



# Test Report: ELG-100-C350

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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

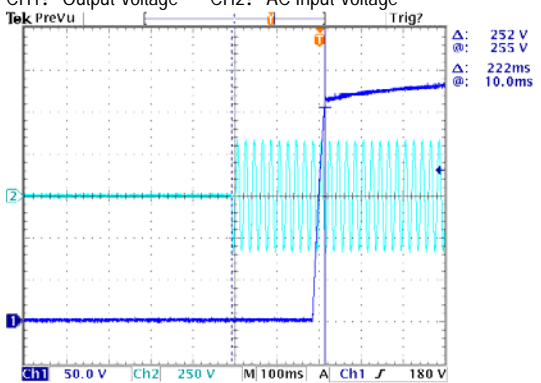
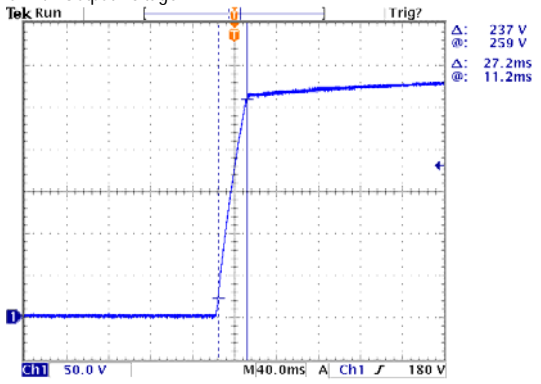
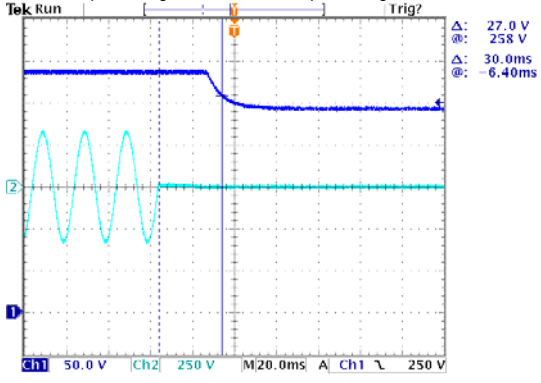
OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT CURRENT ADJUST RANGE	175mA-350mA	I/P: 230VAC O/P: LED MODE Ta: 25°C	0.151A-0.366A
2	OUTPUT CURRENT TOLERANCE	±5%	I/P: 230VAC O/P: FULL/ MIN LOAD Ta: 25°C	±1.14%
3	CONSTANT CURRENT REGION	143V-286V	I/P: 230VAC O/P: LED MODE Ta: 25°C	85V-288V
4	NO LOAD OUTPUT VOLTAGE (Max)	297V	I/P: 230VAC O/P: NO LOAD Ta: 25°C	288.4V
5	OVER/UNDERSHOOT TEST	<±5 %	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	<5 %
6	RIPPLE & NOISE (Max)	3Vp-p	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	0.262Vp-p
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>high frequency:</p> <p>Ch1 Pk-Pk 246mV M10.0µs A Ch1 178mV 50.20%</p> </div> <div style="text-align: center;"> <p>low frequency:</p> <p>Ch1 Pk-Pk 262mV M20.0ms A Ch1 254mV 50.20%</p> </div> </div>				
7	SET UP TIME(Max)	230VAC/ 500ms	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	230VAC/ 222ms



