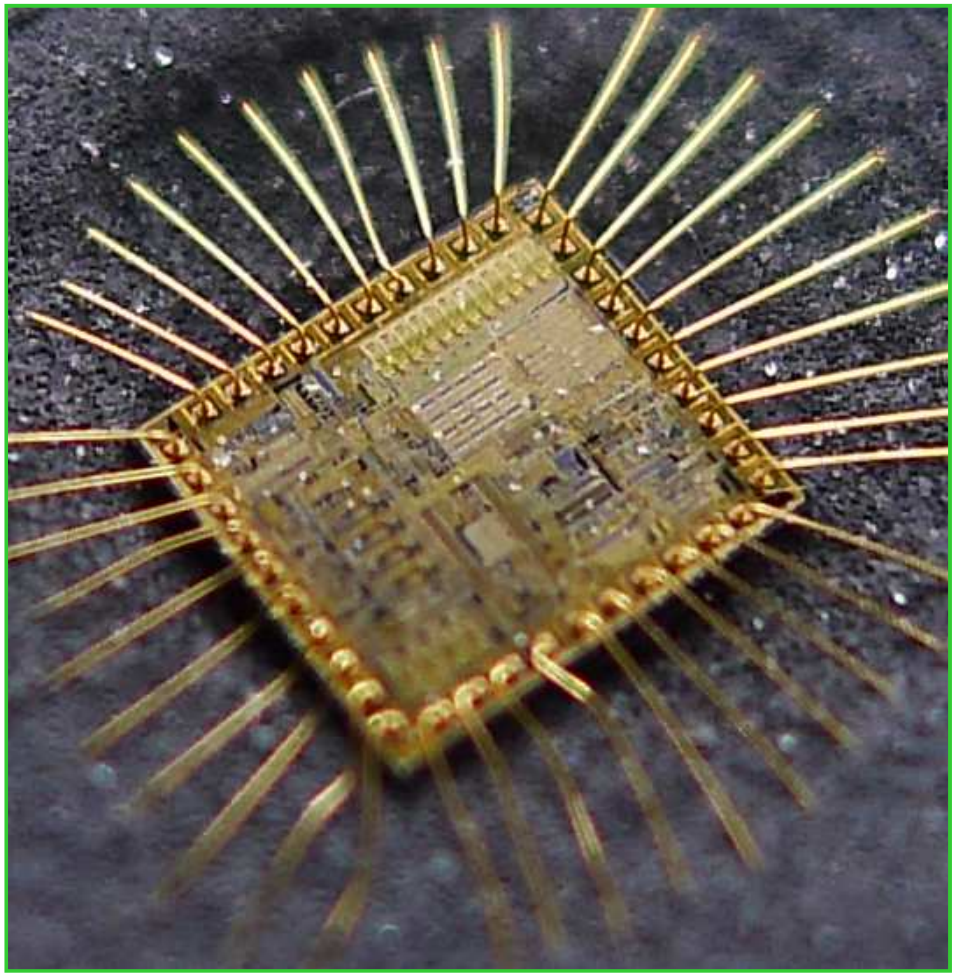
www.futurolighting.eu

public

FuturoLighting, introduction



O FuturoLighting

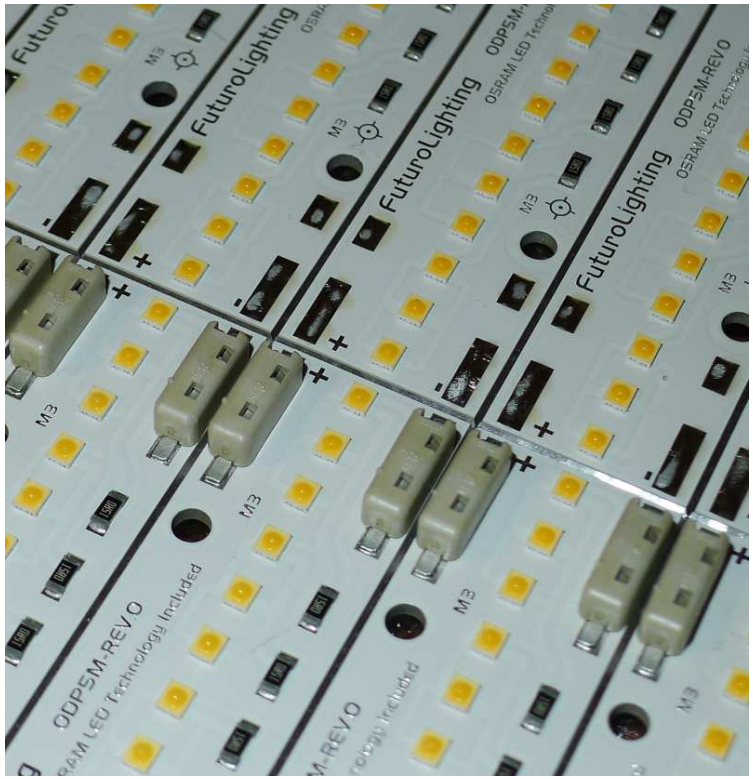
FuturoLighting is LED lighting focused company based in Slovakia. We develop, produce customized led light fittings and modules for demanding environments. We have concentrated to lighting solutions which require high energy efficiency, long lifetime and easy maintenance. FuturoLighting is located in Slovakia in small town Piestany, known worldwide for Spa Island with thermal mud. Our competence is based on wide experience of working in electronics industry.

FuturoLighting team

Our team currently consisting of three external design engineers, architect and three sales representatives develop customized LED lighting solutions for demanding environments which also require high energy efficiency, long lifetime, and easy maintenance.

For more information about FuturoLighting, its products and customizable solutions please visit our web page www.futurolighting.com or follow us on Facebook, Twitter, and LinkedIn, where you can become our fan and friend.

