



# Test Report: ELG-150-C1400

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150W 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

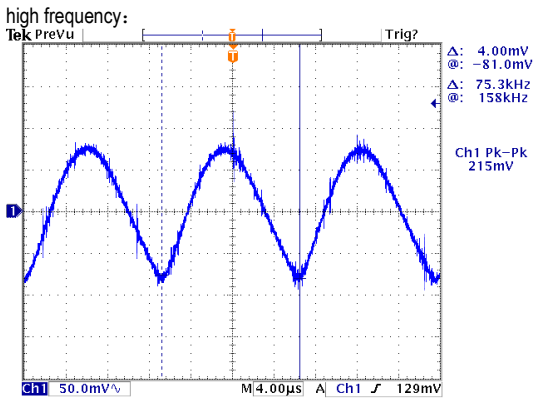
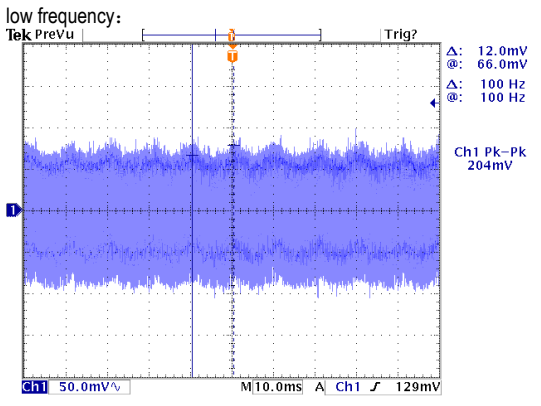
E.M.C. Test

## ■ RELIABILITY TEST

Environment Test

■ DESIGN VERIFY TEST

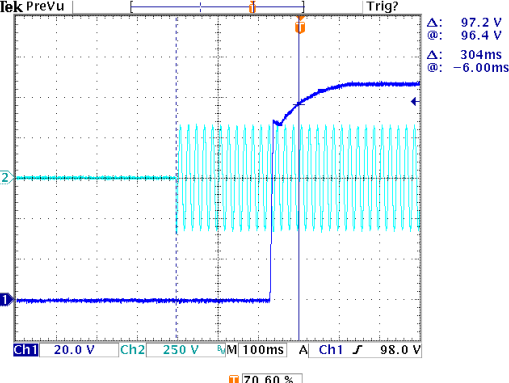
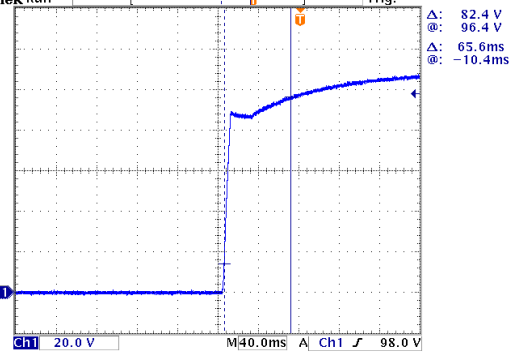
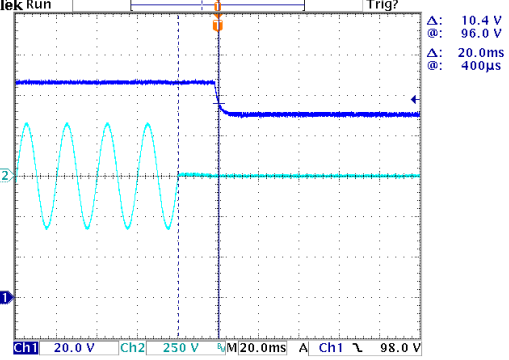
**OUTPUT FUNCTION TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT CURRENT ADJUST RANGE	700mA~1400mA	I/P: 230VAC O/P: LED MODE Ta: 25°C	0.5146A~1.5917A
2	OUTPUT CURRENT TOLERANCE	±5%	I/P: 230VAC O/P: FULL/ MIN LOAD Ta: 25°C	±1.07%
3	RIPPLE CURRENT	±5%	I/P: 230VAC O/P: LED MODE Ta: 25°C	4.29%
4	CONSTANT CURRENT REGION	54V~107V	I/P: 230VAC O/P: LED MODE Ta: 25°C	24V~108V
5	NO LOAD OUTPUT VOLTAGE (Max)	115V	I/P: 230VAC O/P: NO LOAD Ta: 25°C	109V
6	OVER/UNDERSHOOT TEST	<±5%	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	<5%
7	RIPPLE & NOISE (Max)	1Vp-p	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	0.215Vp-p
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>high frequency:</p>  </div> <div style="text-align: center;"> <p>low frequency:</p>  </div> </div>				
8	SET UP TIME(Max)	230VAC/ 500ms	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	230VAC/ 304ms



