



Test Report: UHP-1500-115

1500W Conduction Cooling with High Voltage Output

■ 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

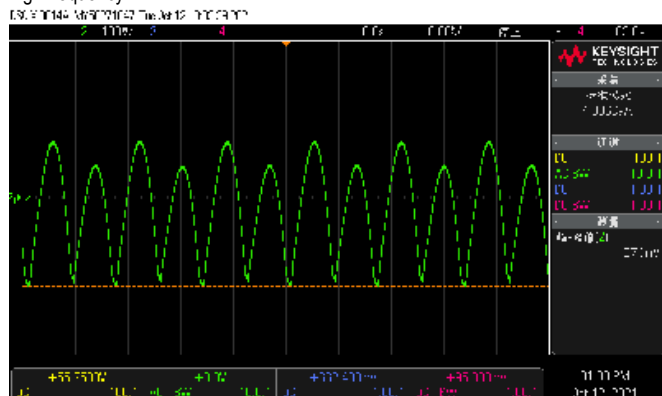
ENVIRONMENT TEST

DESIGN VERIFY TEST

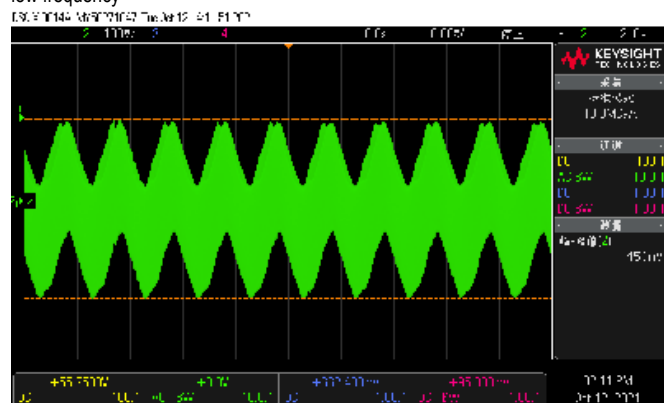
OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT VOLTAGE ADJUST RANGE	CH1: 90V~ 138V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	87.1V~140V/230VAC 87.1V~140V /115VAC
2	OUTPUT VOLTAGE(Max) TOLERANCE	V1: 1%~ -1 %	I/P: 90VAC /264VAC O/P:FULL/ MIN. LOAD Ta:25°C	V1:0.062%~0.12%
3	LINE REGULATION (Max)	V1: 0.5%~-0.5 %	I/P: 90VAC ~ 264VAC O/P:FULL LOAD Ta:25°C	V1: -0.048%~0%
4	LOAD REGULATION(Max)	V1: 0.5%~ -0.5%	I/P: 230VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: 0.057%~0.115%
5	OVER/UNDERSHOOT TEST	< ±5%	I/P: 230VAC O/P:FULL LOAD Ta:25°C	1.7%
6	RIPPLE & NOISE(Max)	V1: 1150mVp-p	I/P: 230 VAC O/P:(1) FULL LOAD Ta:25°C	(1) 450 mVp-p (Max)

high frequency :



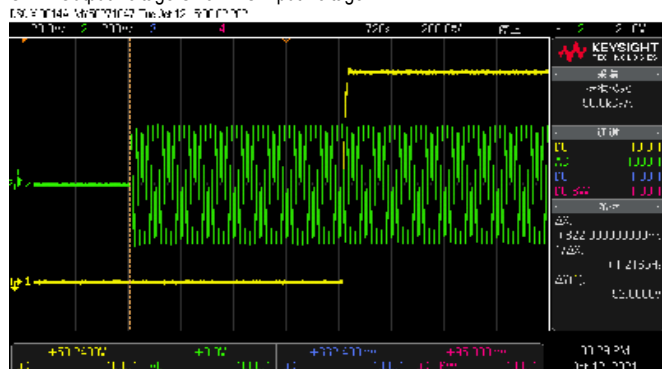
low frequency :

