深圳市莱福德光电有限公司
SHENZHEN LEDFRIEND OPTOELECTRONICS CO.,LTD.

SPECIFICATION FOR APPROVAL

Customer: _____

Product Material No.： _____

Model No. LF-GSD045YB

Version ： V1.0

Manufacturer: _____

Customer Approval

Tested by	Checked by	Approved by

Ledfriend Approval

Tested by	Checked by	Approved by

The full model numbers required by customers

Full model No.		**Full model No.**	
Full model No.		**Full model No.**	

E.C. List

Version	Description of change	Engineer	Date
0.1	Original version	Liao Xinggao	2017-6-4
0.2	Specs are revised and the wire connection diagram is added	Liao Xinggao	2017-7-8
1.0	Specs are revised again.	Liao Xinggao	2017-9-30

Shenzhen Ledfriend Optoelectronics Co., Ltd
4&5/F, Bldg 14A, Taihua Wutong Island, Gushu, Xixiang St., Bao'an Dist., Shenzhen 518126, China
www.lifud.com | China service hotline: 400-096-6815 (China technical support: 13410240457)

1. Product description

Isolated LED driver for class I and class II LED luminaires.

Category: AC100-277V, linear metal case, DALI dimming

Properties: active PFC, high PF, high efficiency(87%), low THD, low stand-by consumption ≤0.5W, Push Dim, DIP switch (800-1050mA, each 50mA as an interval), synchronization up to 10 units, flicker-free.

Application: tri-proof light, grille light, linear lights, and etc

Warranty: 7 years (please refer to the warranty condition).

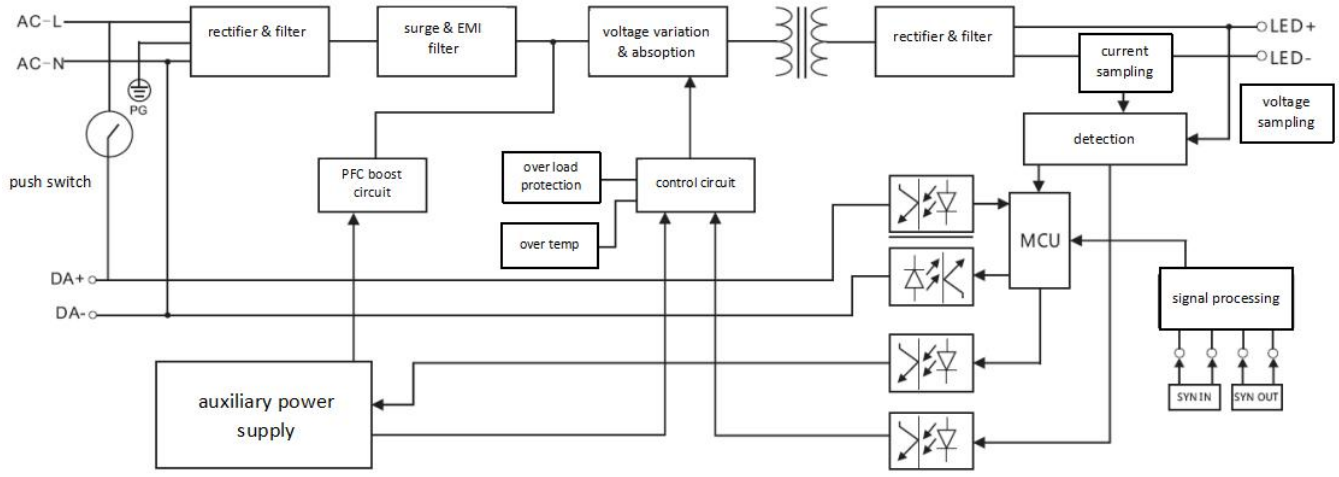
Certification: Compliant with UL, FCC and CE standards. DALI 1.0, registered on DiiA website.