150W Single Output Switching Power Supply

ELG-150-C series

	<p>INPUT=230VAC/50HZ @ FULL LOAD            CH1: Output Voltage CH2: AC Input Voltage            Tek PreVu</p>  <p>Ch1 20.0 V Ch2 250 V M 100ms A Ch1 98.0 V</p> <p>70.60 %</p>		
9	RISE TIME (Max)	230VAC/ 85ms	<p>I/P: 230 VAC            O/P: FULL LOAD            Ta: 25°C</p> <p>230VAC/65.6ms</p>
	<p>INPUT=230VAC/50HZ @ FULL LOAD            CH1: Output Voltage            Tek Run</p>  <p>Ch1 20.0 V M 40.0ms A Ch1 98.0 V</p> <p>70.60 %</p>		
10	HOLD UP TIME(Typ)	230VAC/ 10ms	<p>I/P: 230 VAC            O/P: FULL LOAD            Ta: 25°C</p> <p>230VAC/20ms</p>
	<p>INPUT=230VAC/50HZ @ FULL LOAD            CH1: Output Voltage CH2: AC Input Voltage            Tek Run</p>  <p>Ch1 20.0 V Ch2 250 V M 20.0ms A Ch1 98.0 V</p> <p>50.00 %</p>		

11	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	0.156A	0.297A	0.438A	0.580A	0.722A	0.865A	1.009A	1.155A	1.301A	1.408A	1.421A	
		Percentage of rated current	0%	11.14%	21.21%	31.29%	41.43%	51.57%	61.79%	72.07%	82.50%	92.93%	100.57%	101.50%	
	2	Dimming value	0V	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN	
			Output Current	0	0.158A	0.298A	0.432A	0.573A	0.710A	0.853A	0.991A	1.127A	1.266A	1.401A	1.421A
			Percentage of rated current	0%	11.29%	21.29%	30.86%	40.93%	50.71%	60.93%	70.79%	80.50%	90.43%	100.07%	101.50%
	3	Duty value	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	OPEN	
			Output Current	0	0.166A	0.303A	0.441A	0.578A	0.716A	0.853A	0.989A	1.127A	1.263A	1.386A	1.421A
			Percentage of rated current	0%	11.86%	21.64%	31.50%	41.29%	51.14%	60.93%	70.64%	80.50%	90.21%	99.00%	101.50%

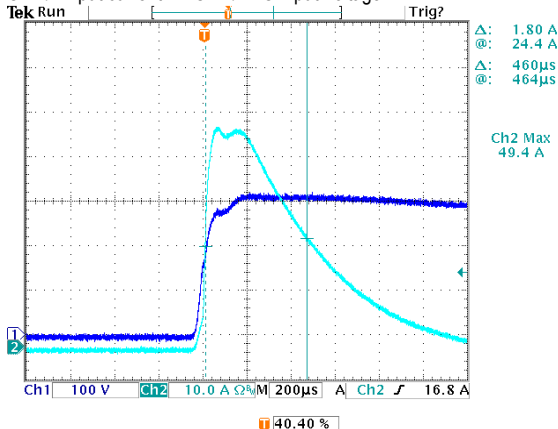


**INPUT FUNCTION TEST**

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: (1)LOW-LINE-3V=97 V HIGH-LINE+10V=315 V O/P: FULL/MIN LOAD ON: 30 Sec OFF: 30 Sec 10MIN (2)230VAC ON: 0.5 Sec OFF: 0.5 Sec 20MIN (3)230VAC ON: 3Sec OFF: 3Sec 12HOURS (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	0.7A/277VAC 0.9A/230VAC	I/P: 277 VAC I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	I=0.586A/ 277VAC I=0.702A/ 230VAC
4	LEAKAGE CURRENT	< 0.75mA / 277VAC	I/P: 277 VAC O/P: NO LOAD Ta: 25°C	L-FG: 0.406 mA N-FG: 0.368 mA
5	NO LOAD POWER CONSUMPTION	< 0.5W	I/P: 230VAC O/P: NO LOAD Ta: 25°C	0.206W/ 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: 9.27 %
		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: 8.02 %
7	INRUSH CURRENT(Typ)	230V/ 65A Twidth =485 us measured at 50% Ipeak COLD START	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	I=49.4A/ 230VAC Twidth =460us

