



# Test Report: XLG-100-24

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100W Constant Voltage + Constant Current LED Driver

## ■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

Component Stress Test

## ■ SAFETY & E.M.C. TEST

Safety Test

E.M.C. Test

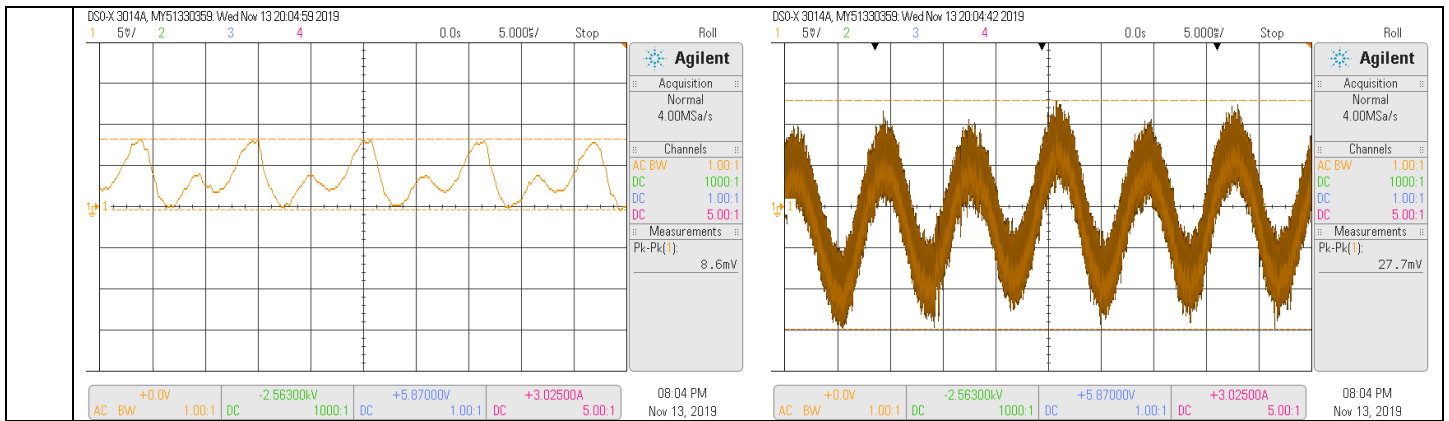
## ■ RELIABILITY TEST

ENVIRONMENT TEST

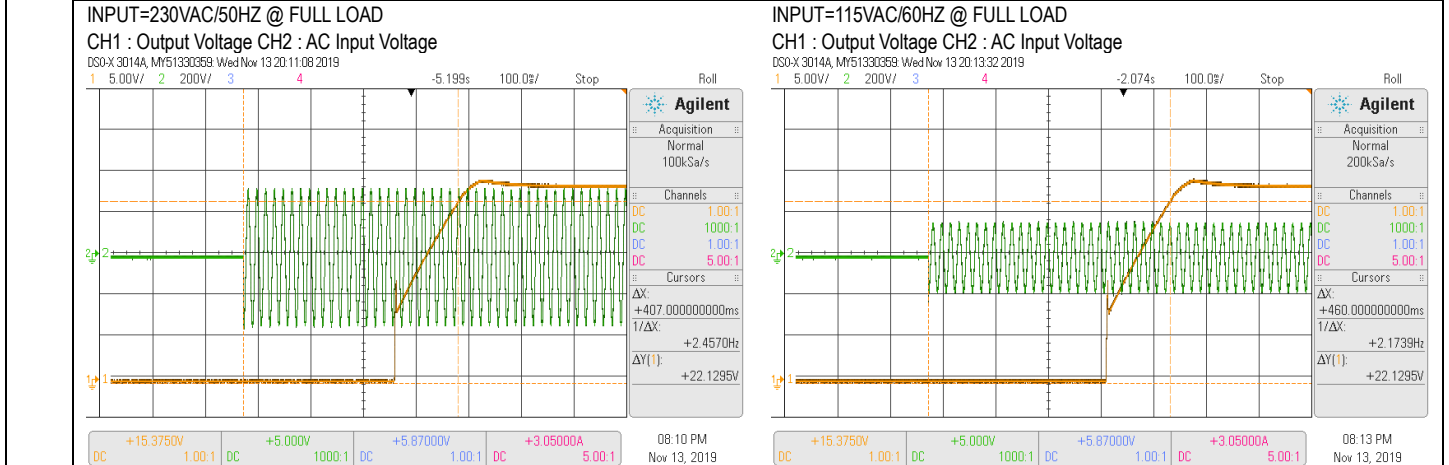
■ DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

