



Test Report: LDH-65-1050

DC-DC Step-Up Constant Current LED driver

■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

Control Function Test

Component Stress Test

■ SAFETY & E.M.C. TEST

Safety Test

E.M.C. Test

■ RELIABILITY TEST

ENVIRONMENT TEST

DESIGN VERIFY TEST

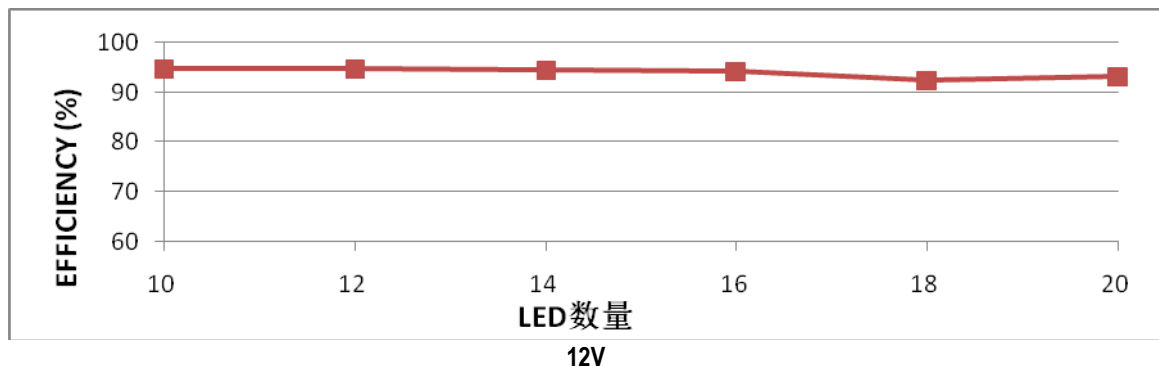
OUTPUT FUNCTION TEST

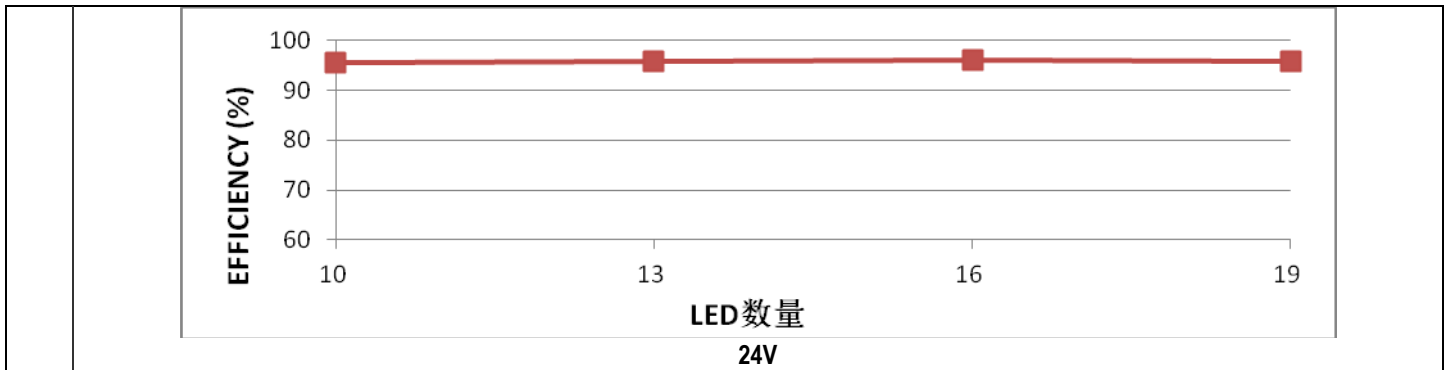
NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	CURRENT ACCURACY	± 5%	I/P: 12VDC/24VDC O/P: LED min/LED max Ta:25°C	-1.51%~-1.42%/12VDC -1.66%~-1.58%/24VDC
2	CURRENT RIPPLE	5%(@rated current)	I/P: 12VDC / 24VDC O/P: LED min~LED max Ta:25°C	3.25%/12VDC 2.63%/24VDC
3	SUGRE CURRENT	< ±110 %	I/P: 12VDC / 24VDC O/P:LED min/LED max Ta:25°C	103.9%/12VDC 103.2%/24VDC
4	VOLTAGE RANGE	12.5V~60V	I/P: 12VDC/24VDC O/P:FULL LOAD Ta:25°C	15V~71.3V/12VDC 27V~70.9V/24VDC