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ELG-100-C series

	<p>INPUT=230VAC/50HZ @ FULL LOAD            CH1: Output Voltage CH2: AC Input Voltage</p>  <p>Δ: 252 V          @: 255 V          Δ: 222ms          @: 10.0ms</p> <p>Ch1 50.0 V Ch2 250 V M 100ms A Ch1 180 V</p>		
8	RISE TIME (Max)	230VAC/ 100ms	<p>I/P: 230 VAC            O/P: FULL LOAD            Ta: 25°C</p> <p>230VAC/27.2ms</p>
	<p>INPUT=230VAC/50HZ @ FULL LOAD            CH1: Output Voltage</p>  <p>Δ: 237 V          @: 259 V          Δ: 27.2ms          @: 11.2ms</p> <p>Ch1 50.0 V M 40.0ms A Ch1 180 V</p>		
9	HOLD UP TIME(Typ)	230VAC/ 10ms	<p>I/P: 230 VAC            O/P: FULL LOAD            Ta: 25°C</p> <p>230VAC/30ms</p>
	<p>INPUT=230VAC/50HZ @ FULL LOAD            CH1: Output Voltage CH2: AC Input Voltage</p>  <p>Δ: 27.0 V          @: 258 V          Δ: 30.0ms          @: 6.40ms</p> <p>Ch1 50.0 V Ch2 250 V M 20.0ms A Ch1 250 V</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	0.034	0.071	0.108	0.145	0.183	0.219	0.256	0.293	0.33	0.352	0.353	
		Percentage of rated current	0%	9.71%	20.29%	30.86%	41.43%	52.29%	62.57%	73.14%	83.71%	94.29%	100.57%	100.86%	
	2	Dimming value	0V	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN	
			Output Current	0	0.035	0.072	0.107	0.145	0.181	0.219	0.256	0.291	0.328	0.353	0.353
			Percentage of rated current	0%	10.00%	20.57%	30.57%	41.43%	51.71%	62.57%	73.14%	83.14%	93.71%	100.86%	100.86%
	3	Duty value	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	OPEN	
			Output Current	0	0.038	0.073	0.11	0.146	0.183	0.219	0.255	0.291	0.327	0.353	0.353
			Percentage of rated current	0%	10.86%	20.86%	31.43%	41.71%	52.29%	62.57%	72.86%	83.14%	93.43%	100.86%	100.86%

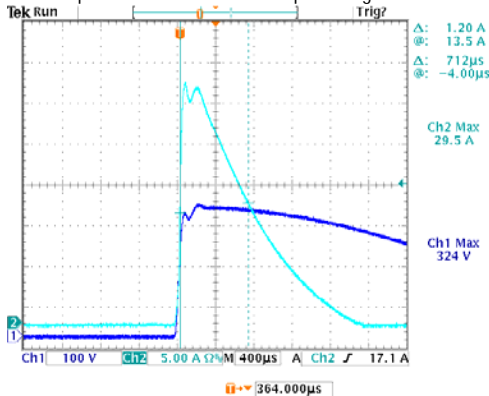


**INPUT FUNCTION TEST**

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 =0.401A/ 277VAC I =0.477A/ 230VAC
4	LEAKAGE CURRENT	< 0.75mA / 277VAC	I/P: 277 VAC O/P: NO LOAD Ta: 25°C	L-FG: 0.342 mA N-FG: 0.330 mA
5	NO LOAD POWER CONSUMPTION	< 0.5W	I/P: 230VAC O/P: NO LOAD Ta: 25°C	0.242W/ 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: 9.02 %
		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: 11.26 %
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 =29.5A/ 230VAC Twidth =712us

