



# Test Report: ELG-100-C500

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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

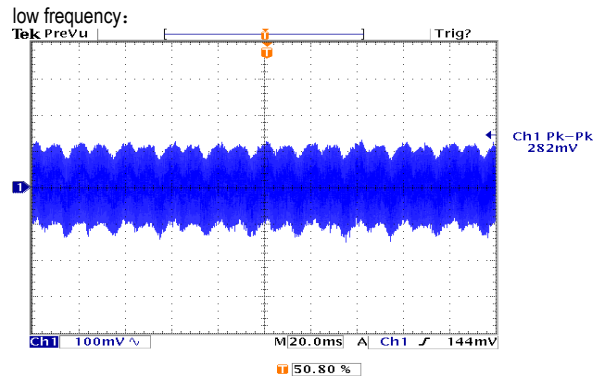
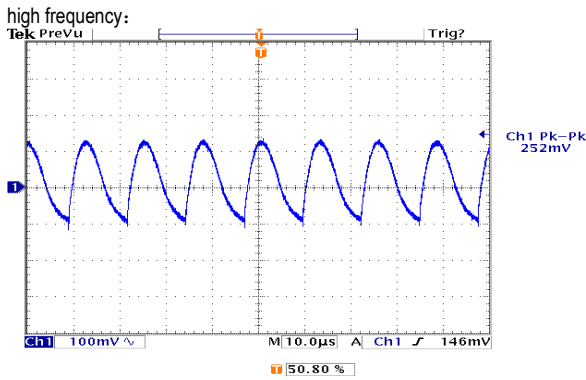
## ■ RELIABILITY TEST

Environment Test

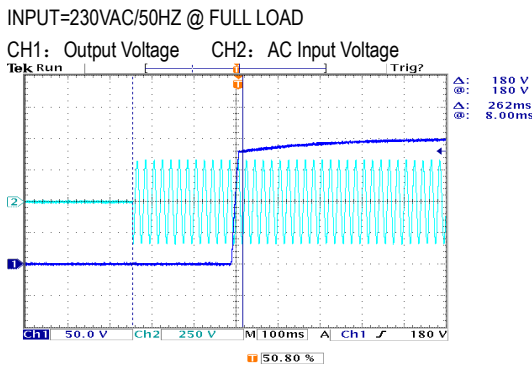
■ DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT CURRENT ADJUST RANGE	250mA~500mA	I/P: 230VAC O/P: LED MODE Ta: 25°C	0.226A~0.604A
2	OUTPUT CURRENT TOLERANCE	±5%	I/P: 230VAC O/P: FULL/ MIN LOAD Ta: 25°C	±0.94%
3	CONSTANT CURRENT REGION	100V~200V	I/P: 230VAC O/P: LED MODE Ta: 25°C	35V~199V
4	NO LOAD OUTPUT VOLTAGE (Max)	210V	I/P: 230VAC O/P: NO LOAD Ta: 25°C	200V
5	OVER/UNDERSHOOT TEST	<±5 %	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	<5 %
6	RIPPLE & NOISE (Max)	2Vp-p	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	0.282Vp-p



7	SET UP TIME(Max)	230VAC/ 500ms	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	230VAC/ 262ms
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100W Single Output Switching Power Supply

ELG-100-C series

8	RISE TIME (Max)	230VAC/ 100ms	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	230VAC/17.2ms
<p>INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage</p>  <p>Δ: 158 V @: 180 V Δ: 17.2ms @: 1.60ms</p> <p>Ch1 50.0 V M20.0ms A Ch1 180 V</p> <p>50.80 %</p>				
9	HOLD UP TIME(Typ)	230VAC/ 10ms	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	230VAC/20.8ms
<p>INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage CH2: AC Input Voltage</p>  <p>Δ: 21.0 V @: 179 V Δ: 20.8ms @: 2.40ms</p> <p>Ch1 50.0 V Ch2 250 V M20.0ms A Ch1 190 V</p> <p>50.80 %</p>				