2. Technical data (1)

	Full model number	LF-GSD045YB					
Output	Output voltage	25-42VDC					
	Output current (adjustable)	All 6 output currents can be adjusted with DIP Switch of a single product.					
		800mA	850mA	900mA	950mA	1000mA	1050mA
	Ripple voltage	< 1V					
	Flicker coefficient	< 0.5%					
	Current tolerance	±5%					
	Temperature drift	±10%					
	Line regulation	±5%					
	Time to light	100Vac<0.5S 230Vac <0.5S					
Input	Line regulation	±5%					
	Rated input voltage	100-277 Vac (Max input voltage: 90-305Vac)					
	Frequency	47Hz-63Hz					
	Input current	0.6A Max					
	Power factor	≥0.95/230Vac (≥70% load)					
	THD	≤20%					
	Efficiency	≥84%	≥84%	≥85%	≥86%	≥86%	≥87%
	In-rush current (peak /duration)	I≤60A/350uS@230Vac					
	Typ. power input on stand-by	Pin≤0.3W (DALI signal is OFF)					
Protective features	No-load	Max. output voltage (no-load voltage) 50V					
	Short-circuit	Hiccup mode (auto-recovery)					
Environment condition	Working temperature	-30℃ ~ +50℃					
	Working humidity	20-90%RH (no condensation)					
	Storage temperature/humidity	-40℃ ~ +80℃ (6 months under the class I environment); 10-90%RH (no condensation)					
	Atmospheric pressure	86-106KPa					
Safety and norms	Certifications	Compliant with UL, FCC, CE					
	Hi-pot test	I/P-O/P: 3.75KVac, <5mA, 60S, I/P-PGND: 1.6KV 5mA 60S					
	Insulation resistance	I/P-O/P: 500VDC, >100MΩ					
	Surge level	IEC61000-4-5 (L/N:2KV, L/N-PGND: 4KV)					
	EMI	EN55015, EN61000-3-2, FCC Part15B					
	EMS	EN61000-4-2,3,4,5,6,8,11; EN61547					
	DALI	IEC62386-101, 102, 207 standards (Edition 1.0)					
Others	Packing (weight)	Net weight: 300g±5%/pc; 36pcs/ctn; 11.8KG±5%/ctn; Carton size: 40 x 30 x 21 cm (L*W*H)					
	IP level	IP20					
	Warranty condition	7 years (Max. case temperature must not exceed 73℃)					

Testing equipment	AC power source: CHROMA6530, digital power meter: CHROMA66202, Oscilloscope: Tektronix DPO3014, DC electronic load: M9712B, LED board, constant temperature and humidity chamber, lightning surge generator: Everfine EMS61000-5B, rapid group pulse generator: Everfine EMS61000-4A, spectroanalyzer: KH3935, hi-pot tester: TH9201B, flicker-free tester (flicker-free coefficient tester) 60N-01, etc.
Test conditions	The parameters above including the power factor, THD, efficiency are all tested under the ambient temperature 25℃ and humidity 50%, AC input 230V and 90% DC load (unless otherwise specified) .
Additional Remark	1. In the power supply circuit, it is recommended that the customer should install an over-under-voltage protection and surge protection device to ensure the safety of using electricity. 2. The PC cover, shell, end caps used together with the LED driver inside the LED lamp must meet the UL94V-0 fire rating level or above. 3. As a part of the LED lamp, the LED driver is not the only factor determining the EMC performance of the LED lamp. And the EMC performance is also related to the LED lamp's structure and the wire routing. Thus we strongly recommend the manufacturer of the finished LED lamp must re-confirm the EMC of the LED lamps.

