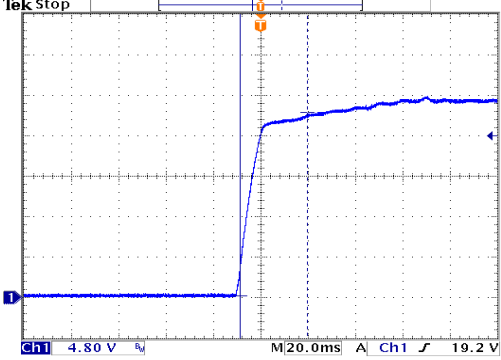
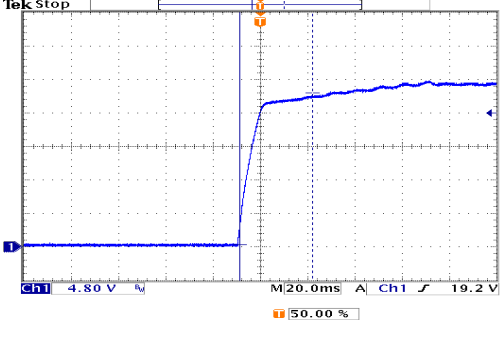
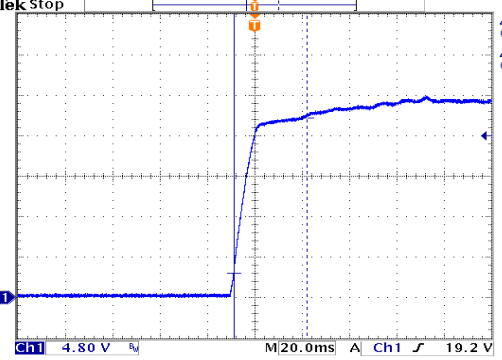
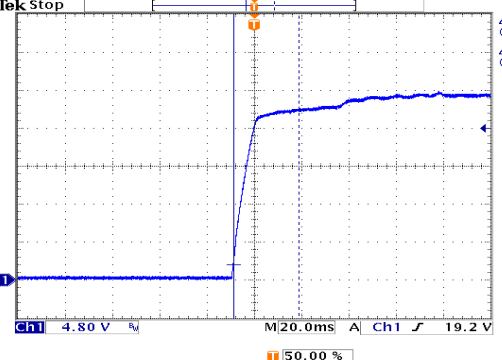
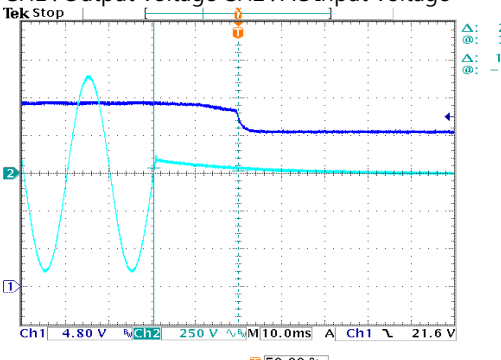
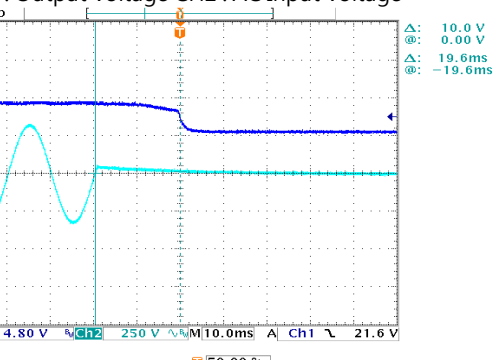
CH1 : Output Voltage CH2 : AC Input Voltage



INPUT=115VAC/60HZ @ FULL LOAD

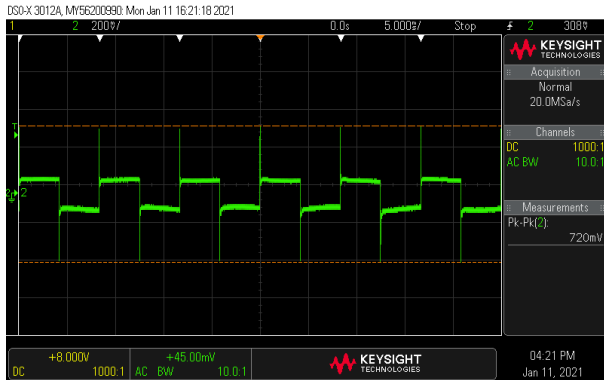
CH1 : Output Voltage CH2 : AC Input Voltage