100W Single Output Switching Power Supply

**ELG-100-C series**

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:															
IP: 230 VAC; Ta: 25°C															
1	Resistance value	Short	10K	20K	30K	40K	50K	60K	70K	80K	90K	100K	OPEN		
	Output Current	0	0.044	0.097	0.151	0.204	0.257	0.311	0.365	0.418	0.472	0.502	0.502		
	Percentage of rated current	0%	8.80%	19.40%	30.20%	40.80%	51.40%	62.20%	73.00%	83.60%	94.40%	100.40%	100.40%		
2	Dimming value	0V	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN		
	Output Current	0	0.045	0.097	0.149	0.202	0.254	0.307	0.356	0.410	0.463	0.501	0.502		
	Percentage of rated current	0%	9.00%	19.40%	29.80%	40.40%	50.80%	61.40%	71.20%	82.00%	92.60%	100.20%	100.40%		
3	Duty value	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	OPEN		
	Output Current	0	0.044	0.096	0.148	0.200	0.253	0.304	0.356	0.408	0.460	0.502	0.502		
	Percentage of rated current	0%	8.80%	19.20%	29.60%	40.00%	50.60%	60.80%	71.20%	81.60%	92.00%	100.40%	100.40%		

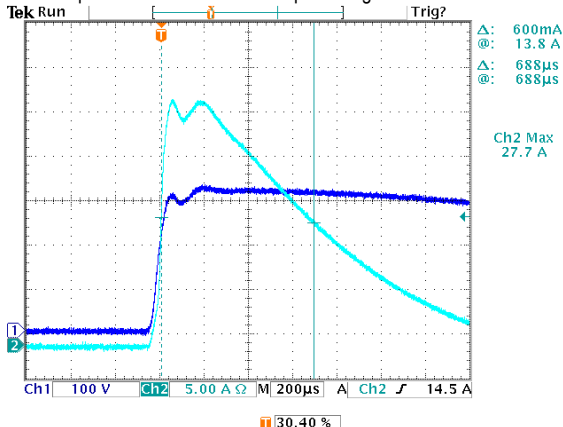


**INPUT FUNCTION TEST**

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=0.403A/ 277VAC I=0.479A/ 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	0.217W/ 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: 14.65 %
		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: 13.47 %
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=27.7A/ 230VAC Twidth =688us