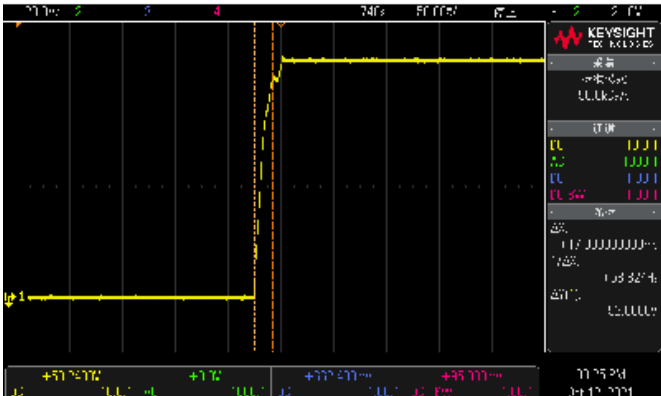
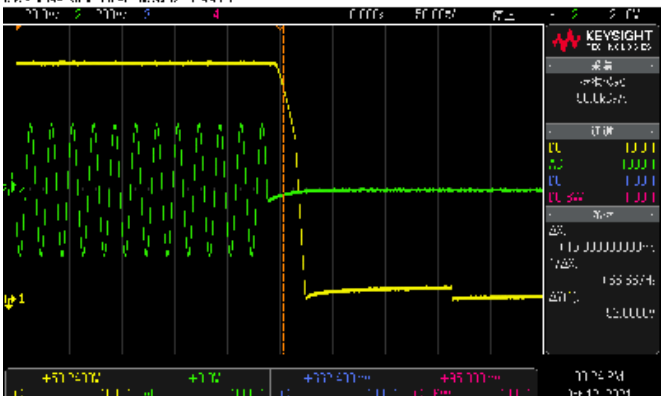
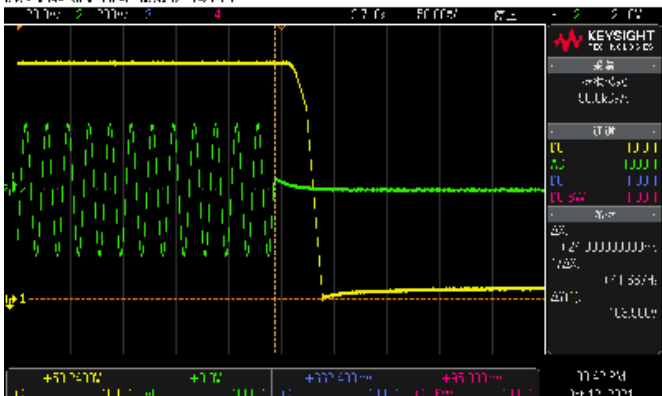
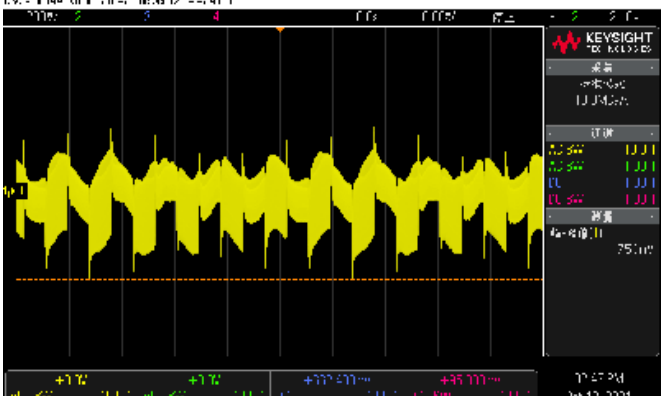
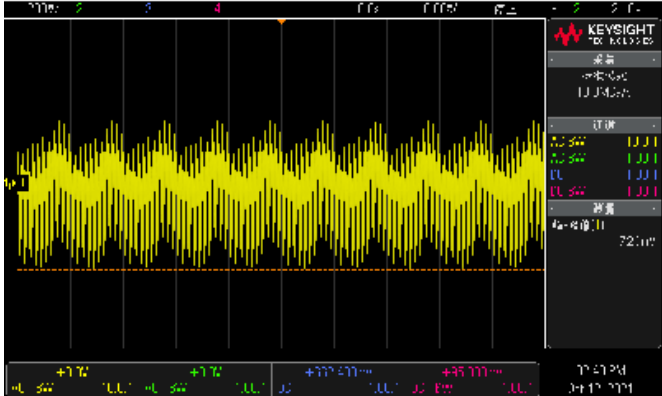


