



# Test Report: LPC-100-500

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100W Single Output LED Power Supply

## ■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

Component Stress Test

## ■ SAFETY & E.M.C. TEST

Safety Test

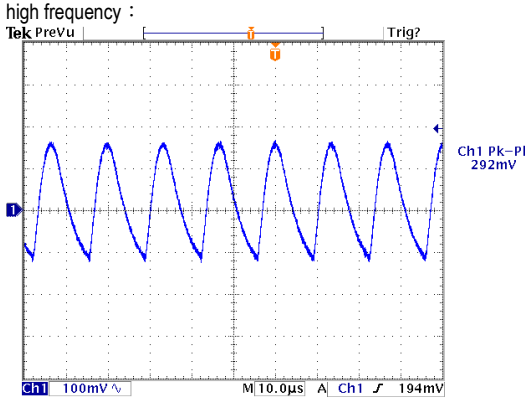
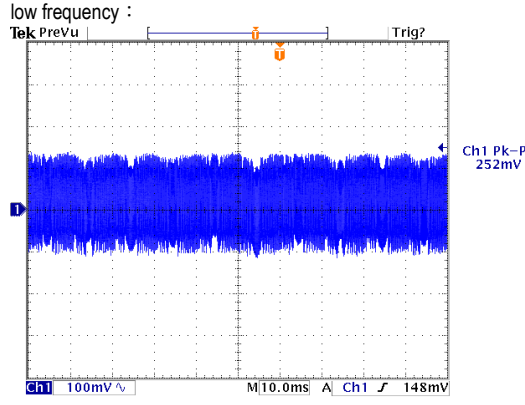
E.M.C. Test

## ■ RELIABILITY TEST

Environment Test

## DESIGN VERIFY TEST

### OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	CURRENT ACCURACY	$< \pm 5\%$	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	TEST: -0.48%~1.26 %
2	CONSTANT CURRENT REGION	V1: 100V~200 V	I/P: 230VAC O/P: LED MODE Ta:25°C	V1: 55.68 V~200.31 V
3	RIPPLE CURRENT	$< \pm 5\%$	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	TEST: 4.8%
4	LINE REGULATION	V1: -1 %~ 1 %	I/P: 100VAC~264VAC O/P: FULL LOAD Ta: 25°C	V1: 0%
5	OUTPUT VOLTAGE TOLERANCE	V1: -1.5 %~ 1.5 %	I/P: 100VAC /264VAC O/P: FULL/ MIN LOAD Ta: 25°C	V1: -0.25%~ 0.56%
6	OVER/UNDERSHOOT TEST	$< \pm 5\%$	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	$< 5\%$
7	RIPPLE & NOISE(Max)	V1: 1.5Vp-p	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	V1: 292mVp-p
<p>high frequency :</p>  <p>Ch1 Pk-Pk 292mV</p>		<p>low frequency :</p>  <p>Ch1 Pk-Pk 252mV</p>		
8	SET UP TIME(Max)	230VAC/ 1000ms 115VAC/ 2000ms	I/P: 230 VAC I/P: 115 VAC O/P: FULL LOAD Ta: 25°C	230VAC/ 676 ms 115VAC/ 1410 ms