INPUT=230VAC/50HZ @ FULL LOAD

CH2: Input current CH1: AC Input Voltage



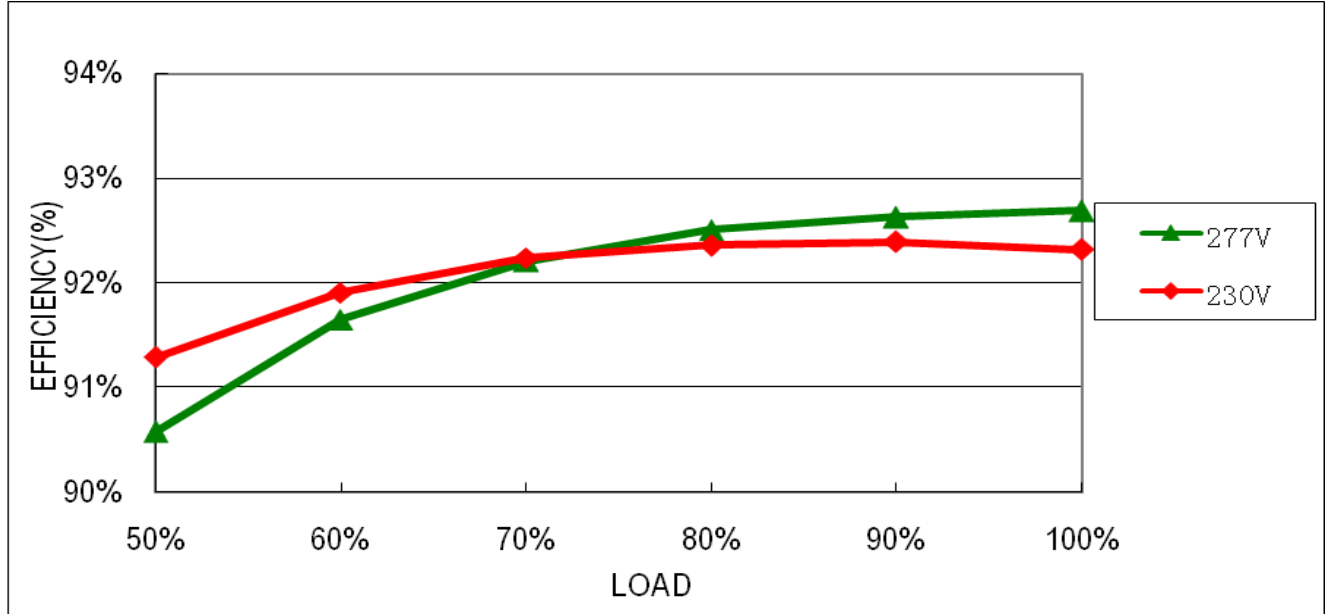


100W Single Output Switching Power Supply

ELG-100-C series

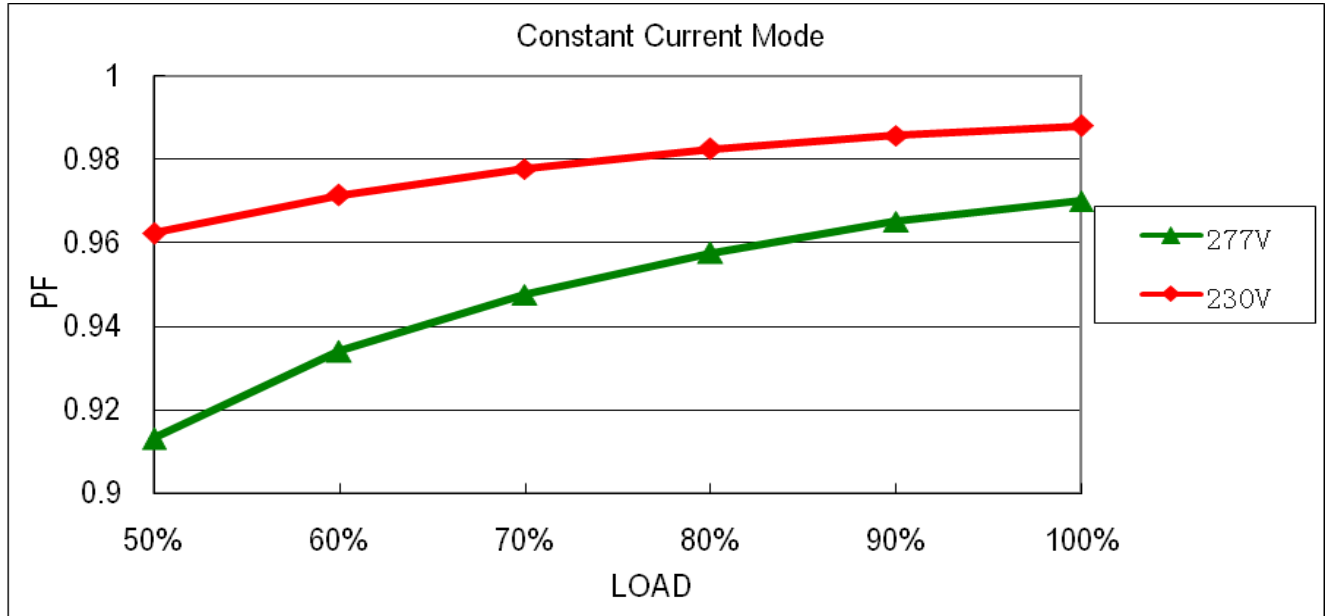
8	EFFICIENCY(Typ)	91%	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	92.32%
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EFFICIENCY vs LOAD



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=0.970/ 277VAC PF=0.988/ 230VAC
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P.F vs LOAD



**PROTECTION FUNCTION TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER VOLTAGE PROTECTION	222V~242V	I/P: 100VAC I/P: 230VAC I/P: 305VAC O/P: NO LOAD Ta: 25°C	230.2V/ 100VAC 230.1V/ 230VAC 230.1V/ 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) 692V (2) 482V (3) 684V
2	O/P Diode (MOSFET)	D100 Rated 1000V/3A	I/P: High-Line +3V =308V O/P: (1) Full Load Turn on (2) Output Short (3) Full load continue Ta: 25°C	(1) 600V (2) 394V (3) 592V
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) 444V (2) 440V (3) 444V
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) 17.1V (2) 15.1V (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) 472V (2) 450V (3) 470V
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) 670V (2) 564V

