*Tiny version*

# Driver

- self made LED fixtures
- easy to use
- low cost
- dimming options
- battery supply
- CV supply

Futuro Lighting *design*

2015

# LED Driver 150T

**93% efficiency typical**

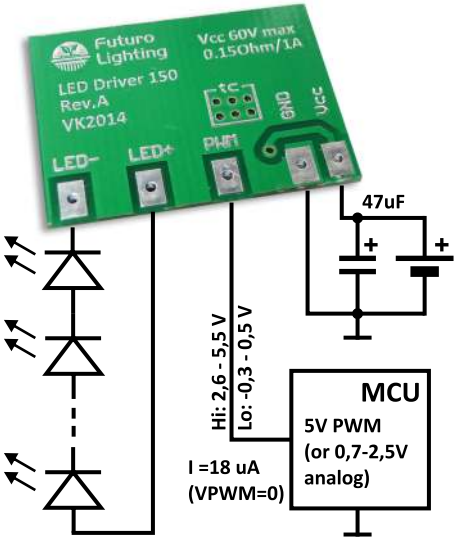
*Build your own LED fixture*

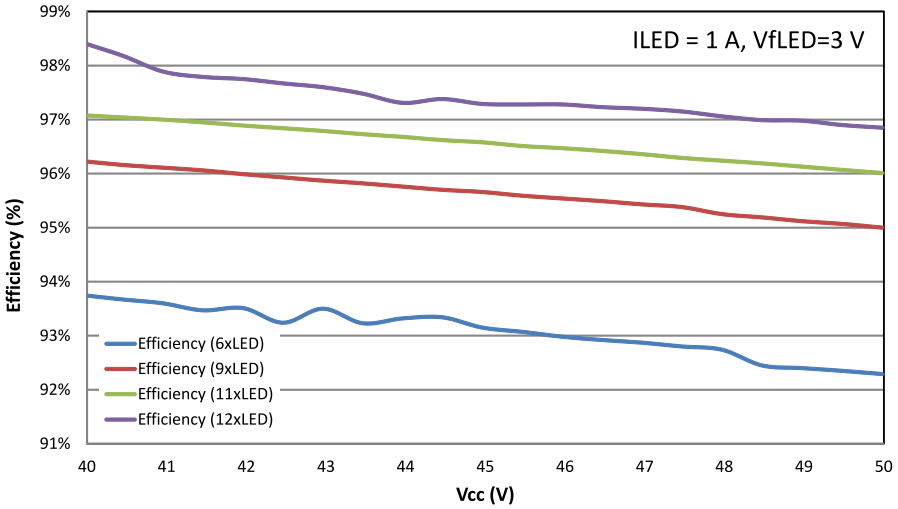
Specification:
Topology: Buck
Vcc = 4,5-60 V DC
I LED = Adjustable
see next page for settings

Regulation / dimming:
- typical 3% output accuracy
- soft start capability (just adding cap to PWM in)
- high speed PWM 20kHz max
- analog 0,7 - 2,5 V

Switching freq: 1 MHz max
Rsense ratio: 0,15 Ohm / 1 A

Dimensions: 20 x 17 x 3,6 mm
Over temperature protection
Over current protection




Note: if PWM is not connected max ILED generated
Options: encapsulation, reverse protection, thermal foldback

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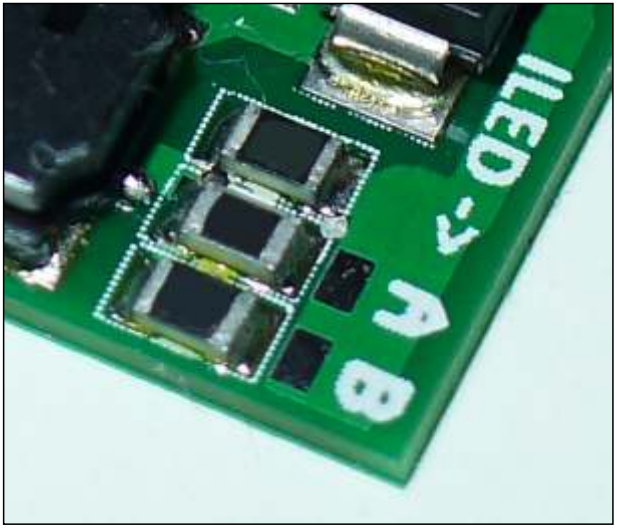
Rev.0.1