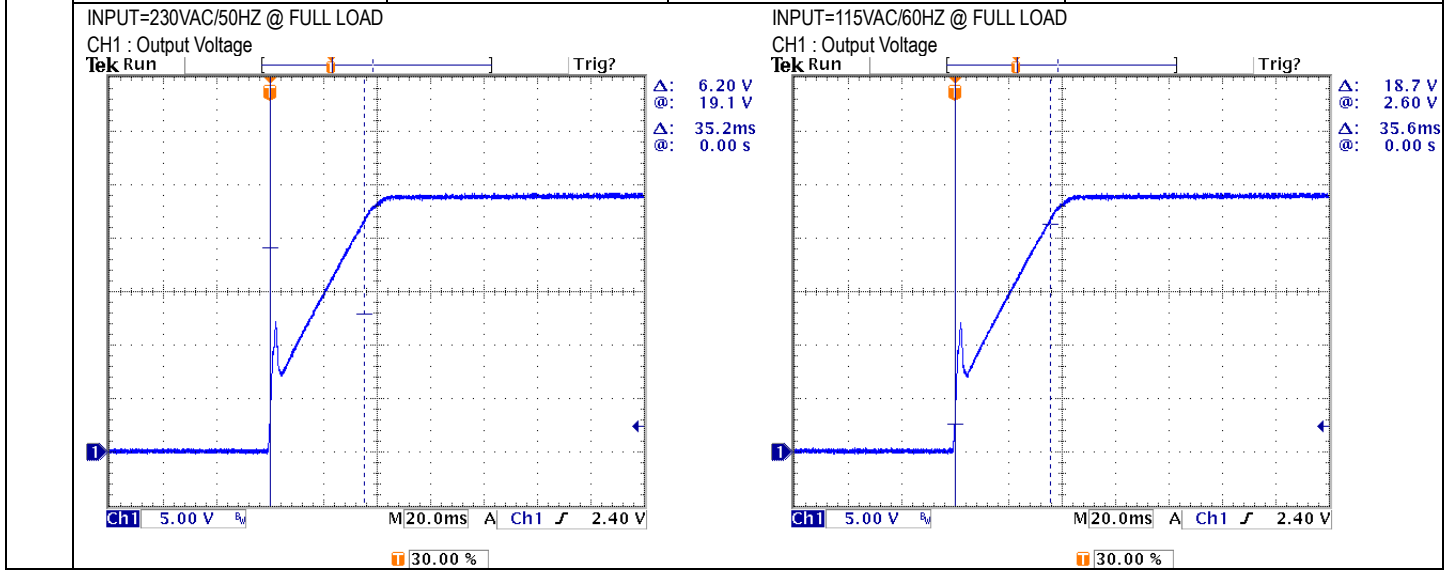
NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	CONSTANT CURRENT REGION	16.8 V~ 24V	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	5.8V~ 24V /230VAC
2	CURRENT ADJ. RANGE	2A~ 4A	I/P: 230 VAC I/P:115VAC O/P:CV MIN & CV MAX-1V Ta:25°C	1.598A~ 4.767A /230VAC@CV MAX-1V 1.602A~ 4.775A /230VAC@CV MIN 1.599A~ 4.771A/115VAC@CV MAX-1V 1.602A~4.774 A/115VAC@CV MIN
3	OUTPUT VOLTAGE TOLERANCE (Max)	-2 % ~ 2%	I/P:100VAC ~305VAC O/P:MIN LOAD—FULL LOAD Ta: 25°C	0.146%~ 0.146 %
4	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	(1) 270mVp-p (2) 270mVp-p
		<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>FULL /50% LOAD 50%DUTY / 120HZ</p> <p>100mV 4.00ms 2.50M次/秒 252mV</p> </div> <div style="text-align: center;"> <p>FULL /50% LOAD 50%DUTY / 1KHZ</p> <p>100mV 4.00ms 2.50M次/秒 252mV</p> </div> </div>		
5	LINE REGULATION (Max)	-0.5% ~ 0.5%	I/P:100VAC~305AC O/P:FULL LOAD Ta:25°C	0% ~ 0 %
6	LOAD REGULATION (Max)	-1% ~ 1%	I/P: 230 VAC O/P: MIN / HALF/ FULL LOAD Ta:25°C	-0.125 %~ 0.125 %
7	OVER/UNDERSHOOT TEST	< ±5%	I/P: 230 VAC O/P: FULL LOAD/Min LOAD Ta:25°C	TEST: < 5 %
8	RIPPLE & NOISE (Max)	240mVp-p	I/P: 230 VAC O/P: MIN LOAD—FULL LOAD Ta:25°C	27.7mVp-p / 100% load
		high frequency :	low frequency :	