INPUT=230VAC/50HZ @ FULL LOAD

CH2: Input current CH1: AC Input Voltage



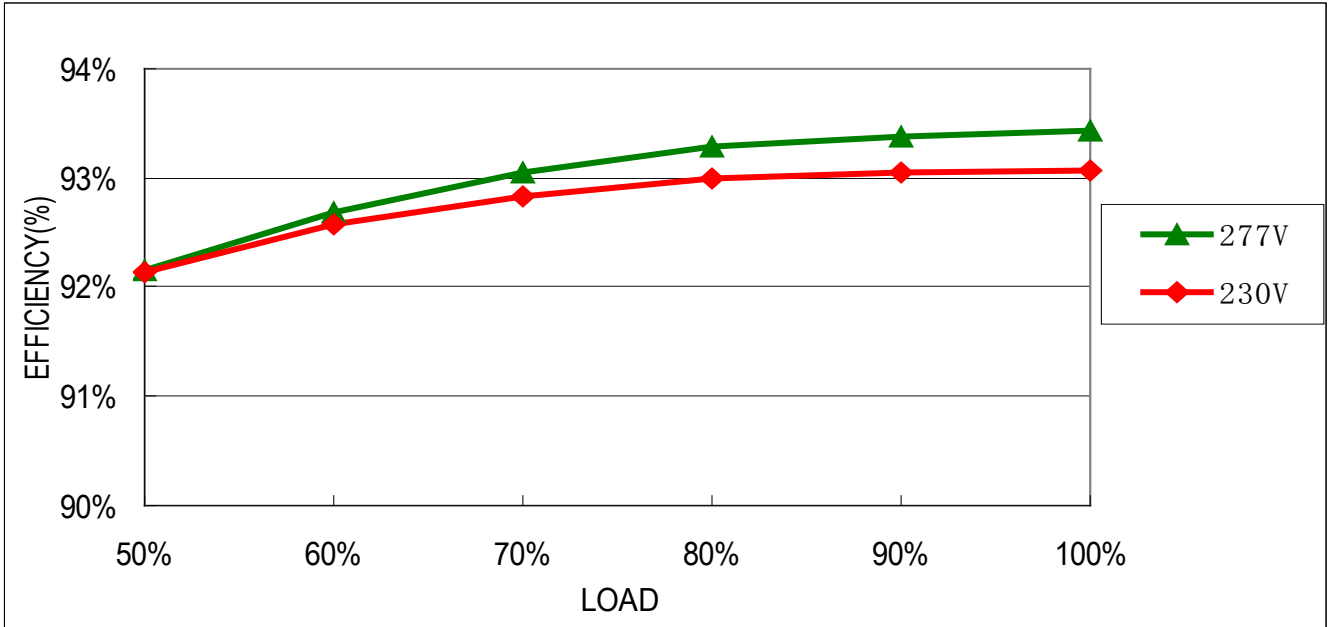


150W Single Output Switching Power Supply

**ELG-150-C series**

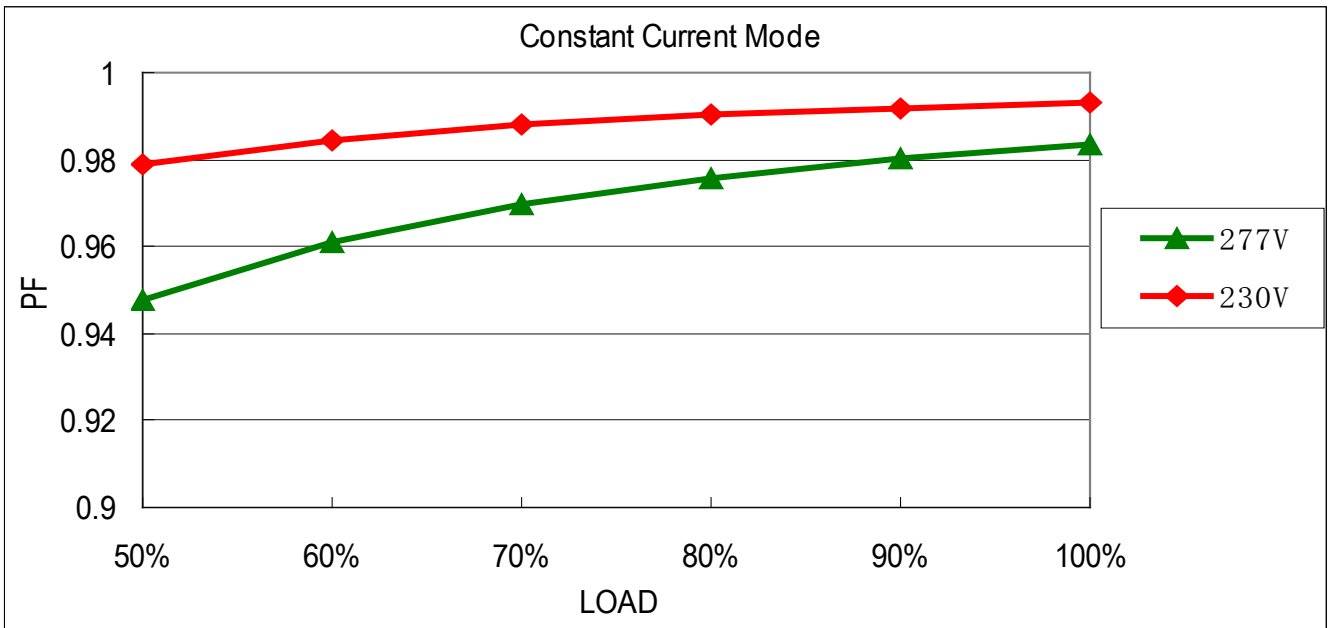
8	EFFICIENCY(Typ)	91%	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	93.06%
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EFFICIENCY vs LOAD