7	SET UP TIME(Max)	230VAC/1800ms	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	230VAC/822ms
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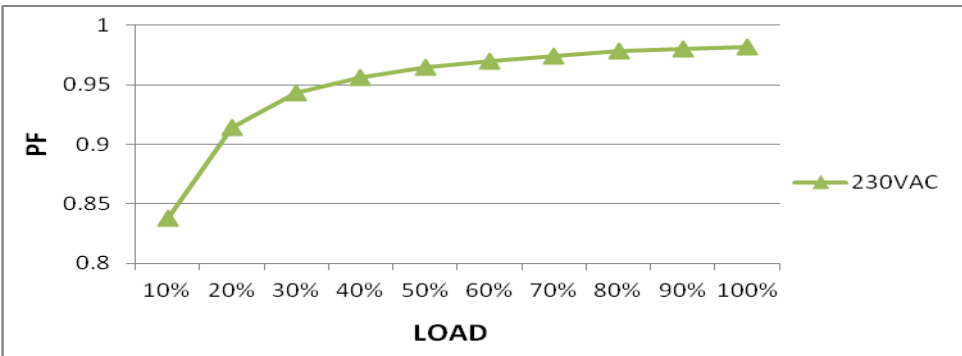
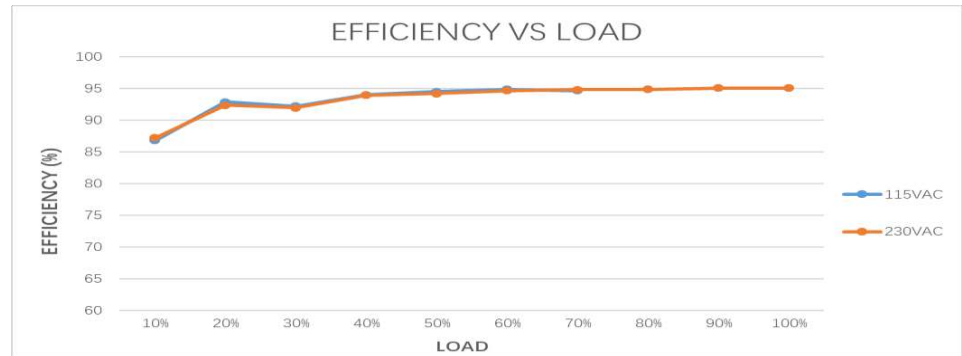
INPUT=230VAC/50HZ @ FULL LOAD

