



Test Report: ELG-150-C2100

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

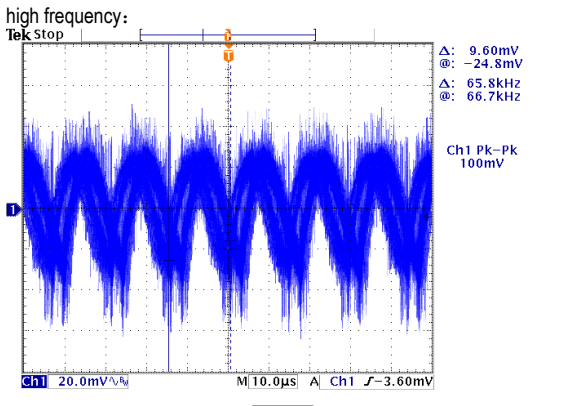
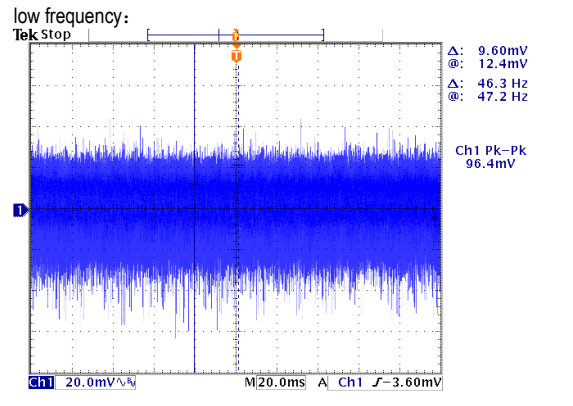
E.M.C. Test

■ RELIABILITY TEST

Environment Test

■ DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT CURRENT ADJUST RANGE	1050mA~2100mA	I/P: 230VAC O/P: LED MODE Ta: 25°C	0.7855A~2.2126A
2	OUTPUT CURRENT TOLERANCE	±5%	I/P: 230VAC O/P: FULL/ MIN LOAD Ta: 25°C	±4.16 %
3	RIPPLE CURRENT	±5%	I/P: 230VAC O/P: LED MODE Ta: 25°C	3.33%
4	CONSTANT CURRENT REGION	36V~72V	I/P: 230VAC O/P: LED MODE Ta: 25°C	19.5V~74V
5	NO LOAD OUTPUT VOLTAGE (Max)	80V	I/P: 230VAC O/P: NO LOAD Ta: 25°C	74V
6	OVER/UNDERSHOOT TEST	<±5 %	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	<5 %
7	RIPPLE & NOISE (Max)	0.8Vp-p	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	0.1Vp-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/ 318ms



150W Single Output Switching Power Supply

ELG-150-C series

<p>INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage CH2: AC Input Voltage</p> <p>Δ: 65.2 V @: 65.6 V Δ: 318ms @: -602ms</p> <p>Ch1 20.0 V Ch2 250 V M 100ms A Ch2 -90.0 V</p>				
9	RISE TIME (Max)	230VAC/ 85ms	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	230VAC/17.6ms
<p>INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage</p> <p>Δ: 57.2 V @: 66.0 V Δ: 17.6ms @: -309ms</p> <p>Ch1 20.0 V M 40.0ms A Ch2 -75.0 V</p>				
10	HOLD UP TIME(Typ)	230VAC/ 10ms	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	230VAC/24.8ms
<p>INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage CH2: AC Input Voltage</p> <p>Δ: 7.60 V @: 64.8 V Δ: 24.8ms @: 1.10 s</p> <p>Ch1 20.0 V Ch2 250 V M 40.0ms A Ch2 -75.0 V</p>				



150W Single Output Switching Power Supply

ELG-150-C series

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	0.230	0.448	0.666	0.884	1.101	1.318	1.543	1.762	1.987	2.116	2.116		
	Percentage of rated current	0%	10.95%	21.33%	31.71%	42.10%	52.43%	62.76%	73.48%	83.90%	94.62%	100.76%	100.76%		
	2	Dimming value	0V	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN	
		Output Current	0	0.240	0.459	0.669	0.890	1.104	1.328	1.554	1.761	1.984	2.110	2.111	
		Percentage of rated current	0%	11.43%	21.86%	31.86%	42.38%	52.57%	63.24%	74.00%	83.86%	94.48%	100.48%	100.52%	
	3	Duty value	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	OPEN	
		Output Current	0	0.250	0.464	0.681	0.894	1.109	1.324	1.542	1.757	1.976	2.121	2.124	
		Percentage of rated current	0%	11.90%	22.10%	32.43%	42.57%	52.81%	63.05%	73.43%	83.67%	94.10%	101.00%	101.14%	

