



# Test Report: ELG-100-C1400

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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	OUTPUT CURRENT ADJUST RANGE	700mA-1400mA	I/P: 230VAC O/P: LED MODE Ta: 25°C	0.632A-1.489A
2	OUTPUT CURRENT TOLERANCE	±5%	I/P: 230VAC O/P: FULL/ MIN LOAD Ta: 25°C	±0.97%
3	CONSTANT CURRENT REGION	35V-72V	I/P: 230VAC O/P: LED MODE Ta: 25°C	28.5V-72.5V
4	NO LOAD OUTPUT VOLTAGE (Max)	75V	I/P: 230VAC O/P: NO LOAD Ta: 25°C	73V
5	OVER/UNDERSHOOT TEST	<±5 %	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	<5 %
6	RIPPLE & NOISE (Max)	1.0Vp-p	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	0.143Vp-p
<div style="display: flex; justify-content: space-around;"> <div style="width: 45%;"> <p>high frequency:</p> </div> <div style="width: 45%;"> <p>low frequency:</p> </div> </div>				
7	SET UP TIME(Max)	230VAC/ 500ms	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	230VAC/ 270ms



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ELG-100-C series

	<p>INPUT=230VAC/50HZ @ FULL LOAD</p> <p>CH1: Output Voltage CH2: AC Input Voltage</p> <p>50.40 %</p>		
8	RISE TIME (Max)	230VAC/ 100ms	<p>I/P: 230 VAC O/P: FULL LOAD Ta: 25°C</p> <p>230VAC/7.9ms</p>
	<p>INPUT=230VAC/50HZ @ FULL LOAD</p> <p>CH1: Output Voltage</p> <p>54.60 %</p>		
9	HOLD UP TIME(Typ)	230VAC/ 10ms	<p>I/P: 230 VAC O/P: FULL LOAD Ta: 25°C</p> <p>230VAC/20.0ms</p>
	<p>INPUT=230VAC/50HZ @ FULL LOAD</p> <p>CH1: Output Voltage CH2: AC Input Voltage</p> <p>54.60 %</p>		



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10	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	0.132	0.280	0.429	0.578	0.725	0.873	1.023	1.172	1.321	1.415	1.416	
		Percentage of rated current	0%	9.43%	20.00%	30.64%	41.29%	51.79%	62.36%	73.07%	83.71%	94.36%	101.07%	101.14%	
	2	Dimming value	0V	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN	
			Output Current	0	0.137	0.286	0.428	0.579	0.725	0.877	1.026	1.168	1.316	1.417	1.418
			Percentage of rated current	0%	9.79%	20.43%	30.57%	41.36%	51.79%	62.64%	73.29%	83.43%	94.00%	101.21%	101.29%
	3	Duty value	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	OPEN	
			Output Current	0	0.147	0.291	0.439	0.583	0.729	0.873	1.018	1.165	1.308	1.415	1.417
			Percentage of rated current	0%	10.50%	20.79%	31.36%	41.64%	52.07%	62.36%	72.71%	83.21%	93.43%	101.07%	101.21%

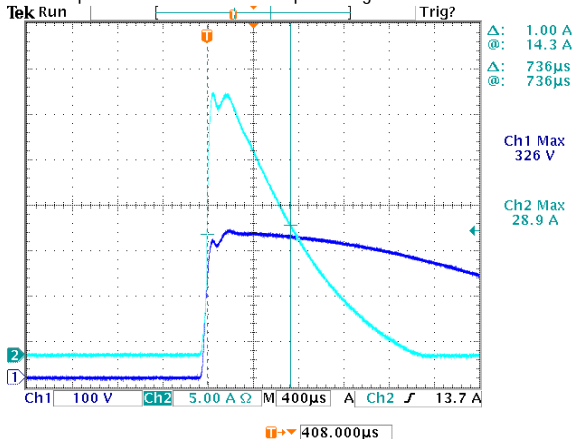


**INPUT FUNCTION TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	100VAC-305VAC	I/P: TESTING O/P: FULL LOAD Ta: 25°C	97V-305V
			I/P: LOW-LINE-3V=97 V HIGH-LINE+10V=315 V O/P: FULL/MIN 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: 100 VAC ~305 VAC O/P: FULL-MIN 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 =0.405A/ 277VAC I =0.482A/ 230VAC
4	LEAKAGE CURRENT	< 0.75mA / 277VAC	I/P: 277 VAC O/P: NO LOAD Ta: 25°C	L-FG: 0.373 mA N-FG: 0.359 mA
5	NO LOAD POWER CONSUMPTION	< 0.5W	I/P: 230VAC O/P: NO LOAD Ta: 25°C	0.196W/ 230VAC
6	TOTAL HARMONIC DISTORTION	Total harmonic distortion will be lower than 20% when output loading is 60% or higher at 230VAC	I/P: 230VAC O/P: 60% LOAD	THD: 9.63 %
		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: 10.21 %
7	INRUSH CURRENT(Typ)	230V/ 40A Twidth =760 us measured at 50% Ipeak COLD START	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	I =28.9A/ 230VAC Twidth =736us

