



Test Report: UHP-2500-48

2500W Conduction Cooling with PFC Switching 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

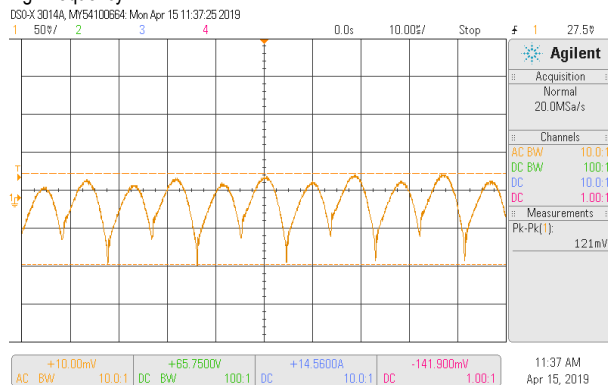
ENVIRONMENT TEST

DESIGN VERIFY TEST

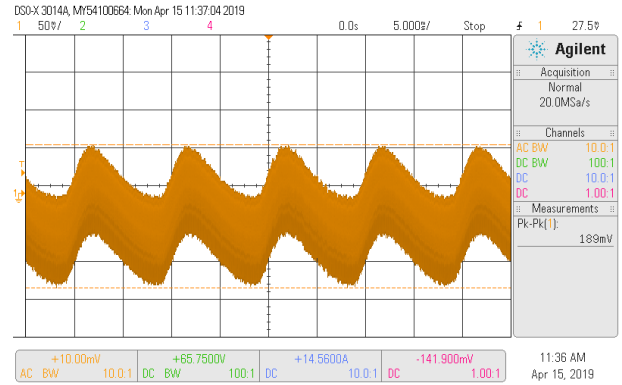
OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT VOLTAGE ADJUST RANGE	CH1: 48V~ 57.6 V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	46.76V~59.27V/230VAC 46.76V~59.27V/115VAC
2	OUTPUT VOLTAGE(Max) TOLERANCE	V1: 1%~ -1 %	I/P: 180VAC /264VAC O/P:FULL/ MIN. LOAD Ta:25°C	V1: 0.13 %~ -0.13 %
3	LINE REGULATION (Max)	V1: 0.5%~-0.5 %	I/P: 180VAC~ 264VAC O/P:FULL LOAD Ta:25°C	V1: 0.09 %~ -0.09 %
4	LOAD REGULATION(Max)	V1: 0.5%~ -0.5%	I/P: 230VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: 0.07 %~ -0.07 %
5	OVER/UNDERSHOOT TEST	< ±5%	I/P: 230VAC O/P:FULL LOAD/5% load Ta:25°C	<5%
6	RIPPLE & NOISE(Max)	V1: 480mVp-p	I/P:230VAC O/P:FULL LOAD Ta:25°C	V1: 189mVp-p

high frequency :



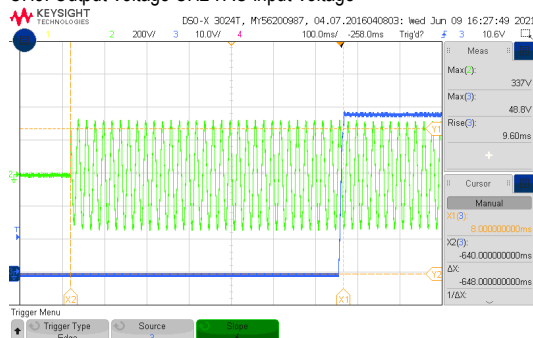
low frequency :



7	SET UP TIME(Max)	230VAC/1500ms 115VAC/1500ms Derating may be needed under low input voltages. Please check the derating curve and Static characteristics for more details	I/P : 230 VAC O/P : FULL LOAD I/P : 115 VAC O/P : 63.8% LOAD Ta : 25°C	230VAC/ 648ms 115VAC/ 938 ms
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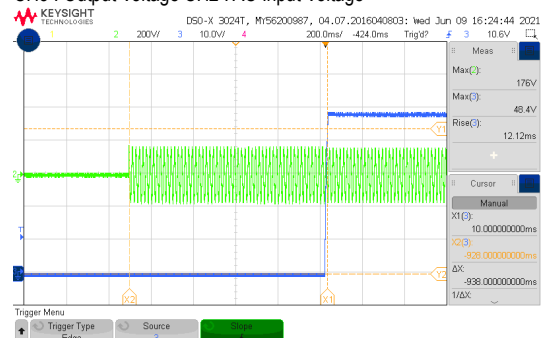
INPUT=230VAC/50HZ @ FULL LOAD