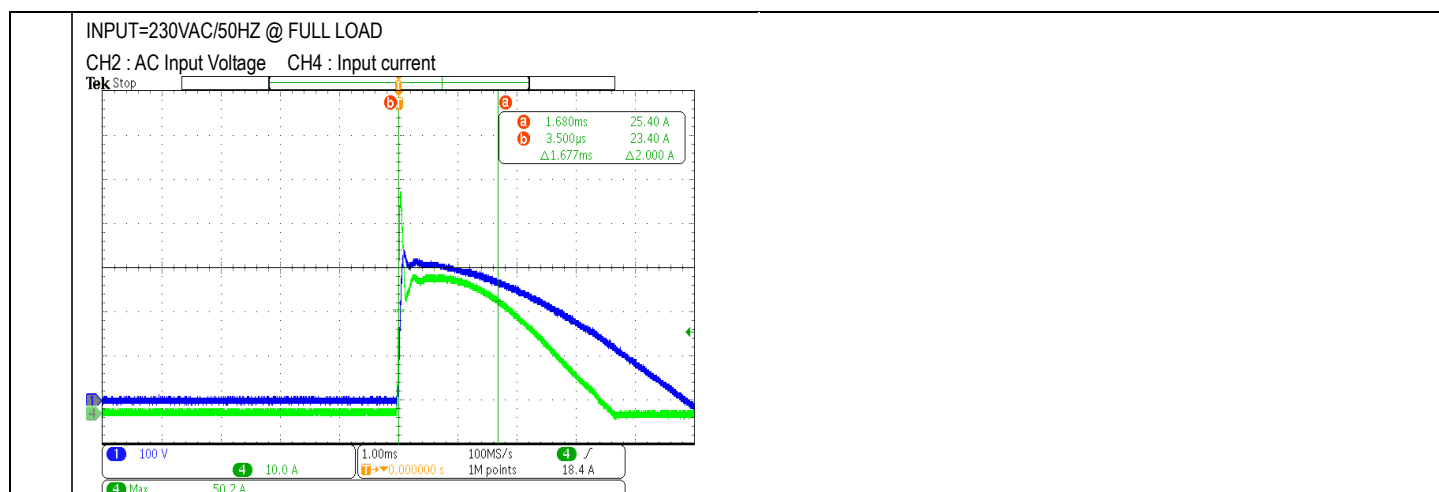
CH1 : Output Voltage CH32: AC Input Voltage



8	RISE TIME (Max)	230VAC/60ms	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	230VAC/17ms
INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage 				
9	HOLD UP TIME (Typ.)	230VAC/10ms at full load 230VAC/16ms at 75% load	I/P : 230 VAC O/P : FULL LOAD/75% LOAD Ta : 25°C	230VAC/15ms /full load 230VAC/24ms/75% load
INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage 				
INPUT=230VAC/60HZ @ 75% LOAD CH1 : Output Voltage CH2 : AC Input Voltage 				
10	DYNAMIC LOAD	V1: 11500 mVp-p	I/P: 230VAC O/P: (1)FULL /50% LOAD 50%DUTY / 120HZ (2)FULL /50% LOAD 50%DUTY / 1KHZ Ta:25°C	750mVp-p 720mVp-p
FULL /50% LOAD 50%DUTY / 120HZ 				
FULL /50% LOAD 50%DUTY / 1KHZ 				

