

MODEL : LPL-18-12

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 120 mVp-p (Max)	I/P: 115 VAC O/P:FULL LOAD Ta:25°C	V1: 18 mVp-p (Max)	PASS
2	OUTPUT VOLTAGE TOLERANCE	V1: -3 %~ +3 % (Max)	I/P: 100VAC / 132VAC O/P:FULL/ MIN LOAD Ta:25°C	V1: -1.066 %~ +1.066 %	PASS
3	LINE REGULATION	V1: -1 %~ +1 % (Max)	I/P: 100VAC ~ 132VAC O/P:FULL LOAD Ta:25°C	V1: -0.05 %~ +0.05 %	PASS
4	LOAD REGULATION	V1: -2 %~ +2 % (Max)	I/P: 115 VAC O/P:FULL -MIN LOAD Ta:25°C	V1: -0.099 %~+0.149 %	PASS
5	SET UP TIME	115VAC/ 1500 ms (Max)	I/P: 115 VAC O/P:FULL LOAD Ta:25°C	115 VAC/ 1017.9 ms	PASS
6	RISE TIME	115VAC/ 30 ms (Max)	I/P: 115 VAC O/P:FULL LOAD Ta:25°C	115 VAC/ 10.0 ms	PASS
7	HOLD UP TIME	115VAC/ 20 ms (Typ)	I/P: 115 VAC O/P:FULL LOAD Ta:25°C	115 VAC/ 26.7 ms	PASS
8	OVER/UNDERSHOOT TEST	<±5%	I/P: 115 VAC O/P:FULL LOAD Ta:25°C	TEST: +1.33% -1.41%	PASS
9	DYNAMIC LOAD	V1: 1200 mVp-p	I/P: 115 VAC O/P: (1)FULL /Min LOAD 90%DUTY/1KHZ (2)FULL /Min LOAD 50%DUTY/120HZ Ta:25°C	(1) 460 mVp-p (2) 500 mVp-p	PASS

INPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	90 VAC- 132 VAC	I/P: TESTING O/P: FULL LOAD Ta: 25°C	80 V- 132 V	PASS
			I/P: LOW-LINE-3V= 87 V HIGH-LINE+15%= 150 V O/P: FULL/MIN LOAD ON: 30 Sec . OFF: 30 Sec 10MIN (AC POWER ON/OFF NO DAMAGE)	TEST: OK	
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE OSC	I/P: 90VAC ~132VAC O/P: FULL-MIN LOAD Ta: 25°C	TEST: OK	PASS
3	EFFICIENCY	80 % (Typ)	I/P: 115 VAC O/P: FULL LOAD Ta: 25°C	82.83 %	PASS
4	INPUT CURRENT	115 V/ 0.5 A (Typ)	I/P: 115 VAC O/P: FULL LOAD Ta: 25°C	I = 0.30 A / 115VAC	PASS
5	INRUSH CURRENT	115 V/ 40 A (Max) COLD START	I/P: 115 VAC O/P: FULL LOAD Ta: 25°C	I = 30.8 A / 115VAC	PASS

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	> 105% RATED OUTPUT POWER	I/P: 132 VAC I/P: 115 VAC I/P: 100 VAC O/P: TESTING Ta: 25°C	196 %/132VAC 185 %/115VAC 164 %/100VAC Hiccup Mode	PASS
2	OVER VOLTAGE PROTECTION	CH1: 13.8 V- 16.2 V	I/P: 115 VAC O/P: MIN LOAD Ta: 25°C	15.51 V / 115VAC Shut off o/p voltage, clamping by zener diode	PASS
3	OVER TEMPERATURE PROTECTION	SPEC: Tj 140°C O.T.P. NO DAMAGE	I/P: 115 VAC O/P: FULL LOAD	130 °C / 115 VAC O.T.P. Active Hiccup Mode , recovers automatically after temperature goes down	PASS
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 132 VAC O/P: FULL LOAD Ta: 25°C	NO DAMAGE Hiccup Mode	PASS