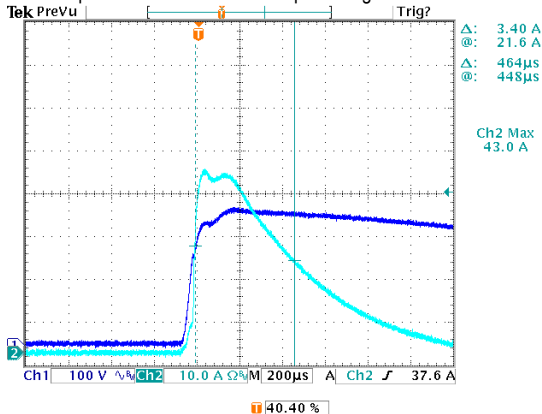


INPUT FUNCTION TEST

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: (1)LOW-LINE-3V=177 V HIGH-LINE+10V=305 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: 180 VAC ~295 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=0.620A/ 277VAC I=0.739A/ 230VAC
4	LEAKAGE CURRENT	< 0.75mA / 277VAC	I/P: 277 VAC O/P: NO LOAD Ta: 25°C	L-FG: 0.329 mA N-FG: 0.300 mA
5	NO LOAD POWER CONSUMPTION	< 0.5W	I/P: 230VAC O/P: NO LOAD Ta: 25°C	0.262W/ 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: 9.89 %
		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: 8.90 %
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=43.0A/ 230VAC Twidth =464us

INPUT=230VAC/50HZ @ FULL LOAD

CH2: Input current CH1: AC Input Voltage



40.40 %



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ELG-150-C series

8	EFFICIENCY(Typ)	91%	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	91.82%																					
<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>89.5</td><td>89.2</td></tr><tr><td>60%</td><td>90.5</td><td>90.2</td></tr><tr><td>70%</td><td>91.1</td><td>90.8</td></tr><tr><td>80%</td><td>91.6</td><td>91.3</td></tr><tr><td>90%</td><td>91.9</td><td>91.6</td></tr><tr><td>100%</td><td>92.1</td><td>91.8</td></tr></tbody></table>					LOAD	277V Efficiency (%)	230V Efficiency (%)	50%	89.5	89.2	60%	90.5	90.2	70%	91.1	90.8	80%	91.6	91.3	90%	91.9	91.6	100%	92.1	91.8
LOAD	277V Efficiency (%)	230V Efficiency (%)																							
50%	89.5	89.2																							
60%	90.5	90.2																							
70%	91.1	90.8																							
80%	91.6	91.3																							
90%	91.9	91.6																							
100%	92.1	91.8																							
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																					
<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>0.95</td><td>0.98</td></tr><tr><td>60%</td><td>0.96</td><td>0.983</td></tr><tr><td>70%</td><td>0.97</td><td>0.986</td></tr><tr><td>80%</td><td>0.975</td><td>0.988</td></tr><tr><td>90%</td><td>0.98</td><td>0.99</td></tr><tr><td>100%</td><td>0.983</td><td>0.993</td></tr></tbody></table>					LOAD	277V PF	230V PF	50%	0.95	0.98	60%	0.96	0.983	70%	0.97	0.986	80%	0.975	0.988	90%	0.98	0.99	100%	0.983	0.993
LOAD	277V PF	230V PF																							
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100%	0.983	0.993																							

**PROTECTION FUNCTION TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER VOLTAGE PROTECTION	82V~92V	I/P: 230VAC O/P: NO LOAD Ta: 25°C	86.26V/ 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: 295VAC O/P: FULL LOAD Ta: 25°C	NO DAMAGE Hiccup mode, recovers automatically after fault condition is removed

