



Test Report: ELG-100-36

100W Single Output Switching Power Supply

■ 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

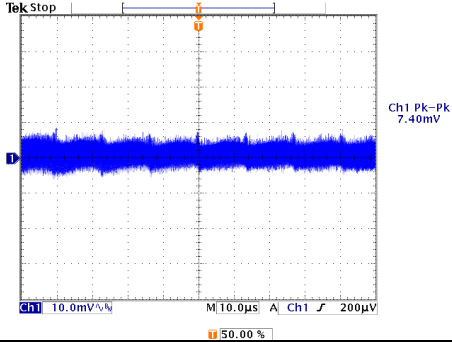
Environment Test

■ DESIGN VERIFY TEST

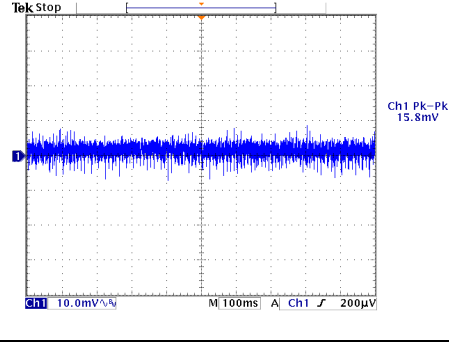
OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	CONSTANT CURRENT REGION	18V~36V	I/P: 230VAC O/P: LED MODE Ta: 25°C	12V~ 36V
2	OUTPUT VOLTAGE ADJUST RANGE	32.4V~39.6V	I/P: 230VAC O/P: NO LOAD Ta: 25°C	31.24V~ 41.35V
3	OUTPUT CURRENT ADJUST RANGE	1.33A~2.66A	I/P: 230VAC O/P: SETTING Ta: 25°C	1.061A~ 3.011A
4	OUTPUT VOLTAGE TOLERANCE	-2.5%~+2.5%	I/P: 180VAC / 295VAC O/P: FULL/ NO LOAD Ta: 25°C	-0.16%~ 0.42%
5	LINE REGULATION	-0.5%~+0.5%	I/P: 190VAC ~ 295VAC O/P: FULL LOAD Ta: 25°C	0%~ 0%
6	LOAD REGULATION	-1%~+1%	I/P: 230VAC O/P: FULL ~NO LOAD Ta: 25°C	-0.16%~ 0.11%
7	OVER/UNDERSHOOT TEST	<± 5 %	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	±0.831%
8	RIPPLE & NOISE (Max)	250mVp-p	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	15.8 mVp-p

high frequency :



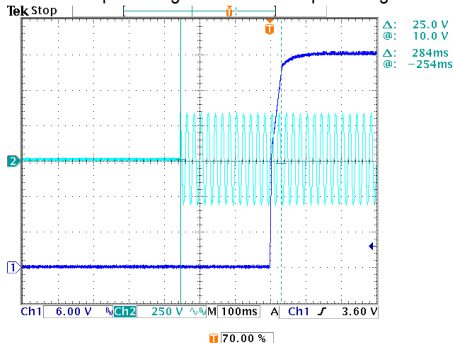
low frequency :