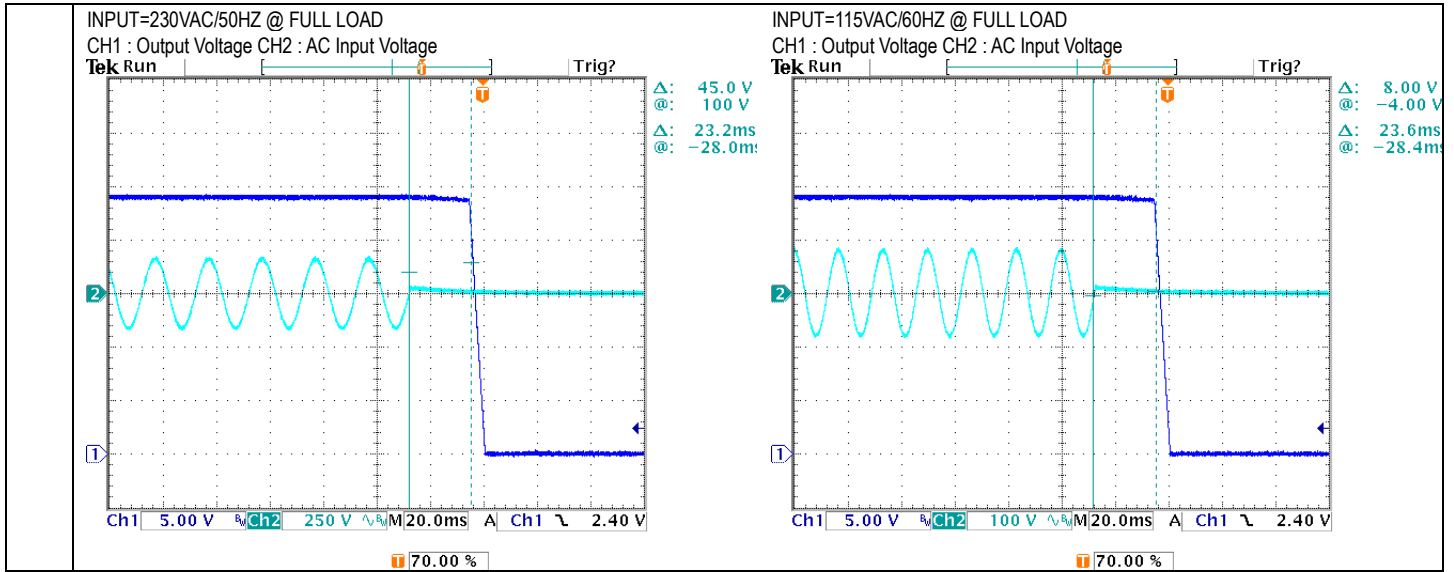
9	SET UP TIME (Max)	230VAC/ 500ms 115VAC/ 1200ms	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 407 ms 115 VAC/ 460 ms
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10	RISE TIME (Max)	230VAC/ 100ms 115VAC/ 100ms	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 35.2 ms 115 VAC/ 35.6 ms
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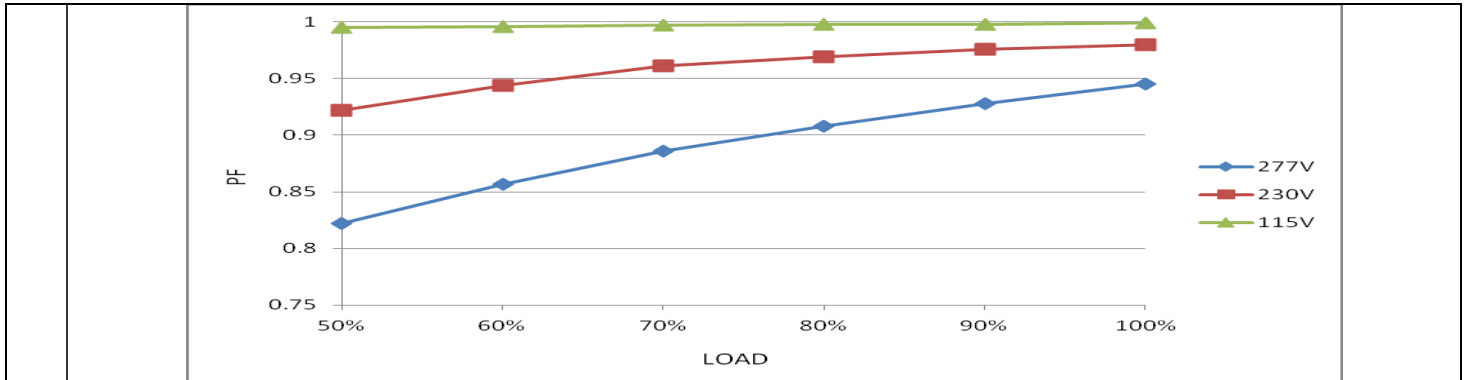


