



Test Report: XLG-50-L-DA2

50W Constant Power Mode with DALI-2 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	±5%	I/P:230VAC O/P:LEDmax CP: 0.7A & 0.35A Ta:25°C	CP0.35A: 0.355A/230VAC@CV MAX-1V 0.356A/230VAC@CV MIN 1.71% CP 0.7A: 0.697A/230VAC@CV MAX-1V 0.684A/230VAC@CV MIN 2.12%
2	FULL POWER CURRENT RANGE	350~700mA	I/P: 230VAC O/P:LEDmax CP: 0.7A & 0.35A Ta:25°C	142.3V/0.35A/230VAC 73.6V/0.7A/230VAC
3	OPEN CIRCUIT VOLTAGE (max)	160V	I/P: 230VAC O/P:NO LOAD CP: OPEN Ta:25°C	143.63V
4	CONSTANT CURRENT REGION	CP 0.35A: CH1:60V~ 142V CP 0.7A: CH1:60V~ 72V	I/P: 230VAC O/P:LEDmax CP: 0.7A & 0.35A Ta:25°C	CP 0.35A: 41.8V~143 V/230VAC CP 0.7A: 38.2V~ 74.3V/230VAC
5	CURRENT ADJ. RANGE	CH1: 350mA~700mA	I/P: 230VAC O/P:CVmin& CVmax-1V CP: 0.7A & 0.35A Ta:25°C	116.4mA~536.2mA /230VAC@CV MAX-1V 117.2mA~971.6mA /230VAC@CV MIN
6	CURRENT RIPPLE	5.0%(@ full load)	I/P: 230VAC O/P:LEDmax CP: 0.7A & 0.35A Ta:25°C	CP 0.7A: 2.83% CP 0.35A: 3.15%

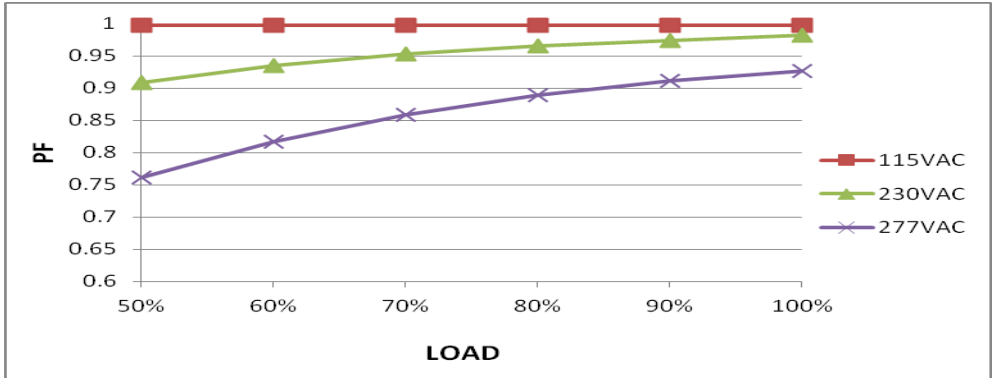
7	SET UP TIME	230VAC/ 500 ms (Max) 115VAC/ 1200 ms (Max)	I/P: 230VAC I/P: 115VAC O/P:LEDmax CP 0.35A Ta:25°C	230VAC/404ms 115VAC/ 292ms
INPUT=230VAC/50HZ @ LEDMAX@ CP 0.35A CH1 : Output Voltage CH2 : AC Input Voltage		INPUT=230VAC/60HZ @ LEDMAX@ CP 0.35A CH1 : Output Voltage CH2 : AC Input Voltage		

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	90VAC~305VAC 127VDC ~ 431VDC	(1) I/P:TESTING O/P:LEDmax (2) I/P:DC TESTING(L:+ N:-) O/P:LEDmax (3) I/P:DC TESTING(L:- N:+) O/P:LEDmax (4) I/P: LOW-LINE=142VDC HIGH-LINE=431VDC O/P: Dimming on/off 【for Dimming type,】 Ta:25°C	(1) 89Vac~308Vac (2) 139Vdc~431Vdc (3) 139Vdc~431Vdc (4)PASS
			I/P: LOW-LINE-3V=87 V HIGH-LINE+10V=308 V O/P: LEDmax / LEDmin CP 0.7A (PLEASE CHECK DERATING CURVE) ON: 30 Sec OFF: 30 Sec 10MIN (POWER ON/OFF NO DAMAGE)	(1).TEST:OK (2).TEST : OK
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE	I/P: 100VAC ~305VAC O/P: LEDmax ~ LEDmin CP 0.7A Ta:25°C	TEST: OK

