



# Test Report: ELG-100-C700

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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	350mA~700mA	I/P: 230VAC O/P: LED MODE Ta: 25°C	0.282A~0.816A
2	OUTPUT CURRENT TOLERANCE	±5%	I/P: 230VAC O/P: FULL/ MIN LOAD Ta: 25°C	±1.91%
3	CONSTANT CURRENT REGION	71V~143V	I/P: 230VAC O/P: LED MODE Ta: 25°C	24V~145V
4	NO LOAD OUTPUT VOLTAGE (Max)	149V	I/P: 230VAC O/P: NO LOAD Ta: 25°C	145V
5	OVER/UNDERSHOOT TEST	<±5 %	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	<5 %
6	RIPPLE & NOISE (Max)	1.5Vp-p	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	0.452Vp-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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	<p>INPUT=230VAC/50HZ @ FULL LOAD</p> <p>CH1: Output Voltage CH2: AC Input Voltage</p> <p>Δ: 131 V @: 129 V Δ: 296ms @: 18.0ms</p>		
8	RISE TIME (Max)	230VAC/ 100ms	<p>I/P: 230 VAC O/P: FULL LOAD Ta: 25°C</p> <p>230VAC/17.6ms</p>
	<p>INPUT=230VAC/50HZ @ FULL LOAD</p> <p>CH1: Output Voltage</p> <p>Δ: 113 V @: 127 V Δ: 17.6ms @: 7.20ms</p>		
9	HOLD UP TIME(Typ)	230VAC/ 10ms	<p>I/P: 230 VAC O/P: FULL LOAD Ta: 25°C</p> <p>230VAC/22.4ms</p>
	<p>INPUT=230VAC/50HZ @ FULL LOAD</p> <p>CH1: Output Voltage CH2: AC Input Voltage</p> <p>Δ: 14.0 V @: 127 V Δ: 22.4ms @: -136ms</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	0.037	0.112	0.188	0.265	0.340	0.415	0.491	0.566	0.642	0.708	0.708		
	Percentage of rated current	0%	5.29%	16.00%	26.86%	37.86%	48.57%	59.29%	70.14%	80.86%	91.71%	101.14%	101.14%		
2	Dimming value	0V	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN		
	Output Current	0	0.038	0.114	0.185	0.260	0.334	0.410	0.486	0.560	0.635	0.706	0.708		
	Percentage of rated current	0%	5.43%	16.29%	26.43%	37.14%	47.71%	58.57%	69.43%	80.00%	90.71%	100.86%	101.14%		
3	Duty value	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	OPEN		
	Output Current	0	0.043	0.117	0.191	0.264	0.338	0.411	0.484	0.558	0.632	0.696	0.707		
	Percentage of rated current	0%	6.14%	16.71%	27.29%	37.71%	48.29%	58.71%	69.14%	79.71%	90.29%	99.43%	101.00%		

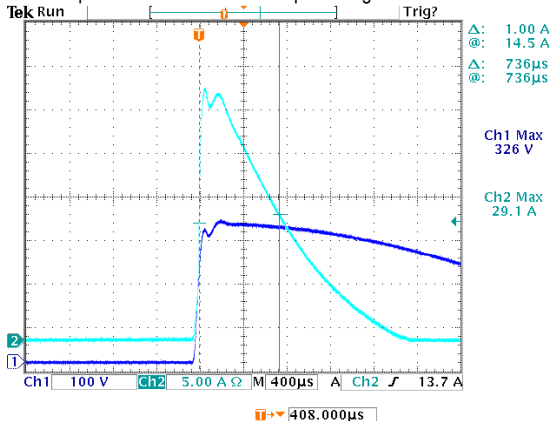


**INPUT FUNCTION TEST**

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 =0.400A/ 277VAC I =0.476A/ 230VAC
4	LEAKAGE CURRENT	< 0.75mA / 277VAC	I/P: 277 VAC O/P: NO LOAD Ta: 25°C	L-FG: 0.360 mA N-FG: 0.350 mA
5	NO LOAD POWER CONSUMPTION	< 0.5W	I/P: 230VAC O/P: NO LOAD Ta: 25°C	0.142W/ 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: 13.03 %
		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: 11.55 %
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 =29.1A/ 230VAC Twidth =736us

INPUT=230VAC/50HZ @ FULL LOAD

CH2: Input current CH1: AC Input Voltage





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ELG-100-C series

8	EFFICIENCY(Typ)	90%	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	92.89%																					
<p>EFFICIENCY vs LOAD</p> <table border="1"><thead><tr><th>LOAD</th><th>277V Efficiency (%)</th><th>230V Efficiency (%)</th></tr></thead><tbody><tr><td>50%</td><td>92.2</td><td>92.3</td></tr><tr><td>60%</td><td>92.8</td><td>92.7</td></tr><tr><td>70%</td><td>93.1</td><td>92.9</td></tr><tr><td>80%</td><td>93.3</td><td>93.0</td></tr><tr><td>90%</td><td>93.4</td><td>93.0</td></tr><tr><td>100%</td><td>93.4</td><td>92.9</td></tr></tbody></table>					LOAD	277V Efficiency (%)	230V Efficiency (%)	50%	92.2	92.3	60%	92.8	92.7	70%	93.1	92.9	80%	93.3	93.0	90%	93.4	93.0	100%	93.4	92.9
LOAD	277V Efficiency (%)	230V Efficiency (%)																							
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90%	93.4	93.0																							
100%	93.4	92.9																							
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=0.971/ 277VAC PF=0.988/ 230VAC																					
<p>P.F vs LOAD</p> <p>Constant Current Mode</p> <table border="1"><thead><tr><th>LOAD</th><th>277V PF</th><th>230V PF</th></tr></thead><tbody><tr><td>50%</td><td>0.912</td><td>0.964</td></tr><tr><td>60%</td><td>0.934</td><td>0.973</td></tr><tr><td>70%</td><td>0.948</td><td>0.979</td></tr><tr><td>80%</td><td>0.958</td><td>0.984</td></tr><tr><td>90%</td><td>0.966</td><td>0.987</td></tr><tr><td>100%</td><td>0.972</td><td>0.989</td></tr></tbody></table>					LOAD	277V PF	230V PF	50%	0.912	0.964	60%	0.934	0.973	70%	0.948	0.979	80%	0.958	0.984	90%	0.966	0.987	100%	0.972	0.989
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**PROTECTION FUNCTION TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER VOLTAGE PROTECTION	154V~174V	I/P: 180VAC I/P: 230VAC I/P: 295VAC O/P: NO LOAD Ta: 25°C	164.1V/ 180VAC 164.2V/ 230VAC 164.1V/ 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) 704V (2) 482V (3) 696V
2	O/P Diode (MOSFET)	D100 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) 452V (2) 296V (3) 442V
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) 448V (2) 444V (3) 442V
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) 17.1V (2) 14.9V (3) 17.3V (4) 12.7V
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) 496V (2) 436V (3) 472V
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) 670V (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: 1.647mA I/P-FG: 2.134mA 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: 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-C700 1. ROOM AMBIENT BURN-IN: 2 HRS I/P: 230VAC O/P: FULL LOAD Ta= 25.2℃ 2. HIGH AMBIENT BURN-IN: 2 HRS I/P: 230VAC O/P: FULL LOAD Ta= 60.5℃																																																																														
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18	TC	48.4℃	81.9℃																																																																													
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	± 0.003%/℃ (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-C700: 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) 509502 HRS (2) 53916 HRS (3) 63685 HRS (4) 105349 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