11	HOLD UP TIME (Typ.)	230VAC/ 12ms 115VAC/ 12ms	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 23.2 ms 115 VAC/ 23.6 ms
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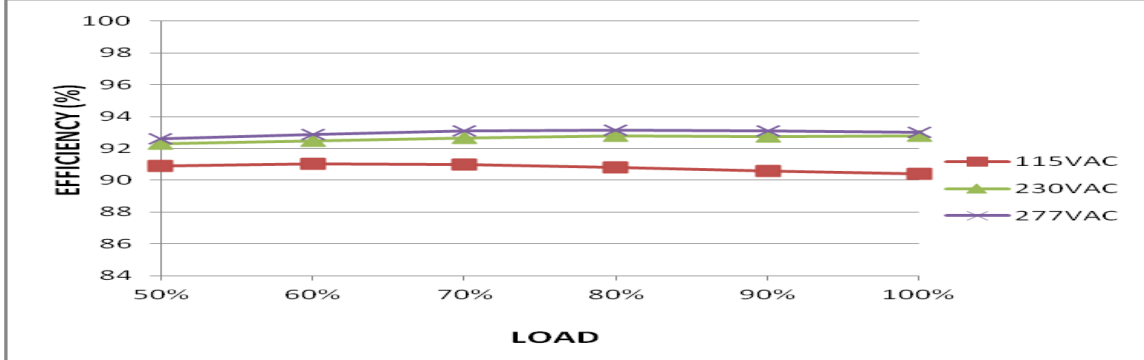
### INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	100VAC~305VAC	I/P: TESTING O/P: FULL LOAD Ta: 25°C	71V~308 V
			I/P: LOW-LINE-3VAC=97 VAC HIGH-LINE+10VAC=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: 100VAC~305VAC O/P: FULL~MIN LOAD Ta: 25°C	OK
3	INPUT CURRENT (TYP)	277VAC/ 0.42 A 230 VAC/ 0.5 A 115 VAC/ 1.1 A	I/P: 277VAC/230 VAC/115 VAC O/P: FULL LOAD Ta: 25°C	I= 0.37 A/277VAC I = 0.43A/ 230VAC I = 0.88A/ 115VAC
4	LEAKAGE CURRENT	<0.75mA/277AC	I/P : 277 VAC O/P : MIN LOAD Ta : 25°C	L-FG: 0.18 mA N-FG: 0.18 mA
5	NO LOAD CONSUMPTION	<0.5W	I/P : 115VAC I/P : 230VAC O/P : NO LOAD Ta : 25°C	< 0.329W < 0.372W
6	POWER FACTOR(TYP)	0.92/277 VAC FULL LOAD 0.95/230 VAC FULL LOAD 0.97/115 VAC FULL LOAD	I/P: 230 VAC/115VAC/277VAC O/P: FULL LOAD Ta: 25°C	PF= 0.945 /277V/100%LOAD PF= 0.980 /230V/100%LOAD PF= 0.998 /115V/100%LOAD
	P.F vs LOAD			