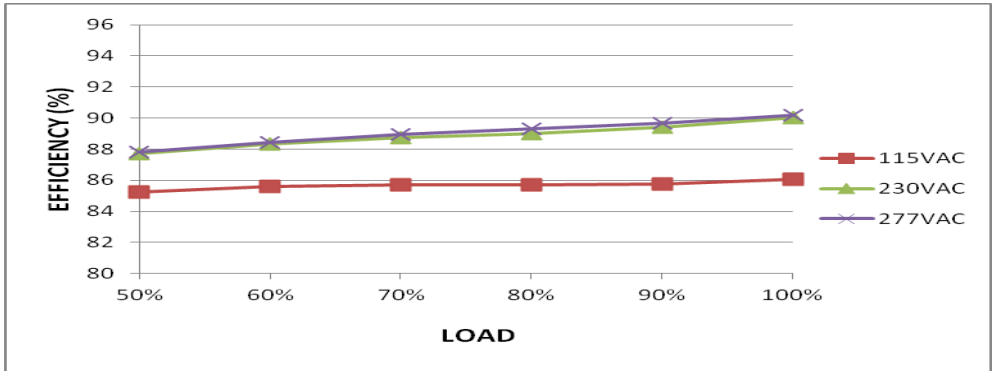
3	INPUT CURRENT (TYP)	230VAC / 0.29A 115VAC / 0.57A 277VAC / 0.24A	I/P: 230VAC/115VAC/277VAC O/P:LEDmax CP 0.7A Ta:25°C	I =0.25A/ 230VAC I =0.579A/115VAC I =0.222A/277VAC
4	POWER FACTOR(TYP)	0.92/277VAC LEDMAX 0.95/230VAC LEDMAX 0.97/115VAC LEDMAX	I/P: 277VAC/230VAC/115VAC O/P:LEDmax CP 0.7A Ta:25°C	PF= 0.927/277V/100%LOAD PF=0.982/230V/100%LOAD PF=0.998/115V/100%LOAD

P.F vs LOAD



5	EFFICIENCY (TYP)	90%	I/P: 230VAC O/P:LEDmax CP 0.7A Ta:25°C	90.02%
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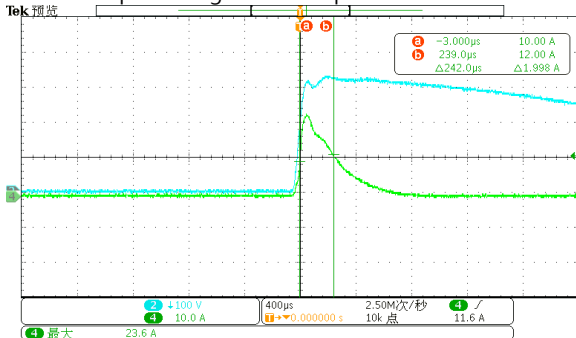
EFFICIENCY vs LOAD



6	INRUSH CURRENT (TYP)	230V/ 50A COLD START (twidth=350 usmeasured at 50% Ipeak) COLD START	I/P: 230VAC O/P:LEDmax CP 0.35A Ta:25°C	I =23.6A /230VAC T50= 242 μ S
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INPUT=230VAC/ 60HZ @ LEDMAX