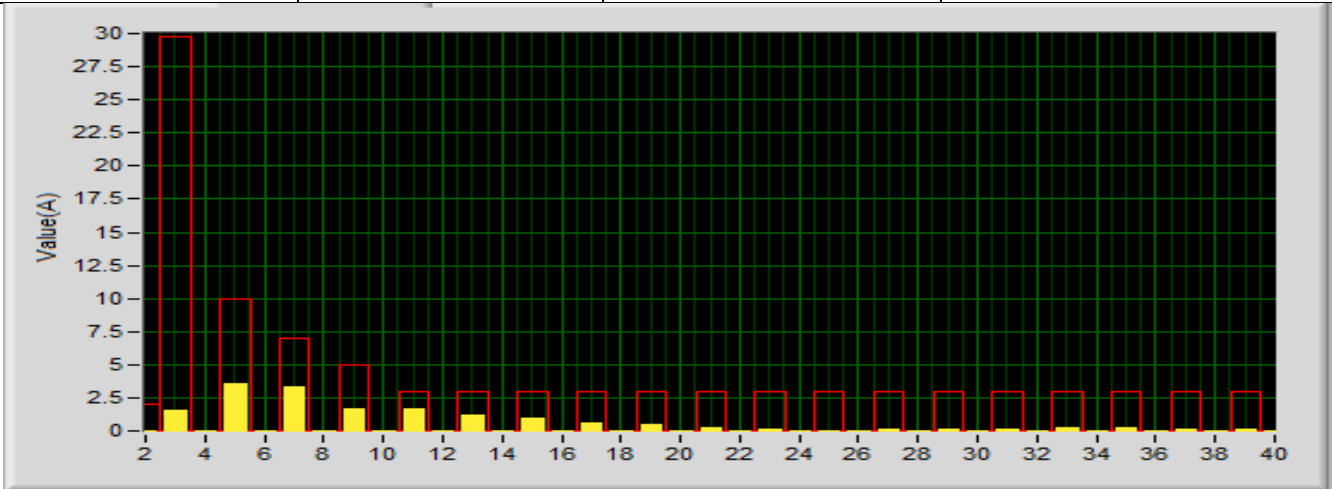
COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Transistor (D to S) or (C to E) Peak Voltage	Q 2 Rated 730V/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) 656V (2) 570V (3) 648V
2	Diode Peak Voltage	Q101 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) 317V (2) 227V (3) 311V
3	Input Capacitor Voltage	C5 Rated 100u/ 450V	I/P: High-Line +3V =298 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) 444V (2) 444V (3) 446V
4	Control IC Voltage Test	U1 Rated 28V (MAX.)	I/P: High-Line +3V =298 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) 17.2V (2) 15.1V (3) 17.0V
5	PFC Transistor (D to S) or (C to E) Peak Voltage	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) 522V (2) 490V (3) 494V