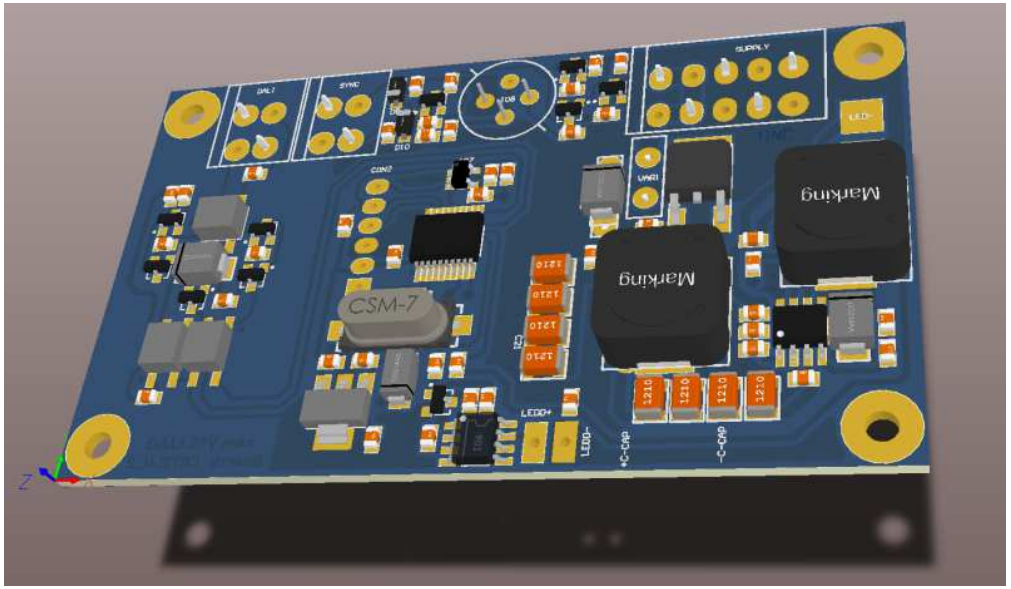
FuturoLighting, customer orientated



We specialize in LED-based designs, including:

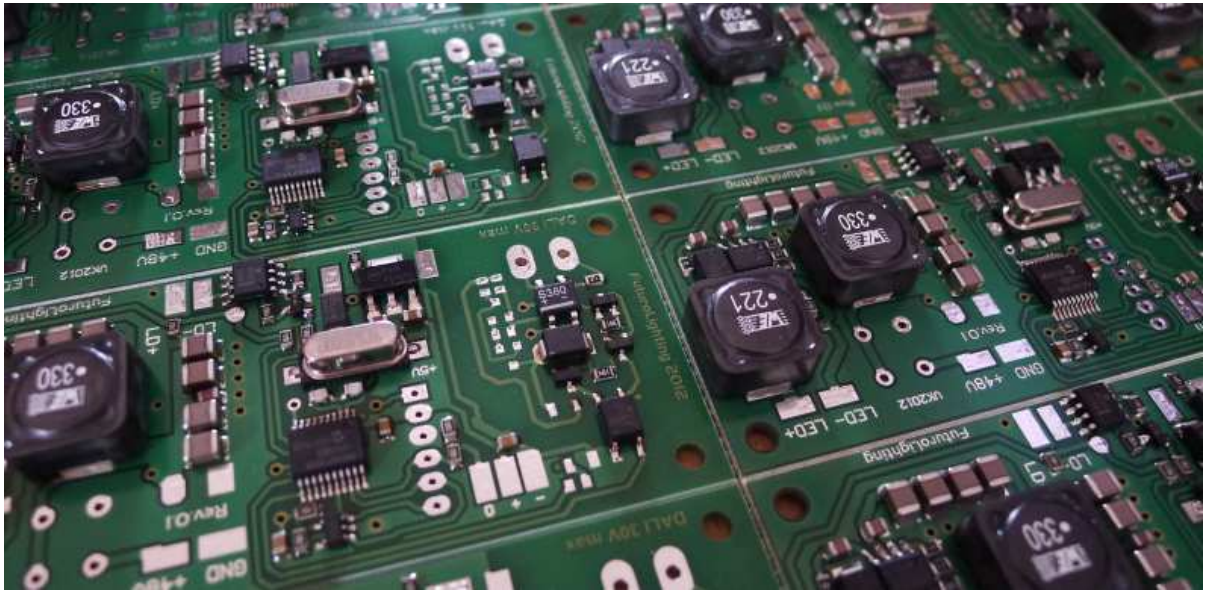
- Electrical design and characterization
- Layouting and visualization, PCB, Gerber, Step models
- Electrical prototyping, electronics, LED modules, Drivers, etc.
- Mechanical prototyping CNC
- Production support and runs
- CAD design, Photorealistic rendering
- System luminaire design
- Industrial Lighting design
- Architectural Lighting design
- Measurement and characterization systems
- Technical writing
- And many others

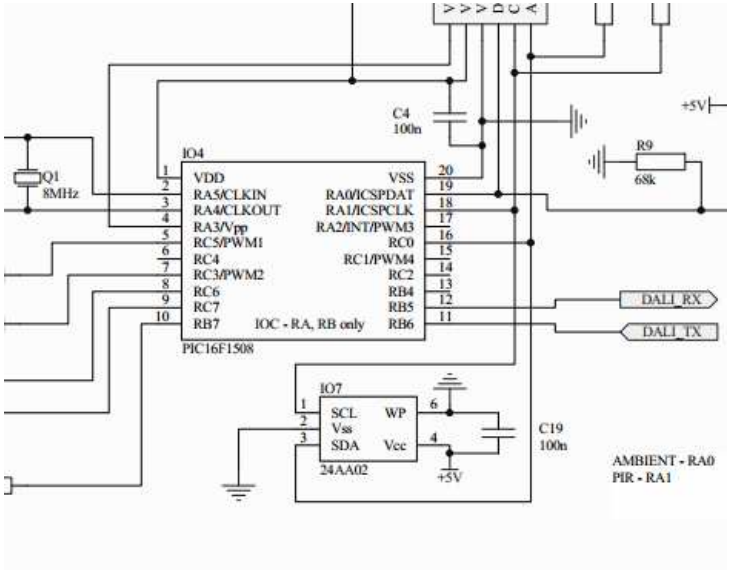
FuturoLighting, R&D, lighting fixture design example, Layouting