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=0.983/ 277VAC PF=0.993/ 230VAC
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P.F vs LOAD



**PROTECTION FUNCTION TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER VOLTAGE PROTECTION	128V~150V	I/P: 230VAC O/P: NO LOAD Ta: 25°C	140.51V/ 230VAC Shut down o/p voltage, re-power on to recover
2	OVER TEMPERATURE PROTECTION	NO DAMAGE	I/P: 230 VAC 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: 305VAC O/P: FULL LOAD Ta: 25°C	NO DAMAGE Hiccup mode, recovers automatically after fault condition is removed

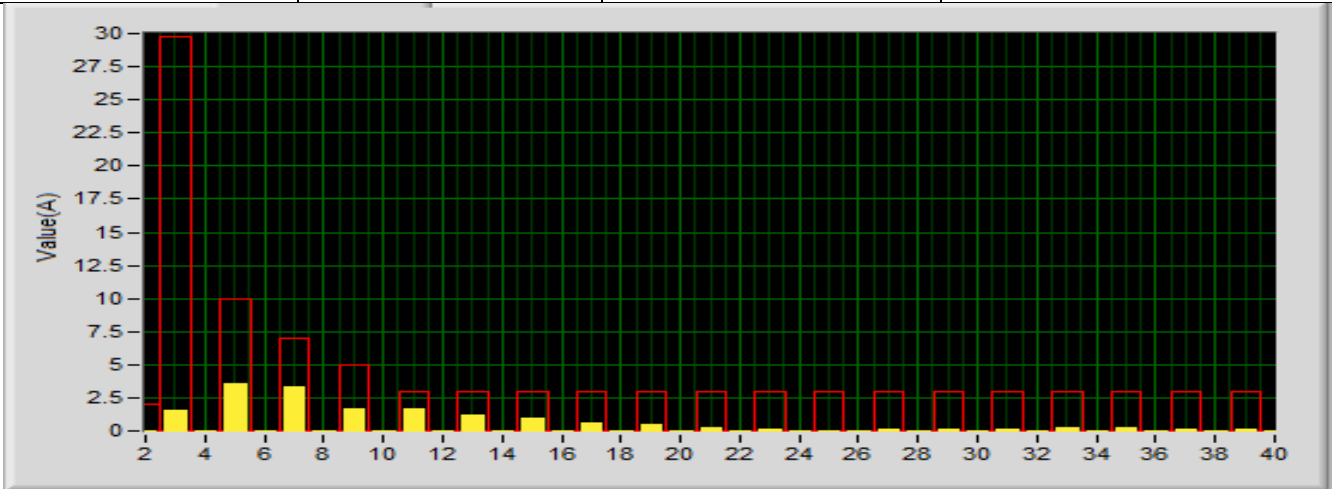
**COMPONENT STRESS TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Transistor ( D to S) or (C to E) <b>Peak Voltage</b>	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) 718V (2) 512V (3) 718V
2	<b>Diode Peak Voltage</b>	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) 319V (2) 212V (3) 317V
3	<b>Input Capacitor Voltage</b>	C5 Rated 100u/ 450V	I/P: High-Line +3V =308 V 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) 446V (3) 448V
4	<b>Control IC Voltage Test</b>	U1 Rated 28V (MAX.)	I/P: High-Line +3V =308 V O/P: (1) Full Load input on/off (2) Min load input on /Off (3) Full Load /Min load Change Ta: 25°C	(1) 17.4V (2) 15.9V (3) 17.4V
5	PFC Transistor ( D to S) or (C to E) <b>Peak Voltage</b>	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) 470V (2) 438V (3) 468V