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT																																																																						
1	TEMPERATURE RISE TEST	MODEL : LPL-18-12 1. ROOM AMBIENT BURN-IN : 2 HRS I/P: 115 VAC O/P: 100% LOAD Ta= 29.5 °C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P: 115 VAC O/P: 100% LOAD Ta= 49.9 °C			PASS																																																																						
		<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>P/N</th> <th>ROOM AMBIENT Ta= 29.5 °C</th> <th>HIGH AMBIENT Ta= 49.9 °C</th> </tr> </thead> <tbody> <tr><td>1</td><td>LF1</td><td>LF6006</td><td>45.4°C</td><td>72.5°C</td></tr> <tr><td>2</td><td>BD1</td><td>KBP208G 2A/800V</td><td>48.0°C</td><td>71.5°C</td></tr> <tr><td>3</td><td>C5</td><td>47u/200V 105°C KF</td><td>48.1°C</td><td>72.2°C</td></tr> <tr><td>4</td><td>ZD1</td><td>P6KE150A</td><td>55.8°C</td><td>80.8°C</td></tr> <tr><td>5</td><td>D1</td><td>SBYV26C 1A/600V</td><td>55.6°C</td><td>80.8°C</td></tr> <tr><td>6</td><td>U1</td><td>F5Q0365RN</td><td>62.0°C</td><td>87.7°C</td></tr> <tr><td>7</td><td>T1</td><td>TF6149</td><td>60.0°C</td><td>82.6°C</td></tr> <tr><td>8</td><td>D100</td><td>HER302 3A/100V</td><td>69.3°C</td><td>91.6°C</td></tr> <tr><td>9</td><td>D101</td><td>HER302 3A/100V</td><td>68.1°C</td><td>90.5°C</td></tr> <tr><td>10</td><td>C105</td><td>470u/16V 105°C GL</td><td>53.8°C</td><td>75.7°C</td></tr> <tr><td>11</td><td>C106</td><td>470u/16V 105°C GL</td><td>49.7°C</td><td>71.6°C</td></tr> <tr><td>12</td><td>L100</td><td>DR006C</td><td>48.4°C</td><td>71.4°C</td></tr> <tr><td>13</td><td>C36</td><td>47u/50V 105°C YXF</td><td>52.6°C</td><td>77.3°C</td></tr> </tbody> </table>	NO	Position		P/N	ROOM AMBIENT Ta= 29.5 °C	HIGH AMBIENT Ta= 49.9 °C	1	LF1	LF6006	45.4°C	72.5°C	2	BD1	KBP208G 2A/800V	48.0°C	71.5°C	3	C5	47u/200V 105°C KF	48.1°C	72.2°C	4	ZD1	P6KE150A	55.8°C	80.8°C	5	D1	SBYV26C 1A/600V	55.6°C	80.8°C	6	U1	F5Q0365RN	62.0°C	87.7°C	7	T1	TF6149	60.0°C	82.6°C	8	D100	HER302 3A/100V	69.3°C	91.6°C	9	D101	HER302 3A/100V	68.1°C	90.5°C	10	C105	470u/16V 105°C GL	53.8°C	75.7°C	11	C106	470u/16V 105°C GL	49.7°C	71.6°C	12	L100	DR006C	48.4°C	71.4°C	13	C36	47u/50V 105°C YXF	52.6°C	77.3°C		
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2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P: 115 VAC O/P: 140 % LOAD Ta:25°C	TEST : OK	PASS																																																																						
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P: 115 VAC O/P: 100 % LOAD Ta= -30 °C	TEST : OK	PASS																																																																						
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50 °C NO DAMAGE	I/P: 136 VAC O/P:FULL LOAD Ta= 50 °C HUMIDITY= 95 %R.H	TEST : OK	PASS																																																																						
5	TEMPERATURE COEFFICIENT	± 0.03 %(0-50°C)	I/P: 115 VAC O/P:FULL LOAD	± 0.003 %(0-50°C)	PASS																																																																						
6	STORAGE TEMPERATURE TEST	1. Thermal shock Temperature : -40°C ~ +80°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	PASS																																																																						
7	THERMAL SHOCK TEST	1. Thermal shock Temperature : -30 °C ~ +55 °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 58SEC ON/2SEC OFF		TEST : OK	PASS																																																																						
8	VIBRATION TEST	1 Carton & 1 Set (1) Waveform: Sine Wave (2) Frequency:10-500Hz (3) Sweep Time:12min/sweep cycle (4) Acceleration:2G (5) Test Time:1 hour in each axis (X.Y.Z) (6) Ta:25°C		TEST : OK	PASS																																																																						