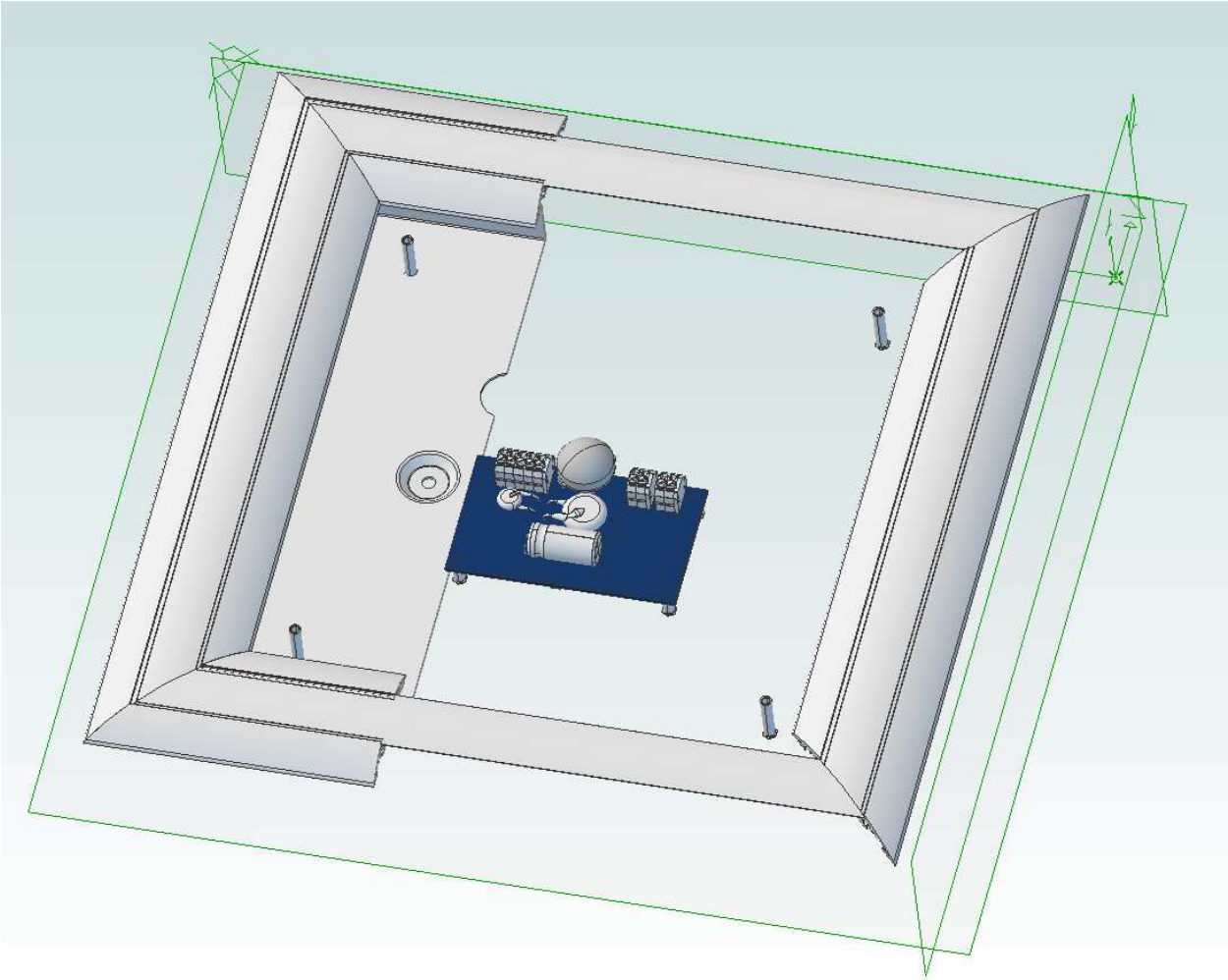
- Lean 6 Sigma design approach
- Electrical simulations
- Electric design, schemmatic creation
- PCB layouting (Epoxy, Al, Cu core)
- PCB 3D visualisation before production
- Production output files, Gerber, Drill, Assembly, etc.
- RoHS, CE, EMI, Photometric, characterization, etc.

Hysteretic Buck design example on MPS driver

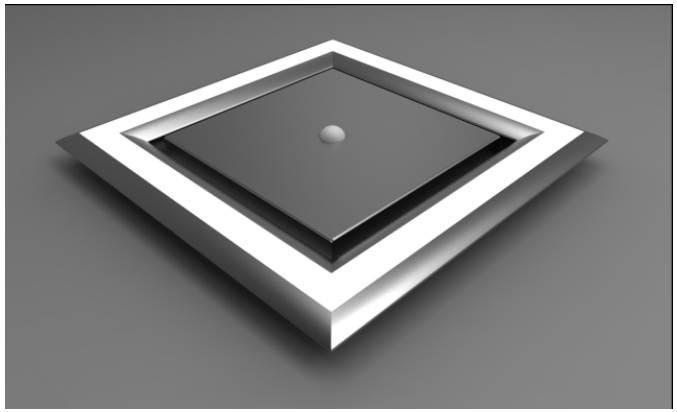




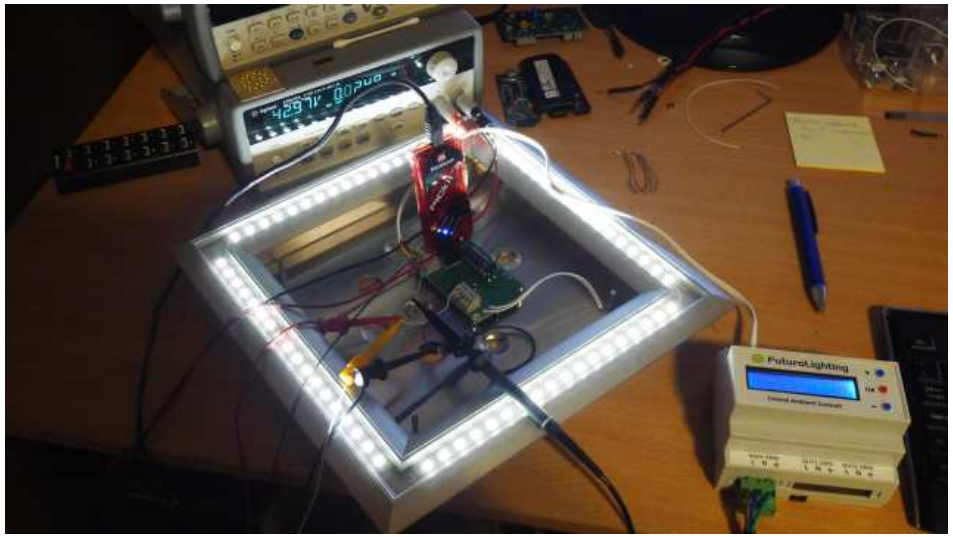
FuturoLighting, R&D, lighting fixture design example, mechanical design



- Mechanical design, 3D CAD
- Photorealistic rendering
- Photo model rendering outputs
- 2D, 3D files fro production

