



# Test Report: XLG-75-24

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75W Constant Power MODE 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

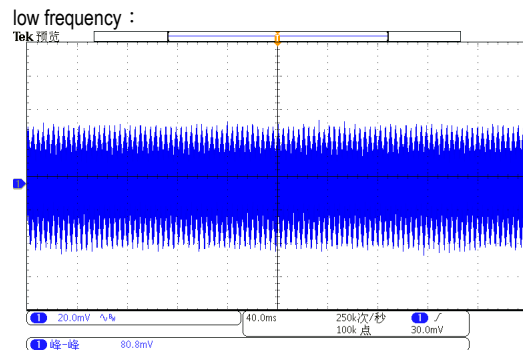
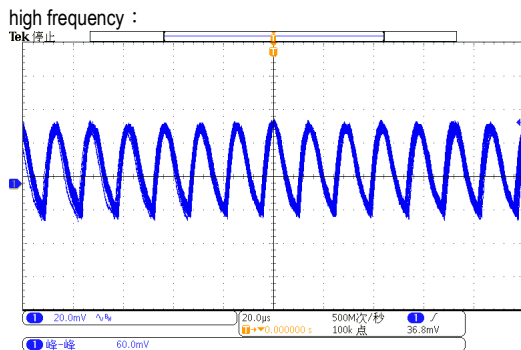
## ■ RELIABILITY TEST

Environment Test

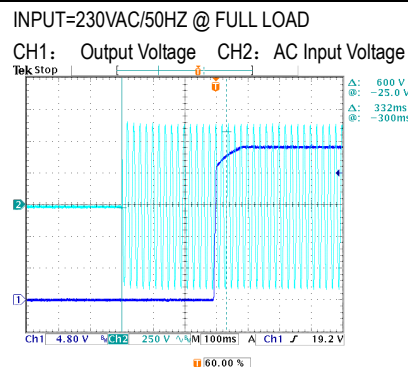
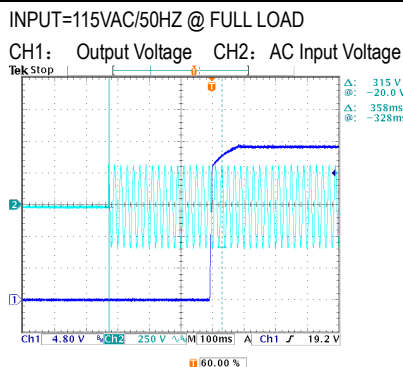
■ DESIGN VERIFY TEST