**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: 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-C350 1. ROOM AMBIENT BURN-IN: 2 HRS I/P: 230VAC O/P: FULL LOAD Ta= 32.7°C 2. HIGH AMBIENT BURN-IN: 2 HRS I/P: 230VAC O/P: FULL LOAD Ta= 63.1°C																																																																														
		<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta= 32.7 °C</th> <th>HIGH AMBIENT Ta=63.1 °C</th> </tr> </thead> <tbody> <tr><td>1</td><td>C11</td><td>58.5°C</td><td>86.5°C</td></tr> <tr><td>2</td><td>L1</td><td>57.7°C</td><td>85.1°C</td></tr> <tr><td>3</td><td>Q1</td><td>58.9°C</td><td>87.3°C</td></tr> <tr><td>4</td><td>Q2</td><td>62.0°C</td><td>90.0°C</td></tr> <tr><td>5</td><td>D6</td><td>59.5°C</td><td>87.9°C</td></tr> <tr><td>6</td><td>D10</td><td>68.9°C</td><td>96.6°C</td></tr> <tr><td>7</td><td>C5</td><td>56.8°C</td><td>84.8°C</td></tr> <tr><td>8</td><td>R7</td><td>66.0°C</td><td>94.8°C</td></tr> <tr><td>9</td><td>C45</td><td>57.3°C</td><td>85.5°C</td></tr> <tr><td>10</td><td>T1</td><td>62.9°C</td><td>92.0°C</td></tr> <tr><td>11</td><td>U1</td><td>57.1°C</td><td>85.3°C</td></tr> <tr><td>12</td><td>D100</td><td>56.4°C</td><td>85.6°C</td></tr> <tr><td>13</td><td>D101</td><td>58.7°C</td><td>86.9°C</td></tr> <tr><td>14</td><td>C203</td><td>55.6°C</td><td>83.9°C</td></tr> <tr><td>15</td><td>C102</td><td>52.6°C</td><td>81.2°C</td></tr> <tr><td>16</td><td>C104</td><td>56.1°C</td><td>84.4°C</td></tr> <tr><td>17</td><td>RTH2</td><td>55.7°C</td><td>83.6°C</td></tr> <tr><td>18</td><td>TC</td><td>52.1°C</td><td>79.7°C</td></tr> </tbody> </table>	NO	Position	ROOM AMBIENT Ta= 32.7 °C	HIGH AMBIENT Ta=63.1 °C	1	C11	58.5°C	86.5°C	2	L1	57.7°C	85.1°C	3	Q1	58.9°C	87.3°C	4	Q2	62.0°C	90.0°C	5	D6	59.5°C	87.9°C	6	D10	68.9°C	96.6°C	7	C5	56.8°C	84.8°C	8	R7	66.0°C	94.8°C	9	C45	57.3°C	85.5°C	10	T1	62.9°C	92.0°C	11	U1	57.1°C	85.3°C	12	D100	56.4°C	85.6°C	13	D101	58.7°C	86.9°C	14	C203	55.6°C	83.9°C	15	C102	52.6°C	81.2°C	16	C104	56.1°C	84.4°C	17	RTH2	55.7°C	83.6°C	18	TC	52.1°C	79.7°C		
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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°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	±0.002%/°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																																																																												



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-C350: SUPPOSE C102 IS THE MOST CRITICAL COMPONENT (1) I/P: 230VAC O/P: FULL LOAD Tc= 80 °C LIFE TIME (2) I/P: 230VAC O/P: 75% LOAD Tc= 80 °C LIFE TIME (3) I/P: 230VAC O/P: 50% LOAD Tc= 80 °C LIFE TIME	(1) 72276 HRS (2) 75822 HRS (3) 76482 HRS
9	MTBF	Conducted by Parts Stress Analysis Prediction 3070.8K hrs min. Telcordia SR-332 (Bellcore); 300.7K 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	ZHANGZJ/ZHUOKB	SKY	LIUWY