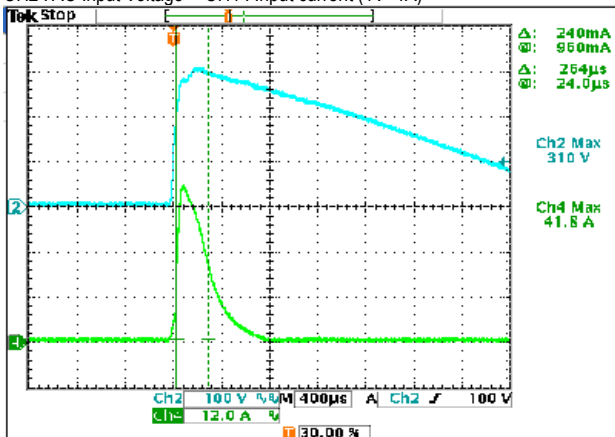
7	EFFICIENCY (TYP)	92%	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	92.78%
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EFFICIENCY vs LOAD

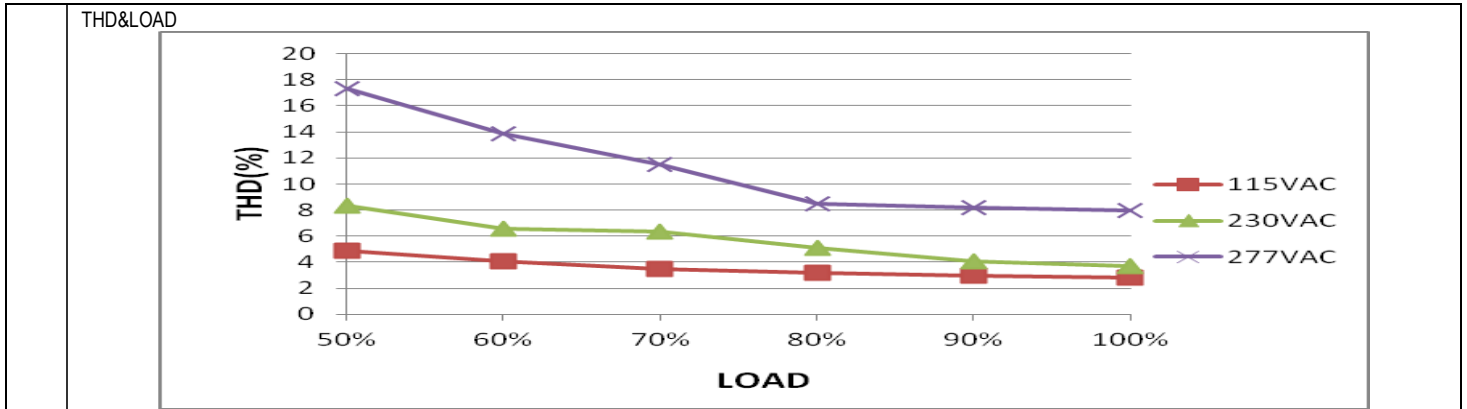


8	INRUSH CURRENT (TYP)	230 V / 50A COLD START  (twidh=300us measured at 50% Ipeak) COLD START	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	I = 41.8 A / 230VAC  T50=264US
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INPUT=230VAC/50HZ @ FULL LOAD  
CH2 : AC Input Voltage CH4 : Input current (1V=1A)



9	TOTAL HARMONIC DISTORTION	THD<10%(@load ≥ 50% /115V,230VAC; @load ≥ 75% /277VAC)	I/P : 115VAC I/P : 230VAC O/P : 50% LOAD Ta : 25°C	THD: 4.86% THD: 8.33%
			I/P : 277VAC O/P : 75% LOAD Ta : 25°C	THD: 9.54%



### PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER CURRENT PROTECTION	95%~ 108%	I/P: 305VAC I/P: 230VAC I/P: 100VAC O/P: TESTING Ta:25°C	101.25%/ 305VAC 101.25%/ 230VAC 101.25%/100VAC PROTECTION TYPE : Hiccup mode or Constant current limiting, recovers automatically after fault condition is removed
2	OVER VOLTAGE PROTECTION	27V~ 34V	I/P: 305VAC I/P: 230VAC I/P: 100VAC O/P: MIN LOAD Ta:25°C	29.79V/ 305VAC 29.88V/ 230VAC 30.004V/ 100VAC PROTECTION TYPE : Shut down output voltage, re-power on to recover
3	OVERTEMPERATURE PROTECTION	NO DAMAGE	I/P: 305 VAC I/P: 100 VAC O/P: FULL LOAD	O.T.P Active PROTECTION TYPE : Shut down output voltage, re-power on to recover
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 305VAC I/P: 100 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
5	INPUT OVER VOLTAGE (for XLG-100I only)	320 ~ 390VAC (Shut down output voltage when the input voltage exceeds protection voltage Can survive input voltage stress of 440Vac for 48 hours	I/P : TESTING O/P: FULL LOAD Ta:25°C	PASS

### COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Transistor ( D to S) or (C to E) <b>Peak Voltage</b>	Q3 Rated 7.5A/600 V	AC ON/OFF  I/P: High-Line +3V = 308V I/P: Low-Line -3V = 97V  VDS: O/P: (1) Full Load (2) Output Short (3) Dynamic Load Full Load/ Min. Load 90% Duty/1KHz (4) Dynamic Load Full Load/	Q3 308VAC 97VAC (1) 457Vs (1) 445V (2) 461V (2) 461V  (3) 457V (3) 445V (4) 453V (4) 445V (5) 453V (5) 441V (6) 453V (6) 441V (7) 457V (7) 461V (8) 413V (8) 417V