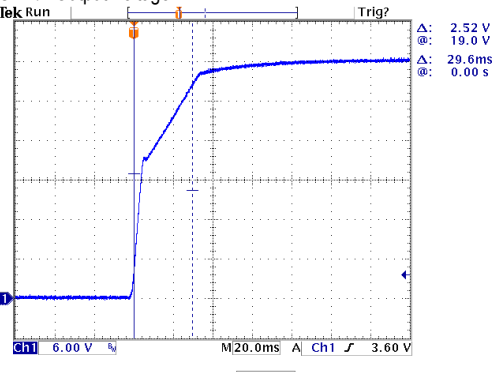
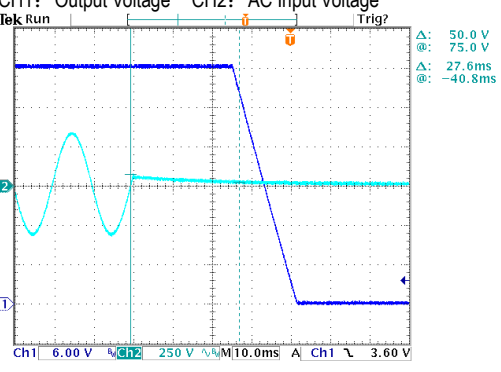
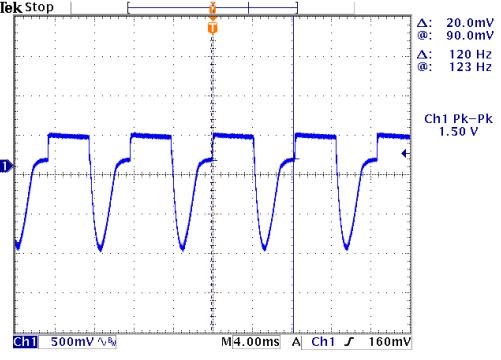
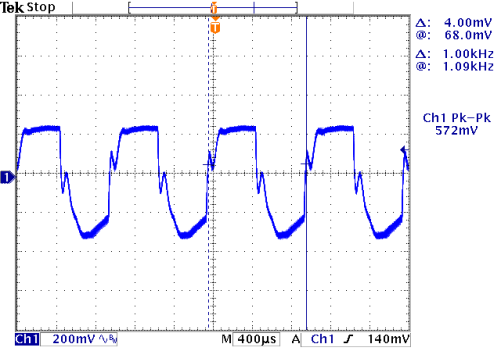
9	SET UP TIME(Max)	230VAC/ 500ms	I/P: 230 VAC O/P: 95% LOAD Ta: 25°C	230VAC/ 284 ms
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INPUT=230VAC/50HZ @ 95% LOAD

CH1: Output Voltage CH2: AC Input Voltage





10	RISE TIME (Max)	230VAC/ 100ms	I/P: 230 VAC O/P: 95% LOAD Ta: 25°C	230VAC/ 29.6 ms
<p>INPUT=230VAC/50HZ @ 95% LOAD CH1: Output Voltage</p>  <p>Δ: 2.52 V @: 19.0 V Δ: 29.6ms @: 0.00 s</p> <p>Ch1 6.00 V 20.0ms A Ch1 3.60 V</p> <p>30.00 %</p>				
11	HOLD UP TIME(Typ)	230VAC/ 10ms	I/P: 230 VAC O/P: 95% LOAD Ta: 25°C	230VAC/ 27.6 ms
<p>INPUT=230VAC/50HZ @ 95% LOAD CH1: Output Voltage CH2: AC Input Voltage</p>  <p>Δ: 50.0 V @: 75.0 V Δ: 27.6ms @: -40.8ms</p> <p>Ch1 6.00 V 10.0ms A Ch1 3.60 V</p> <p>70.00 %</p>				
12	DYNAMIC LOAD	V1: 3600 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) 1500mVp-p (2) 572mVp-p
<p>FULL /50% LOAD 50%DUTY / 120HZ</p>  <p>Δ: 20.0mV @: 90.0mV Δ: 120 Hz @: 123 Hz</p> <p>Ch1 Pk-Pk 1.50 V</p> <p>Ch1 500mV 4.00ms A Ch1 160mV</p> <p>50.00 %</p> <p>FULL /50% LOAD 50%DUTY / 1KHZ</p>  <p>Δ: 4.00mV @: 68.0mV Δ: 1.00kHz @: 1.09kHz</p> <p>Ch1 Pk-Pk 572mV</p> <p>Ch1 200mV 400μs A Ch1 140mV</p> <p>50.80 %</p>				