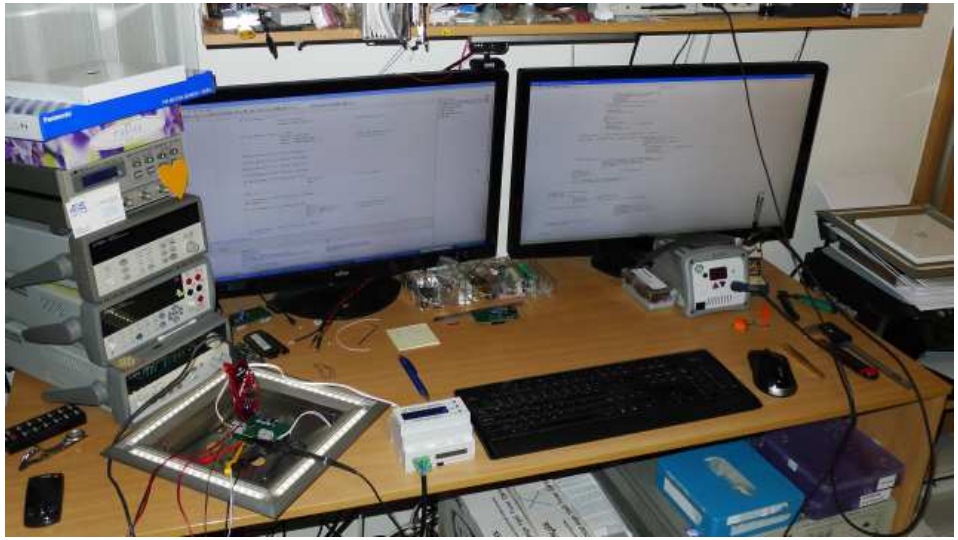


FuturoLighting, R&D, lighting fixture design example, Prototyping

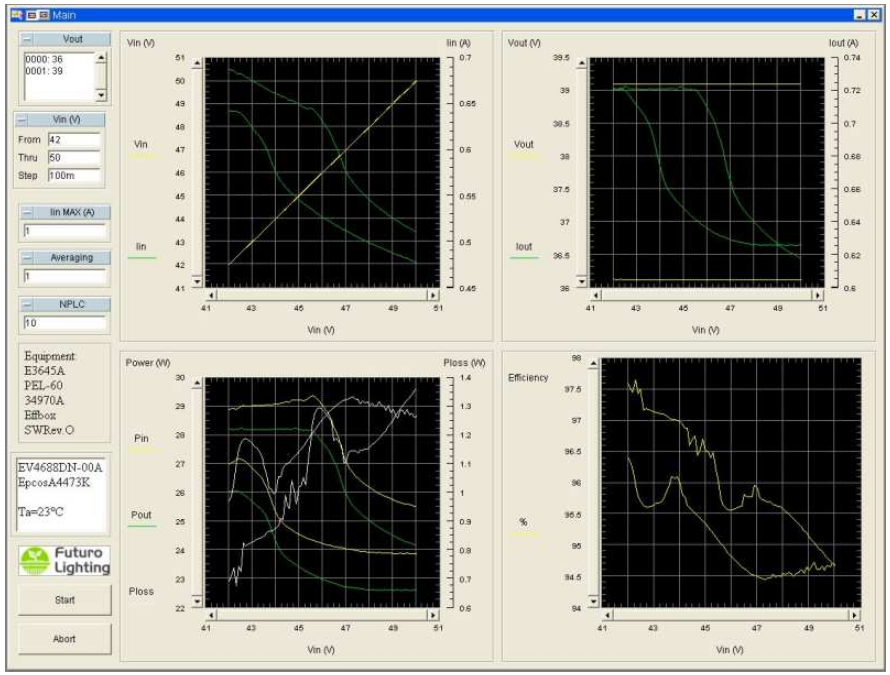


In-house qick win approach:

- Proto PCB manufacturing, single layer- Photo Lithography
- CNC machining, other mechanical treatment tools
- Assembly, through hole, SMD, semi-automatic assembly, IR reflow, optical inspection
- Manual measurements and tuning, Various equipment: AC, DC power sources, Oscilloscopes, Analogue, Digital, signal generators, Data Acquisition units, HP high precision RLC bridge, Electronic load, power analyzers, and others.
- MCU programming, focus to Microchip, C-programming, Debugging, pre-production, evaluation, other platforms: TI, Atmel, NXP



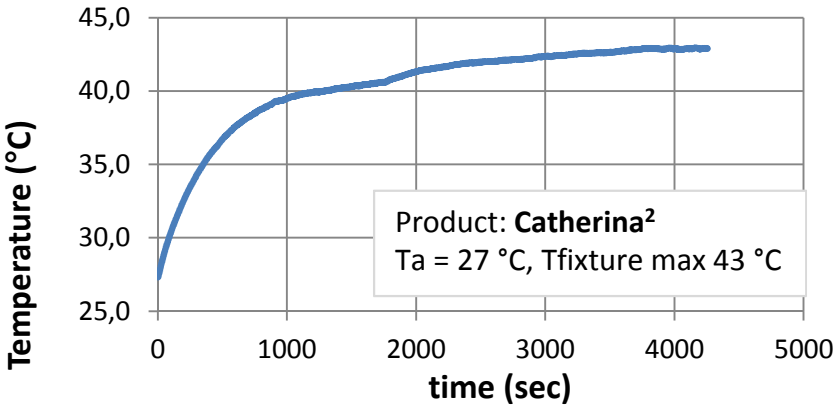
FuturoLighting, R&D, lighting fixture design example, characterization

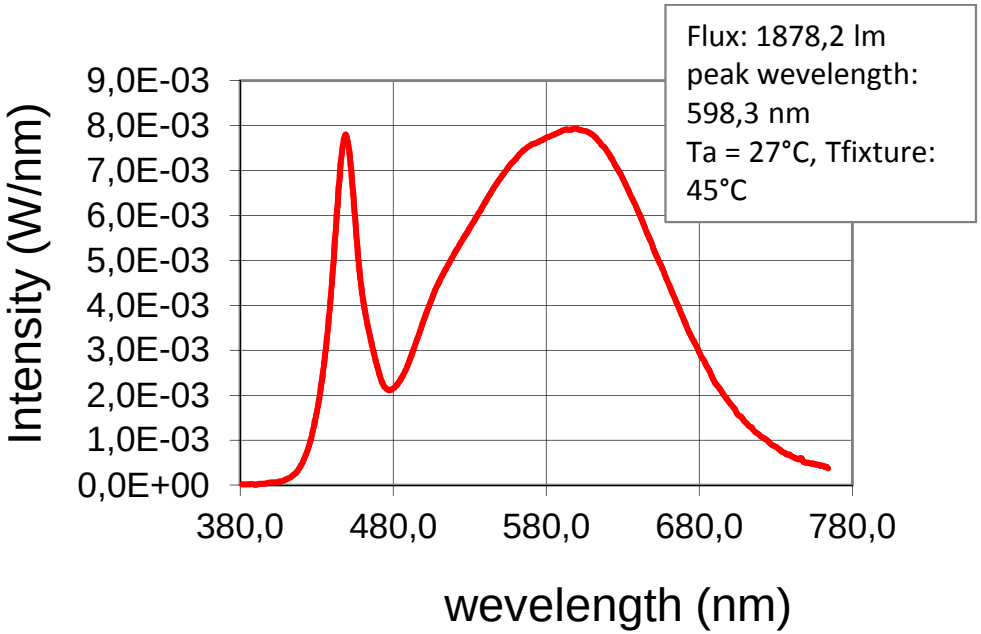


In house:

- Thermal characterization *1
  incl. Thermal imaging
- DC/DC line and load *1
- AC/DC line and load (up to 300VAC) *1
- High resolution light spectral characterization
- Flux characterization,
  integration ball 20cm

*1 – automated set-up





FuturoLighting, R&D, lighting fixture design example, final product

Supporting:

- Production, local partners in:
  - PCB production
  - Assembly
  - metal parts manufacturing
  - etc
- Public releases
- Publications

FuturoLighting, R&D, lighting fixture design example, Application

Note: Please refer to product poster for more details

Catherina

and the light is where you need it
and at the right time

Illuminate your life smartly

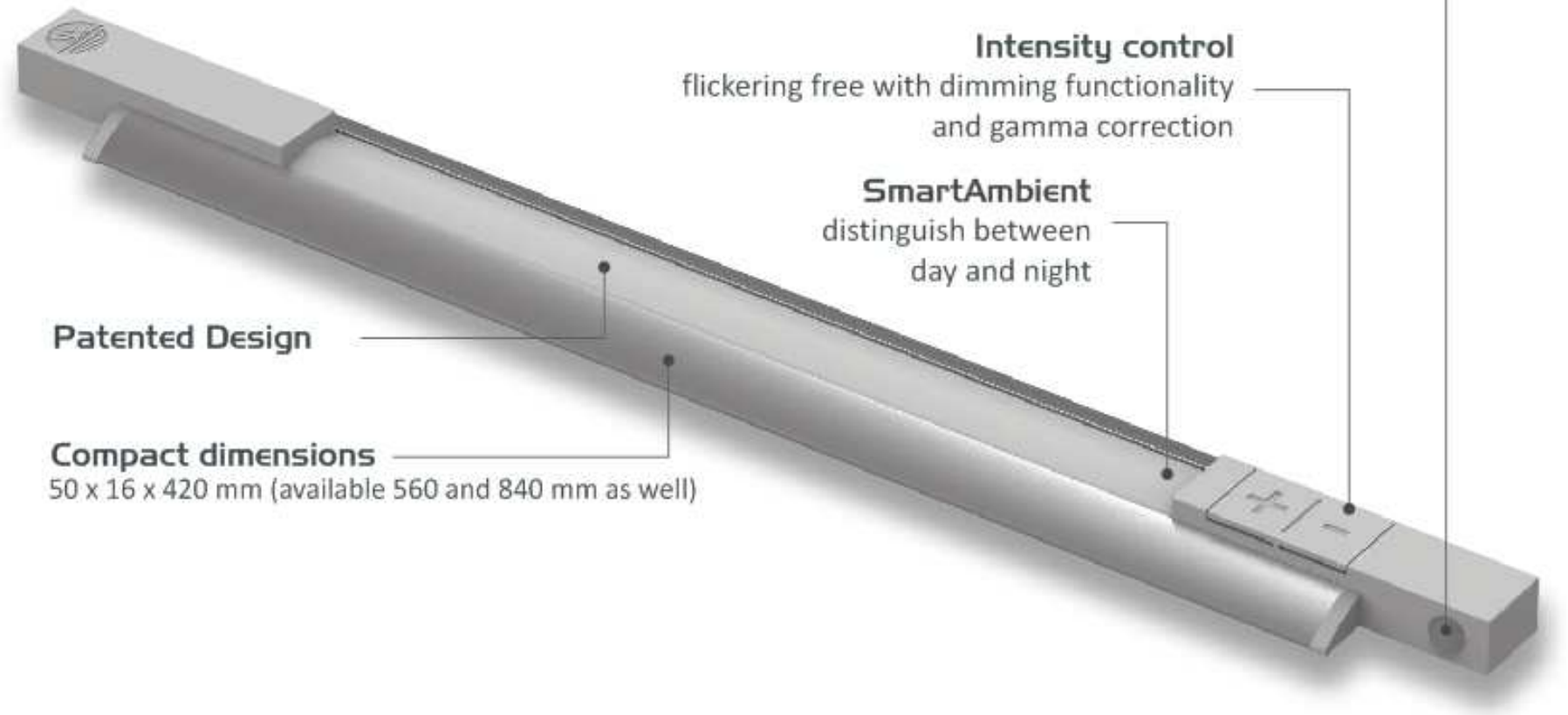
Functions automatically
no switches, just plug and use

Intensity control
flickering free with dimming functionality
and gamma correction

SmartAmbient
distinguish between
day and night

Patented Design

Compact dimensions
50 x 16 x 420 mm (available 560 and 840 mm as well)



24V DC napájanie

550+ lm, 10 W

10+ Years lifetime

Easy Installation

5 Years Warranty

Futuro Lighting design

Designed in Slovakia
Made in Slovakia

Catherina Square Basic

high quality design fixture

Compact
300 x 300 mm
33 mm thick

Intensity adjustment
10-100% (1-10V or DALI)

