



Test Report: LAD-120A

120W Economical Security/Fire Alarm PSU with Battery Charger/UPS

■ 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

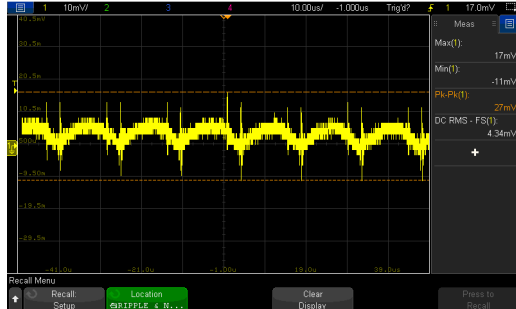
ENVIRONMENT TEST

DESIGN VERIFY TEST

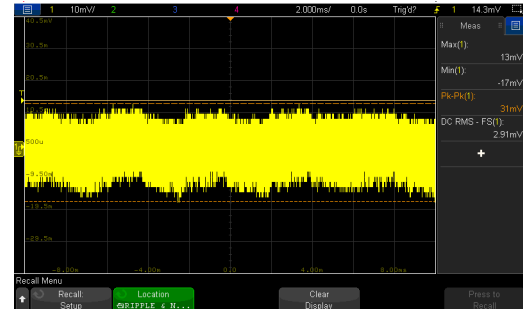
OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT VOLTAGE ADJUST RANGE	CH1: 10.8V~ 14.5V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	10.335V~15.041V/230VAC 10.354V~15.039V/115VAC
2	OUTPUT VOLTAGE(Max) TOLERANCE	V1: -1.0 %~ +1.0%	I/P: 90VAC /264VAC O/P:FULL/ MIN. LOAD Ta:25°C	V1: -0.14%~ 0.13 %
3	LINE REGULATION (Max)	V1: -0.5 %~ +0.5 %	I/P: 90VAC~ 264VAC O/P:FULL LOAD Ta:25°C	V1: -0.022%~0.015%
4	LOAD REGULATION(Max)	V1: -0.5 %~ +0.5 %	I/P: 230VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: -0.14%~ 0.13%
5	OVER/UNDERSHOOT TEST	< ±5%	I/P: 230VAC O/P:FULL LOAD Ta:25°C	1%
6	RIPPLE & NOISE(Max)	V1: 120mVp-p	I/P:230VAC O/P: TESTING LOAD Ta:25°C	V1: 31mVp-p

high frequency :

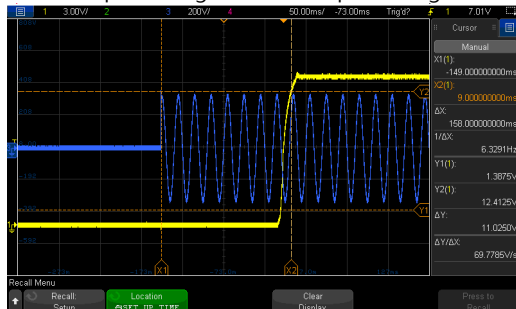


low frequency :