# LED Driver 150V

*LED current setting*




| ILED | A | B |
|---|---|---|
| **0,32 A** | - | - |
| **0,53 A** | X | - |
| **0,59 A** | - | X |
| **0,82 A** | X | X |

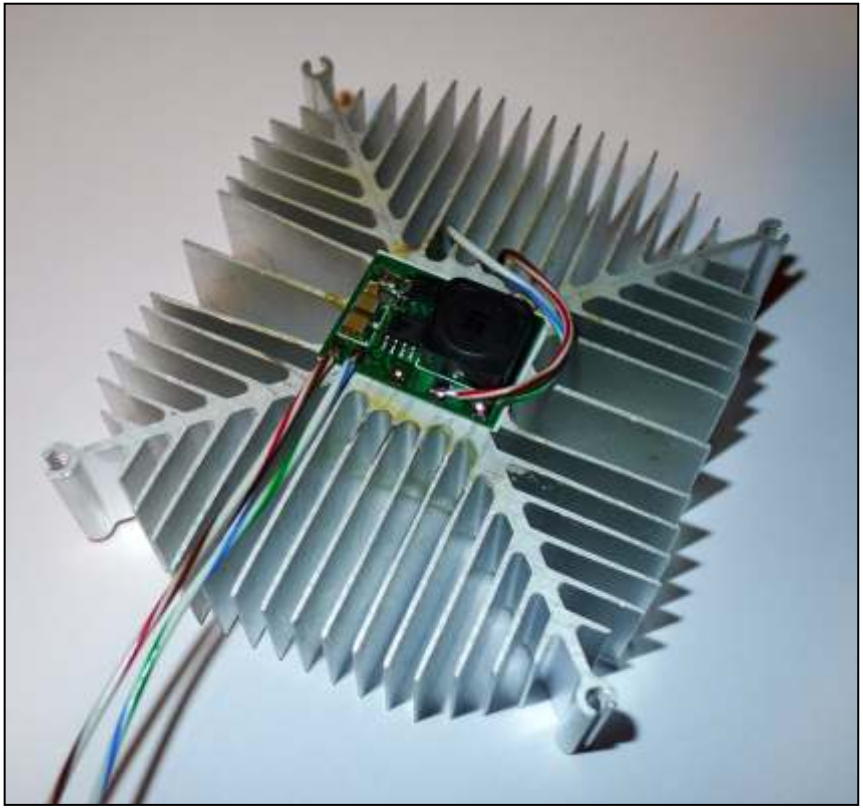
X - linked by soldering iron

Note: Vin is limited to 55 V max for 0,32 A mode, for 0,59 and 0,82A Driver needs to be thermally connected to heatsink.

Futuro Lighting design

# LED Driver 150V

*Thermal foldback*

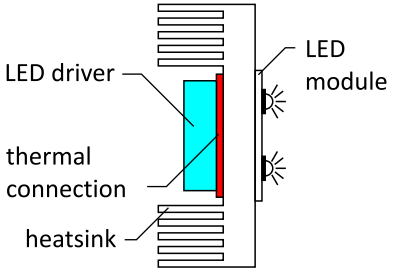


*Application Example*

Connecting back side of LED driver to fixture heatsink will protect LED fixture against overheating thus extending LED life time and provide safe fixture operation.