CH2 : AC Input Voltage CH1 : Input current



7	TOTAL HARMONIC DISTORTION	THD < 10% (@ load \geq 50% at 115VAC/230VAC, @load \geq 75% at 277VAC)	I/P : 230VAC/115VAC/277VAC O/P : 50% LOAD 75%LOAD CP 0.7A Ta : 25°C	THD : 5.63%230V /50% THD : 5.17%115V /50% THD : 6.69%277V /75%																											
	<p>THD vs LOAD</p> <table border="1"> <caption>THD vs LOAD Data</caption> <thead> <tr> <th>LOAD (%)</th> <th>115VAC THD (%)</th> <th>230VAC THD (%)</th> <th>277VAC THD (%)</th> </tr> </thead> <tbody> <tr> <td>50%</td> <td>5.0</td> <td>5.6</td> <td>9.2</td> </tr> <tr> <td>60%</td> <td>5.0</td> <td>6.0</td> <td>7.8</td> </tr> <tr> <td>70%</td> <td>5.0</td> <td>5.5</td> <td>7.2</td> </tr> <tr> <td>80%</td> <td>5.0</td> <td>5.0</td> <td>6.8</td> </tr> <tr> <td>90%</td> <td>5.0</td> <td>5.5</td> <td>6.5</td> </tr> <tr> <td>100%</td> <td>5.0</td> <td>2.0</td> <td>6.2</td> </tr> </tbody> </table>				LOAD (%)	115VAC THD (%)	230VAC THD (%)	277VAC THD (%)	50%	5.0	5.6	9.2	60%	5.0	6.0	7.8	70%	5.0	5.5	7.2	80%	5.0	5.0	6.8	90%	5.0	5.5	6.5	100%	5.0	2.0
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8	STANDBY POWER CONSUMPTION	Standby power consumption < 0.5W (Dimming off)(For standard version)	I/P : 230VAC O/P : NO LOAD Ta : 25°C	0.3825W/230VAC																											
9	LEAKAGE CURRENT	EN61347-1 < 0.75mA / 277VAC	I/P: 277 VAC O/P:Min LOAD Ta:25°C	L-FG: 0.626mA N-FG: 0.608mA																											

ROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER TEMPERATURE PROTECTION	NO DAMAGE	I/P:305VAC I/P: 90 VAC O/P:LEDmax CP 0.7A Ta:25°C	O.T.P. Active PROTECTION TYPE : 1: Derating to 75% loading; stage 2: Derating to 50% loading. recovers automatically after fault condition is removed
2	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 305VAC I/P: 100 VAC O/P: LEDMAX CP: 0.7A &1.05A Ta:25°C	CP: 0.35A NO DAMAGE PROTECTION TYPE : Hiccup mode or constant current limiting, recovers automatically after fault condition is removed CP: 0.7A NO DAMAGE PROTECTION TYPE : Hiccup mode or constant current limiting, recovers automatically after fault condition is removed

3	INPUT OVER VOLTAGE (for XLG-50I only)	320 ~ 370VAC (Shut down output voltage when the input voltage exceeds protection voltage,recovers automatically after fault condition is removed) Can survive input voltage stress of 440Vac for 48 hours	I/P: TESTING O/P: LEDMAX	pass
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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 AC ON/OFF CP: 0.35A&0.7A VDS: O/P: (1)LEDmax (2) LEDmax continue (3) LEDmin (4) LEDmin continue (5) Output Short I/P:Low-Line -3V = 97V VDS: O/P: (1)LEDmax (2) LEDmax continue (3) LEDmin (4) LEDmin continue (5) Output Short Ta:25°C	308V CP: 0.35A Q3 VDS: (1) 733V (2) 697V (3) 610V (4) 578V (5) 614V CP: 0.7A VDS: (1) 737V (2) 693V (3) 596V (4) 548V (5) 616V 97V CP: 0.35A Q3 VDS: (1) 618V (2) 606V (3) 602V (4) 582V (5) 618V

2	P.F.C Transistor (D to S) or (C to E) Peak Voltage	Q1 Rated: 6 A/700V	<p>I/P:High-Line +3V =308v AC ON/OFF CP: 0.35A VDS: O/P: (1)LEDmax (2) LEDmax continue (3) LEDmin (4) LEDmin continue (5) Output Short</p> <p>I/P:Low-Line -3V = 97V VDS: O/P: (1)LEDmax (2) LEDmax continue (3) LEDmin (4) LEDmin continue (5) Output Short Ta:25°C</p>	<p>308V CP: 0.35A Q1 VDS: (1) 474V (2) 450V (3) 462V (4) 438V (5) 442V</p> <p>97V CP: 0.35A Q1 VDS: (1) 482V (2) 470V (3) 470V (4) 466V (5) 438V</p>
3	P.F.C DIODE	D4 Rated: 3A/600V	<p>I/P:High-Line +3V =308v AC ON/OFF CP: 0.35A VDS: O/P: (1)LEDmax (2) LEDmax continue (3) LEDmin (4) LEDmin continue (5) Output Short</p> <p>I/P:Low-Line -3V = 97V O/P: (1)LEDmax (2) LEDmax continue (3) LEDmin (4) LEDmin continue (5) Output Short Ta:25°C</p>	<p>(1) 468V (2)444 V (3) 464V (4)436V (5)440V</p> <p>(1) 464V (2) 452V (3) 464V (4)440V (5)460V</p>
4	Diode Peak Voltage	D101 Rated: 3A/600V	<p>I/P:High-Line +3V =308v AC ON/OFF CP: 0.35A&0.7A VDS: O/P: (1)LEDmax (2) LEDmax continue (3) Output Short</p> <p>Ta:25°C</p>	<p>CP: 0.35A Q100 VDS: (1) 456V (2) 452V (3) 321V CP: 0.7A Q100 VDS: (1) 385V (2) 385V (3) 305V</p>