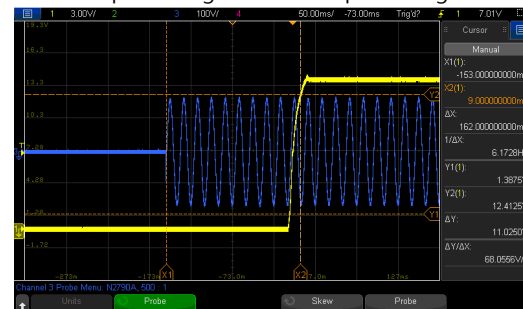


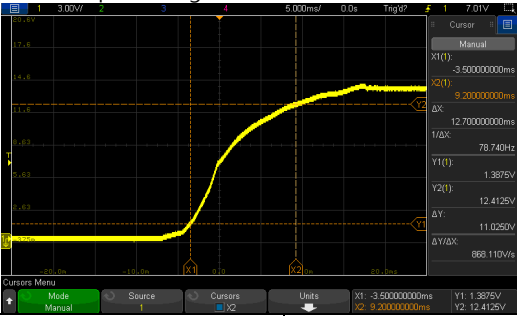
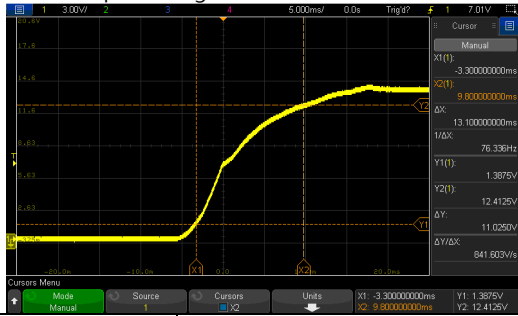
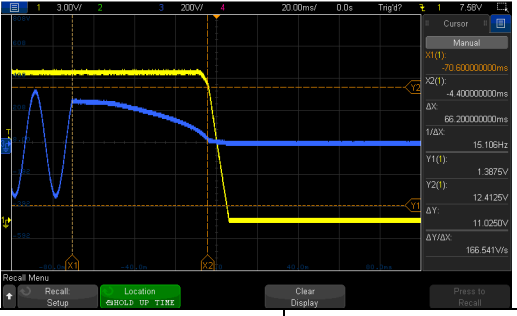
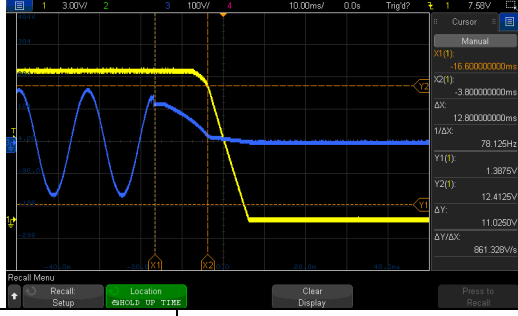
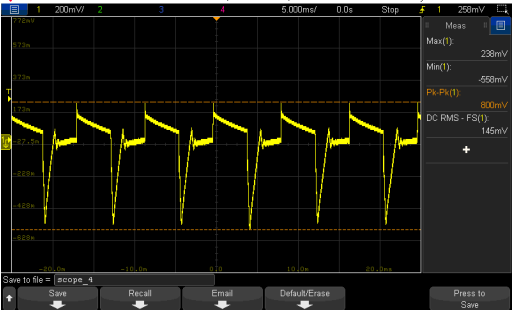
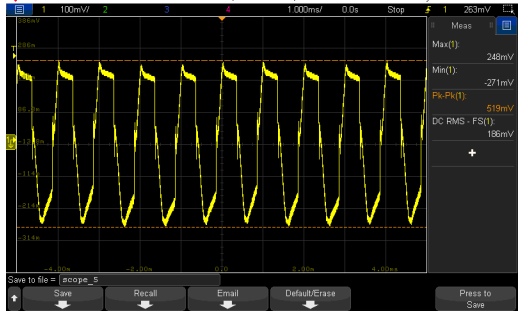
7	SET UP TIME(Max)	230VAC/500ms 115VAC/500ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/158 ms 115VAC/ 162 ms
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INPUT=230VAC/50HZ @ FULL LOAD
CH1 : Output Voltage CH3 : AC Input Voltage



