



Test Report: XLG-75-H

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

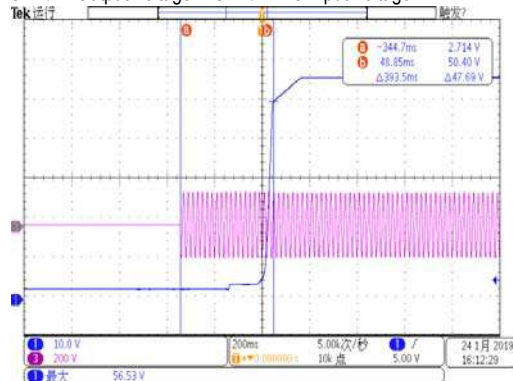
DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	CURRENT TOLERANCE	$\pm 5\%$	I/P: 100 VAC / 305 VAC O/P: FULL/ MIN LOAD Ta: 25°C	$< \pm 5\%$
2	CONSTANT CURRENT REGION	27V-56V	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	24 V~ 56.9 V
3	OPEN CIRCUIT VOLTAGE (max.)	60 V	I/P: 230 VAC O/P: NO LOAD	57.1V
4	CURRENT RIPPLE	3.0% max. @rated current	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	2.7%
5	CURRENT ADJ. RANGE	650 mA ~2100mA	I/P: 230 VAC O/P: TESTING Ta: 25°C	486Ma~ 2478mA
6	CONSTANT POWER	O/P: 75W	I/P: 230 VAC O/P: $V_o \times I_o$	TEST: OK
7	SET UP TIME(Max)	1200ms/115VAC 500ms/230VAC	I/P: 115 VAC I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	393.5ms/115 VAC 365.5ms/230 VAC

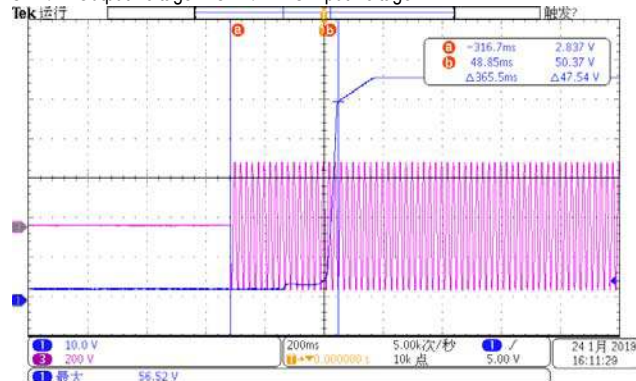
INPUT=115VAC/50HZ @ FULL LOAD

CH1: Output Voltage CH2: AC Input Voltage



INPUT=230 VAC/50HZ @ FULL LOAD

CH1: Output Voltage CH2: AC Input Voltage

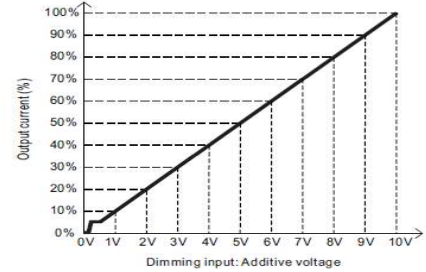
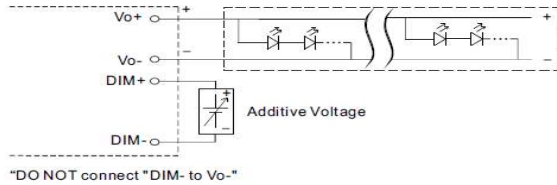


8 DIMMING OPERATION (for AB-Type)

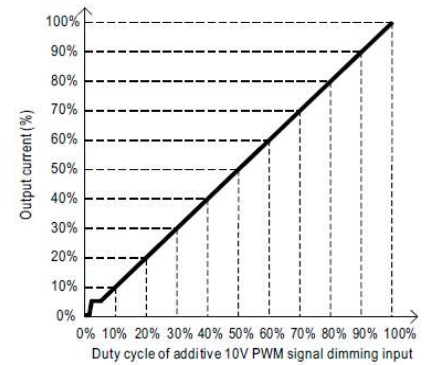
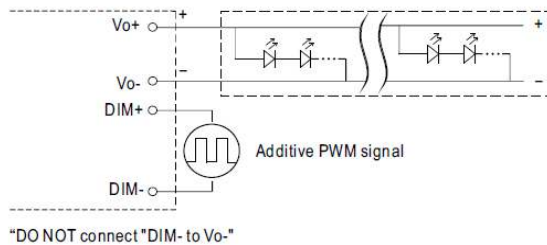
※ 3 in 1 dimming function (for AB-Type)

- Output constant current level can be adjusted by applying one of the three methodologies between DIM+ and DIM-: 0 ~ 10VDC, or 10V PWM signal or resistance.
- Direct connecting to LEDs is suggested. It is not suitable to be used with additional drivers.
- Dimming source current from power supply: 100 μ A (typ.)

