



Test Report: ELG-150-C1750

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

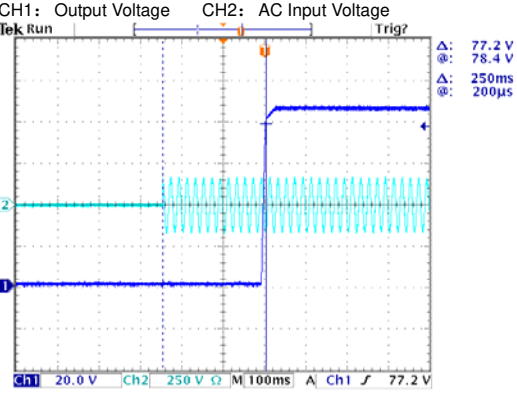
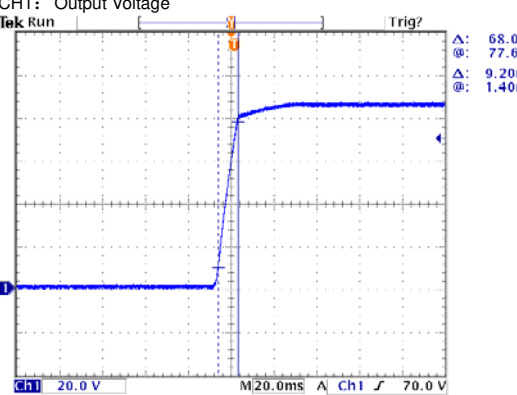
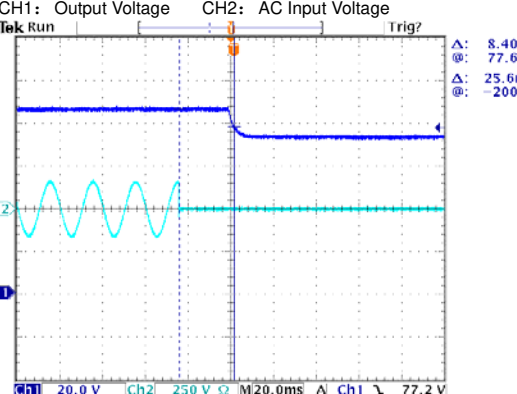
OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT CURRENT ADJUST RANGE	875mA~1750mA	I/P: 230VAC O/P: LED MODE Ta: 25°C	0.6421A~1.8204A
2	OUTPUT CURRENT TOLERANCE	±5%	I/P: 230VAC O/P: FULL/ MIN LOAD Ta: 25°C	±0.93 %
3	RIPPLE CURRENT	±5%	I/P: 230VAC O/P: LED MODE Ta: 25°C	4.57%
4	CONSTANT CURRENT REGION	43V~86V	I/P: 230VAC O/P: LED MODE Ta: 25°C	10V~88V
5	NO LOAD OUTPUT VOLTAGE (Max)	94V	I/P: 230VAC O/P: NO LOAD Ta: 25°C	89V
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	0.148Vp-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/ 250ms



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	<p>INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage CH2: AC Input Voltage</p>  <p>Δ: 77.2 V @: 78.4 V Δ: 250ms @: 200µs</p> <p>103.800ms</p>			
9	RISE TIME (Max)	230VAC/ 85ms	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	230VAC/9.2ms
	<p>INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage</p>  <p>Δ: 68.0 V @: 77.6 V Δ: 9.20ms @: 1.40ms</p> <p>1.80000ms</p>			
10	HOLD UP TIME(Typ)	230VAC/ 10ms	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	230VAC/25.6ms
	<p>INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage CH2: AC Input Voltage</p>  <p>Δ: 8.40 V @: 77.6 V Δ: 25.6ms @: 200µs</p> <p>1.80000ms</p>			