INPUT=115VAC/60HZ @ FULL LOAD
CH1 : Output Voltage CH3 : AC Input Voltage

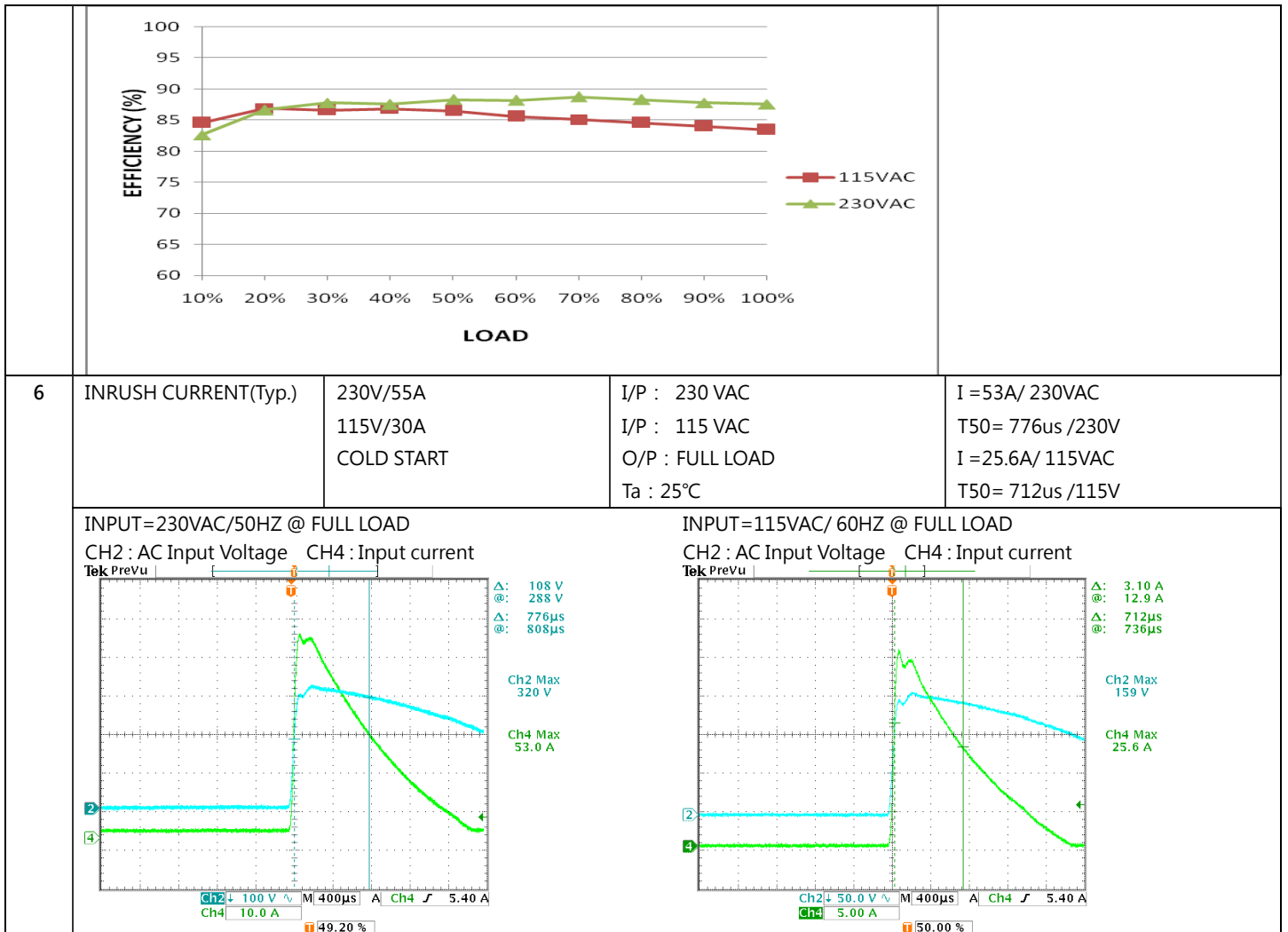


8	RISE TIME (Max)	230VAC/40ms 115VAC/40ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 12.7 ms 115VAC/ 13.1 ms
<p>INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage</p> 		<p>INPUT=115VAC/60HZ @ FULL LOAD CH1 : Output Voltage</p> 		
9	HOLD UP TIME (Typ.)	230VAC/40ms 115VAC/9ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 66.2 ms 115VAC/ 12.8 ms
<p>INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage CH3 : AC Input Voltage</p> 		<p>INPUT=115VAC/60HZ @ FULL LOAD CH1 : Output Voltage CH3 : AC Input Voltage</p> 		
10	DYNAMIC LOAD	V1: 1380mVp-p	I/P: 230VAC O/P: (1)FULL / MIN LOAD 50%DUTY / 120HZ (2)FULL / MIN LOAD 50%DUTY / 1KHZ Ta : 25°C	800 mVp-p 519 mVp-p
<p>FULL /50% LOAD 50%DUTY / 120HZ</p> 		<p>FULL /50% LOAD 50%DUTY / 1KHZ</p> 		