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	9.5VDC~32VDC	I/P:TESTING O/P:FULL LOAD Ta:25°C	9.1V~35V
			I/P: LOW-LINE-0.2= 9.3 V HIGH-LINE+3V= 35 V O/P:FULL/MIN LOAD (PLEASE CHECK DERATING CURVE) ON: 30 Sec . OFF: 30 Sec 10MIN (POWER ON/OFF NO DAMAGE)	TEST: OK
2	INPUT CURRENT(TYP)	12VDC/ 6.2A 24VDC/ 3.1A	I/P: 12VDC/24VDC O/P:FULL LOAD Ta:25°C	I=5.51A/12VDC I=2.45A/24VDC
3	DIMMING OFF	INPUT CURRENT <7mA Vo=Vi	I/P:12VDC O/P:FULL LOAD Ta:25°C	___1.36___mA Vo=__12___Vi
4	EFFICIENCY(TYP)	91.5% /12VDC	I/P: 12VDC/24VDC O/P:FULL LOAD Ta:25°C	93.09%/12VDC
		95.5% /24VDC		95.88%/24VDC

EFFICIENCY vs LOAD





PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER VOLTAGE PROTECTION	CH: 61V~ 100V	I/P: 9.3VDC I/P: 35VDC O/P: MIN LOAD Ta:25°C	9.3V/71.6VDC 35V/72VDC PROTECTION TYPE : Output voltage rise to OVP, and drop equal to input voltage, re-power to recovery
2	SHORT CIRCUIT PROTECTION	NO DAMAGE	I/P: 12VDC O/P: FULL LOAD Ta:25°C	PROTECTION TYPE : Output short circuit, the power supply will be damaged
3	NO LOAD PROTECTION	NO LOAD	I/P: 12VDC/24VDC O/P: NO LOAD Ta:25°C	PROTECTION TYPE : Output voltage rise to OVP, and drop equal to input voltage, re-power to recovery

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Transistor (D to S) or (C to E) Peak Voltage	Q1 Rated 90A/120 V	DC ON/OFF I/P: High-Line +3V = 35V O/P: (1) CVmax (2) CVmax continue (3) CVmin (4) No Load (5) DIMMING off I/P: Low-Line -0.2V = 9.3V O/P: (1) CVmax (2) CVmax continue (3) CVmin (4) No Load (5) DIMMING off Ta:25°C	VDS: (1) 71.6V (2) 70.8V (3) 66.8V (4) 77.3V (5) 34.7V VDS: (1) 99V (2) 96.6V (3) 21.8V (4) 109V (5) 9.3V
2	Diode Peak Voltage	D5 Rated 10A/100 V	DC ON/OFF I/P: High-Line +3V = 35V VO: 設定 SPEC 輸出電壓上限 O/P: (1) CVmax (2) CVmax continue (3) CVmin	VDS: VO: 設定 SPEC 輸出電壓上限 (1) 68.8V (2) 68V (3) 44.7V

			(4) No Load (5) DIMMING off VO: 設定出貨輸出電壓 O/P: (1)CVmax (2) CVmax continue (3) CVmin (4) No Load (5) DIMMING off Ta:25°C	(4) 79.3V (5) 0V VO: 設定出貨輸出電壓 (1) 67.2V (2) 66.4V (3) 11.8V (4) 80.1V (5) 0V
3	Input Capacitor Voltage	C5 Rated: : 100 μ /50V	I/P:High-Line +3V =35V O/P: (1)Full Load input on/off (2)Full load continue Ta:25°C	(1)35.6V (2)35V
4	Control IC Voltage Test	U1 Rated -0.3V~ 43V U500 Rated -0.3V~ 65V	DC ON/OFF I/P:High-Line +3V = 35V O/P: (1)CVmax (2) CVmax continue (3) CVmin (4) No Load (5) DIMMING off (6)OVP Ta:25°C	U1: (1) 36.2V (2) 35V (3) 35V (4) 35.4V (5) 35V U500: (6) 5.25V (7) 5.25V (8) 5.37V (9) 5.17V (10) 5.17V (11) 5.33V

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	RADIATION	EN55015 CLASS B	I/P: 12VDC O/P:FULL LOAD Ta:25°C	PASS Test by certified Lab
2	CONDUCTION	EN55015 CLASS B	I/P: 12VDC O/P:FULL LOAD Ta:25°C	PASS Test by certified Lab
3	E.S.D	EN61000-4-2 LIGHT INDUSTRY AIR : 8KV / Contact : 4KV	I/P: 12VDC O/P:FULL LOAD Ta:25°C	CRITERIA A
4	E.F.T	EN61000-4-4 LIGHT INDUSTRY INPUT: 0.5KV	I/P: 12VDC O/P:FULL LOAD Ta:25°C	CRITERIA A
5	Test by certified Lab & Test Report Prepare Any contradictions of the test results, please refer to the latest EMC test report			

