



# Test Report: LDH-65-1750

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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

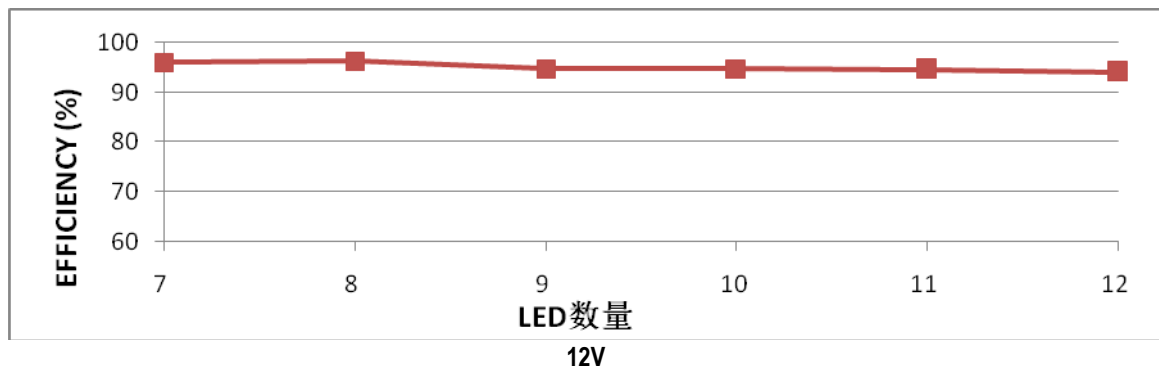
### OUTPUT FUNCTION TEST

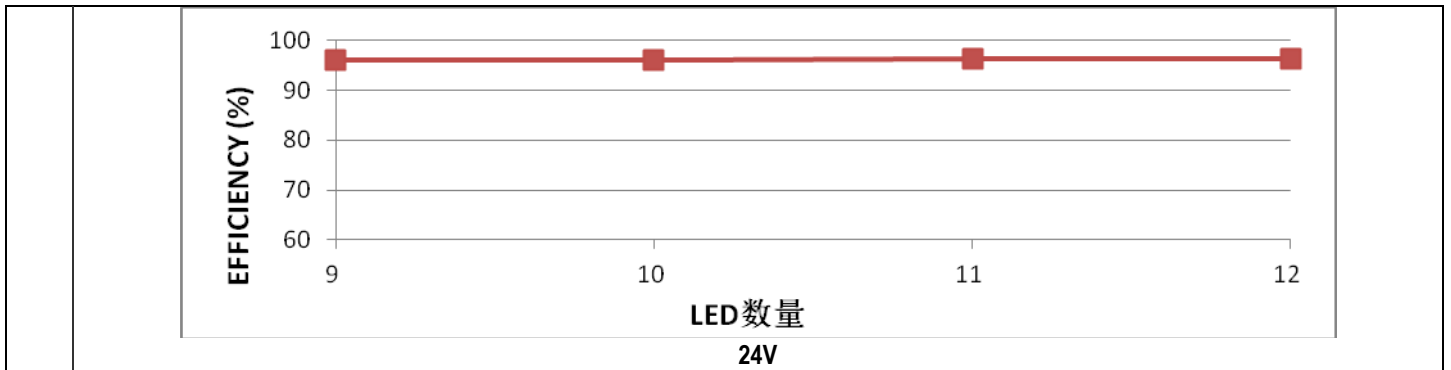
NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	CURRENT ACCURACY	± 5%	I/P: 12VDC/24VDC O/P: LED min/LED max Ta:25°C	-0.53%~ -0.3%/12VDC -0.63%~-0.58%/24VDC
2	CURRENT RIPPLE	5%(@rated current)	I/P: 12VDC / 24VDC O/P: LED min~LED max Ta:25°C	3.86%/12VDC 2.37%/24VDC
3	SUGRE CURRENT	< ±110 %	I/P: 12VDC / 24VDC O/P:-min/LED max Ta:25°C	102.7%/12VDC 104.9%/24VDC
4	VOLTAGE RANGE	12.5V~37V	I/P: 12VDC/24VDC O/P:FULL LOAD Ta:25°C	15V~48.7V/12VDC 27V~48.9V/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(1) <u>  OK  </u> (2) <u>  OK  </u> (3) <u>  OK  </u>
2	INPUT CURRENT(TYP)	12VDC/ 6.2A 24VDC/ 3.1A	I/P: 12/24VDC O/P:FULL LOAD Ta:25°C	I=5.88A/12VDC I=2.84A/24VDC
3	DIMMING OFF	INPUT CURRENT <7mA Vo=Vi	I/P:12VDC O/P:FULL LOAD Ta:25°C	<u>  </u> 1.29 <u>  </u> mA Vo= <u>  </u> 12 <u>  </u> Vi
4	EFFICIENCY(TYP)	92.5% /12VDC 96% /24VDC	I/P: 12VDC/24VDC O/P:FULL LOAD Ta:25°C	94.06 % /12VDC 96.26% /24VDC