CRI:
> 80

FuturoLighting
efficient LED modules

CCT / lm:
- 3000 K / >2100 lm
- 4000 K / > 2400 lm

Minimalistic design

Installation:
- Suspended
- Attached

>2100 lm, 32W

10+ years lifetime

Easy Installation

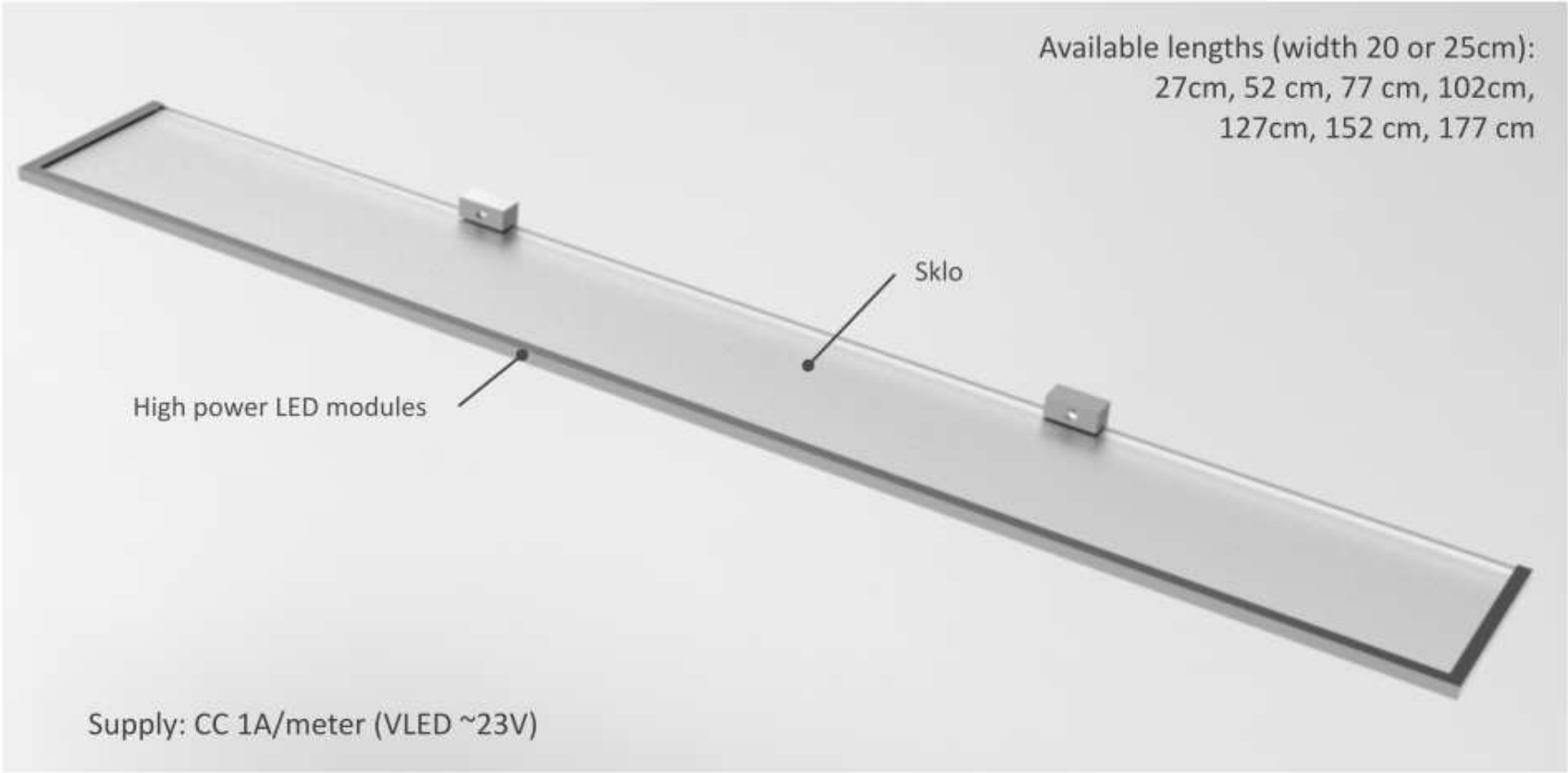
5 Years Guarantee

Futuro Lighting design

LSHELF

high power lighting LED shelf thick just 12mm

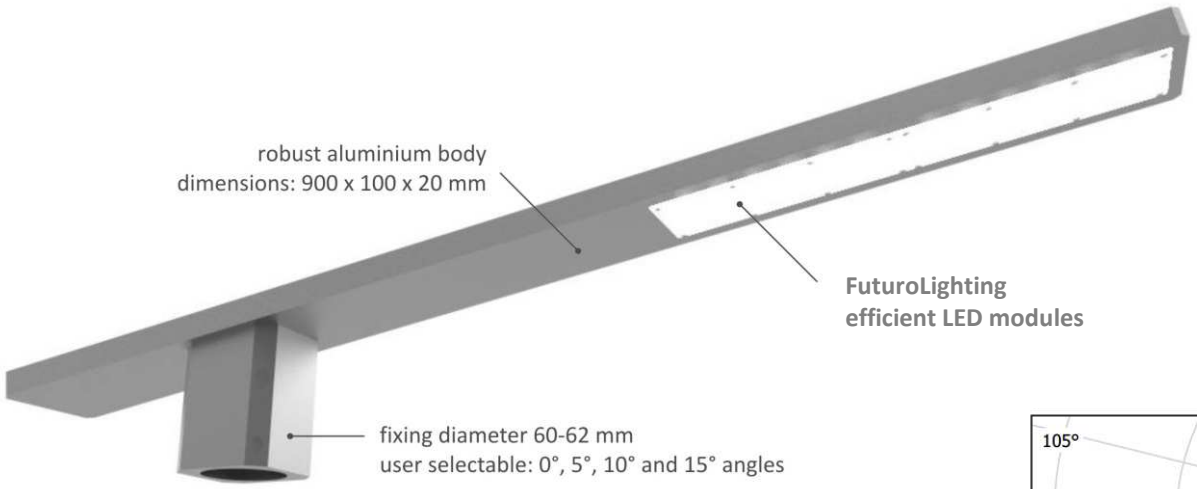
creates soft diffusion light for relaxation



ECO | 10+ years lifetime | Easy installation | 5 Years Guarantee

Futuro Lighting design

FuturoLighting, StreetStick, street fixture concept

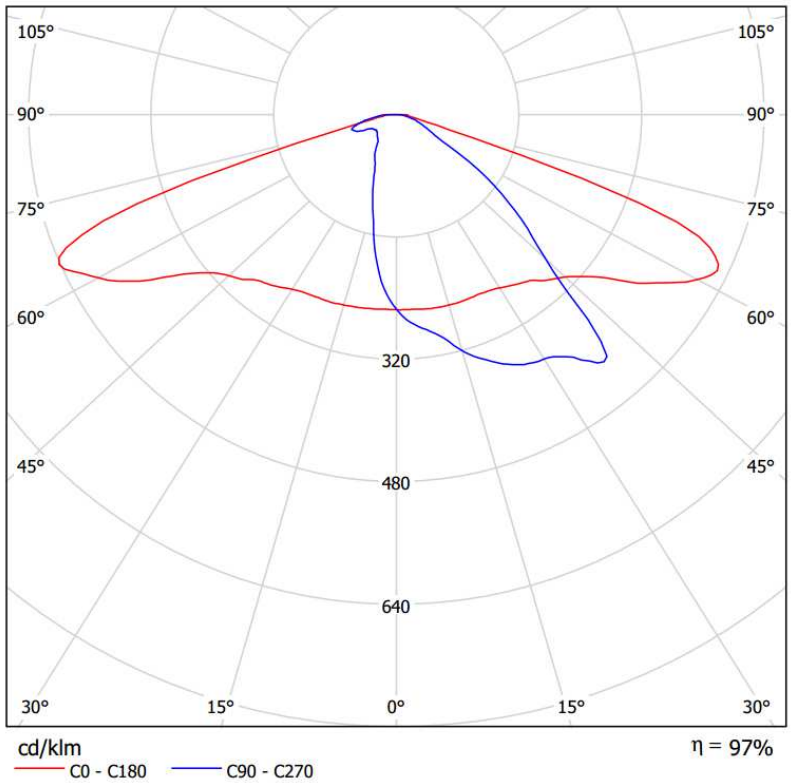


StreetStick

Safer roads for everyone

- CCT 4000 K (5000 K)
- CRI > 70
- Efficiency > 100 lm/W
- Output > 4000 lm
- supply: 230 V / 50 Hz (Class I)
- Protection: IP 65
- Installation: 60-62 mm diameter
- Body dimensions: 900 x 100 x 20 mm
- Weight: 6 kg, Housing material: Al