5	Input Capacitor Voltage	<p>C5 Rated: 220μ /450 V Surge voltage: 650 V</p>	<p>I/P:High-Line +3V =308v AC ON/OFF CP: 0.35A VDS: O/P: (1)LEDmax (2) LEDmax continue (3) LEDmin (4) LEDmin continue Ta:25°C</p>	<p>(1) 458V (2) 442V (3) 470V (4) 438V</p>
6	Control IC Voltage Test	<p>PFC IC U1 Rated 10.5V~27V(MIN.) PWM IC U2 Rated 9.4V~ 35V(MIN.) O/P IC U100 Rated -0.3V~40V</p>	<p>I/P:High-Line +3V =308v AC ON/OFF CP: 0.35A VDS: O/P: (1)LEDmax (2) LEDmin (3) Output Short (4) NO LOAD VRmin.LOW LINE (5)DIM OFF Ta:25°C</p>	<p>U1&U2 (1) 12.18V (2) 12.34V (3) 12.26V (4) 12.18V (5) 11.94V U100 (1) 10.66V (2) 10.66V (3) 10.66V (4) 10.66V (5) 7.28V</p>

SAFETY & EMC TEST

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	EN61347-1 I/P-O/P: 3.75KVAC/min I/P-FG: 2 KVAC/min O/P-FG:1.5KVAC/min	I/P-O/P: 4.125 KVAC/min I/P-FG: 2.4KVAC/min O/P-FG: 1.8 KVAC/min Ta:25°C	I/P-O/P: 2.983mA I/P-FG: 3.228mA O/P-FG: 3.716mA 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: 9999MΩ I/P-FG: 9999MΩ O/P-FG: 9999M Ω NO DAMAGE
3	GROUNDING CONTINUITY	EN61347-1 FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40A / 2min Ta:25°C	13mΩ