Block Diagram



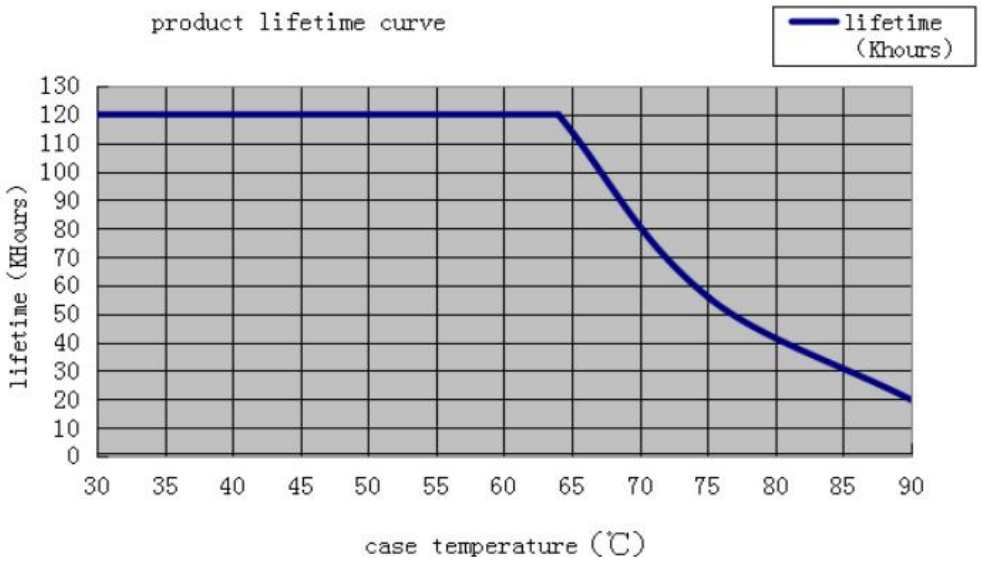
Dip Switch Table

Ta	DCVout	Current	1	2	3	4
50℃	25-42V	800mA	-	-	ON	-
		850mA	-	ON	-	-
		900mA	ON	-	-	-
		950mA	ON	ON	-	-
		1000mA	ON	-	ON	-
		1050mA	-	-	-	-

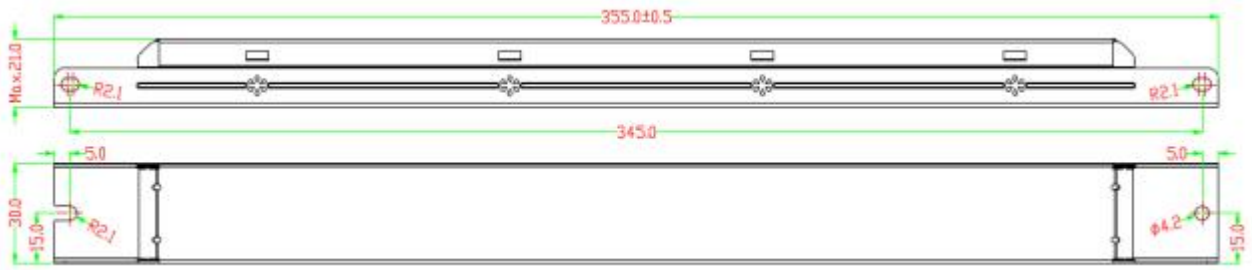
Remark: The 4th dip switch is turned to "ON" side only if the LED driver is applied as a master LED driver, and it is not used when the LED driver is used as a slave LD driver.

3. Product Referenced Lifetime Curve

The curve below illustrates the driver's lifetime data when the LED driver's Max. case temperature reaches 40℃,50℃, 60℃, 70℃, 80℃ and 90℃.



4. Dimensional Drawing (unit: mm)



5. Dimming Operation Instructions

1). PUSH DIM (Primary Side)

Action	Action duration	Function
Instant Push	0.1 sec ~ 1 sec	On / Off
Long Push	1.5 sec ~ 10 sec	Long push changes the dimming direction, dimming up or down