INPUT=230VAC/50HZ @ FULL LOAD

CH2: Input current CH1: AC Input Voltage



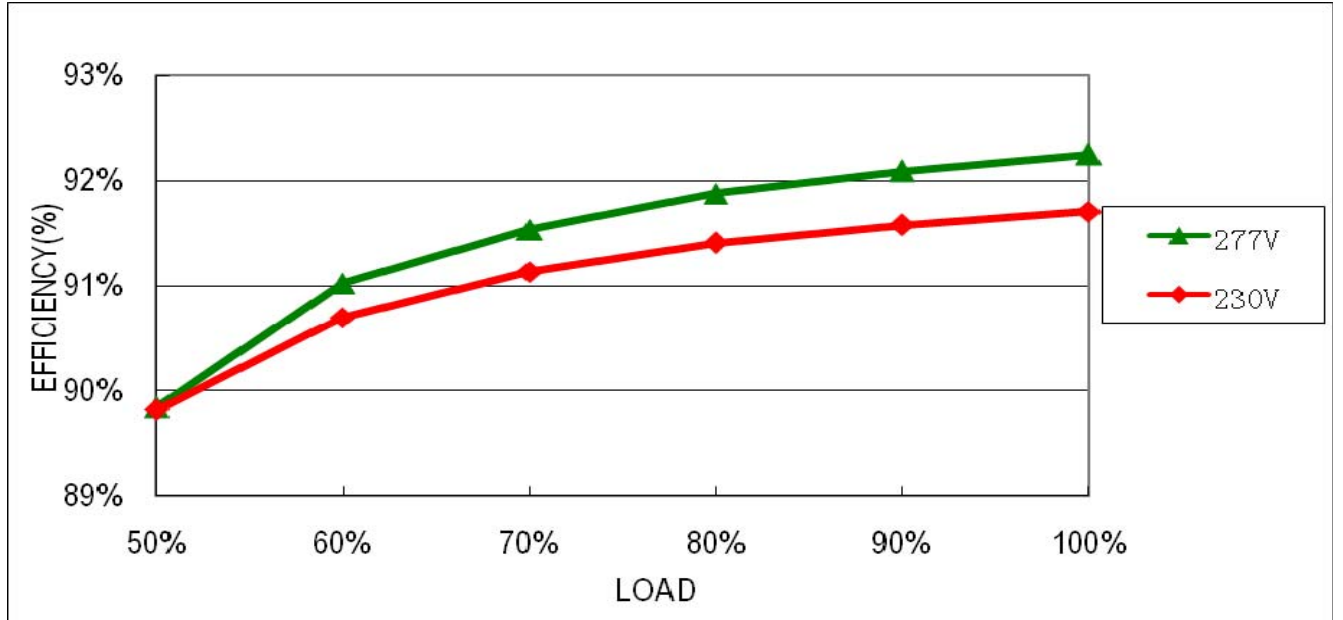


100W Single Output Switching Power Supply

**ELG-100-C series**

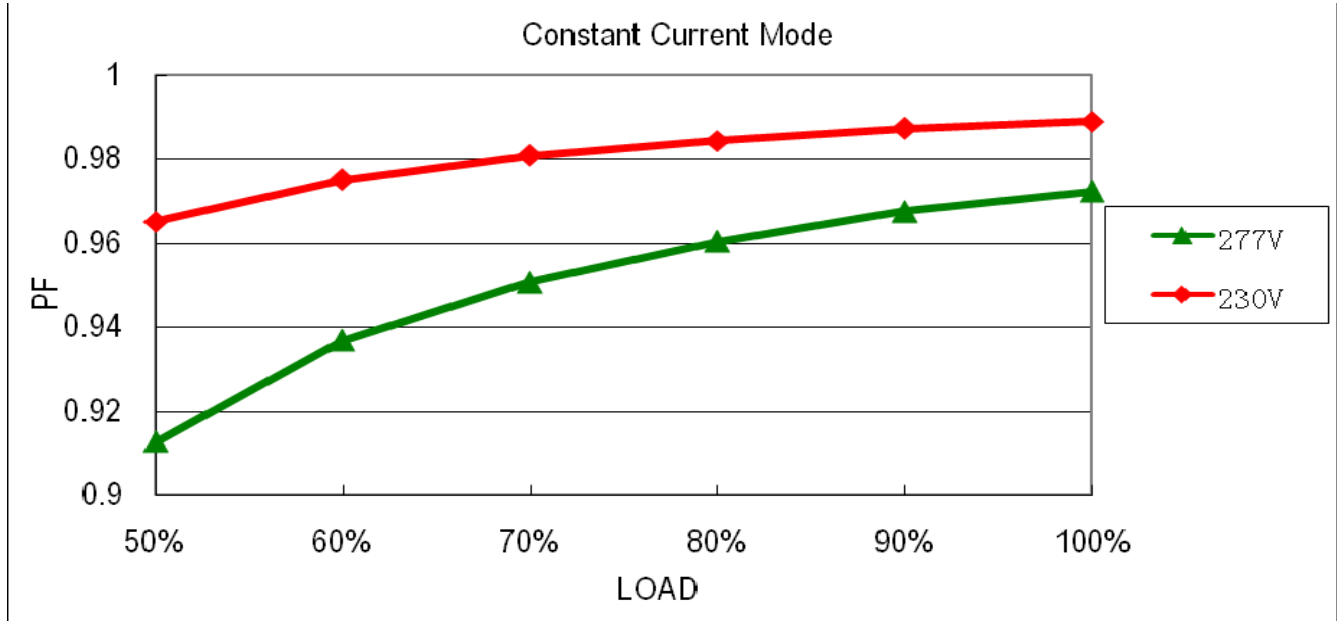
8	EFFICIENCY(Typ)	90%	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	91.71%
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EFFICIENCY vs LOAD



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=0.972/ 277VAC PF=0.989/ 230VAC
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P.F vs LOAD



**PROTECTION FUNCTION TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER VOLTAGE PROTECTION	79V-95V	I/P: 100VAC I/P: 230VAC I/P: 305VAC O/P: NO LOAD Ta: 25°C	87.6V/ 100VAC 87.5V/ 230VAC 87.5V/ 305VAC Shut down o/p voltage, re-power on to recover
2	OVER TEMPERATURE PROTECTION	NO DAMAGE	I/P: 200 VAC I/P: 230VAC I/P: 305VAC O/P: FULL LOAD	O.T.P. Active Shut down o/p voltage, re-power on to recover
3	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 200VAC I/P: 305VAC 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/9A	I/P: High-Line +3V =308V O/P: (1) Full Load Turn on (2) Output Short (3) Full load continue Ta: 25°C	(1) 724V (2) 584V (3) 706V