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT																																	
1	INPUT VOLTAGE RANGE	90VAC~264VAC	I/P:TESTING O/P:FULL LOAD Ta:25℃	180V~264V full load 90V 60% load																																	
			I/P: LOW-LINE-3V=87 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℃	TEST: OK																																	
3	INPUT CURRENT (Typ.)	230V/ 8 A	I/P : 230 VAC O/P : FULL LOAD Ta : 25℃	I=6.9913A/ 230VAC																																	
4	LEAKAGE CURRENT	< 0.75mA / 240 VAC	I/P : 240 VAC O/P : Min LOAD Ta : 25℃	L-FG : 0.572 mA N-FG : 0.566 mA																																	
5	POWER FACTOR (Typ.)	0.95/ 230VAC	I/P : 230 VAC O/P : FULL LOAD Ta : 25℃	PF=0.982/230VAC																																	
P.F vs LOAD																																					
 <table><caption>P.F vs LOAD Data (230VAC)</caption><thead><tr><th>LOAD (%)</th><th>P.F</th></tr></thead><tbody><tr><td>10</td><td>0.84</td></tr><tr><td>20</td><td>0.92</td></tr><tr><td>30</td><td>0.95</td></tr><tr><td>40</td><td>0.96</td></tr><tr><td>50</td><td>0.97</td></tr><tr><td>60</td><td>0.975</td></tr><tr><td>70</td><td>0.98</td></tr><tr><td>80</td><td>0.98</td></tr><tr><td>90</td><td>0.98</td></tr><tr><td>100</td><td>0.98</td></tr></tbody></table>					LOAD (%)	P.F	10	0.84	20	0.92	30	0.95	40	0.96	50	0.97	60	0.975	70	0.98	80	0.98	90	0.98	100	0.98											
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6	EFFICIENCY(Typ.)	95%	I/P:230 VAC O/P :FULL LOAD Ta:25℃	95.2 %																																	
EFFICIENCY vs LOAD																																					
 <table><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>88</td><td>88</td></tr><tr><td>20</td><td>93</td><td>93</td></tr><tr><td>30</td><td>92</td><td>92</td></tr><tr><td>40</td><td>94</td><td>94</td></tr><tr><td>50</td><td>94.5</td><td>94.5</td></tr><tr><td>60</td><td>95</td><td>95</td></tr><tr><td>70</td><td>95</td><td>95</td></tr><tr><td>80</td><td>95</td><td>95</td></tr><tr><td>90</td><td>95</td><td>95</td></tr><tr><td>100</td><td>95</td><td>95</td></tr></tbody></table>					LOAD (%)	115VAC Efficiency (%)	230VAC Efficiency (%)	10	88	88	20	93	93	30	92	92	40	94	94	50	94.5	94.5	60	95	95	70	95	95	80	95	95	90	95	95	100	95	95
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7	INRUSH CURRENT(Typ.)	230VAC/60A COLD START	I/P : 230 VAC O/P : FULL LOAD Ta : 25℃	I=50.2A/ 230VAC T50= 1677us/230V																																	

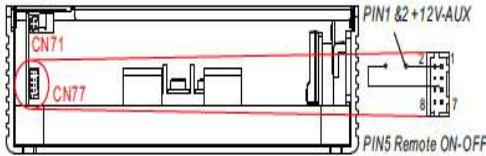


PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER LOAD PROTECTION	105%~ 125 %	I/P: 264VAC I/P: 230VAC I/P: 180VAC O/P: TESTING Ta:25℃	PROTECTION TYPE : Constant current limiting, unit will shutdown after 5 sec, re-power on to recover. 264VAC :109.8% 230VAC :109.96% 180VAC :109.96%
2	OVER VOLTAGE PROTECTION	145V~175V	I/P: 264VAC I/P: 230VAC I/P: 90VAC O/P: MIN LOAD Ta:25℃	PROTECTION TYPE : Shut down O/P voltage, re-power on to recover 264VAC :154V 230VAC :154V 90VAC : 154V
3	OVER TEMPERATURE PROTECTION	NO DAMAGE	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	I/P: 264VAC I/P: 90VAC O/P: FULL LOAD Ta:25℃	NO DAMAGE OK PROTECTION TYPE : Constant current limiting, unit will shutdown after 5 sec, re-power on to recover.