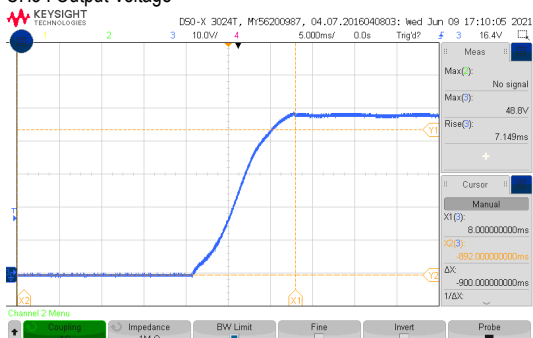
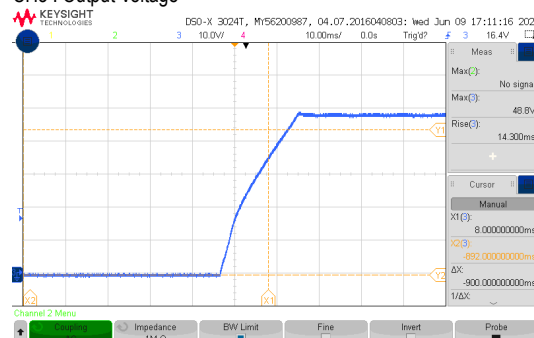
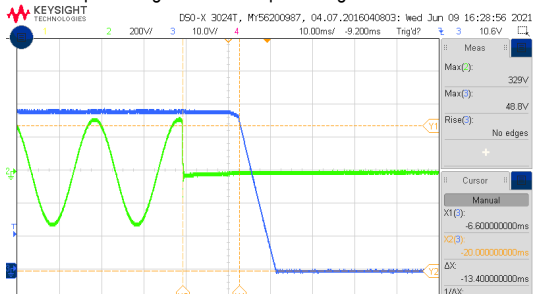
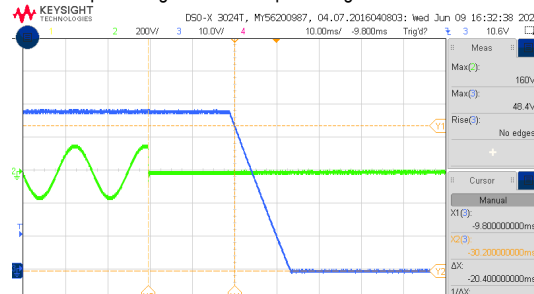
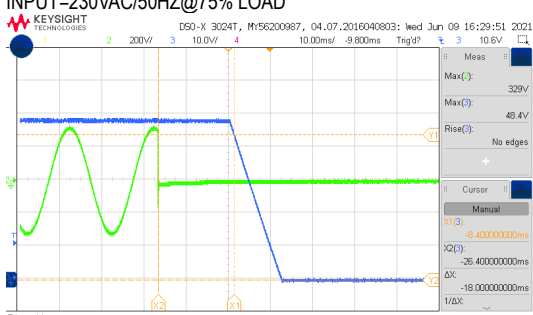
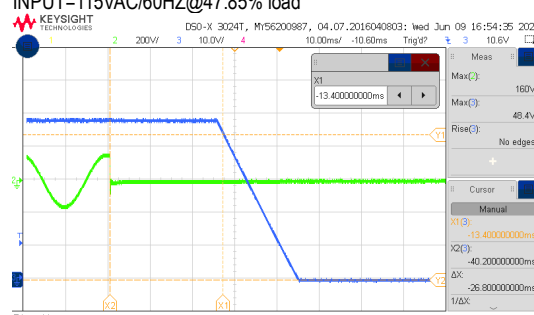
CH3: Output Voltage CH2 : AC Input Voltage