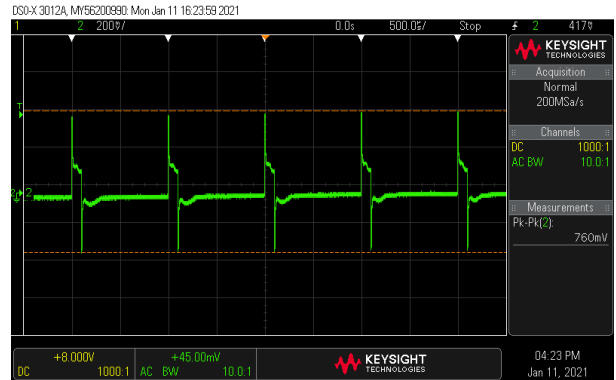
9	RISE TIME (Max)	230VAC/ 80ms for Blank type 115VAC/ 80ms for Blank type 230VAC/ 200ms for V type 115VAC/ 200ms for V type	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C LEDH MODE TEST	230VAC/28.4ms for Blank type 115 VAC/30.8ms for Blank type 230VAC/30.8ms for V type 115 VAC/27.6ms for V type
<p>INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage for Blank type</p>  <p>INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage for V type</p> 		<p>INPUT=115VAC/60HZ @ FULL LOAD CH1 : Output Voltage for Blank type</p>  <p>INPUT=115VAC/60HZ @ FULL LOAD CH1 : Output Voltage for V type</p> 		
10	HOLD UP TIME (Max)	230VAC/ 10ms 115VAC/ 10ms	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C LEDH MODE TEST	230VAC/ 19.6ms 115 VAC/ 19.6ms
<p>INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage</p> 		<p>INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage</p> 		

11	DYNAMIC LOAD	V1: 2400 mVp-p	I/P: 230VAC O/P: (1)FULL /50% LOAD 50%DUTY / 120HZ (2)FULL /50% LOAD 50%DUTY / 1KHZ Ta:25°C	720mVp-p FULL /50% LOAD 50%DUTY / 120HZ 760mVp-p FULL /50% LOAD 50%DUTY / 1KHZ
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FULL /50% LOAD 50%DUTY / 120HZ

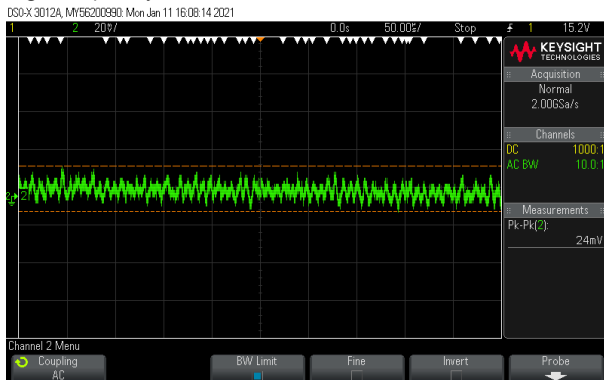


FULL /50% LOAD 50%DUTY / 1KHZ

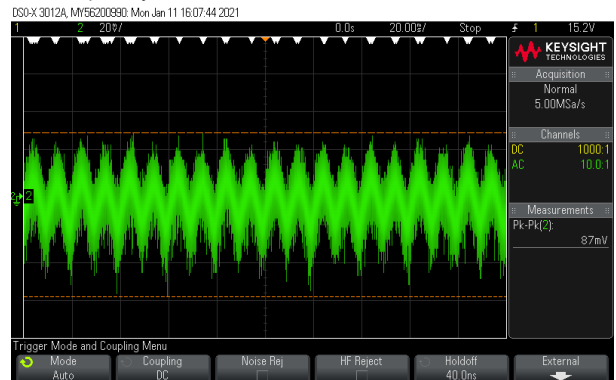


12	RIPPLE & NOISE (Max)	V1: 150mVp-p	I/P: 230 VAC O/P:FULL LOAD Ta:25°C CCH MODE TEST	V1: 87 mVp-p
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high frequency :