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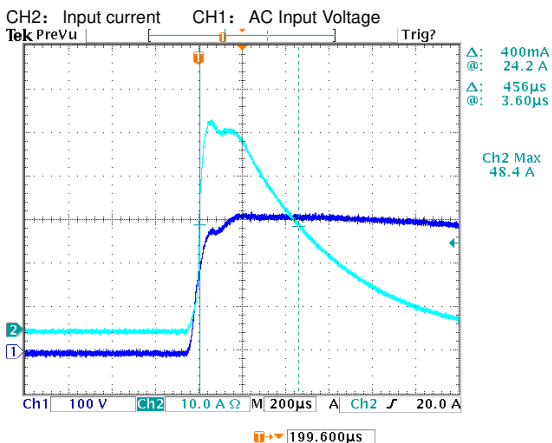
11	DIMMING TEST (For B-Type only)	SPEC:													
		※ Built-in 3 in 1 dimming function, IP67 rated. Output constant current level can be adjusted through output cable by connecting a resistance or 0 ~ 10Vdc or 10V PWM signal between DIM+ and DIM-.													
		※ Please DO NOT connect "DIM-" to "-V".													
		※ 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	0.162	0.348	0.536	0.723	0.909	1.094	1.280	1.466	1.649	1.757	1.758		
	Percentage of rated current	0%	9.26%	19.89%	30.63%	41.31%	51.94%	62.51%	73.14%	83.77%	94.23%	100.40%	100.46%		
	2	Dimming value	0V	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN	
		Output Current	0	0.169	0.357	0.536	0.726	0.911	1.103	1.292	1.470	1.655	1.757	1.757	
		Percentage of rated current	0%	9.66%	20.40%	30.63%	41.49%	52.06%	63.03%	73.83%	84.00%	94.57%	100.40%	100.40%	
	3	Duty value	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	OPEN	
		Output Current	0	0.177	0.360	0.545	0.728	0.913	1.095	1.278	1.460	1.643	1.755	1.758	
		Percentage of rated current	0%	10.11%	20.57%	31.14%	41.60%	52.17%	62.57%	73.03%	83.43%	93.89%	100.29%	100.46%	



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 =0.589A/ 277VAC I =0.705A/ 230VAC
4	LEAKAGE CURRENT	< 0.75mA / 277VAC	I/P: 277 VAC O/P: NO LOAD Ta: 25°C	L-FG: 0.357 mA N-FG: 0.324 mA
5	NO LOAD POWER CONSUMPTION	< 0.5W	I/P: 230VAC O/P: NO LOAD Ta: 25°C	0.259W/ 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: 12.28 %
		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: 10.36 %
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 =48.4A/ 230VAC Twidth =456us