			<p>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)LED MODE max  (10)LED MODE min</p> <p>Ta:25°C</p>	<p>(9)433V (9) 437V  (10)433 V (10) 433V</p>
2	PFC OUTPUT DIODE PEAK VOLTAGE TEST	D5 Rated :9 A/600 V	<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 100% Load/  Min. Load 50%Duty/120Hz</p> <p>Ta:25°C</p>	<p>D5  308VAC  VDS  (1)441V  (2)441V  (3)449V  (4)449V</p>
3	Diode Peak Voltage	D100 Rated : 10A/100V	<p>AC ON/OFF  I/P:High-Line +3V =308 V  O/P: (1)Full Load  (2)Output Short  (3)Dynamic Load Full Load/  Min. Load 90%Duty/1KHz  (4)Dynamic Load 100% Load/  Min. Load 50%Duty/120Hz  (5).NO LOAD  (6).Burst mode</p> <p>Ta:25°C</p>	<p>D100:  VDS:  (1)50.2V  (2)11.24V  (3)51.8V  (4)53V  (5)49.3V  (6)49.3V</p>
4	Control IC Voltage Test	PWM IC U2 Rated 30V	<p>I/P:High-Line +3VAC=308V  AC ON/OFF  O/P: (1)Full Load Input On/Off  (2) Output Short  (3)O.L.P  (4)O.V.P.  (5) Low Line No Load Vo(min)  (6) CV MAX  (7) CV MIN</p> <p>Ta:25°C</p>	<p>U2  (1) 25.7V  (2) 25.7V  (3) 25.7V  (4) 25.7V  (5) 18.4V  (6) 25.7V  (7) 25.7V</p>
5	PFC Transistor	Q1 Rated 12.5A/700V	<p>I/P : High-Line +3V =308V  O/P : (1) Full Load Turn on  (2) Output Short  (3) Full load continue</p> <p>Ta : 25°C</p>	<p>(1) 494 V  (2) 466 V  (3) 490 V</p>
6	Input Capacitor Voltage	C5 Rated : 47 μ / 450 V	<p>I/P : High-Line +3V =308 V  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)444V  (2)444V  (3)440V  (4)440V</p>

### 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 : 1.5KVAC/min	I/P-O/P : 4.125 KVAC/min I/P-FG : 2.4 KVAC/min O/P-FG : 1.8 KVAC/min Ta : 25°C	I/P-O/P : 3.406 mA I/P-FG : 3.518 mA O/P-FG : 2.873 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 : 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 : >9999 MΩ
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40A / 2min Ta:25°C	18mΩ