100W Single Output LED Power Supply

LPC-100 series

<p>INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage</p> <p>Δ: 184 V @: 185 V Δ: 676ms @: 4.00ms</p> <p>Ch1 50.0 V Ch2 250 V M 200ms A Ch1 150 V</p>	<p>INPUT=115VAC/60HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage</p> <p>Δ: 152 V @: 152 V Δ: 1.41 s @: 0.00 s</p> <p>Ch1 50.0 V Ch2 250 V M 400ms A Ch1 150 V</p>		
<p>9 RISE TIME (Max)</p>	<p>230VAC/ 80ms 115VAC/ 80ms</p>	<p>I/P: 230 VAC I/P: 115 VAC O/P: FULL LOAD Ta: 25°C</p>	<p>230VAC/ 12.6 ms 115VAC/ 12.8 ms</p>
<p>INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage</p> <p>Δ: 159 V @: 179 V Δ: 12.6ms @: 11.8ms</p> <p>Ch1 Rise 12.10ms</p> <p>Ch1 50.0 V M 10.0ms A Ch1 33.0 V</p>			
<p>10 HOLD UP TIME(Typ)</p>	<p>230VAC/ 16ms 115VAC/ 10ms</p>	<p>I/P: 230 VAC I/P: 115 VAC O/P: FULL LOAD Ta: 25°C</p>	<p>230VAC/ 96.0 ms 115VAC/ 23.2 ms</p>
<p>INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage</p> <p>Δ: 23.0 V @: 180 V Δ: 96.0ms @: 4.00ms</p> <p>Ch1 50.0 V Ch2 250 V M 40.0ms A Ch1 190 V</p>			<p>INPUT=115VAC/60HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage</p> <p>Δ: 22.0 V @: 179 V Δ: 23.2ms @: -6.40ms</p> <p>Ch1 50.0 V Ch2 250 V M 40.0ms A Ch1 171 V</p>



INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	90VAC~264VAC	I/P: TESTING O/P: FULL LOAD Ta: 25°C	87V~267V
			I/P: (1)LOW-LINE-3V=87 V HIGH-LINE+15%=300 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: 90 VAC ~264 VAC O/P: FULL~MIN LOAD Ta: 25°C	TEST: OK
3	INPUT CURRENT (Typ)	230V/ 1.2A 115V/ 2.2A	I/P: 230 VAC I/P: 115 VAC O/P: FULL LOAD Ta: 25°C	I =0.96A/ 230VAC I =1.62A/ 115VAC
4	LEAKAGE CURRENT	< 0.25mA / 240 VAC	I/P: 240 VAC O/P: Min LOAD Ta: 25°C	L-FG: 0.003 mA N-FG: 0.003 mA
5	INRUSH CURRENT(Typ)	230V/ 75A Twidth =980 us measured at 50% Ipeak COLD START	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	I = 53A Twidth =856us
<p>INPUT=230VAC/50HZ @ FULL LOAD</p> <p>CH2 : Input current CH1 : AC Input Voltage</p> <p>Ch2 Max 53.0 A</p> <p>Ch1 100 V 10.0 A 10.0 A 400µs A Ch2 14.2 A</p> <p>39.80 %</p>				
6	EFFICIENCY(Typ)	90%	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	91.41%



## PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER VOLTAGE PROTECTION	V1: 220 V~ 240 V	I/P: 90VAC I/P: 230VAC I/P: 264VAC O/P: TESTING Ta: 25°C	237.47V/ 90VAC 227.36V/ 230VAC 237.47V/ 264VAC Shut down o/p voltage, re-power on to recover
2	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 264VAC O/P: FULL LOAD Ta: 25°C	NO DAMAGE Constant current limiting, recovers automatically after fault condition is removed