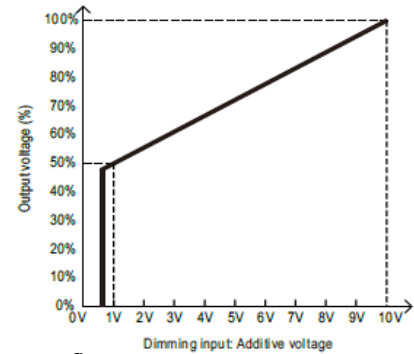
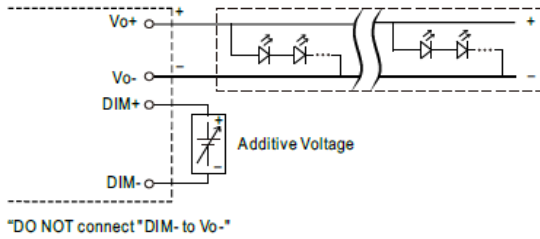


low frequency :

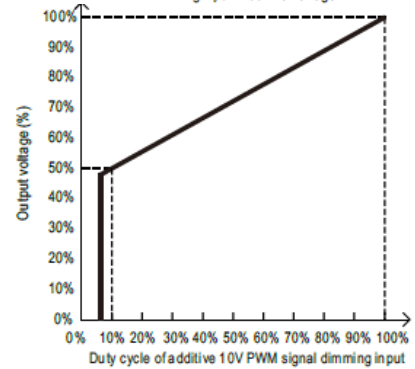
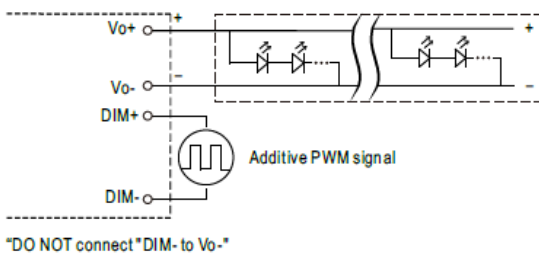


13	DIMMING OPERATION (forV-Type)	<p>※ 3 in 1 dimming function to adjust output voltage level</p> <ul style="list-style-type: none"> • Output constant voltage can be adjusted by applying one of the three methodologies between DIM+ and DIM-: 0 ~ 10VDC, or 10V PWM signal or resistance. • Direct connecting to LEDs is suggested. It is not suitable to be used with additional drivers. • Dimming source current from power supply: 100µA (typ.) 		
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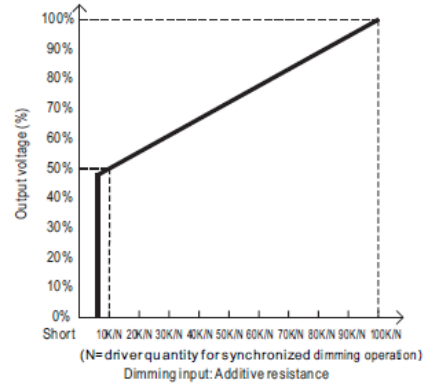
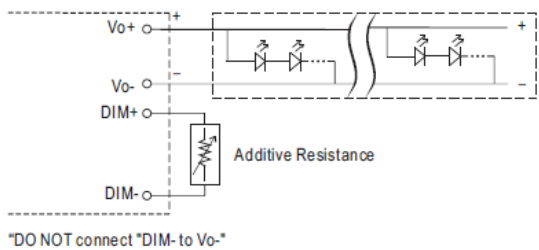
◎ Applying additive 0 ~ 10VDC



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



◎ Applying additive resistance:



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

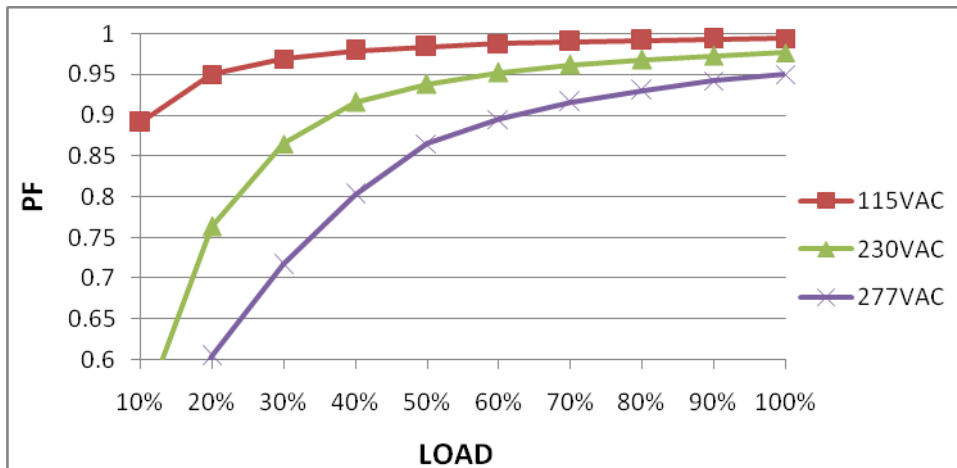
1	V	SHORT	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN
	Output Voltage	0.00000 V	12.11	13.53	14.62	15.94	17.32	18.57	19.91	21.26	22.52	23.83	23.87
%	0.00%	50.46 %	56.38 %	60.92%	66.42%	72.17 %	77.38 %	82.96 %	88.58 %	93.83 %	99.29%	99.46%	
2	PWM	0V	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	OPEN
	Output Voltage (100Hz)	0.00000 V	12.07	13.41	14.59	15.82	17.14	18.52	19.82	21.15	22.49	23.87	23.91
	%	0.00%	50.29 %	55.88 %	60.79%	65.92%	71.42 %	77.17 %	82.58 %	88.13 %	93.71 %	99.46%	99.63%
3	R	0%	10K	20K	30K	40K	50K	60K	70K	80K	90K	100K	OPEN
	Output Voltage	0.00000 V	12.22	13.72	14.81	16.17	17.46	18.75	20.29	21.43	22.91	23.81	23.96
	%	0.00%	50.92 %	57.17 %	61.71%	67.38%	72.75 %	78.13 %	84.54 %	89.29 %	95.46 %	99.21%	99.83%

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	(1) 97V~308VAC (2)242Vdc~431Vdc/FULL LOAD 142Vdc~431Vdc/50% LOAD (3) 242Vdc~431Vdc/FULL LOAD 142Vdc~431Vdc/50% LOAD
			I/P: LOW-LINE-3V=107 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)	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=0.796A/277VAC I = 0.938A/ 230VAC I =1.904A/ 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	0.4129W
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=0.979/230V/100%LOAD PF=0.994/115V/100%LOAD PF=0.954/277V/100%LOAD