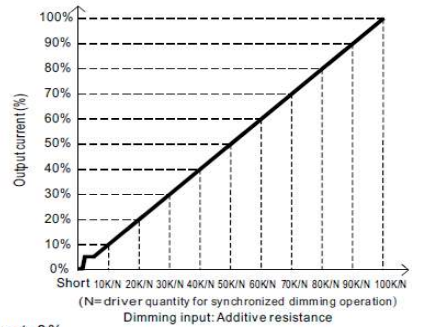
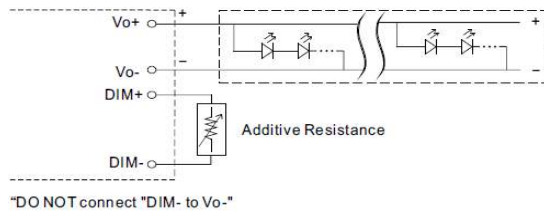
◎ Applying additive 0 ~ 10VDC



◎ Applying additive 10V PWM signal (frequency range 100Hz ~ 3KHz):



◎ Applying additive resistance:



Note : 1. Min. dimming level is about 8% and the output current is not defined when 0% < Iout < 8%.
2. The output current could drop down to 0% when dimming input is about 0kΩ or 0Vdc, or 10V PWM signal with 0% duty cycle.

I/P: 230 VAC

O/P: DIMMING TEST

Ta: 25°C

	DIMMING	Short	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN
1	Output Current	0	0.126A	0.246A	0.368A	0.490A	0.633A	0.778A	0.903A	1.040A	1.178A	1.311A	1.311A
	%	0%	9.69%	18.95%	28.31%	37.69%	48.71%	59.85%	69.48%	80.00%	90.62%	100.83%	100.86%
2	PWM	0V	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	OPEN
	Output Current	0	0.106A	0.237A	0.359A	0.484A	0.614A	0.746A	0.883A	1.029A	1.173A	1.312A	1.312A
	%	0%	8.18%	18.25%	27.63%	37.26%	47.23%	57.35%	67.94%	79.14%	90.25%	100.92%	100.95%
3	R	0%	10K	20K	30K	40K	50K	60K	70K	80K	90K	100K	OPEN
	Output Current	0	0.126A	0.247A	0.368A	0.512A	0.634A	0.758A	0.904A	1.031A	1.168A	1.298A	1.314A
	%	0%	9.69%	18.98%	28.34%	39.35%	48.80%	58.34%	69.57%	79.32%	89.88%	99.88%	101.05%