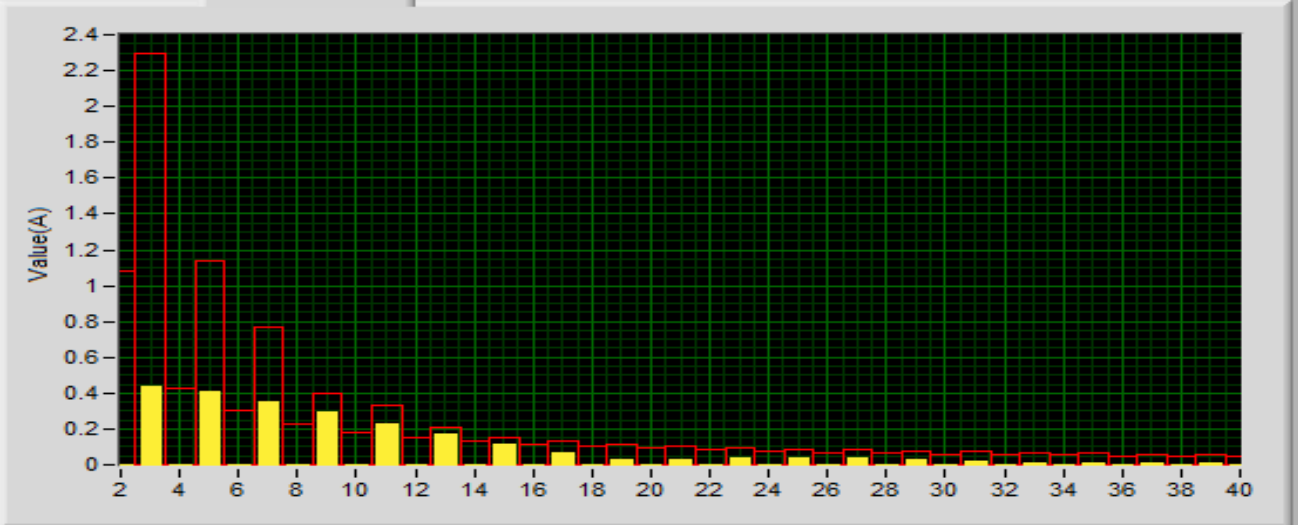
## COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Transistor (D to S) or (C to E) Peak Voltage	Q1 Rated 800V/9.4A	I/P: High-Line +3V =267V O/P: (1)Full Load Turn on (2)Output Short (3)Full load continue Ta: 25°C	(1) 626V (2) 442V (3) 618V
2	Diode Peak Voltage	D100 Rated 700V/3A	I/P: High-Line +3V =267V O/P: (1)Full Load Turn on (2)Output Short (3)Full load continue Ta: 25°C	(1) 526V (2) 382V (3) 522V
3	Input Capacitor Voltage	C5 Rated 100uF/ 400V	I/P: High-Line +3V =267 V O/P: (1)Full Load input on/off (2) Min load input on /Off Ta: 25°C	(1) 380V (2) 380V
4	Control IC Voltage Test	U1 Rated 28V (MAX.)	I/P: High-Line +3V =267 V O/P: (1)Full Load input on/off (2) Min load input on /Off Ta: 25°C	(1) 17.3V (2) 17.3V

## SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P: 3KVAC/min	I/P-O/P: 3.6 KVAC/min Ta: 25°C	I/P-O/P: 1.678mA NO DAMAGE
2	ISOLATION RESISTANCE	I/P-O/P: 500VDC>100MΩ	I/P-O/P: 500 VDC Ta: 25°C	I/P-O/P: >9999MΩ NO DAMAGE

## E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	EN61000-3-2 CLASS A	I/P: 230 VAC/50HZ O/P: ≤80% LOAD Ta: 25°C	PASS
				