Thermal foldback is temperature of the module is set to ~80°C

thermal connection can be done by appropriate thermo conductive both side tape or glue

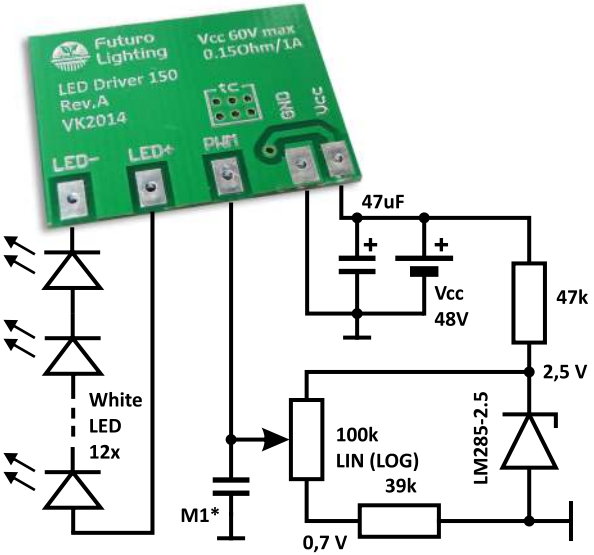



Futuro Lighting design

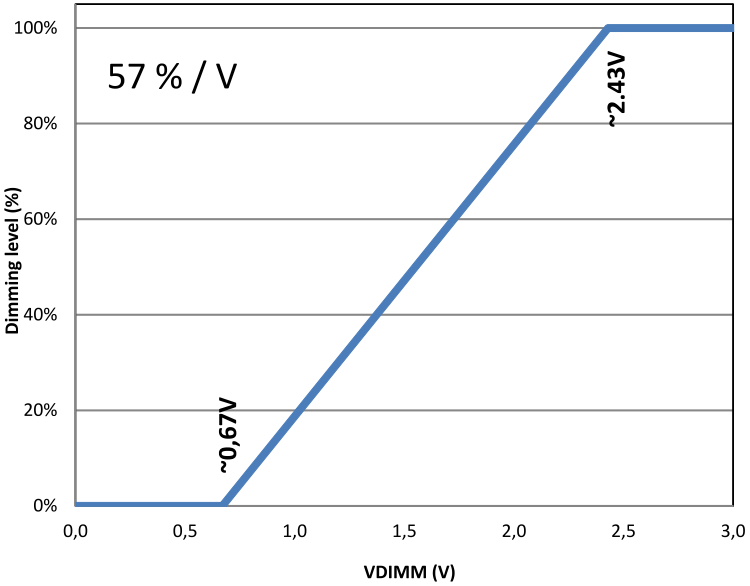
# LED Driver 150

*Analog Dimming example (local)*

*Appropriate for local dimming (Potentiomter close to Driver)*




* soft start capacitor




Potentiometer selection:
LIN - linear for linear dimming change
LOG - logarithmic change, more appropriate for human eye response

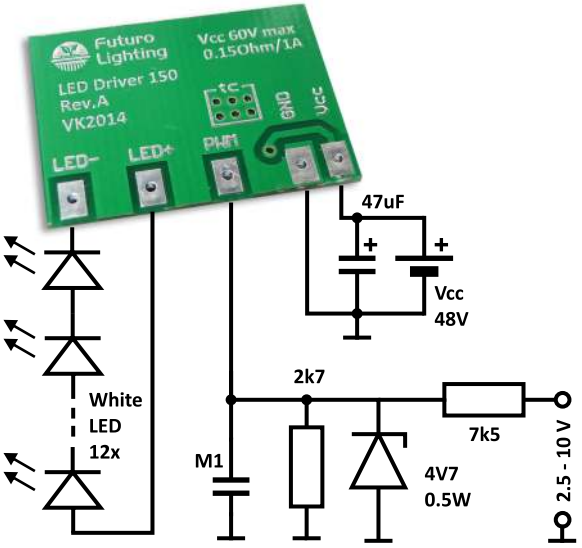
Literature:
http://www.ti.com/lit/ds/symlink/lm385b-2.5.pdf