INPUT=230VAC/50HZ @ FULL LOAD



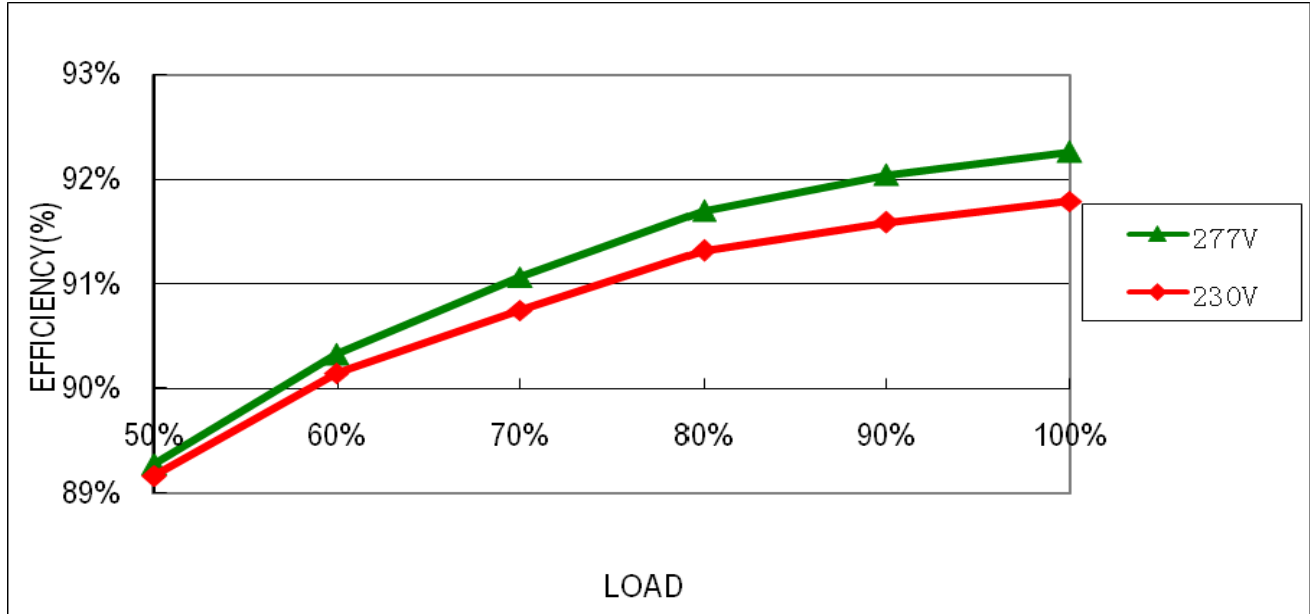


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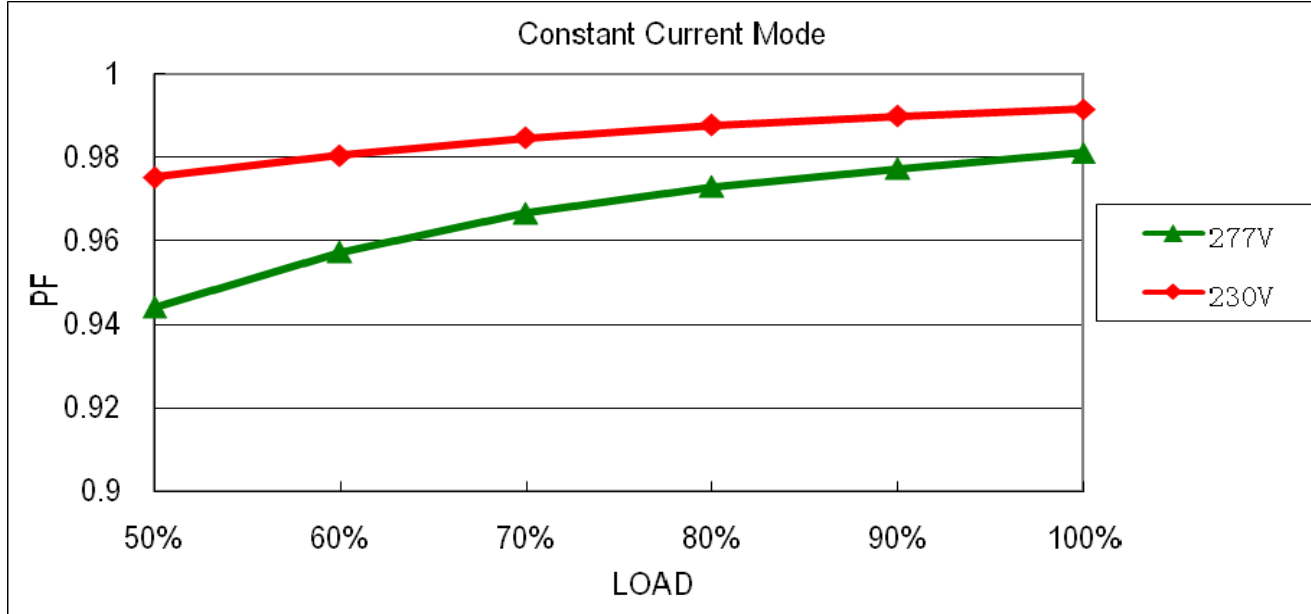
8	EFFICIENCY(Typ)	91%	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	91.79%
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EFFICIENCY vs LOAD



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=0.981/ 277VAC PF=0.991/ 230VAC
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P.F vs LOAD



**PROTECTION FUNCTION TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER VOLTAGE PROTECTION	96V~106V	I/P: 230VAC O/P: NO LOAD Ta: 25°C	99.76V/ 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

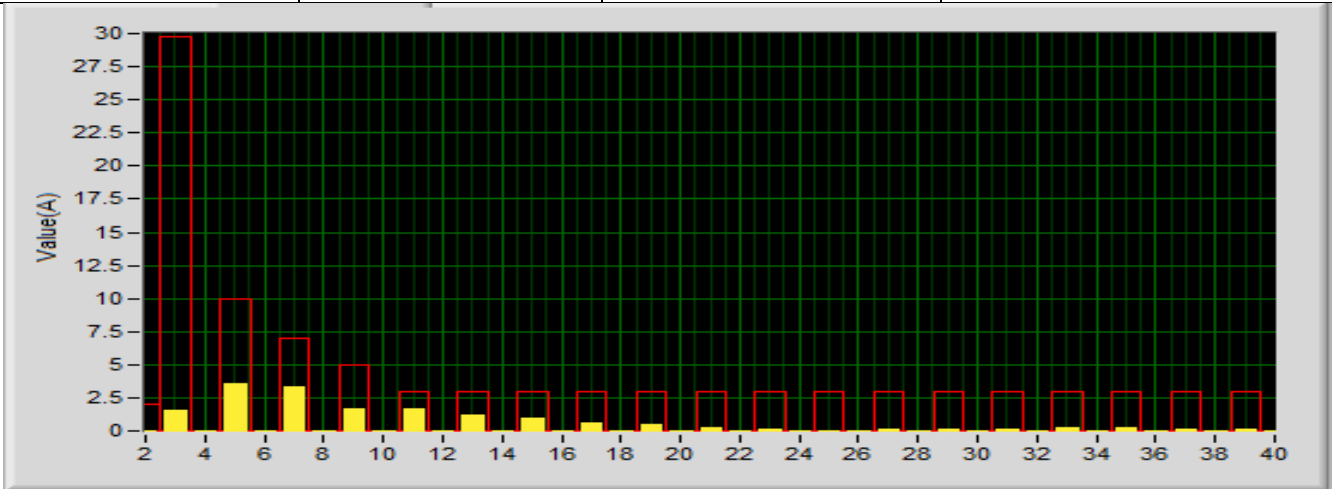
COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Transistor (D to S) or (C to E) Peak Voltage	Q 2 Rated 730V/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) 684V (2) 516V (3) 672V
2	Diode Peak Voltage	Q101 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) 382V (2) 280V (3) 374V
3	Input Capacitor Voltage	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) 444V (2) 442V (3) 448V
4	Control IC Voltage Test	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) 17.3V (2) 15.9V (3) 17.4V
5	PFC Transistor (D to S) or (C to E) Peak Voltage	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) 532V (2) 484V (3) 472V