CONTROL FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
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1	AUXILIARY POWER (AUX)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C Test Result : <table><tr><td>AUX</td><td>TOLERANCE</td><td>RIPPLE</td><td>TEST RESULT</td></tr><tr><td>12V / 0.4A</td><td>10.8~13.2 V</td><td>150mVp-p</td><td>11.95V/84mVp-p</td></tr></table>	AUX	TOLERANCE	RIPPLE	TEST RESULT	12V / 0.4A	10.8~13.2 V	150mVp-p	11.95V/84mVp-p				
AUX	TOLERANCE	RIPPLE	TEST RESULT											
12V / 0.4A	10.8~13.2 V	150mVp-p	11.95V/84mVp-p											
2	REMOTE ON/OFF CONTROL	Remote ON-OFF Control The power supply can be turned ON/OFF individually or along with other units in parallel by using the "Remote ON-OFF" function.  <table><tr><td>Remote ON-OFF</td><td>Power Supply Status</td></tr><tr><td>Short circuit</td><td>ON</td></tr><tr><td>Open circuit</td><td>OFF</td></tr></table> I/P: 230 VAC O/P:FULL LOAD Ta:25°C Test Result : <table><tr><td>Between ON/OFF and +12V-AUX</td><td>Power Supply Status</td></tr><tr><td>SW SHORT(10.8 ~ 13.2V)</td><td>ON (12.03V)</td></tr><tr><td>SW OPEN(-0.5 ~ 0.5V)</td><td>OFF (0.136V)</td></tr></table>	Remote ON-OFF	Power Supply Status	Short circuit	ON	Open circuit	OFF	Between ON/OFF and +12V-AUX	Power Supply Status	SW SHORT(10.8 ~ 13.2V)	ON (12.03V)	SW OPEN(-0.5 ~ 0.5V)	OFF (0.136V)
Remote ON-OFF	Power Supply Status													
Short circuit	ON													
Open circuit	OFF													
Between ON/OFF and +12V-AUX	Power Supply Status													
SW SHORT(10.8 ~ 13.2V)	ON (12.03V)													
SW OPEN(-0.5 ~ 0.5V)	OFF (0.136V)													

3	OUTPUT VOLTAGE PROGRAMMABLE(PV)
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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 to 50%~120% by applying EXTERNAL VOLTAGE.

※ When PC/PV are used at the same time, PC is preferred

③The rated current should change with the Output Voltage Programming accordingly

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

PV	0V (0~0.3V)	1V (0.45~1V)	4.7V	5V
MODEL				
SPEC	115V±5%	57.5V±5%	138V±5%	140V±5%
Vout	115.36V	57.91V	13.7.7V	140.02V

4	OUTPUT CURRENT PROGRAMMABLE (PC)
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2.Constant Current Programming (or, PC / remote current programming / dynamic current trim)

※ The output current can be trimmed to 20~100% of the rated current by applying EXTERNAL VOLTAGE.

③Covered by over temperature protection auto de-rating function works under operation either in PC mode or under control by communication protocol.

T₁(Typ.): Maximum ambient temperature of full load.

T₂(Typ.): T₁+5°C.

I/P: 230 VAC
O/P:TESTING
Ta:25°C

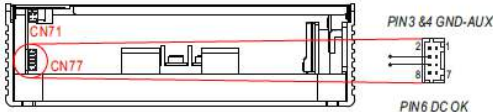
ADJ V	0V (0~0.3V)	1V (0.45~1V)	4.7V	5V
SPEC	110%±5%	20%±5%	100%±5%	100%±5%
TEST	109.43%	16.61%	100.77%	102.44%

5

DC OK CONTACT RATINGS

4.DC-OK Signal

DC-OK signal is a TTL level signal. The maximum sink current is 10mA and the maximum external voltage is 5.6V.



PIN3 & 4 GND-AUX

PIN6 DC OK

DC-OK signal	Power Supply Status
"High" >4.4~5.5V	ON
"Low" <-0.5~0.5V	OFF

CH1: CH3:

I/P: 230 VAC

O/P: TESTING

Ta:25°C

DC-OK signal	Power Supply Status
"High" >4.5~5.5V	ON(5.16V)
"Low" <-0.5~0.5V	OFF (0.01V)

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Transistor (D to S) or (C to E) Peak Voltage	Q903 Rated 22A/ 600V	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 100% Load/ Min. Load 50%Duty/120Hz (5) 0%→400% Load. (6) NO LOAD (7) 200% 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 100% Load/ Min. Load 50%Duty/120Hz (5) 0%→400% Load. (6) NO LOAD (7) 200% Load Ta: 25°C	VDS: (1) 450V (2) 446V (3) 458V (4) 462V (5) 466V (6) 442V (7) 466V VDS: (1) 458V (2) 446V (3) 454V (4) 466V (5) 466V (6) 442V (7) 458V