- ✓ High quality street optics for ME4, ME5. others using multi-pole
- ✓ Involved most recent LED technology
- ✓ User customizable (Lumen maintenance, line grid, RF grid)
- ✓ Low cost multiply installations on single point
- ✓ Multi-protection (Thermal, weather)
- ✓ Efficient, Low power consumption,
- ✓ Long life, over 100k hours
- ✓ Maintenance free
- ✓ Low voltage distribution within the pole, excluding electrical shock hazard during accidents
- ✓ Compact size, robust housing made of aluminium
- ✓ Modern minimalistic design for almost all environments
- ✓ Easy installation, selectable joints 0°, 5°, 10°, 15°
- ✓ Made-in EU, Result of cooperation of three Slovak companies FuturoLighting, PALCO IT and GAMAaluminium

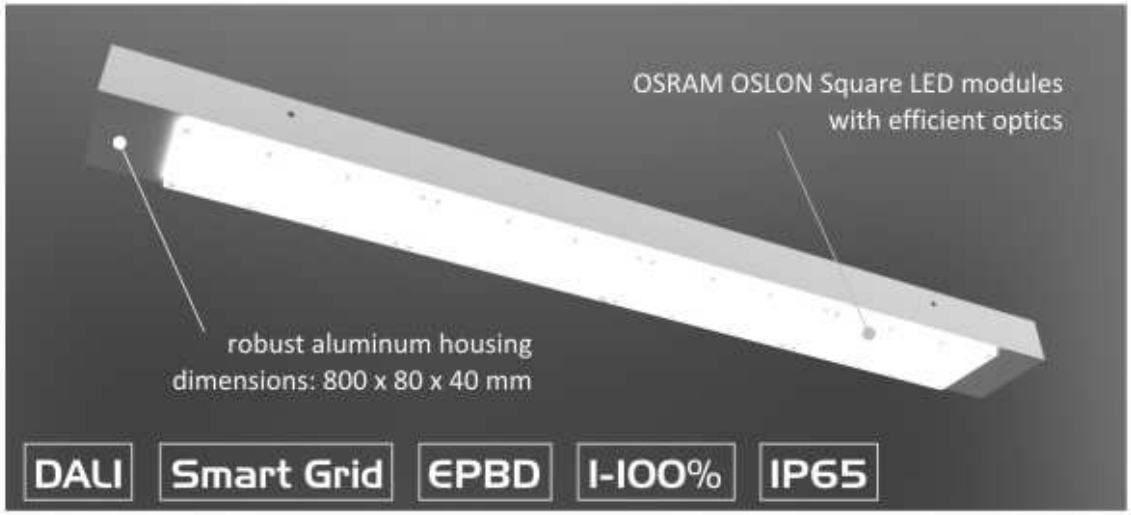


FuturoLighting, StreetStick, street fixture concept

FuturoLighting, StreetStick, LED module

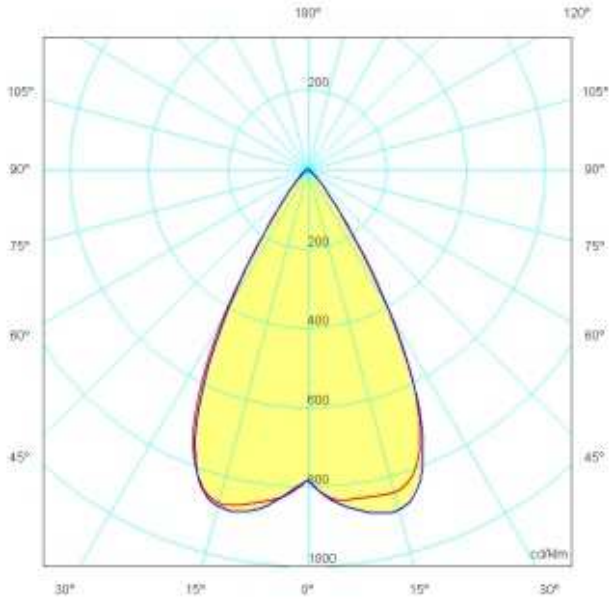
HighStick

Efficient high bay solution

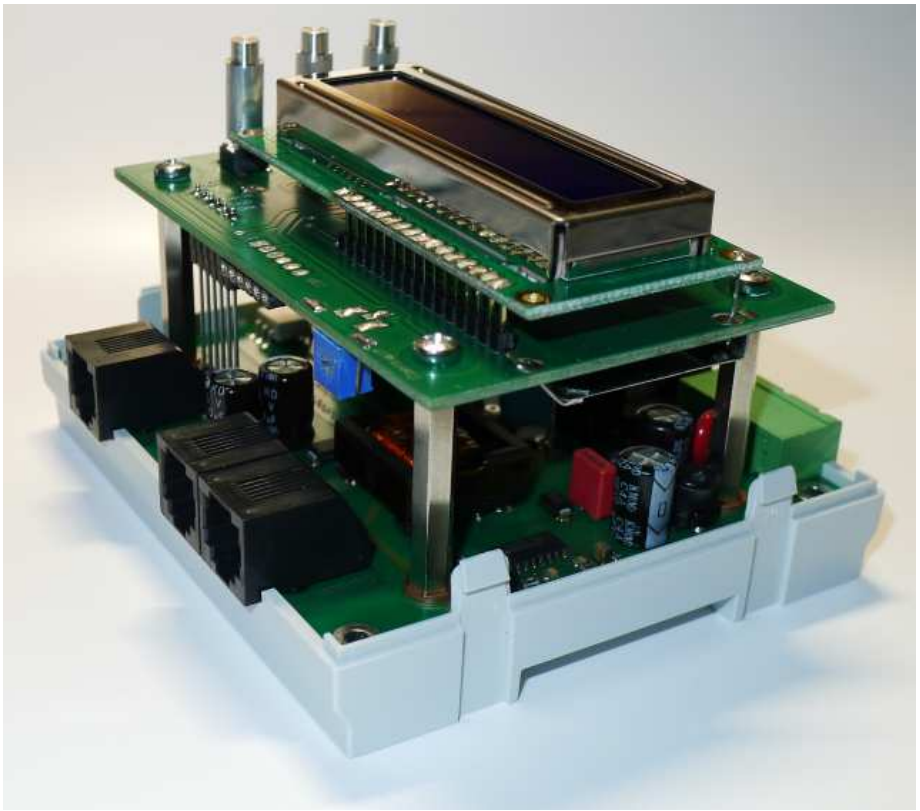


- CCT 4000 K,
- CRI > 70, (> 91 on request)
- Efficiency > 105 lm/W,
- Lumen output > 9000 lm,
- Supply: 230V / 90W,
- IP 60, (IP 65 on request)
- Installation:
  attached or suspended
- Dimensions: 800 x 80 x 40 mm,
- Weight: 2,8 kg, Material: Al