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: 1.543mA I/P-FG: 2.289mA O/P-FG: 1.576mA 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-C1750 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>70.5℃</td><td>100.3℃</td></tr> <tr><td>2</td><td>ZNR2</td><td>72.1℃</td><td>101.6℃</td></tr> <tr><td>3</td><td>L1</td><td>71.1℃</td><td>100.9℃</td></tr> <tr><td>4</td><td>L3</td><td>68.9℃</td><td>98.7℃</td></tr> <tr><td>5</td><td>RTH2</td><td>74.7℃</td><td>103.0℃</td></tr> <tr><td>6</td><td>D6</td><td>76.8℃</td><td>108.5℃</td></tr> <tr><td>7</td><td>Q1</td><td>77.1℃</td><td>108.9℃</td></tr> <tr><td>8</td><td>Q2</td><td>80.3℃</td><td>112.0℃</td></tr> <tr><td>9</td><td>D10</td><td>83.6℃</td><td>116.8℃</td></tr> <tr><td>10</td><td>C11</td><td>73.1℃</td><td>103.4℃</td></tr> <tr><td>11</td><td>C5</td><td>70.3℃</td><td>100.5℃</td></tr> <tr><td>12</td><td>C45</td><td>66.7℃</td><td>96.4℃</td></tr> <tr><td>13</td><td>U1</td><td>67.0℃</td><td>96.2℃</td></tr> <tr><td>14</td><td>T1</td><td>76.3℃</td><td>107.8℃</td></tr> <tr><td>15</td><td>Q101</td><td>70.0℃</td><td>99.3℃</td></tr> <tr><td>16</td><td>Q102</td><td>70.3℃</td><td>99.7℃</td></tr> <tr><td>17</td><td>U100</td><td>61.6℃</td><td>90.5℃</td></tr> <tr><td>18</td><td>C201</td><td>66.0℃</td><td>95.3℃</td></tr> <tr><td>19</td><td>C106</td><td>63.5℃</td><td>92.8℃</td></tr> <tr><td>20</td><td>C107</td><td>66.2℃</td><td>95.5℃</td></tr> <tr><td>21</td><td>C110</td><td>60.4℃</td><td>89.5℃</td></tr> <tr><td>22</td><td>RTH3</td><td>66.4℃</td><td>96.0℃</td></tr> <tr><td>23</td><td>TC</td><td>61.7℃</td><td>91.3℃</td></tr> </tbody> </table>	NO	Position	ROOM AMBIENT Ta= 34.3 ℃	HIGH AMBIENT Ta=62.0 ℃	1	LF2	70.5℃	100.3℃	2	ZNR2	72.1℃	101.6℃	3	L1	71.1℃	100.9℃	4	L3	68.9℃	98.7℃	5	RTH2	74.7℃	103.0℃	6	D6	76.8℃	108.5℃	7	Q1	77.1℃	108.9℃	8	Q2	80.3℃	112.0℃	9	D10	83.6℃	116.8℃	10	C11	73.1℃	103.4℃	11	C5	70.3℃	100.5℃	12	C45	66.7℃	96.4℃	13	U1	67.0℃	96.2℃	14	T1	76.3℃	107.8℃	15	Q101	70.0℃	99.3℃	16	Q102	70.3℃	99.7℃	17	U100	61.6℃	90.5℃	18	C201	66.0℃	95.3℃	19	C106	63.5℃	92.8℃	20	C107	66.2℃	95.5℃	21	C110	60.4℃	89.5℃	22	RTH3	66.4℃	96.0℃	23	TC	61.7℃	91.3℃
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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	±0.003%/℃(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																																																																																																



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6	THERMAL SHOCK TEST	1. Thermal shock Temperature: $-45^{\circ}\text{C} \sim +65^{\circ}\text{C}$ 2. Temperature change rate : $25^{\circ}\text{C} / \text{MIN}$ 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-C1750: 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) 220136 HRS (2) 17422 HRS (3) 26841 HRS (4) 36572 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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65	100																				
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TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	ZHANGZJ/ZHUOKB	SKY	LIUWY