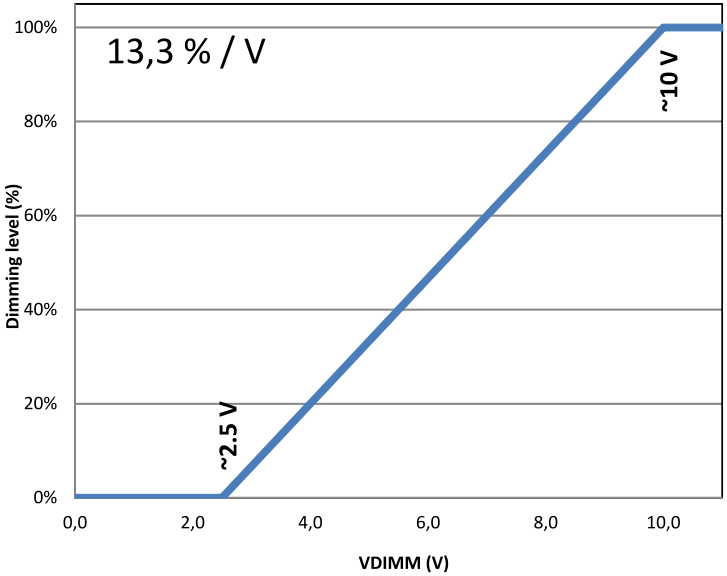
Futuro Lighting design

# LED Driver 150

*Analog Dimming example (remote)*

*Appropriate for remote dimming (1-10V dimmer)*




M1 soft start capacitor

Signal selection:
LIN - linear for linear dimming change
LOG - logarithmic change, more appropriate for human eye response

Futuro Lighting design

# 3-CH Digital dimmer for LED Driver 150

*Ready made solution for your lighting needs*

**Specification:**

Supply voltage 30-60 V DC
Power consumption: 1,2 W max
Model: Custom for LED Driver 150
Output voltage 0,55 - 2,55 VDC
Outut current: 20 mA / channel max
Number of dimm steps: 250
Illumination: Front - Side Blue LED
End of range indication: blink (Blue)
Power-up fade-in duration: 30 sec
Setting memory type: EEPROM
Dimensions: 85 x 85 x 30 mm

Note: Implemented non isolated buck driver
may generate audiable noise, this is regular behaving

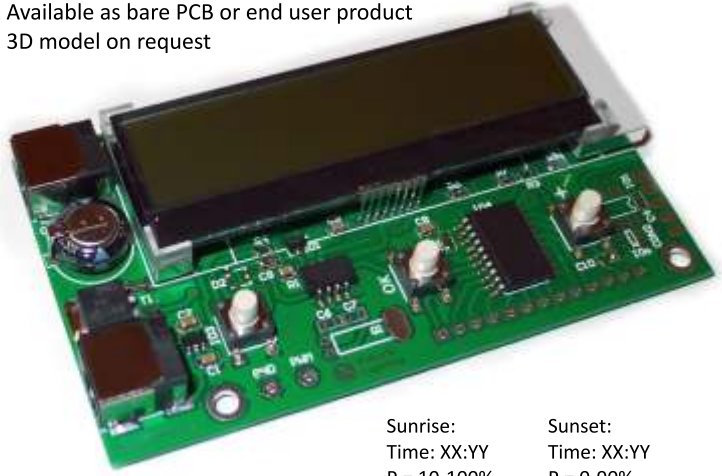
Futuro Lighting design

# AquaTimer & LED Driver 150

*Artificial sun for Aquarium life*

*Application example*

Available as bare PCB or end user product
3D model on request



Specification:
Supply Voltage: 6-25 VDC
Supply current: <15 mA
Power consumption: 0,65 W max
Clock source: RTC 24h
Settings for sunset and sunrise:
Start time XX:YY
Intensity 0-100%
Dimm time: 5-99 minutes