2	P.F.C Transistor (D to S) or (C to E) Peak Voltage	Q51 Rated 34A/ 600V	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. (8) NO LOAD (9) 200% Load 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/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) 200% Load Ta:25℃	VDS: (1)412V (2)410V (3)426V (4)410V (5)422V (6)426V (7)402V (8)406V (9)414V VDS: (1)430V (2)390V (3)430V (4)430V (5)430V (6)426V (7)426V (8)414V (9)422V
3	Diode Peak Voltage	D201 Rated 650V/10A D212 Rated 650V/10A	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 (10) 200% Load Ta:25℃	D201: (1)278V (2)39.4V (3)278V (4)282V (5)278V (6)282V (7)266V (8)266V (9)262V (10)181V D212: (1)306V (2)40.2V (3)302V (4)294V (5)298V (6)306V (7)282V (8)282V (9)294V (10)201V
4	Input Capacitor Voltage	C5 Rated: 220u/450V	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℃	(1)404V (2)396V (3)416V (4)404V

5	Control IC Voltage Test	PWM IC U800 Rated 8.85 V~ 16V PFC IC U401 Rated 10.6V~ 21 V MCU IC U701 Rated -0.3V~ 4V MCU IC U450 Rated 2.3V~ 6.5V	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) (6)NO/FULL LOAD (AC on) (7)NO LOAD(AC on) Ta:25°C	U800: (1) 13.1V (2) 13.1V (3) 13.1V (4) 13.1V (5) 13.1V (6) 13.1V (7) 12.9V U401: (1) 13.7V (2) 13.5V (3) 13.5V (4) 13.1V (5) 13.3V (6) 13.7V (7) 12.9V U701: (1) 3.41V (2) 3.49V (3) 3.45V (4) 3.37V (5) 3.37V (6) 3.41V (7) 3.33V U450: (1) 5.09V (2) 5.05V (3) 5.09V (4) 5.01V (5) 5.05V (6) 5.05V (7) 5.01V
6	TOP SWITCHING STAND BY POWER	U601 Rated 800V	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) 542 V (2) 542 V (1)542 V (2)542 V

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P: 6KVDC/min I/P-FG: 4KVDC/min O/P-FG: 4KVDC/min	I/P-O/P: 6.6 KVDC/min I/P-FG: 4.4 KVDC/min O/P-FG: 4.4KVDC/min Ta:25°C	I/P-O/P: 0.1uA I/P-FG: 1.0uA O/P-FG: 0.6uA 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: >9999 MΩ I/P-FG: >9999 MΩ O/P-FG: >9999MΩ NO DAMAGE
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40A / 2min Ta:25°C	4mΩ