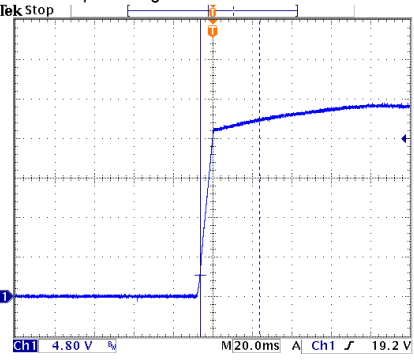
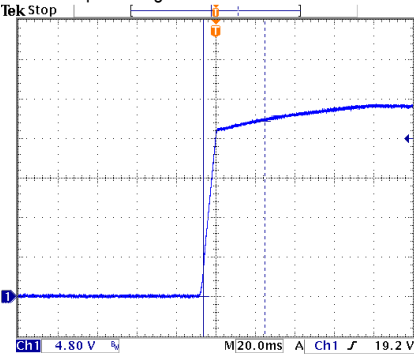
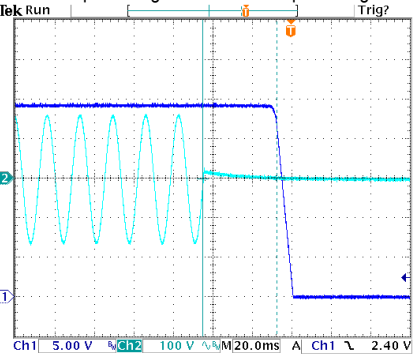
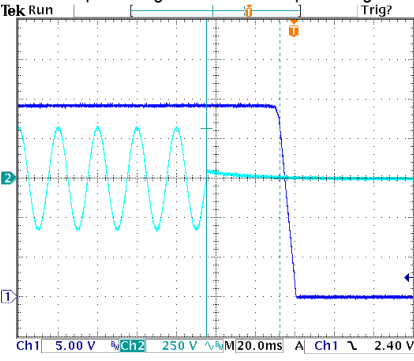
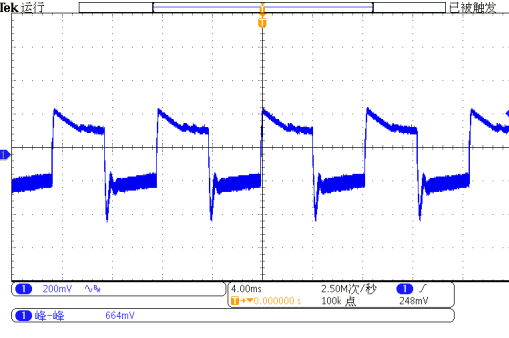
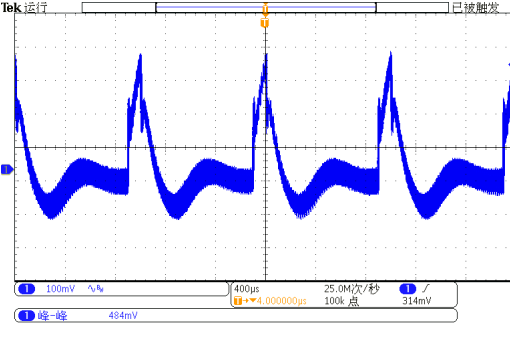
**OUTPUT FUNCTION TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	CONSTANT CURRENT REGION	16.8 V~ 24V	I/P: 230VAC O/P: LED MODE Ta: 25°C	11.4 V~ 24 V
2	CURRENT ADJ. RANGE	1.55A~3.1A	I/P: 230VAC O/P: SETTING Ta: 25°C	1.336A~3.334A
3	VOLTAGE TOLERANCE	-2%~+2%	I/P: 90VAC / 305VAC O/P: FULL/ NO LOAD Ta: 25°C	-0.41%~ 0.78%
4	LINE REGULATION	-0.5%~+0.5%	I/P: 90VAC ~ 305VAC O/P: FULL LOAD Ta: 25°C	0 %~0.041%
5	LOAD REGULATION	-1%~+1%	I/P: 230VAC O/P: FULL ~NO LOAD Ta: 25°C	-0.165%~ 0.124%
6	OVER/UNDERSHOOT TEST	<±5 %	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	± 1.016%
7	CONSTANT POWER	O/P: 74.4W	I/P: 230 VAC O/P: Vo×Io	TEST: OK
8	RIPPLE & NOISE (Max)	240mVp-p	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	65.8mVp-p



9	SET UP TIME(Max)	115VAC/1200ms 230VAC/ 500ms	I/P: 115 VAC I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	115VAC/ 358 ms 230VAC/ 332 ms
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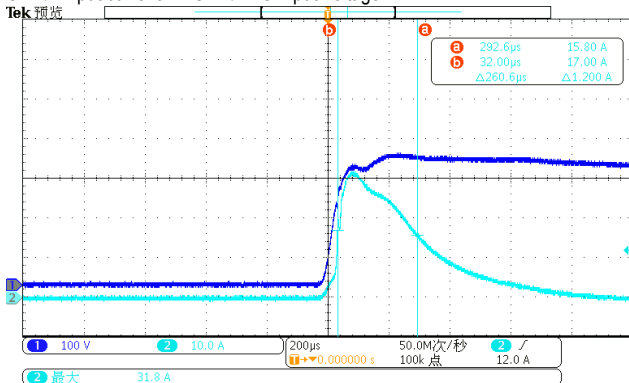
10	RISE TIME (Max)	115VAC/ 100ms 230VAC/ 100ms	I/P: 115 VAC I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	115VAC/ 30 ms 230VAC/ 31.2 ms
INPUT=115VAC/50HZ @ FULL LOAD CH1: Output Voltage 		INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage 		
11	HOLD UP TIME(Typ)	115VAC/ 10ms 230VAC/ 10ms	I/P: 115 VAC I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	120VAC/ 37.6 ms 230VAC/ 37.2 ms
INPUT=115VAC/50HZ @ FULL LOAD CH1: Output Voltage CH2: AC Input Voltage 		INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage CH2: AC Input Voltage 		
12	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) 664mVp-p (2) 484mVp-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	100VAC~305VAC	I/P: TESTING O/P: FULL LOAD Ta: 25°C	97 V~ 315 V
			I/P: (1)LOW-LINE-3V=97 V HIGH-LINE+10V=315 V O/P: FULL/MIN LOAD ON: 30 Sec OFF: 30 Sec 10MIN (2)230VAC ON: 0.5 Sec OFF: 0.5 Sec 20MIN ( POWER ON/OFF NO DAMAGE )	TEST: OK
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE	I/P: 100 VAC ~305 VAC O/P: FULL~NO LOAD Ta: 25°C	TEST: OK
3	AC CURRENT	0.38A/277VAC 0.45A/230VAC 1.0A/115VAC	I/P: 277 VAC I/P: 230 VAC I/P: 115 VAC O/P: FULL LOAD Ta: 25°C	I=0.29 A/ 277VAC I=0.34 A/ 230VAC I=0.69 A/ 115VAC
4	LEAKAGE CURRENT	< 0.75mA / 277VAC	I/P: 277 VAC O/P: NO LOAD Ta: 25°C	L-FG: 0.262 mA N-FG: 0.262 mA
5	NO LOAD CONSUMPTION	<0.5W	I/P: 230VAC O/P: NO LOAD Ta: 25°C	0.37W
6	INRUSH CURRENT(Typ)	230VAC/ 50A COLD START (twidth=300us measured at 50% Ipeak) COLD START at 230V	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	I = 31.8A/ 277VAC Twidth =260 us/50% Ipeak