### E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	EN61000-3-2 CLASS C	I/P : 230 VAC/50HZ O/P : FULL/50% LOAD Ta : 25°C	PASS
2	CONDUCTION	EN55015	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	PASS Test by certified Lab
3	RADIATION	EN55015	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 : 2KV	I/P : 230VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A
6	SURGE	EN61000-4-5 LIGHT INDUSTRY L-N : 4KV L,N-PE : 6KV	I/P : 230VAC/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 : XLG-100-24A 1. ROOM AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta=26.8 °C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta=60.7 °C																																																																																										
				<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta=26.8 °C</th> <th>HIGH AMBIENT Ta=60.7 °C</th> </tr> </thead> <tbody> <tr><td>1</td><td>ZNR3</td><td>46.8°C</td><td>79.3°C</td></tr> <tr><td>2</td><td>C1</td><td>48.2°C</td><td>80.4°C</td></tr> <tr><td>3</td><td>RTH1</td><td>57.0°C</td><td>86.6°C</td></tr> <tr><td>4</td><td>BD1</td><td>49.7°C</td><td>82.2°C</td></tr> <tr><td>5</td><td>L2</td><td>51.7°C</td><td>84.8°C</td></tr> <tr><td>6</td><td>Q1</td><td>53.0°C</td><td>85.9°C</td></tr> <tr><td>7</td><td>C5</td><td>53.2°C</td><td>85.9°C</td></tr> <tr><td>8</td><td>C51</td><td>55.7°C</td><td>89.3°C</td></tr> <tr><td>9</td><td>D5</td><td>51.5°C</td><td>84.4°C</td></tr> <tr><td>10</td><td>Q2</td><td>54.4°C</td><td>88.2°C</td></tr> <tr><td>11</td><td>Q3</td><td>56.7°C</td><td>89.9°C</td></tr> <tr><td>12</td><td>U1</td><td>52.6°C</td><td>85.3°C</td></tr> <tr><td>13</td><td>U2</td><td>57.4°C</td><td>90.2°C</td></tr> <tr><td>14</td><td>C15</td><td>53.3°C</td><td>85.9°C</td></tr> <tr><td>15</td><td>T1</td><td>70.1°C</td><td>104.5°C</td></tr> <tr><td>16</td><td>D100</td><td>63.5°C</td><td>98.6°C</td></tr> <tr><td>17</td><td>D101</td><td>64.0°C</td><td>99.4°C</td></tr> <tr><td>18</td><td>C105</td><td>54.9°C</td><td>88.9°C</td></tr> <tr><td>19</td><td>C106</td><td>52.6°C</td><td>86.3°C</td></tr> <tr><td>20</td><td>RTH3</td><td>51.3°C</td><td>83.7°C</td></tr> <tr><td>21</td><td>TC</td><td>48.2°C</td><td>80.7°C</td></tr> </tbody> </table>	NO	Position	ROOM AMBIENT Ta=26.8 °C	HIGH AMBIENT Ta=60.7 °C	1	ZNR3	46.8°C	79.3°C	