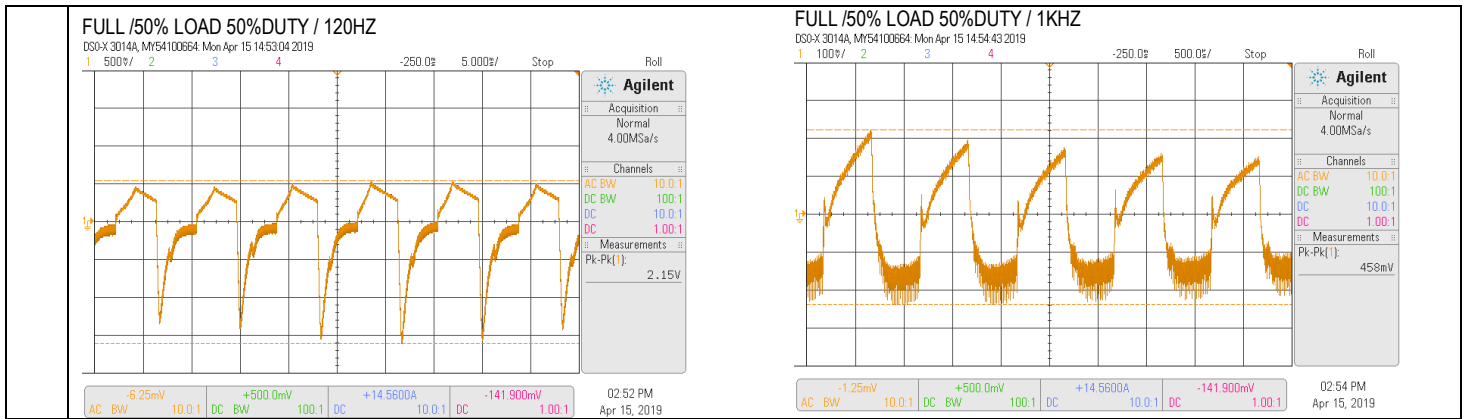


INPUT=115VAC/60HZ @ 63.8% LOAD

CH3: Output Voltage CH2 : AC Input Voltage



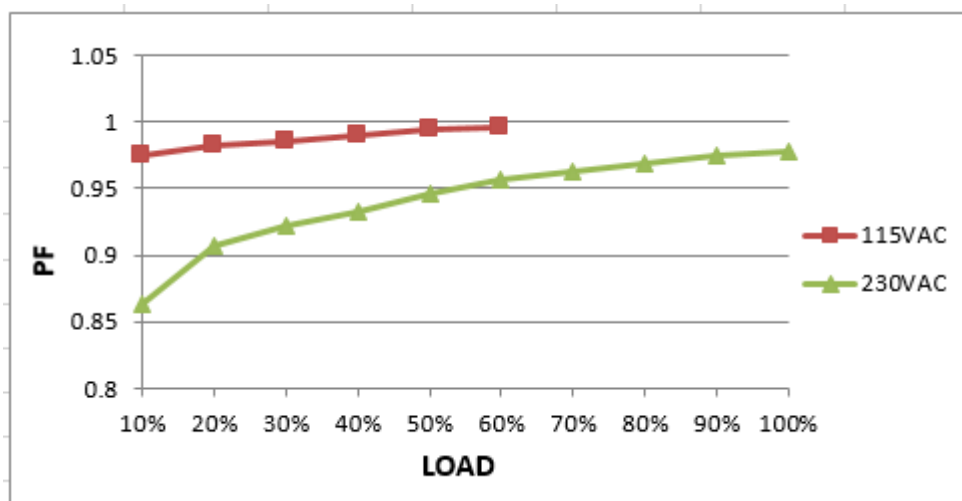
<p>8 RISE TIME (Max)</p>	<p>230VAC/50ms 115VAC/60ms</p> <p>Derating may be needed under low input voltages. Please check the derating curve and Static characteristics for more details</p>	<p>I/P : 230 VAC O/P : FULL LOAD I/P : 115 VAC O/P : 63.8% LOAD Ta : 25°C</p>	<p>230VAC/ 7.14 ms 115VAC/ 14.3 ms</p>
<p>INPUT=230VAC/50HZ @ FULL LOAD CH3 : Output Voltage</p> 		<p>INPUT=115VAC/60HZ @ 63.8% LOAD CH3 : Output Voltage</p> 	
<p>9 HOLD UP TIME (Typ.)</p>	<p>230、115VAC/10ms at full load 230、115VAC/16ms at 75% load</p> <p>Derating may be needed under low input voltages. Please check the derating curve and Static characteristics for more details</p>	<p>I/P : 230 VAC O/P : FULL LOAD/75% LOAD I/P : 115 VAC O/P : 63.8% LOAD/47.85% LOAD Ta : 25°C</p>	<p>230VAC/ 13.4 ms at full load 230VAC/ 18 ms at 75% load 115VAC/ 20.4 ms at 63.8% load 115VAC/ 26.8 ms at 47.85% load</p>
<p>INPUT=230VAC/50HZ @ FULL LOAD CH3 : Output Voltage CH2 : AC Input Voltage</p> 		<p>INPUT=115VAC/60HZ @ 63.8% LOAD CH3 : Output Voltage CH2 : AC Input Voltage</p> 	
<p>INPUT=230VAC/50HZ@75% LOAD</p> 		<p>INPUT=115VAC/60HZ@47.85% load</p> 	
<p>10 DYNAMIC LOAD</p>	<p>V1: 4800 mVp-p</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>2150mVp-p 458mVp-p</p>



INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	90VAC~264VAC	I/P: TESTING O/P: FULL LOAD// Derating Load Ta: 25°C	166V~264V(100%) 84V~264V(50%)
			I/P: LOW-LINE-3V=177 V HIGH-LINE+15%=300 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: 90 VAC ~264 VAC O/P: FULL~MIN LOAD Ta: 25°C	TEST: OK
3	INPUT CURRENT (Typ.)	230V/ 14.3 A	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	I=11.8A/ 230VAC
4	LEAKAGE CURRENT	< 0.75mA / 240 VAC	I/P : 240 VAC O/P : Min LOAD Ta : 25°C	L-FG : 0.55 mA N-FG : 0.55 mA
5	POWER FACTOR (Typ.)	0.95/ 230VAC	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	PF=0.977/230VAC

P.F vs LOAD



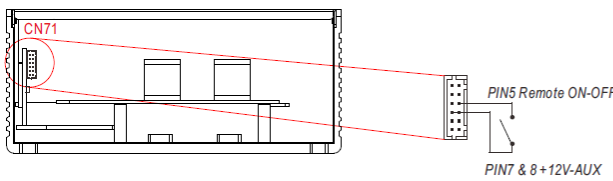
6	EFFICIENCY(Typ.)	96%	I/P:230 VAC O/P:FULL LOAD Ta:25°C	96.01%																																	
<p>EFFICIENCY vs LOAD</p> <table border="1"> <caption>Efficiency vs Load Data</caption> <thead> <tr> <th>LOAD (%)</th> <th>115VAC Efficiency (%)</th> <th>230VAC Efficiency (%)</th> </tr> </thead> <tbody> <tr><td>10%</td><td>89.0</td><td>89.5</td></tr> <tr><td>20%</td><td>93.0</td><td>94.5</td></tr> <tr><td>30%</td><td>93.5</td><td>95.5</td></tr> <tr><td>40%</td><td>93.8</td><td>95.8</td></tr> <tr><td>50%</td><td>93.8</td><td>96.0</td></tr> <tr><td>60%</td><td>93.8</td><td>96.0</td></tr> <tr><td>70%</td><td>93.8</td><td>96.0</td></tr> <tr><td>80%</td><td>93.8</td><td>96.0</td></tr> <tr><td>90%</td><td>93.8</td><td>96.0</td></tr> <tr><td>100%</td><td>93.8</td><td>96.0</td></tr> </tbody> </table>					LOAD (%)	115VAC Efficiency (%)	230VAC Efficiency (%)	10%	89.0	89.5	20%	93.0	94.5	30%	93.5	95.5	40%	93.8	95.8	50%	93.8	96.0	60%	93.8	96.0	70%	93.8	96.0	80%	93.8	96.0	90%	93.8	96.0	100%	93.8	96.0
LOAD (%)	115VAC Efficiency (%)	230VAC Efficiency (%)																																			
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60%	93.8	96.0																																			
70%	93.8	96.0																																			
80%	93.8	96.0																																			
90%	93.8	96.0																																			
100%	93.8	96.0																																			
7	INRUSH CURRENT(Typ.)	230V/60A 115V/30A COLD START	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I=52.6A / 230VAC T50= 2140us I=28.2A / 115VAC																																	
<div style="display: flex; justify-content: space-around;"> <div style="width: 45%;"> <p>INPUT=230VAC/50HZ @ FULL LOAD</p> <p>CH1 : AC Input Voltage CH3 : Input current</p> </div> <div style="width: 45%;"> <p>INPUT=115VAC/60HZ @ FULL LOAD</p> <p>CH1 : AC Input Voltage CH3 : Input current</p> </div> </div>																																					
8	NO LOAD CONSUMPTION	---	I/P : 115VAC I/P : 230VAC O/P : NO LOAD Ta : 25°C	10.83 W/115VAC 7.79 W/230VAC																																	