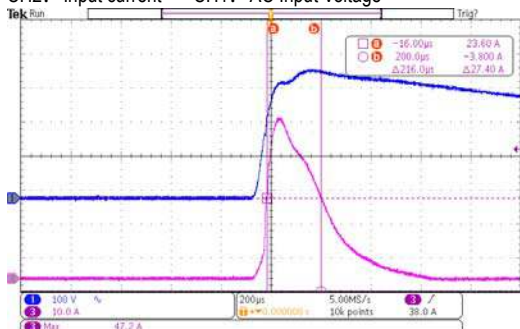
TEST RESULT: OK

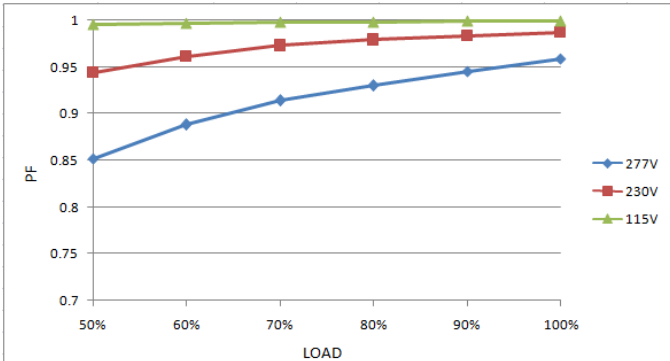
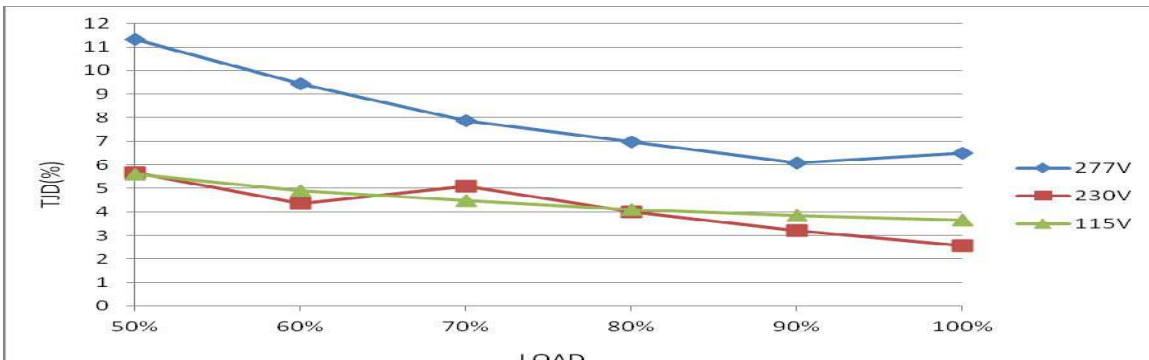
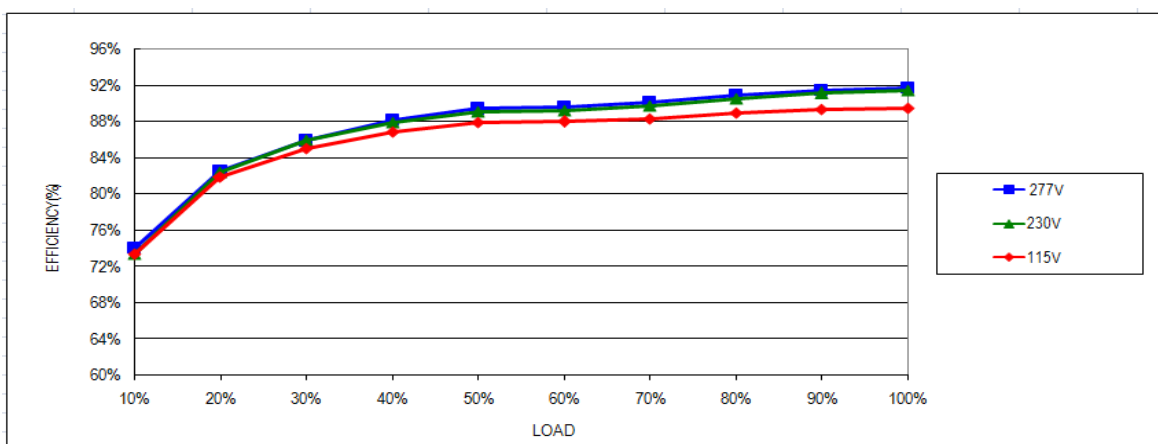
INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	100VAC~305VAC	I/P: TESTING O/P: FULL LOAD (PLEASE CHECK DERATING CURVE) Ta: 25°C	97V~315 V
			I/P: LOW-LINE-3V=97 V HIGH-LINE+10V=315 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: 100 VAC ~305 VAC O/P: FULL~NO LOAD Ta: 25°C	TEST: OK
3	AC CURRENT	1.0A/115VAC 0.45A/230VAC 0.38A/277VAC	I/P: 115 VAC I/P: 230 VAC I/P: 277 VAC O/P: FULL LOAD Ta: 25°C	I=0.693A/ 115VAC I = 0.345A/ 230VAC I = 0.292A/277VAC
4	LEAKAGE CURRENT	< 0.75mA / 277VAC	I/P: 277 VAC O/P: NO LOAD Ta: 25°C	L-FG: 0.406mA N-FG: 0.406mA
5	STANDBY POWER CONSUMPTION	<0.5W for AB -Type	I/P: 230VAC O/P: STANDBY Ta: 25°C	0.239W
6	INRUSH CURRENT(Typ)	230 V/ 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=47.2A/ 230VAC Twidth = 216us