2	O/P Diode (MOSFET)	D100 Rated 400V/10A	I/P: High-Line +3V =308V O/P: (1) Full Load Turn on (2) Output Short (3) Full load continue Ta: 25°C	(1) 223V (2) 173V (3) 217V
3	Input Capacitor	C5 Rated 100u/ 450V	I/P: High-Line +3V =308V O/P: (1) Full Load input on/off (2) Min load input on /Off (3) Full Load /Min load Change Ta: 25°C	(1) 446V (2) 442V (3) 446V
4	Control IC	U1 Rated 28V (MAX.)	I/P: High-Line +3V =308V O/P: (1) FULL LOAD (2) Output Short (3) O.V.P (4) Low Line No Load Vo(min) Ta: 25°C	(1) 17.2V (2) 11.2V (3) 15.1V (4) 12.7V
5	PFC Power Transistor	Q 1 Rated 600V/10A	I/P: High-Line +3V =308V O/P: (1) Full Load Turn on (2) Output Short (3) Full load continue Ta: 25°C	(1) 506V (2) 454V (3) 466V
6	Clamp Diode	D 10 Rated 800V/2A	I/P: High-Line +3V = 308V O/P: (1) Full Load input on/off (2) Output Short Ta: 25°C	(1) 686V (2) 538V

**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: 4.2 KVAC/min I/P-FG: 2.4 KVAC/min O/P-FG: 1.8 KVAC/min Ta: 25°C	I/P-O/P: 1.566mA I/P-FG: 2.045mA O/P-FG: 1.602mA 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: >9999MΩ

**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/60% 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: 4KV L,N-PE: 6KV	I/P: 230VAC/50HZ O/P: FULL LOAD L-N: 4KV L,N-PE: 8KV Ta: 25°C	CRITERIA A
7	Test by certified Lab & Test Report Prepare			