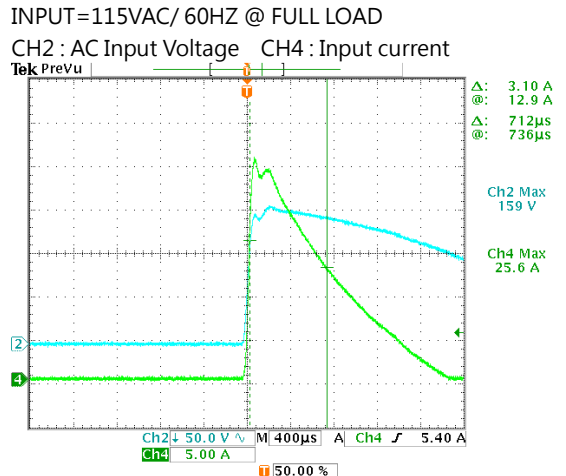
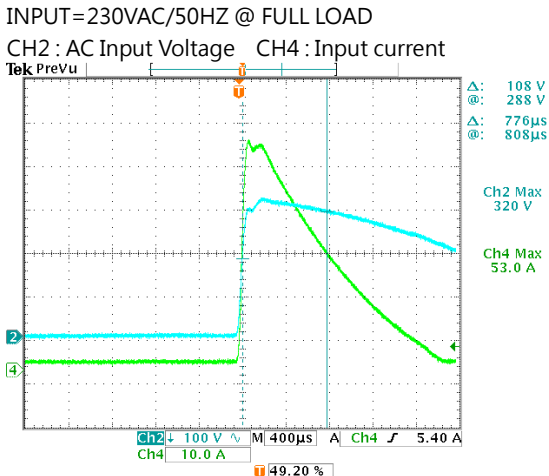
11	TRANSIENT RECOVERY TIME	V1: 1380mVp-p	I/P: 230VAC O/P:40% LOAD CHANGE 50%DUTY/120HZ 1.25A/us	270mVp-p
12	BAT RATED CURRENT	1±0.1A	I/P: 230VAC O/P:CV=12V Ta:25°C	1.036A
13	Battery static discharge current	After battery low protection <100uA	I/P : 230 VAC O/P : TESTING Ta : 25°C	25 uA

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	90 ~ 264VAC 127 ~ 370VDC	(1) I/P:TESTING O/P: TEST LOAD (2) I/P:DC TESTING(L:+ N:-) O/P: TEST LOAD (3) I/P:DC TESTING(L:- N:+) O/P: TEST LOAD Ta:25°C	(1) 76.50V~264V/ FULL LOAD 74.02V~264V/ 80% LOAD (2) 123.04Vdc~370Vdc/FULL LOAD 111.04Vdc~370Vdc/80% LOAD (3) 122.84Vdc~370Vdc/FULL LOAD 110.25Vdc~370Vdc/80% LOAD
			I/P: LOW-LINE-3V=87 V HIGH-LINE+15%=300V 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 ~ 264VAC O/P:FULL~MIN LOAD Ta:25°C	TEST: OK
3	INPUT CURRENT (Typ.)	230V/ 1.5 A 115V/ 2.5 A	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I =1.167A/ 230VAC I =2.018A/ 115VAC
4	LEAKAGE CURRENT	< 0.5mA / 240 VAC	I/P : 240 VAC O/P : Min LOAD Ta : 25°C	0.392 mA(PEAK) 0.200 mA (RMS)
5	EFFICIENCY(Typ.)	86%	I/P:230 VAC O/P:FULL LOAD Ta:25°C	87.9%
	EFFICIENCY vs LOAD			