9	CAPACITOR LIFE CYCLE	SUPPOSE C105 IS THE MOST CRITICAL COMPONENT (1) I/P: 230 VAC O/P:FULL LOAD Ta= 25 °C LIFE TIME= 261962.5 HRS (2) I/P: 230 VAC O/P:FULL LOAD Ta= 40 °C LIFE TIME= 41748.6 HRS (3) I/P: 230 VAC O/P:75% LOAD Ta= 40 °C LIFE TIME= 59010.5 HRS (4) I/P: 230 VAC O/P:50% LOAD Ta= 40 °C LIFE TIME= 93258.7 HRS	PASS
10	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 1207.4K HRS	PASS
11	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure(Expected Life) : 20,000 hours @ Tcase 75°C; 50,000 hours @ Tcase60°C	PASS

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P: 3.0 KVAC/min	I/P-O/P: 3.6 KVAC/min Ta:25°C	I/P-O/P: 0.211 mA NO DAMAGE	PASS
2	ISOLATION RESISTANCE	I/P-O/P:500VDC>100MΩ	I/P-O/P: 500 VDC Ta:25°C	I/P-O/P: >9999 MΩ NO DAMAGE	PASS
4	LEAKAGE CURRENT	< 0.25 mA / 115VAC	I/P: 132 VAC O/P:NO LOAD Ta:25°C	L-FG: 0.005 mA N-FG: 0.005 mA	PASS

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS A	I/P: 115/120/110 VAC/50HZ O/P:100%/75%/50%/25% LOAD Ta:25°C	PASS	PASS
2	CONDUCTION	EN55022 CLASS B	I/P:115 VAC (50HZ) /115V(60HZ) O/P:FULL/50% LOAD Ta:25°C	PASS Test by certified Lab	PASS
3	RADIATION	EN55022 CLASS B	I/P: 115 VAC (50HZ)/115V(60HZ) O/P:FULL LOAD Ta:25°C	PASS Test by certified Lab	PASS
4	E.S.D	EN61000-4-2 LIGHT INDUSTRY AIR:8KV / Contact:4KV	I/P: 115 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	PASS
5	E.F.T	EN61000-4-4 LIGHT INDUSTRY INPUT: 1KV	I/P: 115 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	PASS
6	SURGE	IEC61000-4-5 LIGHT INDUSTRY L-N :1KV L,N-PE:2KV	I/P: 115 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	PASS
7	Test by certified Lab & Test Report Prepare				

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) Peak Voltage	U1 Rated FSQ0365RN : 650 V	I/P:High-Line +3V = 135 V O/P: (1)Full Load Turn on (2)Output Short (3)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (4)Dynamic Load 50% Load/ Min. Load 90%Duty/1KHz Ta:25°C	(1) 328 V (2) 334 V (3) 334 V (4) 324 V	PASS
2	Diode Peak Voltage	D 100 Rated HER302 : 100 V 3 A	I/P:High-Line +3V = 135 V O/P: (1)Full Load Turn on (2)Output Short (3)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (4)Dynamic Load 50% Load/ Min. Load 90%Duty/1KHz Ta:25°C	(1) 66.0 V (2) 48.0 V (3) 67.2 V (4) 53.6 V	PASS
3	Clamp Diode Peak Voltage	D1 Rated SBYV26C : 600 V 1 A	I/P:High-Line +3V = 135 V O/P: (1)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (2)Dynamic Load 50% Load/ Min. Load 90%Duty/1KHz Ta:25°C	(1) 304 V (2) 304 V	PASS
4	Input Capacitor Voltage	C 5 Rated CAPXON : 47 μ / 200 V 105 °C / KF Series	I/P:High-Line +3V =135 V O/P: (1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Burn-IN 0.5 Hour Ta:25°C	(1) 188 V (2) 162 V (3) 162 V	PASS
5	Control IC Voltage Test	U 1 Rated FSQ0365RN : 20 V	I/P:High-Line +3V =135 V O/P:(1) Output Short (2)O.L.P Ta:25°C	(1) 14.7 V (2) 15.2 V	PASS

2007/11/26 A50-G058

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2008/5/12	RD SAMPLE	PASS	SKY	LIUWY
2008/10/24	PRODUCT SAMPLE (W0810A021)	PASS	SKY	LIUWY
2009/2/8	PRODUCT SAMPLE (W0901B211)	PASS	SKY	LIUWY