INPUT=230VAC/50HZ @ FULL LOAD

CH2: Input current CH1: AC Input Voltage



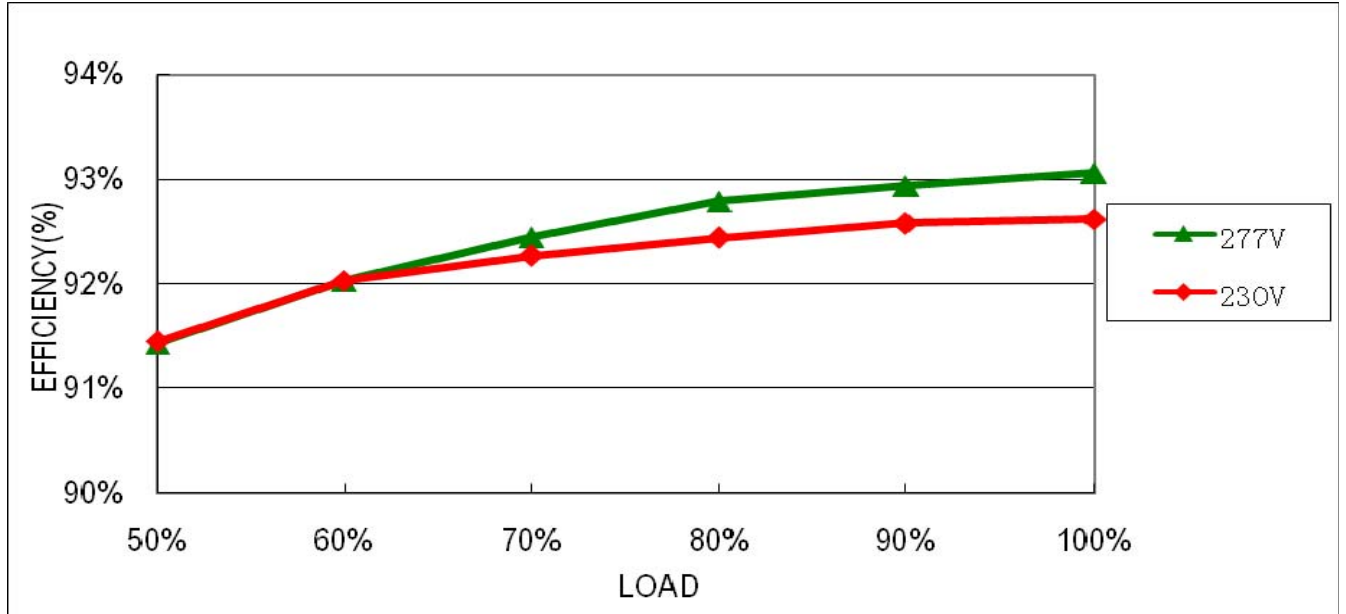


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ELG-100-C series

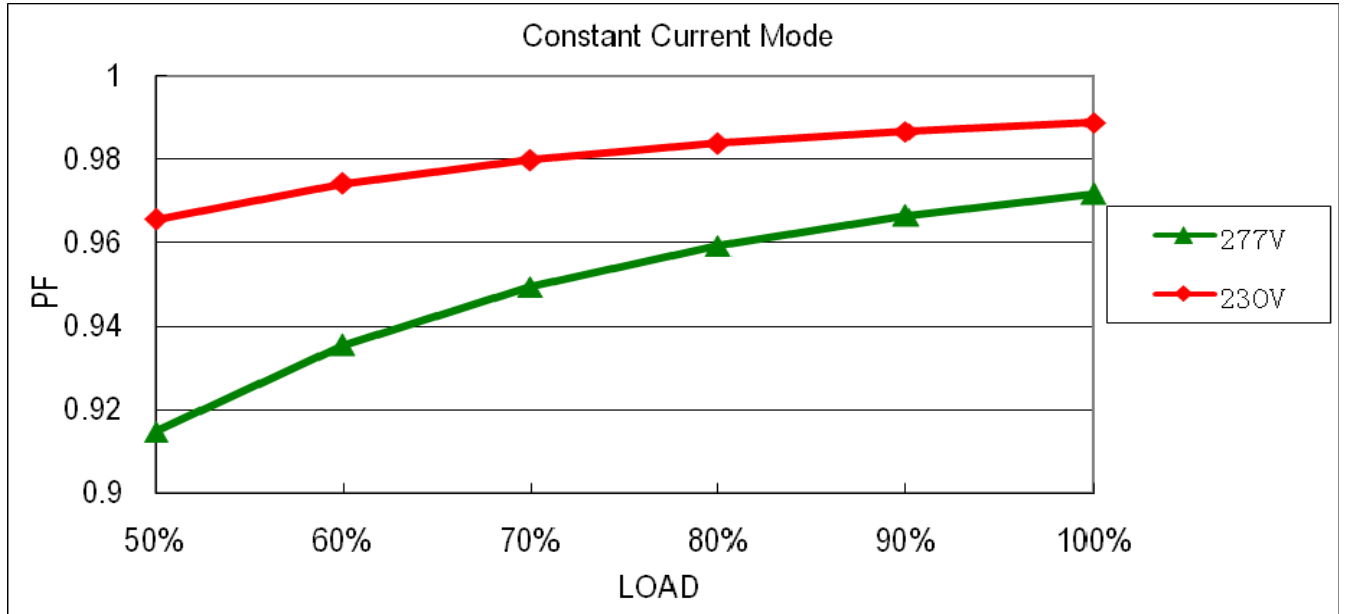
8	EFFICIENCY(Typ)	92%	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	92.62%
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EFFICIENCY vs LOAD



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=0.972/ 277VAC PF=0.989/ 230VAC
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P.F vs LOAD