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: 1.548mA I/P-FG: 2.292mA O/P-FG: 1.594mA 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: 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-150-C2100 1. ROOM AMBIENT BURN-IN: 2 HRS I/P: 230VAC O/P: FULL LOAD Ta= 34.3℃ 2. HIGH AMBIENT BURN-IN: 2 HRS I/P: 230VAC O/P: FULL LOAD Ta= 62.0℃																																																																																																		
		<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta= 34.3 ℃</th> <th>HIGH AMBIENT Ta=62.0 ℃</th> </tr> </thead> <tbody> <tr><td>1</td><td>LF2</td><td>72.3℃</td><td>102.0℃</td></tr> <tr><td>2</td><td>ZNR2</td><td>77.5℃</td><td>105.4℃</td></tr> <tr><td>3</td><td>L1</td><td>73.4℃</td><td>103.3℃</td></tr> <tr><td>4</td><td>L3</td><td>71.6℃</td><td>101.6℃</td></tr> <tr><td>5</td><td>RTH2</td><td>74.2℃</td><td>103.9℃</td></tr> <tr><td>6</td><td>D6</td><td>79.9℃</td><td>111.9℃</td></tr> <tr><td>7</td><td>Q1</td><td>79.3℃</td><td>111.2℃</td></tr> <tr><td>8</td><td>Q2</td><td>83.6℃</td><td>116.1℃</td></tr> <tr><td>9</td><td>D10</td><td>87.1℃</td><td>121.3℃</td></tr> <tr><td>10</td><td>C11</td><td>76.0℃</td><td>106.8℃</td></tr> <tr><td>11</td><td>C5</td><td>74.2℃</td><td>103.7℃</td></tr> <tr><td>12</td><td>C45</td><td>72.3℃</td><td>101.7℃</td></tr> <tr><td>13</td><td>U1</td><td>69.4℃</td><td>98.6℃</td></tr> <tr><td>14</td><td>T1</td><td>79.9℃</td><td>110.9℃</td></tr> <tr><td>15</td><td>Q101</td><td>74.5℃</td><td>103.4℃</td></tr> <tr><td>16</td><td>Q102</td><td>75.7℃</td><td>104.5℃</td></tr> <tr><td>17</td><td>U100</td><td>63.5℃</td><td>91.8℃</td></tr> <tr><td>18</td><td>C201</td><td>70.1℃</td><td>98.9℃</td></tr> <tr><td>19</td><td>C106</td><td>69.3℃</td><td>98.0℃</td></tr> <tr><td>20</td><td>C107</td><td>66.8℃</td><td>95.3℃</td></tr> <tr><td>21</td><td>C110</td><td>64.5℃</td><td>92.8℃</td></tr> <tr><td>22</td><td>RTH3</td><td>70.7℃</td><td>99.6℃</td></tr> <tr><td>23</td><td>TC</td><td>63.2℃</td><td>91.0℃</td></tr> </tbody> </table>	NO	Position	ROOM AMBIENT Ta= 34.3 ℃	HIGH AMBIENT Ta=62.0 ℃	1	LF2	72.3℃	102.0℃	2	ZNR2	77.5℃	105.4℃	3	L1	73.4℃	103.3℃	4	L3	71.6℃	101.6℃	5	RTH2	74.2℃	103.9℃	6	D6	79.9℃	111.9℃	7	Q1	79.3℃	111.2℃	8	Q2	83.6℃	116.1℃	9	D10	87.1℃	121.3℃	10	C11	76.0℃	106.8℃	11	C5	74.2℃	103.7℃	12	C45	72.3℃	101.7℃	13	U1	69.4℃	98.6℃	14	T1	79.9℃	110.9℃	15	Q101	74.5℃	103.4℃	16	Q102	75.7℃	104.5℃	17	U100	63.5℃	91.8℃	18	C201	70.1℃	98.9℃	19	C106	69.3℃	98.0℃	20	C107	66.8℃	95.3℃	21	C110	64.5℃	92.8℃	22	RTH3	70.7℃	99.6℃	23	TC	63.2℃	91.0℃		
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20	C107	66.8℃	95.3℃																																																																																																	
21	C110	64.5℃	92.8℃																																																																																																	
22	RTH3	70.7℃	99.6℃																																																																																																	
23	TC	63.2℃	91.0℃																																																																																																	
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	±0.004%/℃ (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																																																																																																



150W Single Output Switching Power Supply

ELG-150-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: 10 CYCLE 5. Input/Output condition: 230VAC/Full Load AC ON/OFF TEST turn on 58 sec; turn off 2 sec	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-150-C2100: SUPPOSE C107 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) 301615 HRS (2) 29405 HRS (3) 45987 HRS (4) 66784 HRS																		
9	MTBF	MIL-HDBK-217F TOTAL FAILURE RATE: 308.5K HRS																			
10	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure (Expected Life): Above 50000 hours @ Tc 75°C <table border="1"> <caption>Graph Data: Lifetime (kh) vs Tcase (°C)</caption> <thead> <tr> <th>Tcase (°C)</th> <th>Lifetime (kh)</th> </tr> </thead> <tbody> <tr><td>25</td><td>100</td></tr> <tr><td>35</td><td>100</td></tr> <tr><td>45</td><td>100</td></tr> <tr><td>55</td><td>100</td></tr> <tr><td>65</td><td>100</td></tr> <tr><td>75</td><td>50</td></tr> <tr><td>85</td><td>25</td></tr> <tr><td>90</td><td>20</td></tr> </tbody> </table>		Tcase (°C)	Lifetime (kh)	25	100	35	100	45	100	55	100	65	100	75	50	85	25	90	20
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TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	ZHANGZJ/ZHUOKB	SKY	LIUWY