



# Test Report: ELG-100-C1050

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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	525mA~1050mA	I/P: 230VAC O/P: LED MODE Ta: 25°C	0.491A~1.126A
2	OUTPUT CURRENT TOLERANCE	±5%	I/P: 230VAC O/P: FULL/ MIN LOAD Ta: 25°C	±1.21%
3	CONSTANT CURRENT REGION	48V~95V	I/P: 230VAC O/P: LED MODE Ta: 25°C	20.3V~95.1V
4	NO LOAD OUTPUT VOLTAGE (Max)	105V	I/P: 230VAC O/P: NO LOAD Ta: 25°C	96V
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	0.362Vp-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/ 296ms



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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>50.20 %</p>		
8	RISE TIME (Max)	230VAC/ 100ms	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C
	<p>INPUT=230VAC/50HZ @ FULL LOAD</p> <p>CH1: Output Voltage</p> <p>50.20 %</p>		
9	HOLD UP TIME(Typ)	230VAC/ 10ms	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C
	<p>INPUT=230VAC/50HZ @ FULL LOAD</p> <p>CH1: Output Voltage CH2: AC Input Voltage</p> <p>50.20 %</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	0.082	0.191	0.300	0.409	0.517	0.622	0.729	0.836	0.942	1.047	1.053	
		Percentage of rated current	0%	7.81%	18.19%	28.57%	38.95%	49.24%	59.24%	69.43%	79.62%	89.71%	99.71%	100.29%	
	2	Dimming value	0V	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN	
			Output Current	0	0.085	0.194	0.297	0.408	0.514	0.626	0.735	0.838	0.946	1.051	1.054
			Percentage of rated current	0%	8.10%	18.48%	28.29%	38.86%	48.95%	59.62%	70.00%	79.81%	90.10%	100.10%	100.38%
	3	Duty value	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	OPEN	
			Output Current	0	0.091	0.196	0.303	0.409	0.516	0.621	0.726	0.833	0.938	1.033	1.054
			Percentage of rated current	0%	8.67%	18.67%	28.86%	38.95%	49.14%	59.14%	69.14%	79.33%	89.33%	98.38%	100.38%

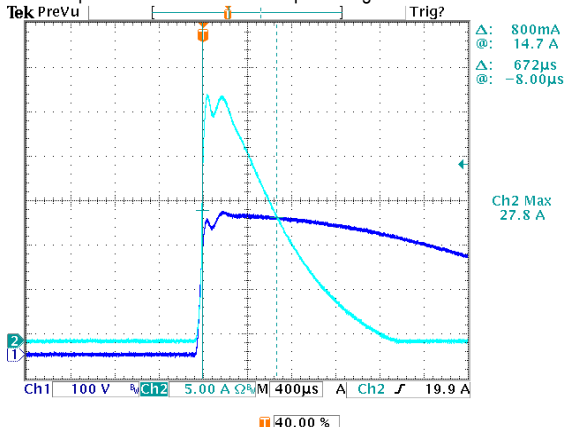


**INPUT FUNCTION TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	180VAC~295VAC	I/P: TESTING O/P: FULL LOAD Ta: 25°C	177V~305V
			I/P: LOW-LINE-3V=177 V HIGH-LINE+10V=305 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: 180 VAC ~295 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 =0.410A/ 277VAC I =0.480A/ 230VAC
4	LEAKAGE CURRENT	< 0.75mA / 277VAC	I/P: 277 VAC O/P: NO LOAD Ta: 25°C	L-FG: 0.331 mA N-FG: 0.322 mA
5	NO LOAD POWER CONSUMPTION	< 0.5W	I/P: 230VAC O/P: NO LOAD Ta: 25°C	0.195W/ 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: 12.69 %
		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: 11.63 %
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 =27.8A/ 230VAC Twidth =672us