**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: 1.580mA I/P-FG: 2.284mA O/P-FG: 1.620mA 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/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: 4KV L,N-PE: 6KV	I/P: 230VAC/50HZ O/P: FULL LOAD L-N: 4KV L,N-PE: 6KV 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-150-C1400 1. ROOM AMBIENT BURN-IN: 2 HRS I/P: 230VAC O/P: FULL LOAD Ta= 31.2°C 2. HIGH AMBIENT BURN-IN: 2 HRS I/P: 230VAC O/P: FULL LOAD Ta= 63.2°C																																																																						
		<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta= 31.2 °C</th> <th>HIGH AMBIENT Ta=63.2 °C</th> </tr> </thead> <tbody> <tr><td>1</td><td>C11</td><td>66.2°C</td><td>96.5°C</td></tr> <tr><td>2</td><td>L3</td><td>65.1°C</td><td>93.5°C</td></tr> <tr><td>3</td><td>RTH1</td><td>75.1°C</td><td>101.5°C</td></tr> <tr><td>4</td><td>D6</td><td>71.3°C</td><td>102.6°C</td></tr> <tr><td>5</td><td>Q1</td><td>69.2°C</td><td>101.3°C</td></tr> <tr><td>6</td><td>Q2</td><td>72.3°C</td><td>106.5°C</td></tr> <tr><td>7</td><td>D10</td><td>76.3°C</td><td>107.6°C</td></tr> <tr><td>8</td><td>C5</td><td>67.5°C</td><td>96.8°C</td></tr> <tr><td>9</td><td>C45</td><td>64.6°C</td><td>93.3°C</td></tr> <tr><td>10</td><td>U1</td><td>63.8°C</td><td>92.8°C</td></tr> <tr><td>11</td><td>T1</td><td>75.2°C</td><td>104.9°C</td></tr> <tr><td>12</td><td>D100</td><td>74.2°C</td><td>102.6°C</td></tr> <tr><td>13</td><td>C102</td><td>57.3°C</td><td>85.3°C</td></tr> <tr><td>14</td><td>C104</td><td>69.3°C</td><td>97.3°C</td></tr> <tr><td>15</td><td>RTH2</td><td>63.5°C</td><td>92.1°C</td></tr> <tr><td>16</td><td>TC</td><td>56.1°C</td><td>84.8°C</td></tr> </tbody> </table>			NO	Position	ROOM AMBIENT Ta= 31.2 °C	HIGH AMBIENT Ta=63.2 °C	1	C11	66.2°C	96.5°C	2	L3	65.1°C	93.5°C	3	RTH1	75.1°C	101.5°C	4	D6	71.3°C	102.6°C	5	Q1	69.2°C	101.3°C	6	Q2	72.3°C	106.5°C	7	D10	76.3°C	107.6°C	8	C5	67.5°C	96.8°C	9	C45	64.6°C	93.3°C	10	U1	63.8°C	92.8°C	11	T1	75.2°C	104.9°C	12	D100	74.2°C	102.6°C	13	C102	57.3°C	85.3°C	14	C104	69.3°C	97.3°C	15	RTH2	63.5°C	92.1°C	16	TC	56.1°C	84.8°C
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13	C102	57.3°C	85.3°C																																																																					
14	C104	69.3°C	97.3°C																																																																					
15	RTH2	63.5°C	92.1°C																																																																					
16	TC	56.1°C	84.8°C																																																																					
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	±0.003%/°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 turn on 58 sec; turn off 2 sec		TEST: OK																																																																				



150W Single Output Switching Power Supply

**ELG-150-C series**

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-150-C1400: SUPPOSE C102 IS THE MOST CRITICAL COMPONENT (1) I/P: 230VAC O/P: FULL LOAD Tc= 75 °C LIFE TIME (2) I/P: 230VAC O/P: 75% LOAD Tc= 75 °C LIFE TIME (3) I/P: 230VAC O/P: 50% LOAD Tc= 75 °C LIFE TIME	(1) 52022 HRS (2) 73600 HRS (3) 83670 HRS
9	MTBF	Conducted by Parts Stress Analysis Prediction 3102.4K hrs min. Telcordia SR-332 (Bellcore); 308.5K 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