2	CONDUCTION	EN55022 CLASS B	I/P: 230 VAC (50HZ) O/P: FULL LOAD Ta: 25°C	PASS Test by certified Lab
3	RADIATION	EN55022 CLASS B	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 LIGHT INDUSTRY L-N : 1KV	I/P: 230VAC/50HZ O/P: FULL LOAD 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: LPC-100-350 1. ROOM AMBIENT BURN-IN: 2 HRS I/P: 230VAC O/P: FULL LOAD Ta= 33 °C 2. HIGH AMBIENT BURN-IN: 2 HRS I/P: 230VAC O/P: FULL LOAD Ta= 54 °C																																																																		
		<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta= 33 °C</th> <th>HIGH AMBIENT Ta= 54 °C</th> </tr> </thead> <tbody> <tr><td>1</td><td>LF3</td><td>52.6°C</td><td>69.0°C</td></tr> <tr><td>2</td><td>C6</td><td>57.8°C</td><td>75.7°C</td></tr> <tr><td>3</td><td>Q1</td><td>62.3°C</td><td>80.4°C</td></tr> <tr><td>4</td><td>D2</td><td>65.4°C</td><td>84.0°C</td></tr> <tr><td>5</td><td>C26</td><td>62.0°C</td><td>80.4°C</td></tr> <tr><td>6</td><td>R9</td><td>68.1°C</td><td>86.9°C</td></tr> <tr><td>7</td><td>U1</td><td>58.2°C</td><td>76.6°C</td></tr> <tr><td>8</td><td>T1</td><td>72.3°C</td><td>91.8°C</td></tr> <tr><td>9</td><td>D100</td><td>67.7°C</td><td>87.0°C</td></tr> <tr><td>10</td><td>C120</td><td>57.8°C</td><td>77.1°C</td></tr> <tr><td>11</td><td>C106</td><td>60.0°C</td><td>79.1°C</td></tr> <tr><td>12</td><td>C108</td><td>51.2°C</td><td>70.7°C</td></tr> <tr><td>13</td><td>RTH2</td><td>60.1°C</td><td>78.3°C</td></tr> <tr><td>14</td><td>D101</td><td>61.7°C</td><td>80.5°C</td></tr> <tr><td>15</td><td>Tc</td><td>59.8°C</td><td>79.0°C</td></tr> </tbody> </table>	NO	Position	ROOM AMBIENT Ta= 33 °C	HIGH AMBIENT Ta= 54 °C	1	LF3	52.6°C	69.0°C	2	C6	57.8°C	75.7°C	3	Q1	62.3°C	80.4°C	4	D2	65.4°C	84.0°C	5	C26	62.0°C	80.4°C	6	R9	68.1°C	86.9°C	7	U1	58.2°C	76.6°C	8	T1	72.3°C	91.8°C	9	D100	67.7°C	87.0°C	10	C120	57.8°C	77.1°C	11	C106	60.0°C	79.1°C	12	C108	51.2°C	70.7°C	13	RTH2	60.1°C	78.3°C	14	D101	61.7°C	80.5°C	15	Tc	59.8°C	79.0°C		
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2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P: 264VAC/100VAC O/P: 100 % LOAD Ta= -30 °C	TEST: OK																																																																
3	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50 °C NO DAMAGE	I/P: 272 VAC O/P: FULL LOAD Ta= 50 °C HUMIDITY= 95 % R.H	TEST: OK																																																																
4	TEMPERATURE COEFFICIENT	±0.03 %/°C (0~50°C)	I/P: 230 VAC O/P: FULL LOAD	±0.002 %/°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: -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 AC ON/OFF TEST turn on 58 sec; turn off 2 sec		TEST: OK																																																																



100W Single Output LED Power Supply

# LPC-100 series

7	VIBRATION TEST	1 Carton & 1 Set (1) Waveform: Sine Wave (2) Frequency: 10~500Hz (3) Sweep Time: 10min/sweep cycle (4) Acceleration: 3G (5) Test Time: 90min in each axis (X.Y.Z) (6) Ta: 25°C	TEST: OK
8	CAPACITOR LIFE CYCLE	LPC-100-350: SUPPOSE C106 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= 50 °C LIFE TIME (3) I/P: 230VAC O/P: 75% LOAD Ta= 50 °C LIFE TIME (4) I/P: 230VAC O/P: 50% LOAD Ta= 50 °C LIFE TIME	(1) 453494 HRS (2) 91389.4 HRS (3) 106467.5 HRS (4) 148594.1 HRS
9	MTBF	Conducted by Parts Stress Analysis Prediction 4121.8K hrs min. Telcordia SR-332 (Bellcore) ; 511.2K hrs min. MIL-HDBK-217F (25°C)	
10	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure (Expected Life): Above 20,000 hours @ Tcase 75°C	

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	ZHANGZJ/ZHUOKB	SKY	LIUWY