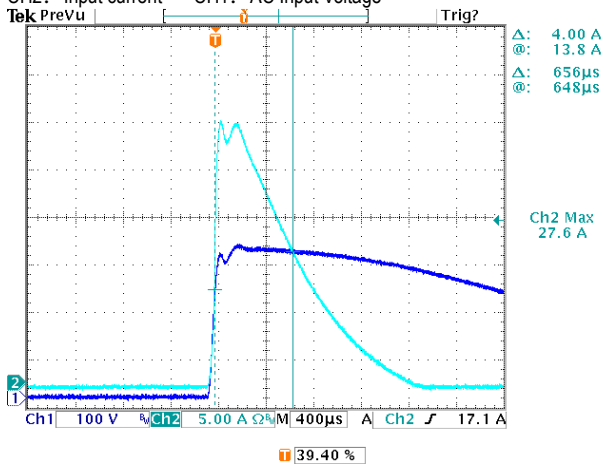
13	DIMMING TEST (For B-Type only)	SPEC:													
		※ Built-in 3 in 1 dimming function, IP67 rated. Output constant current level can be adjusted through output cable by connecting a resistance or 0 ~ 10Vdc or 10V PWM signal between DIM+ and DIM-.													
		※ Please DO NOT connect "DIM-" to "-V".													
		※ Reference resistance value for output current adjustment (Typical)													
		Resistance value	Single driver	Short	10K Ω	20K Ω	30K Ω	40K Ω	50K Ω	60K Ω	70K Ω	80K Ω	90K Ω	100K Ω	OPEN
			Multiple drivers (N=driver quantity for synchronized dimming operation)	Short	10K Ω/N	20K Ω/N	30K Ω/N	40K Ω/N	50K Ω/N	60K Ω/N	70K Ω/N	80K Ω/N	90K Ω/N	100K Ω/N
		Percentage of rated current		0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%~108%
		※ 0 ~ 10V dimming function for output current adjustment (Typical)													
		Dimming value		0V	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN
		Percentage of rated current		0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%~108%
		※ 10V PWM signal for output current adjustment (Typical): Frequency range: 100Hz~3KHz													
		Duty value		0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	OPEN
		Percentage of rated current		0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%~108%
TEST RESULT:															
I/P: 230 VAC; Ta: 25°C															
1	Resistance value	Short	10K	20K	30K	40K	50K	60K	70K	80K	90K	100K	OPEN		
	Output Current	0	0.263	0.539	0.814	1.092	1.369	1.646	1.928	2.207	2.489	2.681	2.683		
	Percentage of rated current	0%	9.89%	20.26%	30.60%	41.05%	51.47%	61.88%	72.48%	82.97%	93.57%	100.79%	100.86%		
2	Dimming value	0V	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN		
	Output Current	0	0.271	0.547	0.808	1.086	1.357	1.639	1.917	2.178	2.454	2.679	2.681		
	Percentage of rated current	0%	10.19%	20.56%	30.38%	40.83%	51.02%	61.62%	72.07%	81.88%	92.26%	100.71%	100.79%		
3	Duty value	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	OPEN		
	Output Current	0	0.334	0.604	0.876	1.144	1.418	1.686	1.956	2.226	2.495	2.725	2.730		
	Percentage of rated current	0%	12.56%	22.71%	32.93%	43.01%	53.31%	63.38%	73.53%	83.68%	93.80%	102.44%	102.63%		

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	180VAC~295VAC	I/P: TESTING O/P: FULL LOAD Ta: 25°C	177 V~ 295 V
			I/P: LOW-LINE-3V=177 V HIGH-LINE+10V=305 V O/P: FULL/NO LOAD 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: 180 VAC ~295 VAC O/P: FULL~NO LOAD Ta: 25°C	TEST: OK
3	AC CURRENT	0.5A/277VAC 0.6A/230VAC	I/P: 277 VAC I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	I = 0.37 A/ 277VAC I = 0.44 A/ 230VAC
4	LEAKAGE CURRENT	< 0.75mA / 277VAC	I/P: 277 VAC O/P: NO LOAD Ta: 25°C	L-FG: 0.420 mA N-FG: 0.408 mA
5	NO LOAD POWER CONSUMPTION	< 0.5W	I/P: 230VAC O/P: NO LOAD Ta: 25°C	0.191 W/ 230VAC
6	TOTAL HARMONIC DISTORTION	Total harmonic distortion will be lower than 20% when output loading is 50% or higher at 230VAC	I/P: 230VAC O/P: 50% LOAD	THD: 13.26 %
		Total harmonic distortion will be lower than 20% when output loading is 75% or higher at 277VAC	I/P: 277VAC O/P: 75% LOAD	THD: 11.72 %
7	INRUSH CURRENT(Typ)	230V/ 60A Twidth =850us measured at 50% Ipeak COLD START	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	I = 27.6 A/ 230VAC Twidth =656 us