INPUT=230VAC/50HZ @ FULL LOAD

CH2: Input current CH1: AC Input Voltage



7	POWER FACTOR	0.97/ 115VAC@ FULL LOAD 0.95/ 230VAC@ FULL LOAD 0.92/ 277VAC@ FULL LOAD	I/P: 115 VAC I/P: 230 VAC I/P: 277 VAC O/P: FULL LOAD Ta: 25°C	PF=0.999 @ FULL LOAD /115VAC PF=0.987 @ FULL LOAD /230VAC PF=0.959@ FULL LOAD /277VAC																																												
PF vs LOAD  <table><caption>PF vs LOAD Data</caption><thead><tr><th>LOAD</th><th>115V</th><th>230V</th><th>277V</th></tr></thead><tbody><tr><td>50%</td><td>0.999</td><td>0.987</td><td>0.959</td></tr><tr><td>60%</td><td>0.999</td><td>0.987</td><td>0.965</td></tr><tr><td>70%</td><td>0.999</td><td>0.987</td><td>0.971</td></tr><tr><td>80%</td><td>0.999</td><td>0.987</td><td>0.977</td></tr><tr><td>90%</td><td>0.999</td><td>0.987</td><td>0.983</td></tr><tr><td>100%</td><td>0.999</td><td>0.987</td><td>0.989</td></tr></tbody></table>					LOAD	115V	230V	277V	50%	0.999	0.987	0.959	60%	0.999	0.987	0.965	70%	0.999	0.987	0.971	80%	0.999	0.987	0.977	90%	0.999	0.987	0.983	100%	0.999	0.987	0.989																
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8	TOTAL HARMONIC DISTORTION	THD< 10% (@load≥50%/115VAC; @load≥50%/230VAC; @load≥75%/277VAC)	I/P: 115 VAC I/P: 230 VAC I/P: 277 VAC O/P: 50% /75% LOAD Ta: 25°C	THD=5.6% @50% load /115VAC THD=5.65% @50% load /230VAC THD=7.4% @75% load /277VAC																																												
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9	EFFICIENCY(Typ)	90%	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	91.43%																																												
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PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER POWER PROTECTION	110-150%	I/P: 100VAC I/P: 230VAC I/P: 305VAC O/P: TESTING Ta: 25°C	136%/ 100VAC 136 %/ 230VAC 136%/ 305VAC Hiccup mode, recovers automatically after fault condition is removed
2	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
3	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 100VAC I/P: 230VAC 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
4	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 Transistor (D to S) or (C to E) Peak Voltage	Q2 Rated 6A/ 800V	I/P: High-Line +3V =308V O/P: (1) Full Load Turn on (2) Output Short (3) Full load continue Ta: 25°C	(1) 470V (2) 452V (3) 442V
2	PFC Transistor	Q1 Rated 10.6A/650 V	I/P: High-Line +3V =308V O/P: (1) Full Load (2) Output Short (3) Full Load continue	(1) 472V (2) 460V (3) 444V
3	P.F.C DIODE	D5 Rated 3A/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) 438V (2) 436V (3) 436V
4	Diode Peak Voltage	Q101 Rated 20A/200 V	I/P: High-Line +3V =308V O/P: (1) Full Load (2) Output Short (3) Full Load continue (4) No Load Ta: 25°C	(1) 173V (2) 110V (3) 171V (4) 167V

5	Input Capacitor Voltage	C5 Rated: 33 μ F/ 450V	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) 442V (2) 442V (3) 442V (4) 442V
6	Control IC Voltage Test	U2 Rated 27 V	I/P: High-Line +3V =308V O/P:(1)FULL LOAD (2) Output Short (3)NO LOAD VR.LOW LINE Ta: 25°C	(1) 15.3V (2) 15.2V (3) 15.2V

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: 3.544mA I/P-FG: 3.590mA O/P-FG: 2.758mA NO DAMAGE
2	ISOLATION RESISTANCE	I/P-O/P: 500VDC>100M Ω I/P-FG: 500VDC>100M Ω O/P-FG: 500VDC>100M Ω	I/P-O/P: 500 VDC I/P-FG: 500 VDC O/P-FG: 500 VDC Ta: 25°C	I/P-O/P: >9999G Ω I/P-FG: >9999 G Ω O/P-FG: >9999 G Ω NO DAMAGE
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 m Ω	40A / 2min Ta:25°C	20m Ω