6	INRUSH CURRENT(Typ.)	230V/55A 115V/30A COLD START	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I =53A/ 230VAC T50= 776us /230V I =25.6A/ 115VAC T50= 712us /115V
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PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER LOAD PROTECTION	CH1 : 105%~135% CH2 : 90 ~ 110% Protection type : CH1 OLP, CH2 with battery: The unit will enter to UPS mode when CH1 is around 105%~160%, when total output of CH1 + CH2 reach around 125%~135% output hiccup (120D shuts down) CH1 OLP, CH2 without battery: Hiccup mode o/p voltage, recovers automatically after fault condition is removed (120D shuts down, re-power on to removed)	I/P: 264VAC I/P: 230VAC I/P: 115VAC O/P: TESTING Ta:25°C	126%/ 264VAC 125.6%/ 230VAC 120.4%/115VAC Protection type : CH1 OLP, CH2 with battery: The unit will enter to UPS mode when CH1 is around 105%~160%, when total output of CH1 + CH2 reach around 125%~135% output hiccup (120D shuts down) CH1 OLP, CH2 without battery: Hiccup mode o/p voltage, recovers automatically after fault condition is removed (120D shuts down, re-power on to removed)

		CH2 : Constant current limiting; fault condition does not affect CH1 working, recovers automatically after fault condition is removed (External fuse is mandatory in series connection with battery for protection)		CH2 : Constant current limiting; fault condition does not affect CH1 working, recovers automatically after fault condition is removed (External fuse is mandatory in series connection with battery for protection)
2	OVER VOLTAGE PROTECTION	CH1: 15.5V~18V Protection type : Shut down o/p voltage, re-power on to removed	I/P: 264VAC I/P: 90VAC O/P:MIN LOAD Ta:25°C	16.7V/ 264VAC 16.7V/ 90VAC Protection type : Shut down o/p voltage, re-power on to removed
3	OVER TEMPERATURE PROTECTION	Protection type : Shut down o/p voltage, re-power on to removed	I/P: 264VAC I/P: 90VAC O/P:FULL LOAD	O.T.P. Active OK Protection type : Shut down o/p voltage, re-power on to removed
4	BATTERY CUTOFF	9.5± 0.5V	I/P: 230 VAC O/P:BAT. LOAD Ta:25°C	9.72 V
5	BATTERY REVERSE POLARITY	Protection type : Protected when reverse polarity , no damage, recovers automatically after fault condition is removed	I/P: 230 VAC O/P:BAT. LOAD Ta:25°C	TEST : <u>OK</u>

CONTROL FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	AC OK	TTL signal, High / Open : AC Fail ; Low : AC OK ; Ice : max. 30mA@ 50VDC	I/P: 230 VAC O/P:BAT. LOAD Ta:25°C	Test: <u>OK</u>
2	BATTERY DISCONNECT/ REVERSE POLARITY	TTL signal, High / Open : Battery connect/normal ; Low: Battery disconnect/reverse polarity; Ice : max. 30mA@ 50VDC	I/P: 230 VAC O/P:BAT. LOAD Ta:25°C	Test: <u>OK</u>
3	BATTERY LOW	TTL signal, High / Open : Battery normal ; Low : Battery low; Ice : max. 30mA@ 50VDC	I/P: 230 VAC O/P:BAT. LOAD Ta:25°C	Test: <u>OK</u>
4	BATTERY FULL	TTL signal, High / Open : Battery charging ; Low : Battery full ; Ice : max. 30mA@ 50VDC	I/P: 230 VAC O/P:BAT. LOAD Ta:25°C	Test: <u>OK</u>

5	DISCHARGE	TTL signal, High / Open : Charge ; Low : Discharge ; Ice : max. 30mA@ 50VDC	I/P: 230 VAC O/P:BAT. LOAD Ta:25°C	Test: <u>OK</u>
6	FORCE START	CN2 : PIN7&PIN8 SHORT	I/P: 230 VAC O/P:BAT. LOAD Ta:25°C	TEST: <u>OK</u>