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	92.18%																					
<p><b>EFFICIENCY vs LOAD</b></p> <table border="1"> <caption>Efficiency vs Load Data</caption> <thead> <tr> <th>LOAD (%)</th> <th>277V Efficiency (%)</th> <th>230V Efficiency (%)</th> </tr> </thead> <tbody> <tr> <td>50%</td> <td>91.0</td> <td>91.0</td> </tr> <tr> <td>60%</td> <td>91.6</td> <td>91.5</td> </tr> <tr> <td>70%</td> <td>92.0</td> <td>91.8</td> </tr> <tr> <td>80%</td> <td>92.3</td> <td>92.1</td> </tr> <tr> <td>90%</td> <td>92.4</td> <td>92.2</td> </tr> <tr> <td>100%</td> <td>92.5</td> <td>92.2</td> </tr> </tbody> </table>					LOAD (%)	277V Efficiency (%)	230V Efficiency (%)	50%	91.0	91.0	60%	91.6	91.5	70%	92.0	91.8	80%	92.3	92.1	90%	92.4	92.2	100%	92.5	92.2
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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=0.970/ 277VAC PF=0.988/ 230VAC																					
<p><b>P.F vs LOAD</b></p> <p>Constant Current Mode</p> <table border="1"> <caption>P.F vs Load Data</caption> <thead> <tr> <th>LOAD (%)</th> <th>277V PF</th> <th>230V PF</th> </tr> </thead> <tbody> <tr> <td>50%</td> <td>0.910</td> <td>0.963</td> </tr> <tr> <td>60%</td> <td>0.932</td> <td>0.972</td> </tr> <tr> <td>70%</td> <td>0.947</td> <td>0.978</td> </tr> <tr> <td>80%</td> <td>0.956</td> <td>0.983</td> </tr> <tr> <td>90%</td> <td>0.964</td> <td>0.987</td> </tr> <tr> <td>100%</td> <td>0.970</td> <td>0.988</td> </tr> </tbody> </table>					LOAD (%)	277V PF	230V PF	50%	0.910	0.963	60%	0.932	0.972	70%	0.947	0.978	80%	0.956	0.983	90%	0.964	0.987	100%	0.970	0.988
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**PROTECTION FUNCTION TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER VOLTAGE PROTECTION	110V~130V	I/P: 180VAC I/P: 230VAC I/P: 295VAC O/P: NO LOAD Ta: 25°C	115.9V/ 180VAC 115.9V/ 230VAC 115.9V/ 295VAC 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: 295VAC 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: 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/9A	I/P: High-Line +3V =298V O/P: (1) Full Load Turn on (2) Output Short (3) Full load continue Ta: 25°C	(1) 716V (2) 492V (3) 700V
2	O/P Diode (MOSFET)	D100 Rated 400V/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) 298V (2) 188V (3) 290V
3	Input Capacitor	C5 Rated 100u/ 450V	I/P: High-Line +3V =298V 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) 444V (3) 444V
4	Control IC	U1 Rated 28V (MAX.)	I/P: High-Line +3V =298V O/P: (1) FULL LOAD (2) Output Short (3) O.V.P (4) Low Line No Load Vo(min) Ta: 25°C	(1) 17.4V (2) 11.3V (3) 15.3V (4) 15.1V
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) 478V (2) 438V (3) 470V
6	Clamp Diode	D 10 Rated 800V/2A	I/P: High-Line +3V = 298V O/P: (1) Full Load input on/off (2) Output Short Ta: 25°C	(1) 662V (2) 430V

**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: 1.596mA I/P-FG: 2.043mA O/P-FG: 1.612mA 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: 3KV 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**

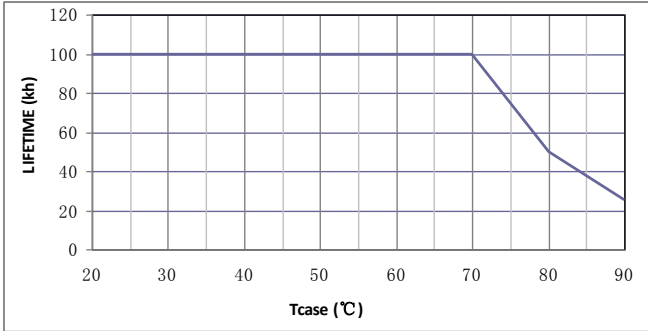
**ENVIRONMENT TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT																																																																																				
1	TEMPERATURE RISE TEST	MODEL: ELG-100-C1050 1. ROOM AMBIENT BURN-IN: 2 HRS I/P: 230VAC O/P: FULL LOAD Ta= 30.5℃ 2. HIGH AMBIENT BURN-IN: 2 HRS I/P: 230VAC O/P: FULL LOAD Ta= 62.8℃																																																																																						
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18	C104	66.8℃	93.2℃																																																																																					
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2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P: 295VAC/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	±0.008%/℃ (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-C1050: 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) 161135 HRS (2) 21277 HRS (3) 45206 HRS (4) 58297 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