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER LOAD PROTECTION	105%~ 115 %(180VAC~264VAC) 52.5%~57.5%(90VAC) Protection type : Constant current limiting, shut down O/P voltage 5 sec. after O/P voltage is down low, re-power on to recover	I/P: 264VAC I/P: 230VAC I/P: 180VAC I/P: 90VAC O/P: TESTING Ta:25°C	110.3%/ 264VAC 110.3%/ 230VAC 110.36%/180VAC 55.2%/90VAC PROTECTION TYPE : Constant current limiting, shut down O/P voltage 5 sec. after O/P voltage is down low, re-power on to recover

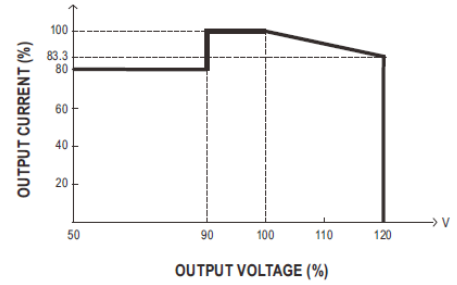
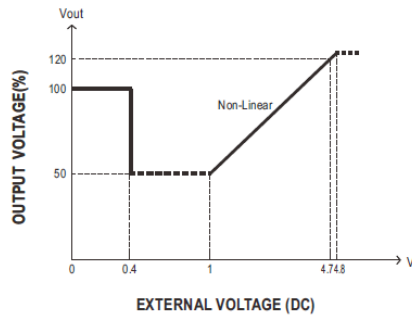
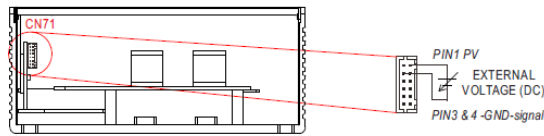
2	OVER VOLTAGE PROTECTION	59V~66V Protection type : Shut down O/P voltage, re-power on to recover	I/P: 264VAC I/P: 230VAC I/P: 90VAC O/P: MIN LOAD Ta: 25°C	63.8V/264VAC 63.8V/230VAC 63.8V/90VAC PROTECTION TYPE : Shut down O/P voltage, re-power on to recover
3	OVER TEMPERATURE PROTECTION	Protection type : 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 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, shut down O/P voltage 5 sec. after O/P voltage is down low, re-power on to recover	I/P: 264VAC I/P: 90VAC O/P: FULL LOAD Ta: 25°C	NO DAMAGE PROTECTION TYPE : Constant current limiting, shut down O/P voltage 5 sec. after O/P voltage is down low, re-power on to recover