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Transistor (D to S) or (C to E) Peak Voltage	Q 1 Rated : 10.6A/ 650V	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	Q1 VDS: (1) 530V (2) 525V (3) 536V (4) 533V (5) 533V (6) 541V (7) 485V
2	Diode Peak Voltage	Q100 Rated : 100A/120 V	AC ON/OFF I/P:High-Line +3V =267V <u>Vo=Vmax</u> 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 <u>Vo=Vnormal</u> O/P: (1) Full Load Ta:25°C	Q100: <u>Vo=Vmax</u> VDS: (1) 100.2V (2) 97.8V (3) 100.2V (4) 98.6V (5) 99.4V (6) 98.6V (7) 92.2 (8) 84.1V <u>Vo=Vnormal</u> (1) 99.4V

3	BAT BUCK Transistor (D to S) or (C to E) Peak Voltage	Q 304 Rated :12 A /60 V	AC ON/OFF I/P: High-Line +3V = 267 V VDS : O/P: (1) CV (max)-1 (2) CV(min)=10.5V (3) no load (4) OUTPUT SHORT Ta:25°C	Q304 VDS : (1) 17V (2) 17.4V (3) 16.6V (4) 18.6V
4	BAT BUCK Diode Peak Voltage	D320 Rated :5A/150 V	AC ON/OFF I/P: High-Line +3V = 267 V VDS : O/P: (1) CV (max)-1 (2) CV(min)= 10.5V (3) no load (4) OUTPUT SHORT Ta:25°C	D320 VDS : (1) 21.1V (2) 19.9V (3) 19.1V (4) 20.1V
5	Input Capacitor Voltage	C5 Rated: : 100μ / 400V	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	C5 (1) 376V (2) 381V (3) 376V (4) 376V
6	Control IC Voltage Test	PWM IC U1 Rated 9.4V~ 35 V O/P IC U100 Rated 8V~ 24 V BAT BUCK IC U304 Rated 8.4V~ 30V	AC ON/OFF U1/U100 I/P: High-Line +3V =267V O/P:(1) FULL LOAD (2) Output Short (3) O.L.P (4) O.V.P. (5) NO LOAD VRmin (LOW LINE) U304 I/P: High-Line +3V = 267 V VDS : O/P: (1) CV (max)-1 (2) CV(min)= 10.5V (3) no load (4) OUTPUT SHORT Ta:25°C	U1 (1) 12.66V (2) 12.74V (3) 12.74V (4) 12.66V (5) 12.50V U100 (1) 17.2V (2) 17.4V (3) 16.8V (4) 15.6V (5) 9.7V U304 (1) 12.3V (2) 12.3V (3) 12.3V (4) 12.4V

■ 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: 2.82 mA I/P-FG: 2.37 mA O/P-FG: 2.57 mA 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: 600 VDC I/P-FG: 600 VDC O/P-FG: 600 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	7mΩ