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	EN61000-3-2 CLASS C	I/P: 230VAC/50HZ O/P: LEDmax Ta:25°C	PASS
2	CONDUCTION	FCC PART 15	I/P:230VAC (50HZ) O/P: LEDmax /50% LOAD Ta:25°C	PASS Test by certified Lab
3	RADIATION	FCC PART 15	I/P: 230VAC (50HZ) O/P:LEDmax Ta:25°C	PASS Test by certified Lab
4	E.S.D	EN61000-4-2 LIGHT INDUSTRY AIR : 8KV / Contact : 4KV	I/P: 230VAC (50HZ) O/P:LEDmax Ta:25°C	CRITERIA A
5	E.F.T	EN61000-4-4 LIGHT INDUSTRY INPUT: 2KV	I/P: 230VAC (50HZ) O/P:LEDmax Ta:25°C	CRITERIA A
6	SURGE	IEC61000-4-5 LIGHT INDUSTRY L-N :4KV L,N-PE:6KV	I/P: 230VAC (50HZ) O/P:LEDmax Ta:25°C	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 : XLG-50-L-DA2 1. ROOM AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta= 25.7°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= 25.7 °C</th> <th>HIGH AMBIENT Ta=60.7 °C</th> </tr> </thead> <tbody> <tr><td>1</td><td>RT1</td><td>52.8°C</td><td>86.8°C</td></tr> <tr><td>2</td><td>R5</td><td>55.3°C</td><td>91.6°C</td></tr> <tr><td>3</td><td>D4</td><td>58.0°C</td><td>95.0°C</td></tr> <tr><td>4</td><td>C5</td><td>55.8°C</td><td>91.7°C</td></tr> <tr><td>5</td><td>D52</td><td>58.3°C</td><td>95.2°C</td></tr> <tr><td>6</td><td>L2</td><td>50.3°C</td><td>86.0°C</td></tr> <tr><td>7</td><td>T1 Core</td><td>57.8°C</td><td>93.8°C</td></tr> <tr><td>8</td><td>T1 Wire</td><td>57.4°C</td><td>93.1°C</td></tr> <tr><td>9</td><td>C51</td><td>54.8°C</td><td>90.6°C</td></tr> <tr><td>10</td><td>C300</td><td>53.8°C</td><td>88.8°C</td></tr> <tr><td>11</td><td>BD1</td><td>53.7°C</td><td>89.0°C</td></tr> <tr><td>12</td><td>Q1</td><td>53.9°C</td><td>90.3°C</td></tr> <tr><td>13</td><td>Q2</td><td>61.3°C</td><td>103.5°C</td></tr> <tr><td>14</td><td>D6</td><td>59.2°C</td><td>99.1°C</td></tr> <tr><td>15</td><td>U2</td><td>47.8°C</td><td>82.3°C</td></tr> <tr><td>16</td><td>U1</td><td>50.9°C</td><td>86.5°C</td></tr> <tr><td>17</td><td>U100</td><td>50.7°C</td><td>86.0°C</td></tr> <tr><td>18</td><td>D101</td><td>58.4°C</td><td>93.2°C</td></tr> <tr><td>19</td><td>C100</td><td>57.0°C</td><td>91.8°C</td></tr> <tr><td>20</td><td>Q300</td><td>59.8°C</td><td>95.0°C</td></tr> <tr><td>21</td><td>C102</td><td>53.2°C</td><td>88.3°C</td></tr> <tr><td>22</td><td>TC</td><td>46.8°C</td><td>81.7°C</td></tr> </tbody> </table>	NO	Position	ROOM AMBIENT Ta= 25.7 °C	HIGH AMBIENT Ta=60.7 °C	1	RT1	52.8°C	86.8°C	2	R5	55.3°C	91.6°C	3	D4	58.0°C	95.0°C	4	C5	55.8°C	91.7°C	5	D52	58.3°C	95.2°C	6	L2	50.3°C	86.0°C	7	T1 Core	57.8°C	93.8°C	8	T1 Wire	57.4°C	93.1°C	9	C51	54.8°C	90.6°C	10	C300	53.8°C	88.8°C	11	BD1	53.7°C	89.0°C	12	Q1	53.9°C	90.3°C	13	Q2	61.3°C	103.5°C	14	D6	59.2°C	99.1°C	15	U2	47.8°C	82.3°C	16	U1	50.9°C	86.5°C	17	U100	50.7°C	86.0°C	18	D101	58.4°C	93.2°C	19	C100	57.0°C	91.8°C	20	Q300	59.8°C	95.0°C	21	C102	53.2°C	88.3°C	22	TC	46.8°C	81.7°C
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2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 305VAC/100VAC O/P : FULL 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 : 315VAC 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	±0.0012%/°C (0~60°C)																																																																																												
5	STORAGE TEMPERATURE TEST	-40 ~ +80°C	1. Thermal shock Temperature : -45 ~ +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 : AC OFF STATIC TEST : OK																																																																																													

6	THERMAL SHOCK TEST	-40~+60°C	1. Thermal shock Temperature : -45 ~ +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 : 180min in each axis (X.Y.Z) (6) Ta : 25°C TEST : OK
8	CAPACITOR LIFE CYCLE	XLG-50-L-DA2 : SUPPOSE C105 IS THE MOST CRITICAL COMPONENT (1) I/P : 230VAC O/P : FULL LOAD Tc= 75 °C LIFE TIME (2) I/P : 230VAC O/P : 75% LOAD Tc= 75 °C LIFE TIME (3) I/P : 230VAC O/P : 50% LOAD Tc= 75 °C LIFE TIME	(1) 70528 HRS (2) 85702 HRS (3) 88654 HRS
9	MTBF	Conducted by Parts Stress Analysis Prediction 2352.4K hrs min. Telcordia SR-332 (Bellcore) ; 207.3K 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/HUANGMK	WENF	LINKX