CONTROL FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT												
1	AUXILIARY POWER (AUX)	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C Test Result :		<table border="1"> <thead> <tr> <th>AUX</th> <th>TOLERANCE</th> <th>RIPPLE</th> <th>TEST RESULT</th> </tr> </thead> <tbody> <tr> <td>12V / 0.4A</td> <td>10.8~13.2 V</td> <td>150mVp-p</td> <td>11.615V/ 60mv</td> </tr> </tbody> </table>	AUX	TOLERANCE	RIPPLE	TEST RESULT	12V / 0.4A	10.8~13.2 V	150mVp-p	11.615V/ 60mv				
AUX	TOLERANCE	RIPPLE	TEST RESULT													
12V / 0.4A	10.8~13.2 V	150mVp-p	11.615V/ 60mv													
2	REMOTE ON/OFF CONTROL	<p>The power supply can be turned ON/OFF individually or along with other units in parallel by using the "Remote ON-OFF" function.</p>  <p>I/P: 230 VAC O/P: FULL LOAD Ta: 25°C Test Result :</p> <table border="1"> <thead> <tr> <th>Between ON/OFF and +5V-AUX</th> <th>Power Supply Status</th> </tr> </thead> <tbody> <tr> <td>SW SHORT</td> <td>ON</td> </tr> <tr> <td>SW OPEN</td> <td>OFF</td> </tr> </tbody> </table>	Between ON/OFF and +5V-AUX	Power Supply Status	SW SHORT	ON	SW OPEN	OFF		<table border="1"> <thead> <tr> <th>Remote ON-OFF</th> <th>Power Supply Status</th> </tr> </thead> <tbody> <tr> <td>Short circuit</td> <td>ON</td> </tr> <tr> <td>Open circuit</td> <td>OFF</td> </tr> </tbody> </table>	Remote ON-OFF	Power Supply Status	Short circuit	ON	Open circuit	OFF
Between ON/OFF and +5V-AUX	Power Supply Status															
SW SHORT	ON															
SW OPEN	OFF															
Remote ON-OFF	Power Supply Status															
Short circuit	ON															
Open circuit	OFF															

3	<p>OUTPUT VOLTAGE PROGRAMMABLE(PV)</p>
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1. Output Voltage Programming (or, PV / remote voltage programming / remote adjust / margin programming / dynamic voltage trim)
 ※ In addition to the adjustment via the built-in potentiometer, the output voltage can be trimmed by applying EXTERNAL VOLTAGE.



© The rated current should change with the Output Voltage Programming accordingly.

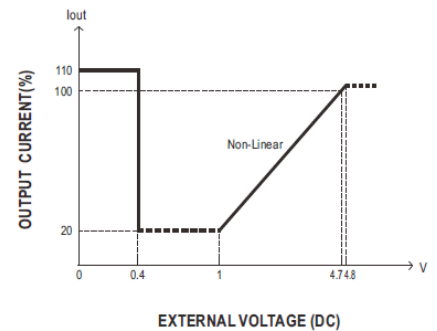
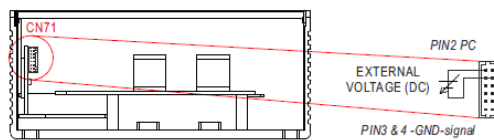
I/P: 230 VAC
 O/P: FULL LOAD
 Ta: 25°C

TEST RESULT :

MODEL \ PV	≤ 0.4V	1V	4.7V	5V
SPEC	48V±5%	24V±5%	57.6V±5%	58.512V±5%
Vout	48.12v	24.16v	57.8v	58.95v

4	<p>OUTPUT CURRENT PROGRAMMABLE (PC)</p>
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※ The output current can be trimmed to 20~100% of the rated current by applying EXTERNAL VOLTAGE.

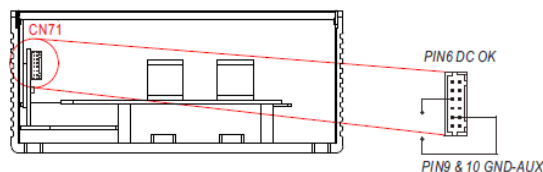


I/P: 230 VAC
 O/P: TESTING
 Ta: 25°C

ADJ V	<0.4V	1V	4.7V	5V
SPEC	110%±10%	20%±10%	100%±10%	100%±10%
iout	57.47A/ 110.3%	57.47A/110.3%	52.06A/99.92%	53.4A 102.5%

5	<p>DC OK CONTACT RATINGS</p>
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DC-OK signal is a TTL level signal. The maximum sourcing current is 10mA.