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:85% LOAD Ta:25°C	<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL
2	CONDUCTION	BS EN/EN55032 (CISPR32), EAC TP TC 020 CLASS A	I/P : 230 VAC (50HZ) O/P : FULL/50% LOAD Ta : 25°C	PASS Test by certified Lab
3	RADIATION	BS EN/EN55032 (CISPR32), EAC TP TC 020 CLASS A	I/P : 230 VAC (50HZ) O/P : FULL LOAD Ta : 25°C	PASS Test by certified Lab
4	E.S.D	BS EN/EN61000-4-2 ■ <u>INDUSTRY</u> AIR : 8KV / Contact : 6KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	<input checked="" type="checkbox"/> CRITERIA A <input type="checkbox"/> CRITERIA B
5	E.F.T	BS EN/EN61000-4-4 ■ <u>INDUSTRY</u> INPUT : 2KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	<input checked="" type="checkbox"/> CRITERIA A <input type="checkbox"/> CRITERIA B
6	SURGE	BS EN/EN61000-4-5 ■ <u>LIGHT INDUSTRY</u> L-N : 1KV L,N-PE : 2KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	<input checked="" type="checkbox"/> CRITERIA A <input type="checkbox"/> CRITERIA B
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 : LAD-240A 1. ROOM AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta= 23.7 °C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta=50.7 °C																																																																																																																																										
				<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta=23.7°C</th> <th>HIGH AMBIENT Ta=50.7°C</th> </tr> </thead> <tbody> <tr><td>1</td><td>ZNR1</td><td>39.2°C</td><td>66.5°C</td></tr> <tr><td>2</td><td>LF1</td><td>46.8°C</td><td>74.9°C</td></tr> <tr><td>3</td><td>BD1</td><td>65.2°C</td><td>89.5°C</td></tr> <tr><td>4</td><td>RTH2</td><td>77.6°C</td><td>93.7°C</td></tr> <tr><td>5</td><td>C6</td><td>55°C</td><td>80°C</td></tr> <tr><td>6</td><td>D6</td><td>59.5°C</td><td>86.7°C</td></tr> <tr><td>7</td><td>Q1</td><td>77.9°C</td><td>110.8°C</td></tr> <tr><td>8</td><td>R22</td><td>68.8°C</td><td>93.9°C</td></tr> <tr><td>9</td><td>C37</td><td>56.4</td><td>83.4°C</td></tr> <tr><td>10</td><td>RTH10</td><td>66.5°C</td><td>90.6°C</td></tr> <tr><td>11</td><td>R15</td><td>58.8°C</td><td>85.3°C</td></tr> <tr><td>12</td><td>D30</td><td>57.6°C</td><td>84.6°C</td></tr> <tr><td>13</td><td>U1</td><td>63.1°C</td><td>88.6°C</td></tr> <tr><td>14</td><td>Q100</td><td>56.9°C</td><td>84.7°C</td></tr> <tr><td>15</td><td>R100</td><td>73.4°C</td><td>99.5°C</td></tr> <tr><td>16</td><td>U100</td><td>70.3°C</td><td>96.9°C</td></tr> <tr><td>17</td><td>C105</td><td>70.5°C</td><td>95.3°C</td></tr> <tr><td>18</td><td>C106</td><td>66.5°C</td><td>91.8°C</td></tr> <tr><td>19</td><td>T1p</td><td>69.9°C</td><td>94°C</td></tr> <tr><td>20</td><td>T1s</td><td>71.8°C</td><td>95.9°C</td></tr> <tr><td>21</td><td>T1core</td><td>75.6°C</td><td>100.1°C</td></tr> <tr><td>22</td><td>C346</td><td>49.3°C</td><td>75.7°C</td></tr> <tr><td>23</td><td>C112</td><td>49.2°C</td><td>75.6°C</td></tr> <tr><td>24</td><td>L100</td><td>52.6°C</td><td>79.6°C</td></tr> <tr><td>25</td><td>L301</td><td>50.2°C</td><td>77°C</td></tr> <tr><td>26</td><td>D200</td><td>63.5°C</td><td>89.2°C</td></tr> <tr><td>27</td><td>C115</td><td>61°C</td><td>86.6°C</td></tr> <tr><td>28</td><td>J107</td><td>47.7°C</td><td>74°C</td></tr> <tr><td>29</td><td>RY101</td><td>46.9°C</td><td>73.1°C</td></tr> <tr><td>30</td><td>Q305</td><td>48.2°C</td><td>75.2°C</td></tr> <tr><td>31</td><td>Q304</td><td>53.9°C</td><td>79.9°C</td></tr> <tr><td>32</td><td>D320</td><td>51.2°C</td><td>77.7°C</td></tr> <tr><td>33</td><td>U304</td><td>71.3°C</td><td>94.8°C</td></tr> </tbody> </table>	NO	Position	ROOM AMBIENT Ta=23.7°C	HIGH AMBIENT Ta=50.7°C	1	ZNR1	39.2°C	66.5°C	2	LF1	46.8°C	74.9°C	3	BD1	65.2°C	89.5°C	4	RTH2	77.6°C	93.7°C	5	C6	55°C	80°C	6	D6	59.5°C	86.7°C	7	Q1	77.9°C	110.8°C	8	R22	68.8°C	93.9°C	9	C37	56.4	83.4°C	10	RTH10	66.5°C	90.6°C	11	R15	58.8°C	85.3°C	12	D30	57.6°C	84.6°C	13	U1	63.1°C	88.6°C	14	Q100	56.9°C	84.7°C	15	R100	73.4°C	99.5°C	16	U100	70.3°C	96.9°C	17	C105	70.5°C	95.3°C	18	C106	66.5°C	91.8°C	19	T1p	69.9°C	94°C	20	T1s	71.8°C	95.9°C	21	T1core	75.6°C	100.1°C	22	C346	49.3°C	75.7°C	23	C112	49.2°C	75.6°C	24	L100	52.6°C	79.6°C	25	L301	50.2°C	77°C	26	D200	63.5°C	89.2°C	27	C115	61°C	86.6°C	28	J107	47.7°C	74°C	29	RY101	46.9°C	73.1°C	30	Q305	48.2°C	75.2°C	31	Q304	53.9°C	79.9°C	32	D320	51.2°C	77.7°C	33	U304	71.3°C	94.8°C
NO	Position	ROOM AMBIENT Ta=23.7°C	HIGH AMBIENT Ta=50.7°C																																																																																																																																									
1	ZNR1	39.2°C	66.5°C																																																																																																																																									
2	LF1	46.8°C	74.9°C																																																																																																																																									
3	BD1	65.2°C	89.5°C																																																																																																																																									
4	RTH2	77.6°C	93.7°C																																																																																																																																									
5	C6	55°C	80°C																																																																																																																																									