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	EN61000-3-2 CLASS C	I/P: 230VAC/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-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-H 1. ROOM AMBIENT BURN-IN: 2 HRS I/P: 230VAC O/P: FULL LOAD Ta= 26.6℃ 2. HIGH AMBIENT BURN-IN: 2 HRS I/P: 230VAC O/P: FULL LOAD Ta=62.4℃ <table><thead><tr><th>NO</th><th>Position</th><th>ROOM AMBIENT Ta= 26.6 ℃</th><th>HIGH AMBIENT Ta=62.4 ℃</th></tr></thead><tbody><tr><td>1</td><td>ZNR1</td><td>53.7℃</td><td>87.7℃</td></tr><tr><td>2</td><td>RTH1</td><td>55.4℃</td><td>88.6℃</td></tr><tr><td>3</td><td>C1</td><td>55.6℃</td><td>89.5℃</td></tr><tr><td>4</td><td>BD1</td><td>60.4℃</td><td>94.3℃</td></tr><tr><td>5</td><td>C7</td><td>55.5℃</td><td>89.8℃</td></tr><tr><td>6</td><td>Q1</td><td>61.7℃</td><td>97.4℃</td></tr><tr><td>7</td><td>Q2</td><td>65.4℃</td><td>101.0℃</td></tr><tr><td>8</td><td>U1</td><td>58.9℃</td><td>93.1℃</td></tr><tr><td>9</td><td>U2</td><td>57.3℃</td><td>92.0℃</td></tr><tr><td>10</td><td>C5</td><td>57.9℃</td><td>92.5℃</td></tr><tr><td>11</td><td>D6</td><td>61.1℃</td><td>96.6℃</td></tr><tr><td>12</td><td>C50</td><td>58.7℃</td><td>93.3℃</td></tr><tr><td>13</td><td>L2</td><td>60.8℃</td><td>95.9℃</td></tr><tr><td>14</td><td>T1</td><td>66.5℃</td><td>101.8℃</td></tr><tr><td>15</td><td>Q101</td><td>64.0℃</td><td>98.4℃</td></tr><tr><td>16</td><td>C102</td><td>59.9℃</td><td>94.2℃</td></tr><tr><td>17</td><td>C104</td><td>61.2℃</td><td>95.8℃</td></tr><tr><td>18</td><td>RTH2</td><td>56.5℃</td><td>90.7℃</td></tr><tr><td>19</td><td>TC</td><td>54.7℃</td><td>88.4℃</td></tr></tbody></table>			NO	Position	ROOM AMBIENT Ta= 26.6 ℃	HIGH AMBIENT Ta=62.4 ℃	1	ZNR1	53.7℃	87.7℃	2	RTH1	55.4℃	88.6℃	3	C1	55.6℃	89.5℃	4	BD1	60.4℃	94.3℃	5	C7	55.5℃	89.8℃	6	Q1	61.7℃	97.4℃	7	Q2	65.4℃	101.0℃	8	U1	58.9℃	93.1℃	9	U2	57.3℃	92.0℃	10	C5	57.9℃	92.5℃	11	D6	61.1℃	96.6℃	12	C50	58.7℃	93.3℃	13	L2	60.8℃	95.9℃	14	T1	66.5℃	101.8℃	15	Q101	64.0℃	98.4℃	16	C102	59.9℃	94.2℃	17	C104	61.2℃	95.8℃	18	RTH2	56.5℃	90.7℃	19	TC	54.7℃	88.4℃
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16	C102	59.9℃	94.2℃																																																																																	
17	C104	61.2℃	95.8℃																																																																																	
18	RTH2	56.5℃	90.7℃																																																																																	
19	TC	54.7℃	88.4℃																																																																																	
2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P: 305VAC/100VAC O/P: FULL LOAD Ta= -45℃/-35℃	TEST: OK																																																																																
3	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 60 ℃ NO DAMAGE	I/P: 305VAC O/P: FULL LOAD Ta=60 ℃ HUMIDITY= 95% R.H	TEST: OK																																																																																
4	TEMPERATURE COEFFICIENT	±0.03%/℃ (0~60℃)	I/P: 230 VAC O/P: FULL LOAD	±0.022%/℃ (0~60℃)																																																																																



75W Constant Power Mode LED Driver

XLG-75 series

5	STORAGE TEMPERATURE TEST	-40~+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: 10min/sweep cycle (4) Acceleration: 6G (5) Test Time: 180min in each axis (X.Y.Z) (6) Ta: 25°C TEST: OK
8	CAPACITOR LIFE CYCLE	XLG-75-H: 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) 81771 HRS (2) 76032 HRS (3) 78963 HRS
9	MTBF	Conducted by Parts Stress Analysis Prediction 1232.28 K hrs min. Telcordia SR-332 (Bellcore) 376.3K 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