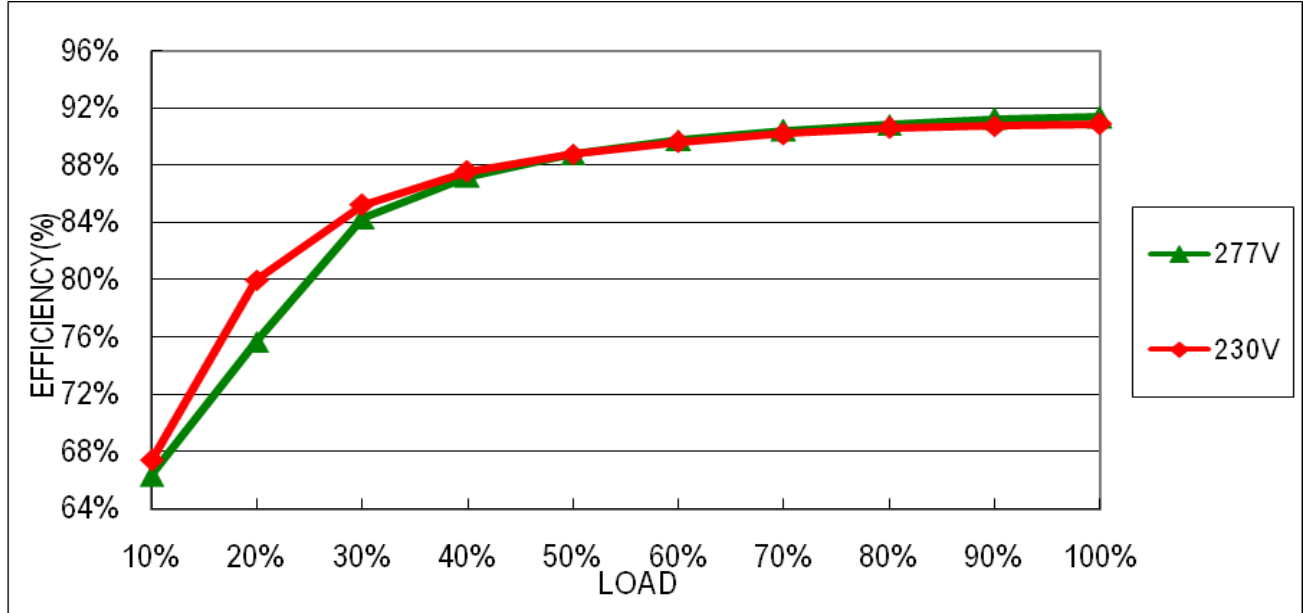
INPUT=230VAC/50HZ @ FULL LOAD

CH2: Input current CH1: AC Input Voltage



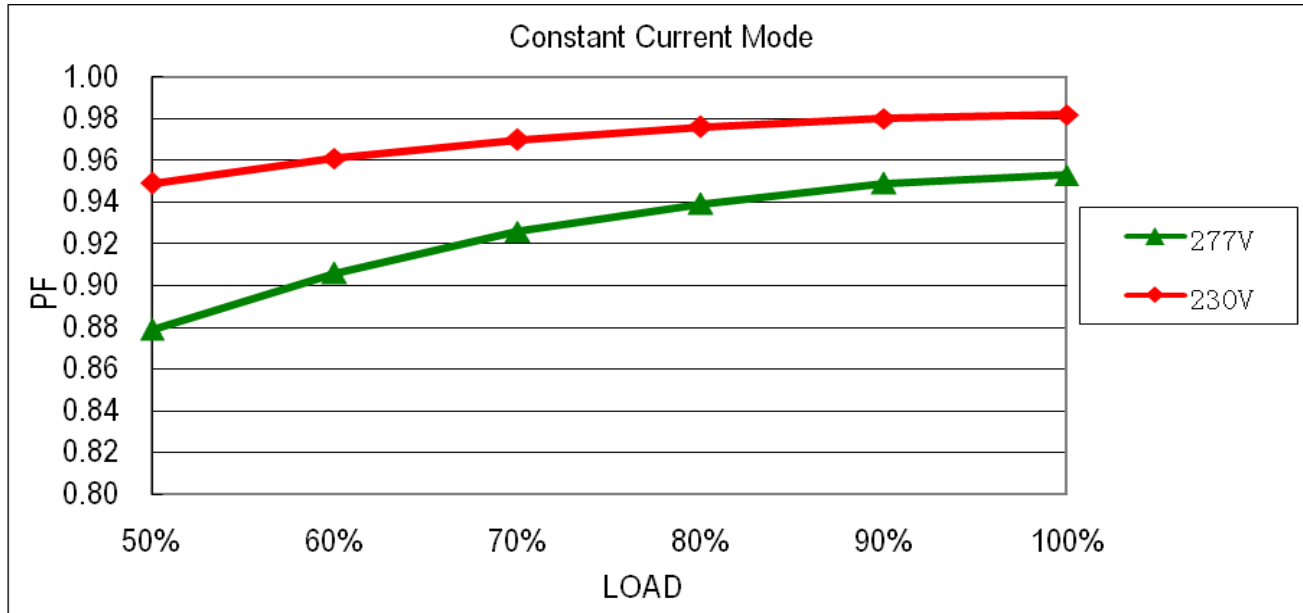
8	EFFICIENCY(Typ)	89%	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	90.89%
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EFFICIENCY vs LOAD



9	POWER FACTOR	0.92/ 277VAC 0.95/ 230VAC	I/P: 277 VAC I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	PF= 0.953 / 277VAC PF= 0.982 / 230VAC
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P.F vs LOAD



PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER LOAD PROTECTION	95%~108%	I/P: 190VAC I/P: 230VAC I/P: 295VAC O/P: TESTING Ta: 25°C	100.87 %/ 190VAC 100.86 %/ 230VAC 100.86 %/ 295VAC Constant Current Limiting, recovers automatically after fault condition is removed
2	OVER VOLTAGE PROTECTION	41V~48V	I/P: 180VAC I/P: 230VAC I/P: 295VAC O/P: NO LOAD Ta: 25°C	43.68 V/ 180VAC 43.70 V/ 230VAC 43.67 V/ 295VAC Shut down o/p voltage, re-power on to recovery
3	OVER TEMPERATURE PROTECTION	NO DAMAGE	I/P: 190VAC I/P: 230VAC I/P: 295VAC O/P: FULL LOAD	O.T.P. Active Shut down o/p voltage, re-power on to recovery
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 190VAC I/P: 295VAC O/P: FULL LOAD Ta: 25°C	NO DAMAGE Hiccup mode, recovers automatically after fault condition is removed