P.F vs LOAD



6	EFFICIENCY (TYP)	93%	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	94.18 %																																												
<p>EFFICIENCY vs LOAD</p> <table border="1"> <caption>Efficiency vs Load Data</caption> <thead> <tr> <th>Load (%)</th> <th>115VAC (%)</th> <th>230VAC (%)</th> <th>277VAC (%)</th> </tr> </thead> <tbody> <tr><td>10%</td><td>83</td><td>86</td><td>88</td></tr> <tr><td>20%</td><td>89</td><td>91</td><td>92</td></tr> <tr><td>30%</td><td>91</td><td>92</td><td>93</td></tr> <tr><td>40%</td><td>92</td><td>93</td><td>94</td></tr> <tr><td>50%</td><td>92</td><td>93</td><td>94</td></tr> <tr><td>60%</td><td>92</td><td>93</td><td>94</td></tr> <tr><td>70%</td><td>92</td><td>93</td><td>94</td></tr> <tr><td>80%</td><td>92</td><td>93</td><td>94</td></tr> <tr><td>90%</td><td>92</td><td>93</td><td>94</td></tr> <tr><td>100%</td><td>92</td><td>93</td><td>94</td></tr> </tbody> </table>					Load (%)	115VAC (%)	230VAC (%)	277VAC (%)	10%	83	86	88	20%	89	91	92	30%	91	92	93	40%	92	93	94	50%	92	93	94	60%	92	93	94	70%	92	93	94	80%	92	93	94	90%	92	93	94	100%	92	93	94
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7	INRUSH CURRENT (TYP)	230 V/65A (twidth=550us measured at 50% Ipeak) COLD START	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	I = 51 A/ 230VAC T50= 453.8 us																																												
<p>INPUT=230VAC/50HZ @ FULL LOAD CH1 : AC Input Voltage CH4 : Input current</p> <table border="1"> <caption>Oscilloscope Measurement Data</caption> <thead> <tr> <th>Measurement</th> <th>Value</th> </tr> </thead> <tbody> <tr><td>600.0ms</td><td>22.20 A</td></tr> <tr><td>454.4µs</td><td>24.60 A</td></tr> <tr><td>453.8µs</td><td>2.398 A</td></tr> </tbody> </table>					Measurement	Value	600.0ms	22.20 A	454.4µs	24.60 A	453.8µs	2.398 A																																				
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8	TOTAL HARMONIC DISTORTION	THD<20%(@load 60%/115V,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 : 12.98%/ 60% Load/115VAC THD : 15.18%/ 60% Load/230VAC THD : 15.57%/75% Load/277VAC																																												
<p>THD vs LOAD</p> <table border="1"> <caption>THD vs Load Data</caption> <thead> <tr> <th>Load (%)</th> <th>115VAC (%)</th> <th>230VAC (%)</th> <th>277VAC (%)</th> </tr> </thead> <tbody> <tr><td>10%</td><td>25</td><td>58</td><td>40</td></tr> <tr><td>20%</td><td>22</td><td>20</td><td>30</td></tr> <tr><td>30%</td><td>18</td><td>16</td><td>22</td></tr> <tr><td>40%</td><td>16</td><td>15</td><td>20</td></tr> <tr><td>50%</td><td>14</td><td>14</td><td>18</td></tr> <tr><td>60%</td><td>13</td><td>13</td><td>16</td></tr> <tr><td>70%</td><td>12</td><td>12</td><td>14</td></tr> <tr><td>80%</td><td>11</td><td>11</td><td>13</td></tr> <tr><td>90%</td><td>10</td><td>10</td><td>12</td></tr> <tr><td>100%</td><td>10</td><td>10</td><td>11</td></tr> </tbody> </table>					Load (%)	115VAC (%)	230VAC (%)	277VAC (%)	10%	25	58	40	20%	22	20	30	30%	18	16	22	40%	16	15	20	50%	14	14	18	60%	13	13	16	70%	12	12	14	80%	11	11	13	90%	10	10	12	100%	10	10	11
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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	102.7%/ 305VAC 102.4%/ 230VAC 102.5%/100VAC PROTECTION TYPE : Hiccup mode or Constant current limiting, recovers automatically after fault condition is removed
2	OVER VOLTAGE PROTECTION	V1: 27V~34V	I/P: 305VAC I/P: 230VAC I/P: 110VAC O/P: MIN LOAD Ta:25°C	29.52V/ 305VAC 29.54V/ 230VAC 29.45V/ 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) 472V (2) 492V (3) 464V (4) 468V (5) 464V (6) 472V (7) 492V (8) 464V (9) 476V



			<p>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</p> <p>Ta:25°C</p>	<p>VDS: (1) 476V (2) 480V (3) 505V (4) 460V (5) 452V (6) 492V (7) 497V (8) 448V (9) 460V</p>
2	P.F.C Transistor (D to S) or (C to E) Peak Voltage	Q1 Rated 26A/ 600V	<p>AC ON/OFF</p> <p>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</p> <p>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</p> <p>Ta:25°C</p>	<p>VDS: (1) 531V (2) 452V (3) 502V (4) 522V (5) 516V (6) 525V (7) 468V (8) 532V (9) 539V</p> <p>VDS: (1) 522V (2) 472V (3) 516V (4) 526V (5) 508V (6) 515V (7) 527V (8) 516V (9) 511V</p>



3	P.F.C DIODE	D5 Rated 9A/600V	<p>AC ON/OFF</p> <p>I/P:High-Line +3V =308 V</p> <p>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</p> <p>I/P:Low-Line -3V = 97V</p> <p>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</p> <p>Ta:25°C</p>	<p>(1) 492V (2) 462V (3) 509V (4) 511V (5) 505V (6) 508V</p> <p>(1) 461V (2) 488V (3) 456V (4) 441V (5) 448V (6) 451V</p>
4	Diode Peak Voltage	<p>Q101 Rated 100A/ 80V</p> <p>Q100 Rated 100A/ 80V</p>	<p>AC ON/OFF</p> <p>I/P:High-Line +3V =308 V</p> <p>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</p> <p>Ta:25°C</p>	<p>Q101: VDS: (1) 53.3V (2) 9.9V (3) 55.7V (4) 56.1V (5) 56.1V (6) 55.7V (7) 38.4V (8) 52.1V (9) 52.1V (10) 37.2V</p> <p>Q100 VDS: (1) 54.9V (2) 7.1V (3) 54.9V (4) 54.9V (5) 54.9V (6) 52.1V (7) 32.8V (8) 52.9V (9) 53.3V (10) 37.2V</p>