■ RELIABILITY TEST

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT																																																												
1	TEMPERATURE RISE TEST	MODEL : LDH-65-1050 1. ROOM AMBIENT BURN-IN : 2HRS I/P : 12VDC O/P : FULL LOAD Ta=28.6 °C 2. HIGH AMBIENT BURN-IN : 2HRS I/P : 12VDC O/P : FULL LOAD Ta=51.8 °C																																																														
				<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta=28.6 °C</th> <th>HIGH AMBIENT Ta=51.8 °C</th> </tr> </thead> <tbody> <tr><td>1</td><td>Q3</td><td>45.0°C</td><td>81.6°C</td></tr> <tr><td>2</td><td>L1</td><td>55.0°C</td><td>95.8°C</td></tr> <tr><td>3</td><td>C5</td><td>49.6°C</td><td>87.0°C</td></tr> <tr><td>4</td><td>U1</td><td>60.5°C</td><td>91.7°C</td></tr> <tr><td>5</td><td>Q1</td><td>62.4°C</td><td>107.6°C</td></tr> <tr><td>6</td><td>D5</td><td>66.0°C</td><td>104.7°C</td></tr> <tr><td>7</td><td>D6</td><td>65.1°C</td><td>102.6°C</td></tr> <tr><td>8</td><td>C13</td><td>59.0°C</td><td>96.2°C</td></tr> <tr><td>9</td><td>C14</td><td>57.6°C</td><td>94.1°C</td></tr> <tr><td>10</td><td>R22</td><td>60.4°C</td><td>101.4°C</td></tr> <tr><td>11</td><td>U2</td><td>51.5°C</td><td>84.8°C</td></tr> <tr><td>12</td><td>LF20</td><td>46.7°C</td><td>79.6°C</td></tr> <tr><td>13</td><td>BC1</td><td>67.2°C</td><td>108.2°C</td></tr> <tr><td>14</td><td>TC</td><td>54.5°C</td><td>89.4°C</td></tr> </tbody> </table>	NO	Position	ROOM AMBIENT Ta=28.6 °C	HIGH AMBIENT Ta=51.8 °C	1	Q3	45.0°C	81.6°C	2	L1	55.0°C	95.8°C	3	C5	49.6°C	87.0°C	4	U1	60.5°C	91.7°C	5	Q1	62.4°C	107.6°C	6	D5	66.0°C	104.7°C	7	D6	65.1°C	102.6°C	8	C13	59.0°C	96.2°C	9	C14	57.6°C	94.1°C	10	R22	60.4°C	101.4°C	11	U2	51.5°C	84.8°C	12	LF20	46.7°C	79.6°C	13	BC1	67.2°C	108.2°C	14	TC	54.5°C	89.4°C
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2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 12VDC / 32VDC O/P : 100 % LOAD Ta= -45°C	TEST : OK																																																												
3	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50 °C /95 %R.H NO DAMAGE	I/P : 12VDC O/P : FULL LOAD Ta= 50 °C HUMIDITY= 95 %R.H	TEST : OK																																																												
4	TEMPERATURE COEFFICIENT	±0.03 %/°C(0~50°C)	I/P : 12VDC O/P : FULL LOAD	±0.001 %/°C(0~50°C)																																																												
5	STORAGE TEMPERATURE TEST	-40~85°C	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 : 10 CYCLE 5. Input/Output condition : STATIC																																																													
6	THERMAL SHOCK TEST	-40~60°C	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 : 15cycle: 24VDC / FULL LOAD AC ON 3sec/AC OFF 1sec TEST 1cycle: 24VDC / FULL LOAD Burn In Test																																																													



7	VIBRATION TEST	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes	1 Carton & 1 Set (1) Waveform : Sine Wave (2) Frequency : 10~500Hz (3) Sweep Time : 12min/sweep cycle (4) Acceleration : 3G (5) Test Time : 180min in each axis (X.Y.Z) (6) Ta : 25°C
8	CAPACITOR LIFE CYCLE	SUPPOSE C13 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) 163037HRS (2) 27839HRS (3) 77165HRS (4) 140114HRS
9	MTBF	Conducted by Parts Stress Analysis Prediction 9118.4K hrs min. Telcordia SR-332 (Bellcore) ; 874.9K hrs min. MIL-HDBK-217F (25°C)	
10	Ongoing Reliability Test	I/P : 230VAC O/P : FULL LOAD TA=50°C Demonstration Mean Time Between Failure : 30000 hours	

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	WUWQ/HUANGMK	WENF	LIUWY

2018.4.30 GP-A50-F010