DC-OK signal	Power Supply Status
"High" >4.5~5.5V	ON
"Low" <0.5~0.5V	OFF

I/P: 230 VAC



		O/P:TESTING Ta:25°C	
		DC-OK signal	Power Supply Status
		"High" >4.5~5.5V	<u>ON</u>
		"Low" <-0.5~-0.5V	<u>OFF</u>

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Transistor (D to S) or (C to E) Peak Voltage	Q903 Rated 48 A/ 600 V VGS ±20 V	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. I/P:Low-Line -3V = 177V 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	VDS: (1) 527v (2) 487v (3) 519v (4) 527v (5) 527v (6) 527v (7) 491v VDS: (1) 483v (2) 487v (3) 483 (4) 483v (5) 483v (6) 487v (7) 491v
2	P.F.C Transistor (D to S) or (C to E) Peak Voltage	Q 52 Rated 33A/ 600 V VGS ±20 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/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. I/P:Low-Line -3V = 177V AC ON/OFF	VDS: (1) 463v (2) 415v (3) 471v (4) 467v (5) 471v (6) 467v (7) 475v VDS:

			<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.</p> <p>Ta:25°C</p>	<p>(1) 479v (2) 403v (3) 475v (4) 467v (5) 467v (6) 459v (7) 435v</p>
3	P.F.C DIODE	<p>D 14 Rated 10 A/650 V</p>	<p>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 I/P:Low-Line -3V = 177V 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</p> <p>Ta:25°C</p>	<p>(1) 415v (2) 395v (3) 415v (4) 415v (1) 435 (2) 395v (3) 431v (4) 415v</p>
4	Diode Peak Voltage	<p>Q109 Rated 87A/ 150 V</p> <p>Q113 Rated 87A/ 150 V</p>	<p>AC ON/OFF I/P:High-Line +3V =267 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) burst Mode</p> <p>Ta:25°C</p>	<p>Q109: VDS: (1) 135v (2) 35v (3) 132v (4) 130v (5) 132v (6) 130v (7) 121v (8) 121v (9) 121v</p> <p>Q113 (1) 136v (2) 19v (3) 138v (4) 136v (5) 136v (6) 136v (7) 123v (8) 117v (9) 127v</p>
5	Input Capacitor Voltage	<p>C5 Rated: 180μ/450 V Surge Voltage 495V</p>	<p>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</p> <p>Ta:25°C</p>	<p>(1) 419v (2) 399v (3) 431v (4) 384v</p>

6	Control IC Voltage Test	PWM IC U800 Rated 8.85 V~ 16V PFC IC U401 Rated 10.6V~ 21 V O/P IC U154Rated 8V~ 24V MCU IC U701 Rated -0.3V~ 4V	AC ON/OFF I/P:High-Line +3V =267 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	U800: (1) 13.2V (2) 14.2V (3) 13V (4) 14.6V (5) 14V U401: (1) 15.2V (2) 14V (3) 14.5V (4) 13.4V (5) 13V	U154: (1) 11.9V (2) 10.7V (3) 11.9v (4) 11.1V (5) 11.6V U701: (1) 3.7V (2) 3.64V (3) 3.7V (4) 3.6V (5) 3.6V
8	TOP SWITCHING STAND BY POWER	U601 Rated 3.5A/ 800 V	AC ON/OFF I/P:High-Line +3V =267 V O/P: (1)Full Load (2)Remote On/Off I/P:Low-Line -3V =97 V O/P: (1)Full Load (2)Remote On/Off Ta:25°C	U601 (1) 584V (2) 554V (1) 545V (2) 550V	

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P: 3.75KVAC/min I/P-FG :2KVAC/min O/P-FG:1.25KVAC/min	I/P-O/P: 4.125 KVAC/min I/P-FG: 2.4 KVAC/min O/P-FG:1.5KVAC/min Ta:25°C	I/P-O/P: 9.12mA I/P-FG: 8.66mA O/P-FG:5.9m 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: 23.9GΩ I/P-FG: 19.8GΩ O/P-FG: 22.4GΩ NO DAMAGE
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40A / 2min Ta:25°C	23 mΩ