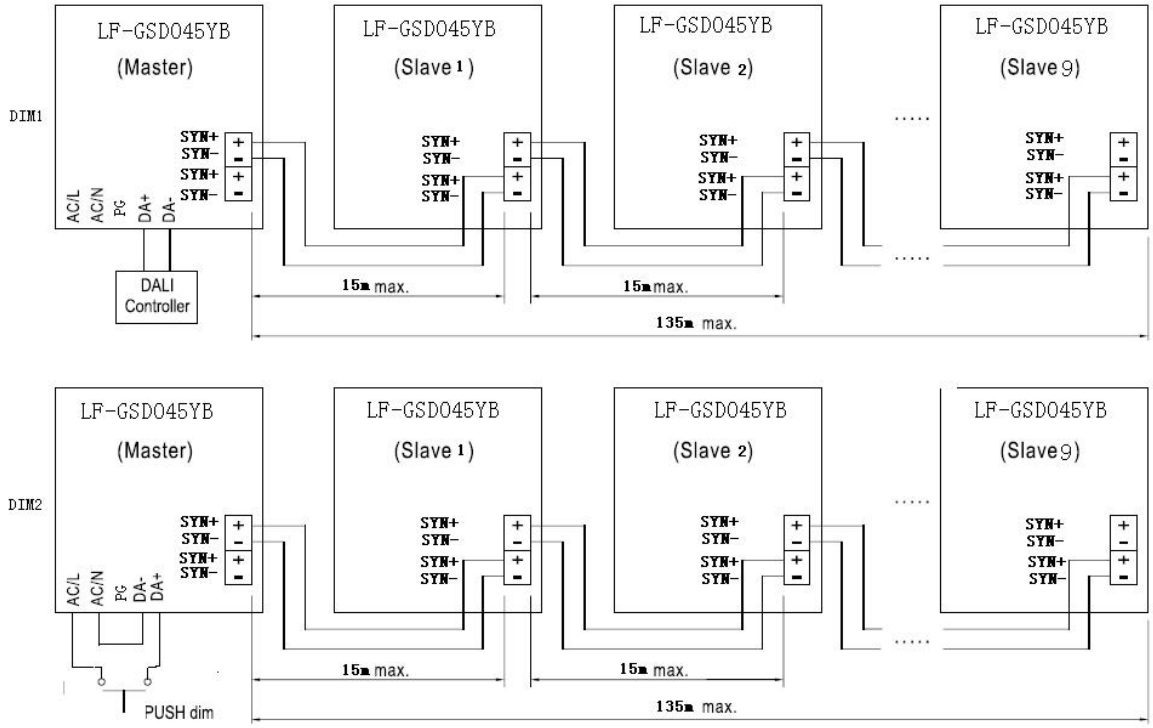
2) The factory default dimming level is 100%.
3) If the push action lasts less than 0.05 sec., it will not lead to a change for the status of the driver.
4) Up to 10 drivers can perform the PUSH dimming at the same time when utilizing one common push button.
5) The maximum length of the cable from the push button to the last driver is 20 meters.
6) The AC_N is connected to DA+, and a switch is connected between AC_L and DA- terminal
7) The Push signal must be standard sinusoidal AC voltage signal within the range of 6Hz~200Hz.

II. DALI Interface (Primary side)

1) Apply DALI signal between DA+ and DA.
2) DALI protocol comprises 16 groups and 64 addresses
3 The lowest dimming level is of 5% of the output.

III. Synchronization Operation

1) Max. 10 pcs of LF-GSD045YB work synchronously (1 is master and 9 are slaves).
2) Maximum cable length between each unit: 15 meters (cable diameter 16-20AWG).
3) The lead wire between the master and the last slave is 135 meters (max.).
4) LF-GSD040YA can achieve synchronous dimming by directly controlling the slaves with DALI and PUSH.
5) The LF-GSD045YB can realize synchronization dimming function, the slave LED drivers can be controlled synchronously with the DALI master and Push dimmer.
6) Wire connection diagram for synchronization dimming is as below:



TEST DESCRIPTION

Test Item \ Testing Phase		DVT	Pilot-Run Testing	Testing after pilot production	Testing after mass production
Electrical Function Test	Input Output Characteristic Test	√	√	√	√
	Dimming Test	√	√	√	√
	I/O Curve Comparison	√	×	√	√
	Input Inrush Current Test	√	√	√	√
	Over Shoot Test	√	×	√	√
	Ripple & Noise Test	√	√	√	√
	Short Protection Test	√	√	√	√
	Turn On Time Test	√	√	√	√
	Open Circuit Protection Test	√	√	√	√
	Component Stress Test	√	×	√	√
Reliability Test	H&L Temperature storage Test	√	×	√	√
	H.T&H.H storage Test	√	×	√	√
	T&H Cycle Test	√	×	√	√
	Cold &Heat Impact Test	√	×	√	√
	Low Temperature Start Test	√	×	√	√
	ON/OFF Test	√	×	√	√
	Burn-in Test	√	×	√	√
	Thermal Test	√	×	√	√
	Lifetime Test	√	×	√	×
	Withstanding Voltage Test	√	√	√	√
	High Temp. Burn-in Test	×	√	√	√
EMC/Safety Test	Surge Test	√	×	√	√
	Electrostatic Discharge Test	√	×	√	√
	Electrical Fast Transient Test	√	×	√	√
	Harmonic Current Test	√	×	√	√
	Conducted Emission on AC Test	√	×	√	√
	Radiated Emission Test	√	×	√	√
Others	Drop Test	√	√	√	√
	Vibration test	√	√	√	√
Tested by		RD DQE	PD QC	QA	QA