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) 444V (2) 431V (3) 450V (4) 446V
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 Ta:25°C	U2 : (1) 17.9V (2) 17.7V (3) 17.2V (4) 15.6V (5) 15.8V U1 : (1) 17.9V (2) 17.5V (3) 17.7V (4) 17.4V (5) 15.8V (6) 17.3V (7) 17.4/V U100 : (1) 10.7V (2) 11.2V (3) 11.4V (4) 16.8V (5) 10.7V (6) 10.9V (7) 10.8V

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:2.813mA 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: 0.038 mA N-FG:0.042mA

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-24 1. ROOM AMBIENT BURN-IN : 2HRS I/P : 230VAC O/P : FULL LOAD Ta=25.6 °C 2. HIGH AMBIENT BURN-IN : 2HRS I/P : 230VAC O/P : FULL LOAD Ta=50.6 °C																																																																										
				<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta=25.6°C</th> <th>HIGH AMBIENT Ta=50.6°C</th> </tr> </thead> <tbody> <tr><td>1</td><td>RTH1</td><td>70.3°C</td><td>86.7°C</td></tr> <tr><td>2</td><td>BD1</td><td>68.0°C</td><td>88.2°C</td></tr> <tr><td>3</td><td>Q1</td><td>68.2°C</td><td>88.8°C</td></tr> <tr><td>4</td><td>C5</td><td>65.0°C</td><td>85.5°C</td></tr> <tr><td>5</td><td>L2</td><td>66.0°C</td><td>86.4°C</td></tr> <tr><td>6</td><td>C86</td><td>67.1°C</td><td>88.0°C</td></tr> <tr><td>7</td><td>Q71</td><td>65.8°C</td><td>86.8°C</td></tr> <tr><td>8</td><td>Q73</td><td>66.4°C</td><td>87.6°C</td></tr> <tr><td>9</td><td>U1</td><td>66.0°C</td><td>86.6°C</td></tr> <tr><td>10</td><td>C36</td><td>66.1°C</td><td>86.9°C</td></tr> <tr><td>11</td><td>T1</td><td>75.5°C</td><td>96.5°C</td></tr> <tr><td>12</td><td>C106</td><td>59.2°C</td><td>80.9°C</td></tr> <tr><td>13</td><td>Q100</td><td>61.8°C</td><td>83.7°C</td></tr> <tr><td>14</td><td>Q101</td><td>66.6°C</td><td>88.8°C</td></tr> <tr><td>15</td><td>U101</td><td>67.7°C</td><td>89.2°C</td></tr> <tr><td>16</td><td>RTH5</td><td>64.2°C</td><td>85.2°C</td></tr> <tr><td>17</td><td>Tc</td><td>56.0°C</td><td>77.4°C</td></tr> </tbody> </table>	NO	Position	ROOM AMBIENT Ta=25.6°C	HIGH AMBIENT Ta=50.6°C	1	RTH1	70.3°C	86.7°C	2	BD1	68.0°C	88.2°C	3	Q1	68.2°C	88.8°C	4	C5	65.0°C	85.5°C	5	L2	66.0°C	86.4°C	6	C86	67.1°C	88.0°C	7	Q71	65.8°C	86.8°C	8	Q73	66.4°C	87.6°C	9	U1	66.0°C	86.6°C	10	C36	66.1°C	86.9°C	11	T1	75.5°C	96.5°C	12	C106	59.2°C	80.9°C	13	Q100	61.8°C	83.7°C	14	Q101	66.6°C	88.8°C	15	U101	67.7°C	89.2°C	16	RTH5	64.2°C	85.2°C	17	Tc	56.0°C	77.4°C
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2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P : 230 VAC O/P : 100.1 %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	± 0.005 %/°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) 350572HRS (2) 110168HRS (3) 206310HRS (4) 232869 HRS
10	MTBF	Conducted by Parts Stress Analysis Prediction 2625.4K 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