**PROTECTION FUNCTION TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER VOLTAGE PROTECTION	305V-333V	I/P: 100VAC I/P: 230VAC I/P: 305VAC O/P: NO LOAD Ta: 25°C	320.8V/ 100VAC 320.6V/ 230VAC 320.8V/ 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) 712V (2) 468V (3) 698V
2	O/P Diode (MOSFET)	D101 Rated 600V/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) 539V (2) 372V (3) 508V
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) 446V (2) 440V (3) 446V
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) 13.2V
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) 494V (2) 418V (3) 466V
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) 678V (2) 488V

**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: 1.662mA I/P-FG: 2.170mA O/P-FG: 1.642mA 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℃ 2. HIGH AMBIENT BURN-IN: 2 HRS I/P: 230VAC O/P: FULL LOAD Ta= 63.1℃																																																																														
				<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta= 32.7 ℃</th> <th>HIGH AMBIENT Ta=63.1 ℃</th> </tr> </thead> <tbody> <tr><td>1</td><td>C11</td><td>58.5℃</td><td>86.5℃</td></tr> <tr><td>2</td><td>L1</td><td>57.7℃</td><td>85.1℃</td></tr> <tr><td>3</td><td>Q1</td><td>58.9℃</td><td>87.3℃</td></tr> <tr><td>4</td><td>Q2</td><td>62.0℃</td><td>90.0℃</td></tr> <tr><td>5</td><td>D6</td><td>59.5℃</td><td>87.9℃</td></tr> <tr><td>6</td><td>D10</td><td>68.9℃</td><td>96.6℃</td></tr> <tr><td>7</td><td>C5</td><td>56.8℃</td><td>84.8℃</td></tr> <tr><td>8</td><td>R7</td><td>66.0℃</td><td>94.8℃</td></tr> <tr><td>9</td><td>C45</td><td>57.3℃</td><td>85.5℃</td></tr> <tr><td>10</td><td>T1</td><td>62.9℃</td><td>92.0℃</td></tr> <tr><td>11</td><td>U1</td><td>57.1℃</td><td>85.3℃</td></tr> <tr><td>12</td><td>D100</td><td>56.4℃</td><td>85.6℃</td></tr> <tr><td>13</td><td>D101</td><td>58.7℃</td><td>86.9℃</td></tr> <tr><td>14</td><td>C203</td><td>55.6℃</td><td>83.9℃</td></tr> <tr><td>15</td><td>C102</td><td>52.6℃</td><td>81.2℃</td></tr> <tr><td>16</td><td>C104</td><td>56.1℃</td><td>84.4℃</td></tr> <tr><td>17</td><td>RTH2</td><td>55.7℃</td><td>83.6℃</td></tr> <tr><td>18</td><td>TC</td><td>52.1℃</td><td>79.7℃</td></tr> </tbody> </table>	NO	Position	ROOM AMBIENT Ta= 32.7 ℃	HIGH AMBIENT Ta=63.1 ℃	1	C11	58.5℃	86.5℃	2	L1	57.7℃	85.1℃	3	Q1	58.9℃	87.3℃	4	Q2	62.0℃	90.0℃	5	D6	59.5℃	87.9℃	6	D10	68.9℃	96.6℃	7	C5	56.8℃	84.8℃	8	R7	66.0℃	94.8℃	9	C45	57.3℃	85.5℃	10	T1	62.9℃	92.0℃	11	U1	57.1℃	85.3℃	12	D100	56.4℃	85.6℃	13	D101	58.7℃	86.9℃	14	C203	55.6℃	83.9℃	15	C102	52.6℃	81.2℃	16	C104	56.1℃	84.4℃	17	RTH2	55.7℃	83.6℃	18	TC	52.1℃	79.7℃
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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℃	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	±0.002%/℃ (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-C350: 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) 930658 HRS (2) 93138 HRS (3) 129825 HRS (4) 156792 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 <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>20</td><td>100</td></tr> <tr><td>30</td><td>100</td></tr> <tr><td>40</td><td>100</td></tr> <tr><td>50</td><td>100</td></tr> <tr><td>60</td><td>100</td></tr> <tr><td>70</td><td>100</td></tr> <tr><td>80</td><td>50</td></tr> <tr><td>90</td><td>25</td></tr> </tbody> </table>		Tcase (°C)	Lifetime (kh)	20	100	30	100	40	100	50	100	60	100	70	100	80	50	90	25
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TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	ZHANGZJ/ZHUOKB	SKY	LIUWY