■ **RELIABILITY TEST**

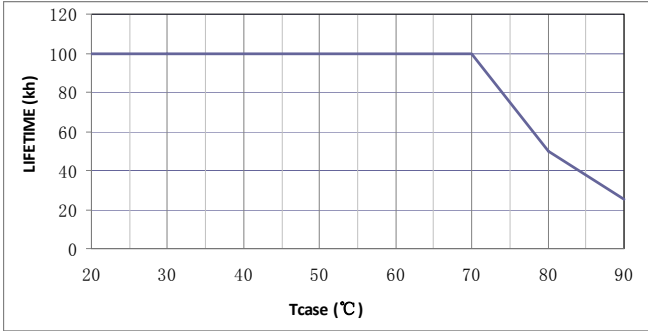
**ENVIRONMENT TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT																																																																																				
1	TEMPERATURE RISE TEST	MODEL: ELG-100-C1400 1. ROOM AMBIENT BURN-IN: 2 HRS I/P: 230VAC O/P: FULL LOAD Ta= 30.0℃ 2. HIGH AMBIENT BURN-IN: 2 HRS I/P: 230VAC O/P: FULL LOAD Ta= 62.8℃																																																																																						
				<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta= 30.0 ℃</th> <th>HIGH AMBIENT Ta=62.8 ℃</th> </tr> </thead> <tbody> <tr><td>1</td><td>C11</td><td>64.5℃</td><td>99.6℃</td></tr> <tr><td>2</td><td>L1</td><td>60.9℃</td><td>95.8℃</td></tr> <tr><td>3</td><td>L2</td><td>59.7℃</td><td>91.6℃</td></tr> <tr><td>4</td><td>Q1</td><td>67.6℃</td><td>104.8℃</td></tr> <tr><td>5</td><td>Q2</td><td>66.6℃</td><td>103.2℃</td></tr> <tr><td>6</td><td>D6</td><td>66.7℃</td><td>103.9℃</td></tr> <tr><td>7</td><td>D10</td><td>72.1℃</td><td>110.5℃</td></tr> <tr><td>8</td><td>R15</td><td>64.5℃</td><td>99.9℃</td></tr> <tr><td>9</td><td>C5</td><td>59.7℃</td><td>94.1℃</td></tr> <tr><td>10</td><td>R7</td><td>69.7℃</td><td>106.2℃</td></tr> <tr><td>11</td><td>C45</td><td>59.7℃</td><td>93.9℃</td></tr> <tr><td>12</td><td>T1</td><td>68.4℃</td><td>104.7℃</td></tr> <tr><td>13</td><td>U1</td><td>59.4℃</td><td>92.7℃</td></tr> <tr><td>14</td><td>D100</td><td>71.9℃</td><td>105.5℃</td></tr> <tr><td>15</td><td>Q100</td><td>60.1℃</td><td>96.5℃</td></tr> <tr><td>16</td><td>C205</td><td>61.2℃</td><td>95.9℃</td></tr> <tr><td>17</td><td>C102</td><td>65.1℃</td><td>99.3℃</td></tr> <tr><td>18</td><td>C104</td><td>70.0℃</td><td>99.1℃</td></tr> <tr><td>19</td><td>RTH2</td><td>57.9℃</td><td>91.8℃</td></tr> <tr><td>20</td><td>TC</td><td>52.7℃</td><td>85.1℃</td></tr> </tbody> </table>	NO	Position	ROOM AMBIENT Ta= 30.0 ℃	HIGH AMBIENT Ta=62.8 ℃	1	C11	64.5℃	99.6℃	2	L1	60.9℃	95.8℃	3	L2	59.7℃	91.6℃	4	Q1	67.6℃	104.8℃	5	Q2	66.6℃	103.2℃	6	D6	66.7℃	103.9℃	7	D10	72.1℃	110.5℃	8	R15	64.5℃	99.9℃	9	C5	59.7℃	94.1℃	10	R7	69.7℃	106.2℃	11	C45	59.7℃	93.9℃	12	T1	68.4℃	104.7℃	13	U1	59.4℃	92.7℃	14	D100	71.9℃	105.5℃	15	Q100	60.1℃	96.5℃	16	C205	61.2℃	95.9℃	17	C102	65.1℃	99.3℃	18	C104	70.0℃	99.1℃	19	RTH2	57.9℃	91.8℃	20	TC	52.7℃	85.1℃
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2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P: 305VAC/200VAC O/P: FULL LOAD Ta= -45℃	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 %/℃ (0-50℃)	I/P: 230 VAC O/P: FULL LOAD	±0.002%/℃ (0-50℃)																																																																																				
5	STORAGE TEMPERATURE TEST	1. Thermal shock Temperature: -45℃~ +90℃ 2. Temperature change rate : 25℃ / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle: 5 CYCLE 5. Input/Output condition: STATIC		TEST: OK																																																																																				



100W Single Output Switching Power Supply

**ELG-100-C series**

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: 16 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-C1400: SUPPOSE C102 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) 652175 HRS (2) 62608 HRS (3) 101815 HRS (4) 119765 HRS
9	MTBF	MIL-HDBK-217F TOTAL FAILURE RATE: 300.6K 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