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	IEC61000-4-5 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-1500-115 1. ROOM AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta=28.7℃ 2. HIGH AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta=45.8℃ <table><thead><tr><th>NO</th><th>Position</th><th>ROOM AMBIENT Ta=28.7℃</th><th>HIGH AMBIENT Ta=45.8℃</th></tr></thead><tbody><tr><td>1</td><td>BD2</td><td>84.6℃</td><td>97.8℃</td></tr><tr><td>2</td><td>L2</td><td>79.5℃</td><td>95.9℃</td></tr><tr><td>3</td><td>RY1</td><td>65.1℃</td><td>79.7℃</td></tr><tr><td>4</td><td>C8</td><td>71.7℃</td><td>87.3℃</td></tr><tr><td>5</td><td>C961</td><td>74.7℃</td><td>91.6℃</td></tr><tr><td>6</td><td>U601</td><td>78.9℃</td><td>94.4℃</td></tr><tr><td>7</td><td>T1</td><td>83.0℃</td><td>98.6℃</td></tr><tr><td>8</td><td>T2</td><td>85.1℃</td><td>101.8℃</td></tr><tr><td>9</td><td>Q52</td><td>71.9℃</td><td>87.6℃</td></tr><tr><td>10</td><td>Q66</td><td>75.8℃</td><td>92.0℃</td></tr><tr><td>11</td><td>D14</td><td>78.2℃</td><td>94.1℃</td></tr><tr><td>12</td><td>Q904</td><td>81.2℃</td><td>99.6℃</td></tr><tr><td>13</td><td>Q910</td><td>87.4℃</td><td>106.6℃</td></tr><tr><td>14</td><td>C53</td><td>72.2℃</td><td>87.7℃</td></tr><tr><td>15</td><td>D206</td><td>85.1℃</td><td>100.7℃</td></tr><tr><td>16</td><td>D212</td><td>81.6℃</td><td>97.8℃</td></tr><tr><td>17</td><td>C117</td><td>64.0℃</td><td>78.4℃</td></tr><tr><td>18</td><td>C123</td><td>66.4℃</td><td>81.4℃</td></tr><tr><td>19</td><td>C652</td><td>75.2℃</td><td>91.6℃</td></tr><tr><td>20</td><td>T601</td><td>80.1℃</td><td>96.2℃</td></tr><tr><td>21</td><td>R601</td><td>86.8℃</td><td>102.4℃</td></tr><tr><td>22</td><td>RG50</td><td>72.3℃</td><td>88.5℃</td></tr><tr><td>23</td><td>L708</td><td>77.8℃</td><td>97.5℃</td></tr><tr><td>24</td><td>RTH4</td><td>70.9℃</td><td>86.8℃</td></tr><tr><td>25</td><td>TC</td><td>58.3℃</td><td>73.5℃</td></tr></tbody></table>			NO	Position	ROOM AMBIENT Ta=28.7℃	HIGH AMBIENT Ta=45.8℃	1	BD2	84.6℃	97.8℃	2	L2	79.5℃	95.9℃	3	RY1	65.1℃	79.7℃	4	C8	71.7℃	87.3℃	5	C961	74.7℃	91.6℃	6	U601	78.9℃	94.4℃	7	T1	83.0℃	98.6℃	8	T2	85.1℃	101.8℃	9	Q52	71.9℃	87.6℃	10	Q66	75.8℃	92.0℃	11	D14	78.2℃	94.1℃	12	Q904	81.2℃	99.6℃	13	Q910	87.4℃	106.6℃	14	C53	72.2℃	87.7℃	15	D206	85.1℃	100.7℃	16	D212	81.6℃	97.8℃	17	C117	64.0℃	78.4℃	18	C123	66.4℃	81.4℃	19	C652	75.2℃	91.6℃	20	T601	80.1℃	96.2℃	21	R601	86.8℃	102.4℃	22	RG50	72.3℃	88.5℃	23	L708	77.8℃	97.5℃	24	RTH4	70.9℃	86.8℃	25	TC	58.3℃	73.5℃
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2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P : 230 VAC O/P : 107.6% LOAD Ta : 25℃	TEST : OK																																																																																																								
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 264VAC/90 VAC O/P : FULL LOAD/60% LOAD Ta= - 35 °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 : 272C VAC O/P : FULL LOAD Ta= 45 °C HUMIDITY= 95 %R.H	TEST : OK																																																																																																								
5	TEMPERATURE COEFFICIENT	± 0.03 %/(0℃~50℃)	I/P : 230 VAC O/P : FULL LOAD	± 0.01 %/℃(0~50℃)																																																																																																								

6	STORAGE TEMPERATURE TEST	-30~85°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	-30~45°C	1. Thermal shock Temperature : -35°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 C123 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) 271411 HRS (2) 78484 HRS (3) 146150 HRS (4) 223379 HRS
10	MTBF	Conducted by Parts Stress Analysis Prediction 181.47 K hrs min. Telcordia SR-332 (Bellcore) 56.72 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