INPUT=230VAC/50HZ @ FULL LOAD

CH2: Input current CH1: AC Input Voltage



7	EFFICIENCY(Typ)	90%	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	90.87%
<p><b>EFFICIENCY vs LOAD</b></p>				
8	POWER FACTOR	0.92/ 277VAC 0.95/ 230VAC 0.97/ 115VAC	I/P: 277 VAC I/P: 230 VAC I/P: 115 VAC O/P: FULL LOAD Ta: 25°C	PF= 0.959 / 277VAC PF= 0.987 / 230VAC PF= 0.999 / 115VAC
<p><b>P.F vs LOAD</b></p>				
9	TOTAL HARMONIC DISTORTION	THD < 10% ( @load ≥ 50%/115VAC, @load ≥ 50%/230VAC, @load ≥ 75%/277VAC)	I/P: 115 VAC/50% LOAD I/P: 230 VAC/50% LOAD I/P: 277 VAC/75% LOAD Ta: 25°C	THD=5.29% @50% load /115VAC THD=5.78% @50% load /230VAC THD=8.27% @75% load /277VAC
<p><b>THD vs LOAD</b></p>				

**PROTECTION FUNCTION TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER CURRENT PROTECTION	95%~108%	I/P: 100VAC I/P: 230VAC I/P: 305VAC O/P: TESTING Ta: 25°C	101.6 %/ 100VAC 101.9 %/ 230VAC 101.2%/ 305VAC Hiccup mode or Constant current Limiting, recovers automatically after fault condition is removed
2	OVER VOLTAGE PROTECTION	26V~ 36V	I/P: 100VAC I/P: 230VAC I/P: 305VAC O/P: NO LOAD Ta: 25°C	28.47V/ 100VAC 28.30V/ 230VAC 28.29V/ 305VAC Shut down output voltage, re-power on to recovery
3	OVER TEMPERATURE PROTECTION	NO DAMAGE	I/P: 100VAC I/P: 230VAC I/P: 305VAC O/P: FULL LOAD	O.T.P. Active Shut down output voltage, re-power on to recovery
4	SHORT CIRCUIT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 100VAC I/P: 305VAC O/P: FULL LOAD Ta: 25°C	NO DAMAGE Hiccup mode or Constant current Limiting, recovers automatically after fault condition is removed
5	INPUT OVER VOLTAGE (for XLG-75I only)	320 ~ 370VAC (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 Power Transistor	Q 2 Rated 800V/6A	I/P: High-Line +3V =308V O/P: (1) Full Load Turn on (2) Output Short (3) Full load continue Ta: 25°C	(1) 638 V (2) 632 V (3) 640 V
2	Diode Peak Voltage	Q101 Rated 20A/120V	I/P: High-Line +3V =308V O/P: (1) Full Load Turn on (2) Output Short (3) Full load continue Ta: 25°C	(1) 95.2 V (2) 68.0 V (3) 94.8 V
3	PFC Transistor	Q1 Rated 650V/10.6A	I/P: High-Line +3V =308V O/P: (1) Full Load Turn on (2) Output Short (3) Full load continue Ta: 25°C	(1) 470 V (2) 464 V (3) 452 V
4	P.F.C DIODE	D5 Rated 3 A/ 600V	I/P: High-Line +3V =308V O/P: (1) Full Load Turn on (2) Output Short (3) Full load continue Ta: 25°C	(1)434V (2)424V (3)434V