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Power Transistor	Q 2 Rated 800V/5.7A	I/P: High-Line +3V =298V O/P: (1) Full Load Turn on (2) Output Short (3) Full load continue Ta: 25°C	(1) 668 V (2) 476 V (3) 664 V
2	O/P Diode (MOSFET)	Q101 Rated 150V/30A	I/P: High-Line +3V =298V O/P: (1) Full Load Turn on (2) Output Short (3) Full load continue Ta: 25°C	(1) 121 V (2) 78.1 V (3) 120 V
3	Input Capacitor	C5 Rated 100u/ 450V	I/P: High-Line +3V =298 V O/P: (1) Full Load input on/off (2) NO LOAD input on /Off (3) Full Load /NO LOAD Change Ta: 25°C	(1) 440 V (2) 446 V (3) 442 V
4	Control IC	U1 Rated 28V (MAX.)	I/P: High-Line +3V =298 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) 17.3 V (2) 15.0 V (3) 11.1 V (4) 15.1 V (5) 17.2 V
5	PFC Power Transistor	Q 1 Rated 600V/10A	I/P: High-Line +3V =298V O/P: (1) Full Load Turn on (2) Output Short (3) Full load continue Ta: 25°C	(1) 482 V (2) 444 V (3) 478 V
6	Clamp Diode	D10 Rated 800V/2A	I/P: High-Line +3V = 298V O/P: (1) Full Load input on/off (2) Output Short Ta: 25°C	(1) 640 V (2) 442 V

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P: 3.75KVAC/min I/P-FG: 2.0KVAC/min O/P-FG: 1.5KVAC/min	I/P-O/P: 4.2KVAC/min I/P-FG: 2.4 KVAC/min O/P-FG: 1.8 KVAC/min Ta: 25°C	I/P-O/P: 2.621 mA I/P-FG: 2.497 mA O/P-FG: 1.974 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

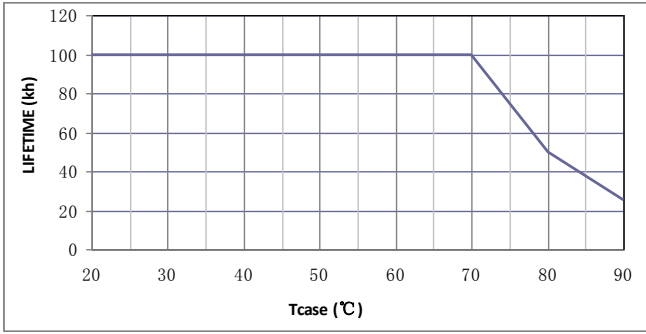
E.M.C TEST

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: 1KV	I/P: 230VAC/50HZ O/P: FULL LOAD Ta: 25°C	CRITERIA A
6	SURGE	EN61000-4-5 INDUSTRY L-N: 3KV 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			