Others:
- Reverse protection
- >3 days clock backup

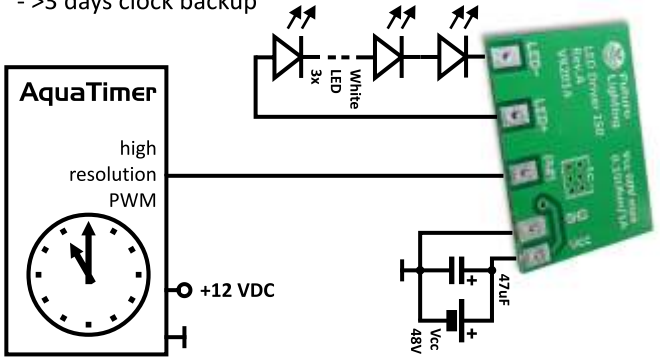
PWM frequency: 2000 Hz
Resolution: 1000 steps
Output: 5V / 10mA
Output: CV, 4A max

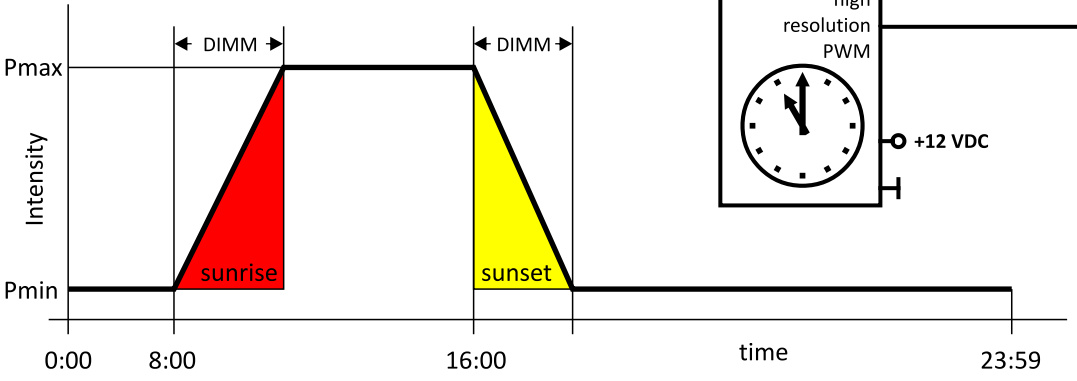
Display: 2x16 lines
Actual time, status, intensity, Menu
Illuminated (white)

Dimensions: 87x50x10 mm

Sunrise:
Time: XX:YY
P = 10-100%
Dimm = 5-99

Sunset:
Time: XX:YY
P = 0-90%
Dimm = 5-99




Futuro Lighting design

# TouchDIMM & LED Driver 150

*Just single push to adjust*

*Application example*

Available as bare PCB
3D model on request

Specification:
Supply Voltage: 6-25 VDC
Supply current: <5 mA
Output: PWM / CV 4A max

Dimm steps: 100
Dimming characteristic: Log

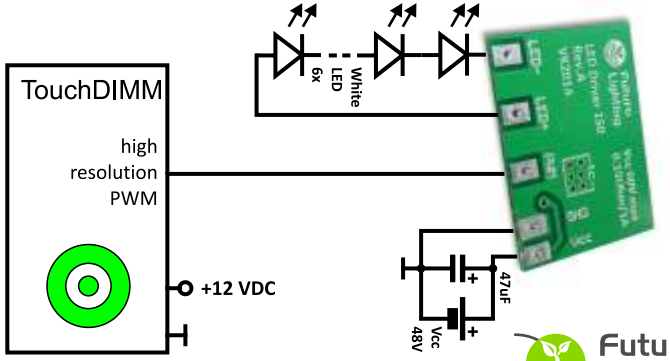
PWM frequency: 2000 Hz
Resolution: 1000 steps
Output: 5V / 10mA

Dimensions:
50x13x10 mm
50x13x3.5 mm (wo DC con)

Others:
- Reverse protection
- implemented soft fade in and fade out
- illumination of touch button
- built in N-MOS for CV LED strips

Controll:
ON / OFF - short touch (<2sec)

**Intensity increase**
Touch and hold till reaching required intensity (initial status OFF)

**Intensity decrease**
Touch and hold till reaching required intensity (initial status ON)

**Indicator status**
Inactive when off or during fade in and out