5	Control IC	U1 Rated 27V (MAX.)	I/P: High-Line +3V =308 V O/P: ((1) FULL LOAD (2) Output Short (3) O.L.P (4) O.V.P (5) Low Line No Load Vo(min) Ta: 25°C	(1) 15.2 V (2) 16.1 V (3) 15.8 V (4) 15.2 V (5) 15.2 V
6	Input Capacitor Voltage	C5 Rated: 33 μ / 450 V	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 Ta: 25°C	(1)449V (2)449V (3)449V (4)449V

### SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P: 4.2KVAC/min I/P-FG: 2.1KVAC/min O/P-FG: 1.5KVAC/min	I/P-O/P: 4.6 KVAC/min I/P-FG: 2.52 KVAC/min O/P-FG: 1.8 KVAC/min Ta: 25°C	I/P-O/P: 3.443 mA I/P-FG: 3.596 mA O/P-FG: 2.727 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	13 mΩ

### 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-75-24A 1. ROOM AMBIENT BURN-IN: 2 HRS I/P: 230VAC O/P: FULL LOAD Ta=24.7 °C 2. HIGH AMBIENT BURN-IN: 2 HRS I/P: 230VAC O/P: FULL LOAD Ta=61.8 °C																																																																										
				<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta=24.7 °C</th> <th>HIGH AMBIENT Ta=61.8 °C</th> </tr> </thead> <tbody> <tr><td>1</td><td>ZNR3</td><td>46.6°C</td><td>81.2°C</td></tr> <tr><td>2</td><td>RTH1</td><td>52.9°C</td><td>85.3°C</td></tr> <tr><td>3</td><td>C1</td><td>48.2°C</td><td>82.9°C</td></tr> <tr><td>4</td><td>BD1</td><td>54.6°C</td><td>88.8°C</td></tr> <tr><td>5</td><td>Q1</td><td>53.4°C</td><td>89.0°C</td></tr> <tr><td>6</td><td>Q2</td><td>56.0°C</td><td>93.7°C</td></tr> <tr><td>7</td><td>U1</td><td>52.4°C</td><td>87.2°C</td></tr> <tr><td>8</td><td>U2</td><td>52.2°C</td><td>87.4°C</td></tr> <tr><td>9</td><td>C5</td><td>52.5°C</td><td>87.4°C</td></tr> <tr><td>10</td><td>C50</td><td>51.9°C</td><td>87.2°C</td></tr> <tr><td>11</td><td>L2</td><td>52.6°C</td><td>88.2°C</td></tr> <tr><td>12</td><td>T1</td><td>61.5°C</td><td>97.8°C</td></tr> <tr><td>13</td><td>Q101</td><td>33.9°C</td><td>96.6°C</td></tr> <tr><td>14</td><td>C102</td><td>54.6°C</td><td>89.8°C</td></tr> <tr><td>15</td><td>C104</td><td>57.7°C</td><td>93.2°C</td></tr> <tr><td>16</td><td>RT2</td><td>50.6°C</td><td>85.6°C</td></tr> <tr><td>17</td><td>TC</td><td>48.0°C</td><td>82.9°C</td></tr> </tbody> </table>	NO	Position	ROOM AMBIENT Ta=24.7 °C	HIGH AMBIENT Ta=61.8 °C	1	ZNR3	46.6°C	81.2°C	2	RTH1	52.9°C	85.3°C	3	C1	48.2°C	82.9°C	4	BD1	54.6°C	88.8°C	5	Q1	53.4°C	89.0°C	6	Q2	56.0°C	93.7°C	7	U1	52.4°C	87.2°C	8	U2	52.2°C	87.4°C	9	C5	52.5°C	87.4°C	10	C50	51.9°C	87.2°C	11	L2	52.6°C	88.2°C	12	T1	61.5°C	97.8°C	13	Q101	33.9°C	96.6°C	14	C102	54.6°C	89.8°C	15	C104	57.7°C	93.2°C	16	RT2	50.6°C	85.6°C	17	TC	48.0°C	82.9°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-75-24: SUPPOSE C104 IS THE MOST CRITICAL COMPONENT (1) I/P: 230VAC O/P: FULL LOAD Tc= 70 °C LIFE TIME (2) I/P: 230VAC O/P: 75% LOAD Tc= 70 °C LIFE TIME (3) I/P: 230VAC O/P: 50% LOAD Tc= 70 °C LIFE TIME	(1) 56951 HRS (2) 84493 HRS (3) 108460 HRS	
9	MTBF	Conducted by Parts Stress Analysis Prediction 3404.7K hrs min. Telcordia SR-332 (Bellcore) ; 276.3K 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