6	D6	59.5°C	86.7°C																																																																																																																																									
7	Q1	77.9°C	110.8°C																																																																																																																																									
8	R22	68.8°C	93.9°C																																																																																																																																									
9	C37	56.4	83.4°C																																																																																																																																									
10	RTH10	66.5°C	90.6°C																																																																																																																																									
11	R15	58.8°C	85.3°C																																																																																																																																									
12	D30	57.6°C	84.6°C																																																																																																																																									
13	U1	63.1°C	88.6°C																																																																																																																																									
14	Q100	56.9°C	84.7°C																																																																																																																																									
15	R100	73.4°C	99.5°C																																																																																																																																									
16	U100	70.3°C	96.9°C																																																																																																																																									
17	C105	70.5°C	95.3°C																																																																																																																																									
18	C106	66.5°C	91.8°C																																																																																																																																									
19	T1p	69.9°C	94°C																																																																																																																																									
20	T1s	71.8°C	95.9°C																																																																																																																																									
21	T1core	75.6°C	100.1°C																																																																																																																																									
22	C346	49.3°C	75.7°C																																																																																																																																									
23	C112	49.2°C	75.6°C																																																																																																																																									
24	L100	52.6°C	79.6°C																																																																																																																																									
25	L301	50.2°C	77°C																																																																																																																																									
26	D200	63.5°C	89.2°C																																																																																																																																									
27	C115	61°C	86.6°C																																																																																																																																									
28	J107	47.7°C	74°C																																																																																																																																									
29	RY101	46.9°C	73.1°C																																																																																																																																									
30	Q305	48.2°C	75.2°C																																																																																																																																									
31	Q304	53.9°C	79.9°C																																																																																																																																									
32	D320	51.2°C	77.7°C																																																																																																																																									
33	U304	71.3°C	94.8°C																																																																																																																																									

2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P : 230 VAC O/P : 123.5 % LOAD Ta : 25°C	TEST : OK
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 264VAC/100VAC O/P : 100 % LOAD Ta= -25 °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= 49.4 °C HUMIDITY= 95 %R.H	TEST : OK
5	TEMPERATURE COEFFICIENT	± 0.03 %/°C(0~50°C)	I/P : 230 VAC O/P : FULL LOAD	± 0.0081 %/°C(0~50°C)
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 : 10 CYCLE 5. Input/Output condition : STATIC	
7	THERMAL SHOCK TEST	-20~50°C	1. Thermal shock Temperature : -25°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, 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 C105 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) 89343 HRS (2) 18395 HRS (3) 41987 HRS (4) 88775 HRS
10	MTBF	1509.9K hrs min. Telcordia SR-332 (Bellcore); 209.4K 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 : 30,000 hours		

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	Luqs	Liutt	Wangdz

2020.10.1 TAG-QA-009