■ **RELIABILITY TEST**

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT																																																																																																
1	TEMPERATURE RISE TEST	MODEL: ELG-100-36 1. ROOM AMBIENT BURN-IN: 2 HRS I/P: 230VAC O/P: FULL LOAD Ta=31.1 °C 2. HIGH AMBIENT BURN-IN: 2 HRS I/P: 230VAC O/P: FULL LOAD Ta=61.6 °C																																																																																																		
				<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta=31.1 °C</th> <th>HIGH AMBIENT Ta=61.6 °C</th> </tr> </thead> <tbody> <tr><td>1</td><td>ZNR1</td><td>54.6°C</td><td>80.2°C</td></tr> <tr><td>2</td><td>LF2</td><td>56.6°C</td><td>82.3°C</td></tr> <tr><td>3</td><td>C10</td><td>58.0°C</td><td>84.2°C</td></tr> <tr><td>4</td><td>C11</td><td>58.4°C</td><td>84.8°C</td></tr> <tr><td>5</td><td>L2</td><td>58.6°C</td><td>84.3°C</td></tr> <tr><td>6</td><td>L1</td><td>57.6°C</td><td>83.5°C</td></tr> <tr><td>7</td><td>Q1</td><td>59.3°C</td><td>85.9°C</td></tr> <tr><td>8</td><td>Q2</td><td>61.3°C</td><td>88.0°C</td></tr> <tr><td>9</td><td>D6</td><td>60.0°C</td><td>86.6°C</td></tr> <tr><td>10</td><td>D10</td><td>66.2°C</td><td>93.7°C</td></tr> <tr><td>11</td><td>C5</td><td>57.3°C</td><td>83.2°C</td></tr> <tr><td>12</td><td>C45</td><td>59.3°C</td><td>85.2°C</td></tr> <tr><td>13</td><td>U1</td><td>58.0°C</td><td>84.1°C</td></tr> <tr><td>14</td><td>T1</td><td>65.1°C</td><td>90.7°C</td></tr> <tr><td>15</td><td>Q101</td><td>62.3°C</td><td>88.4°C</td></tr> <tr><td>16</td><td>C205</td><td>59.2°C</td><td>85.1°C</td></tr> <tr><td>17</td><td>C105</td><td>61.3°C</td><td>87.2°C</td></tr> <tr><td>18</td><td>C106</td><td>58.8°C</td><td>84.8°C</td></tr> <tr><td>19</td><td>C108</td><td>57.7°C</td><td>83.7°C</td></tr> <tr><td>20</td><td>LF100</td><td>55.6°C</td><td>82.3°C</td></tr> <tr><td>21</td><td>RTH2</td><td>57.4°C</td><td>83.6°C</td></tr> <tr><td>22</td><td>U100</td><td>54.6°C</td><td>80.8°C</td></tr> <tr><td>23</td><td>TC</td><td>52.4°C</td><td>78.5°C</td></tr> </tbody> </table>	NO	Position	ROOM AMBIENT Ta=31.1 °C	HIGH AMBIENT Ta=61.6 °C	1	ZNR1	54.6°C	80.2°C	2	LF2	56.6°C	82.3°C	3	C10	58.0°C	84.2°C	4	C11	58.4°C	84.8°C	5	L2	58.6°C	84.3°C	6	L1	57.6°C	83.5°C	7	Q1	59.3°C	85.9°C	8	Q2	61.3°C	88.0°C	9	D6	60.0°C	86.6°C	10	D10	66.2°C	93.7°C	11	C5	57.3°C	83.2°C	12	C45	59.3°C	85.2°C	13	U1	58.0°C	84.1°C	14	T1	65.1°C	90.7°C	15	Q101	62.3°C	88.4°C	16	C205	59.2°C	85.1°C	17	C105	61.3°C	87.2°C	18	C106	58.8°C	84.8°C	19	C108	57.7°C	83.7°C	20	LF100	55.6°C	82.3°C	21	RTH2	57.4°C	83.6°C	22	U100	54.6°C	80.8°C	23	TC	52.4°C	78.5°C
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16	C205	59.2°C	85.1°C																																																																																																	
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19	C108	57.7°C	83.7°C																																																																																																	
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21	RTH2	57.4°C	83.6°C																																																																																																	
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23	TC	52.4°C	78.5°C																																																																																																	
2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P: 295VAC/190VAC O/P: FULL LOAD Ta= -45°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 (0~50°C)	I/P: 230 VAC O/P: FULL LOAD	±0.003 %/°C (0~50°C)																																																																																																
5	STORAGE TEMPERATURE TEST	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: 5 CYCLE 5. Input/Output condition: STATIC		TEST: OK																																																																																																

6	THERMAL SHOCK TEST	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: 10 CYCLE 5. Input/Output condition: 230VAC/Full Load AC ON/OFF TEST AC on 3 sec/AC off 1 sec TEST	TEST: OK
7	VIBRATION TEST	1 Carton & 1 Set (1) Waveform: Sine Wave (2) Frequency: 10~500Hz (3) Sweep Time: 12min/sweep cycle (4) Acceleration: 5G (5) Test Time: 72min in each axis (X.Y.Z) (6) Ta: 25°C	TEST: OK
8	CAPACITOR LIFE CYCLE	ELG-100-36: SUPPOSE C108 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= 60 °C LIFE TIME (3) I/P: 230VAC O/P: 75% LOAD Ta= 60 °C LIFE TIME (4) I/P: 230VAC O/P: 50% LOAD Ta= 60 °C LIFE TIME	(1) 354942 HRS (2) 42856 HRS (3) 52090 HRS (4) 71471 HRS
9	MTBF	MIL-HDBK-217F TOTAL FAILURE RATE: 282.9K HRS	
10	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure (Expected Life): Above 50000 hours @ Tc 80°C 	

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	ZHANGZJ/ZHUOKB	SKY	LIUWY