EFFICIENCY vs LOAD





**PROTECTION FUNCTION TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER VOLTAGE PROTECTION	CH: 38V~ 60V	I/P: 9.3VDC I/P: 35VDC O/P:MIN LOAD Ta:25°C	50.5V/ 35VDC 49.3V/9.3VDC  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 70 A/100V	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) 48.6V (2) 43.8V (3) 47V (4) 56.7V (5) 34.2V  VDS: (1) 69.2V (2) 59.5V (3) 22.1V (4) 86.4V (5) 9.2V
2	Diode Peak Voltage	D5 Rated 10A/ 60V	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	VDS: VO: 設定 SPEC 輸出電壓上限 (1) 43.6V (2) 43.2V

			(3) CVmin (4) No Load (5) DIMMING off  VO: 設定出貨輸出電壓 O/P: (1)CVmax ON/OFF (2) CVmax continue (3) CVmin (4) No Load (5) DIMMING off  Ta:25°C	(3) 43.2V (4) 58.1V (5) 0V  VO: 設定出貨輸出電壓 (1) 37.5V (2) 37.1V (3) 14.7V (4) 52.5V (5) 0V
3	Input Capacitor Voltage	C5 Rated: 100 $\mu$ l 50V	I/P:High-Line +3V =35V O/P: (1)Full Load input on/off (2)Full load continue Ta:25°C	(1)36V (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) 35.5V (2) 35V (3) 35.8V (4) 35V (5) 35V (6) 35V  U500: (7) 5.43V (8) 5.23V (9) 5.27V (10) 5.23V (11) 5.43V (12) 5.23V

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-65-1750 1. ROOM AMBIENT BURN-IN : 2HRS I/P : 12VDC O/P : FULL LOAD Ta=24.2 °C 2. HIGH AMBIENT BURN-IN : 2HRS I/P : 12VDC O/P : FULL LOAD Ta=50.6 °C																																																														
				<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta= 24.2 °C</th> <th>HIGH AMBIENT Ta= 50.6 °C</th> </tr> </thead> <tbody> <tr><td>1</td><td>LF1</td><td>58.7°C</td><td>85.6°C</td></tr> <tr><td>2</td><td>L1</td><td>71.2°C</td><td>97.6°C</td></tr> <tr><td>3</td><td>C5</td><td>60.1°C</td><td>86.6°C</td></tr> <tr><td>4</td><td>U1</td><td>62.1°C</td><td>88.2°C</td></tr> <tr><td>5</td><td>Q1</td><td>81.3°C</td><td>107.9°C</td></tr> <tr><td>6</td><td>D5</td><td>81.3°C</td><td>107.8°C</td></tr> <tr><td>7</td><td>D6</td><td>80.5°C</td><td>107.0°C</td></tr> <tr><td>8</td><td>C13</td><td>72.8°C</td><td>98.9°C</td></tr> <tr><td>9</td><td>C14</td><td>70.3°C</td><td>96.5°C</td></tr> <tr><td>10</td><td>R22</td><td>78.2°C</td><td>104.7°C</td></tr> <tr><td>11</td><td>U2</td><td>55.4°C</td><td>81.5°C</td></tr> <tr><td>12</td><td>LF20</td><td>49.0°C</td><td>74.8°C</td></tr> <tr><td>13</td><td>BC1</td><td>80.1°C</td><td>106.1°C</td></tr> <tr><td>14</td><td>TC 上</td><td>65.7°C</td><td>89.5°C</td></tr> </tbody> </table>	NO	Position	ROOM AMBIENT Ta= 24.2 °C	HIGH AMBIENT Ta= 50.6 °C	1	LF1	58.7°C	85.6°C	2	L1	71.2°C	97.6°C	3	C5	60.1°C	86.6°C	4	U1	62.1°C	88.2°C	5	Q1	81.3°C	107.9°C	6	D5	81.3°C	107.8°C	7	D6	80.5°C	107.0°C	8	C13	72.8°C	98.9°C	9	C14	70.3°C	96.5°C	10	R22	78.2°C	104.7°C	11	U2	55.4°C	81.5°C	12	LF20	49.0°C	74.8°C	13	BC1	80.1°C	106.1°C	14	TC 上	65.7°C	89.5°C
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14	TC 上	65.7°C	89.5°C																																																													
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	±0.0001 %/°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
9	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) 116938HRS (2) 22155HRS (3) 56109HRS (4) 102579HRS
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