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	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 A	I/P : 230 VAC (50HZ) O/P : FULL LOAD Ta : 25°C	PASS Test by certified Lab
4	E.S.D	EN61000-4-2 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 INDUSTRY INPUT : 2KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A
6	SURGE	IEC61000-6-2 INDUSTRY 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 : UHP-2500-48 (AMBIENT TEMPERATURE WITH FORCED AIR COOLING) 1. ROOM AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta=25 °C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta= 50 °C																																																																		
				<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta= 25 °C</th> <th>HIGH AMBIENT Ta= 50 °C</th> </tr> </thead> <tbody> <tr><td>1</td><td>BD1</td><td>68.4°C</td><td>92.1°C</td></tr> <tr><td>2</td><td>BD2</td><td>61.4°C</td><td>84.7°C</td></tr> <tr><td>3</td><td>ZNR3</td><td>55.1°C</td><td>78.6°C</td></tr> <tr><td>4</td><td>C14</td><td>57.7°C</td><td>80.9°C</td></tr> <tr><td>5</td><td>L1</td><td>60.6°C</td><td>85.8°C</td></tr> <tr><td>6</td><td>L3</td><td>59.9°C</td><td>85.4°C</td></tr> <tr><td>7</td><td>D10</td><td>66.8°C</td><td>91.9°C</td></tr> <tr><td>8</td><td>Q52</td><td>69.0°C</td><td>93.4°C</td></tr> <tr><td>9</td><td>Q66</td><td>73.0°C</td><td>98.5°C</td></tr> <tr><td>10</td><td>Q901</td><td>68.1°C</td><td>94.9°C</td></tr> <tr><td>11</td><td>Q902</td><td>66.0°C</td><td>92.7°C</td></tr> <tr><td>12</td><td>T1 WIRE</td><td>67.0°C</td><td>93.9°C</td></tr> <tr><td>13</td><td>T2 WIRE</td><td>66.0°C</td><td>92.8°C</td></tr> <tr><td>14</td><td>C10</td><td>59.5°C</td><td>81.7°C</td></tr> <tr><td>15</td><td>T51</td><td>61.8°C</td><td>83.8°C</td></tr> </tbody> </table>	NO	Position	ROOM AMBIENT Ta= 25 °C	HIGH AMBIENT Ta= 50 °C	1	BD1	68.4°C	92.1°C	2	BD2	61.4°C	84.7°C	3	ZNR3	55.1°C	78.6°C	4	C14	57.7°C	80.9°C	5	L1	60.6°C	85.8°C	6	L3	59.9°C	85.4°C	7	D10	66.8°C	91.9°C	8	Q52	69.0°C	93.4°C	9	Q66	73.0°C	98.5°C	10	Q901	68.1°C	94.9°C	11	Q902	66.0°C	92.7°C	12	T1 WIRE	67.0°C	93.9°C	13	T2 WIRE	66.0°C	92.8°C	14	C10	59.5°C	81.7°C	15	T51	61.8°C	83.8°C
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		16	C968	58.9°C	85.1°C
		17	C962	55.7°C	81.5°C
		18	D14	83.6°C	108.8°C
		19	Q907	59.8°C	86.5°C
		20	Q912	54.1°C	80.6°C
		21	D980	50.2°C	77.5°C
		22	Q105	54.1°C	80.1°C
		23	Q113	57.0°C	82.8°C
		24	U151	51.5°C	78.4°C
		25	U401	65.4°C	87.8°C
		26	T601	64.8°C	91.8°C
		27	RG61	55.2°C	80.9°C
		28	C652	57.7°C	83.3°C
		29	U701	43.6°C	69.2°C
		30	C116	44.1°C	70.6°C
		31	C117	33.8°C	59.9°C
		32	RY1	53.6°C	74.9°C
		33	RTH4	59.1°C	85.1°C
		34	RTH5	58.4°C	84.4°C
		35	RT21	71.7°C	96.2°C
		36	LF1	56.4°C	80.6°C
		37	LF3	60.7°C	84.2°C
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)		I/P : 230 VAC O/P : 109 % LOAD Ta : 25°C	TEST : OK
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR		I/P : 264VAC/180VAC O/P : 100 % LOAD Ta= -35°C /-30°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 : 272 VAC O/P : FULL LOAD Ta= 50°C HUMIDITY= 95 %R.H	TEST : OK
5	TEMPERATURE COEFFICIENT	± 0.03 %/°C (0-50°C)		I/P : 230 VAC O/P : FULL LOAD	± 0.004 %/°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 : 10 CYCLE 5. Input/Output condition : STATIC	
7	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	



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°C
9	CAPACITOR LIFE CYCLE	SUPPOSE C116 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) 856307HRS (2) 136427HRS (3) 245721HRS (4) 348568HRS
10	MTBF	Conducted by Parts Stress Analysis Prediction 493.9K hrs min. Telcordia SR-332 (Bellcore) ; 48.9K 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	DANIEL GAO	SANFORD SU	VINCENT TSENG

2018.4.30 GP-A50-F010