2	C1	48.2°C	80.4°C	3	RTH1	57.0°C	86.6°C	4	BD1	49.7°C	82.2°C	5	L2	51.7°C	84.8°C	6	Q1	53.0°C	85.9°C	7	C5	53.2°C	85.9°C	8	C51	55.7°C	89.3°C	9	D5	51.5°C	84.4°C	10	Q2	54.4°C	88.2°C	11	Q3	56.7°C	89.9°C	12	U1	52.6°C	85.3°C	13	U2	57.4°C	90.2°C	14	C15	53.3°C	85.9°C	15	T1	70.1°C	104.5°C	16	D100	63.5°C	98.6°C	17	D101	64.0°C	99.4°C	18	C105	54.9°C	88.9°C	19	C106	52.6°C	86.3°C	20	RTH3	51.3°C	83.7°C	21	TC	48.2°C	80.7°C
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2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 305VAC/100VAC O/P : 100% LOAD Ta= -45°C / -35°C	TEST : OK																																																																																								
3	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 60°C NO DAMAGE	I/P : 305VAC O/P : FULL LOAD Ta=60°C HUMIDITY= 95 %R.H	TEST : OK																																																																																								
4	TEMPERATURE COEFFICIENT	±0.03 %/°C (0~60°C)	I/P : 230 VAC O/P : FULL LOAD	±0.003 %/°C (0~60°C)																																																																																								
5	STORAGE TEMPERATURE TEST	-40°C ~ +80°C	1. Thermal shock Temperature : -50°C ~ +125°C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 200CYCLE 5. Input/Output condition : STATIC TEST : OK																																																																																									

6	THERMAL SHOCK TEST	-40~+60°C	1. Thermal shock Temperature : -45°C~ +65°C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 16CYCLE 5. Input/Output condition : 15cycle:230VAC/ FULL LOAD AC on 3 sec/AC off 1 sec TEST 1cycle:230VAC/ FULL LOAD Burn In Test TEST : OK
7	VIBRATION TEST	10~ 500Hz, 5G 12min./1cycle, period for 72min. 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 : 72min in each axis (X.Y.Z) (6) Ta : 25°C TEST : OK
8	CAPACITOR LIFE CYCLE	XLG-100-24 : SUPPOSE C105 IS THE MOST CRITICAL COMPONENT (1) I/P : 230VAC O/P : FULL LOAD Tc= 80 °C LIFE TIME (2) I/P : 230VAC O/P : 75% LOAD Tc= 80 °C LIFE TIME (3) I/P : 230VAC O/P : 50% LOAD Tc= 80 °C LIFE TIME	(1) 42304 HRS (2) 57670 HRS (3) 61947 HRS
9	MTBF	Conducted by Parts Stress Analysis Prediction 2782.6K hrs min. Telcordia SR-332 (Bellcore); 276.4K hrs min. MIL-HDBK-217F (25°C)	
10	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/ZHOUB	WENF	LIUWY