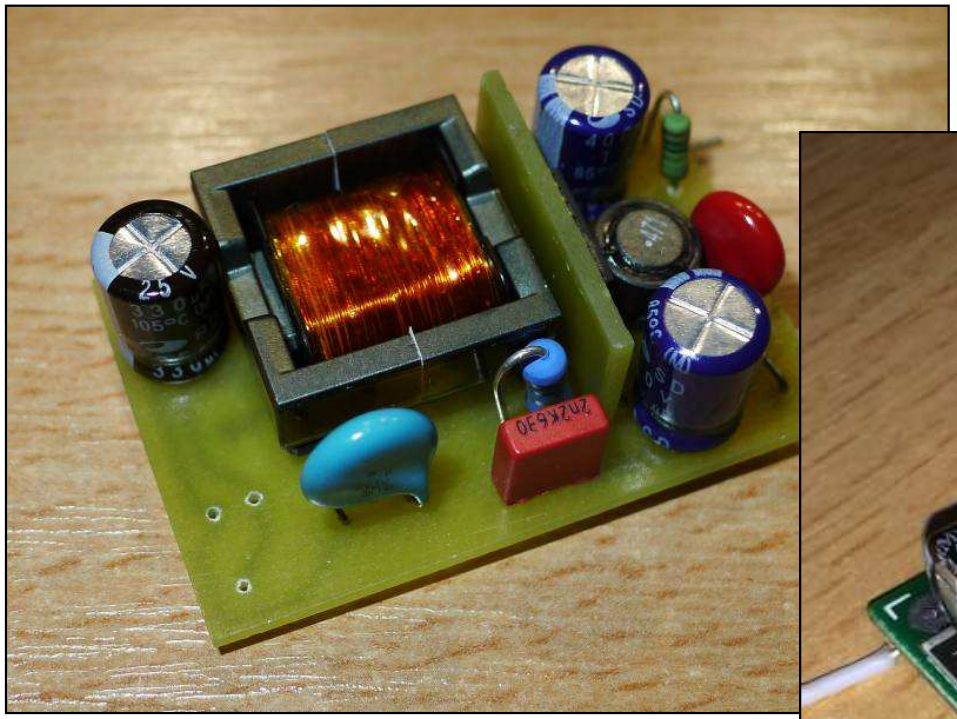
- Efficient optics with 53° radiation angle, appropriate for 3-8 m mounting heights, high bay applications
- Applied most recent LEDs
- Low investment and maintenance costs,
- High efficiency, low consumption, < 300 mW standby,
- High lifetime, estimated above 60 000 hours,
- Maintenance free, environmental friendly,
- DALI interface for implementation to central control systems,
- Implemented Smart Grid for consumption monitoring,
- Compact dimensions, robust construction,
- Corrosion resistant,
- Designed by FuturoLighting, made-in Slovak Republic.



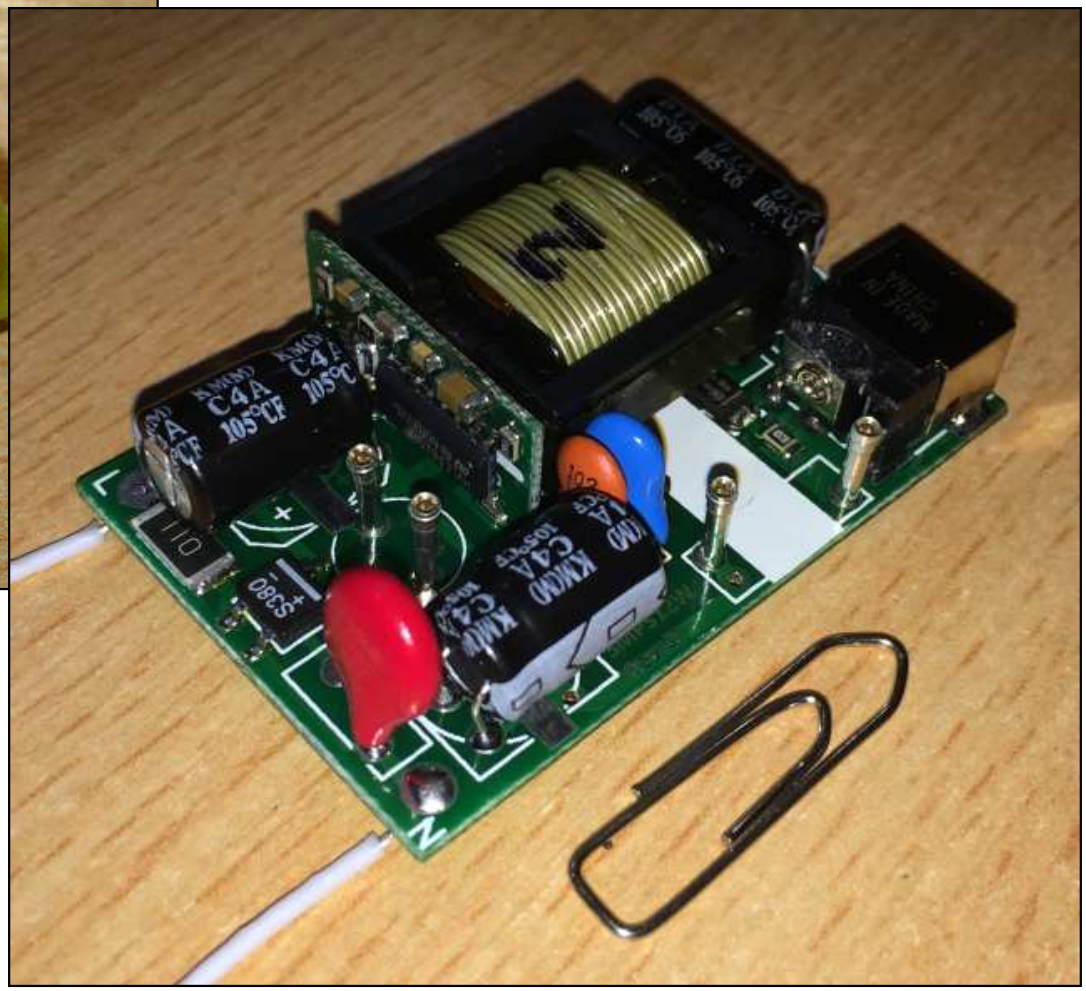
FuturoLighting, ASens production run



FuturoLighting, primary sensing CVCC SMPS design (12-15 W), app example on ST

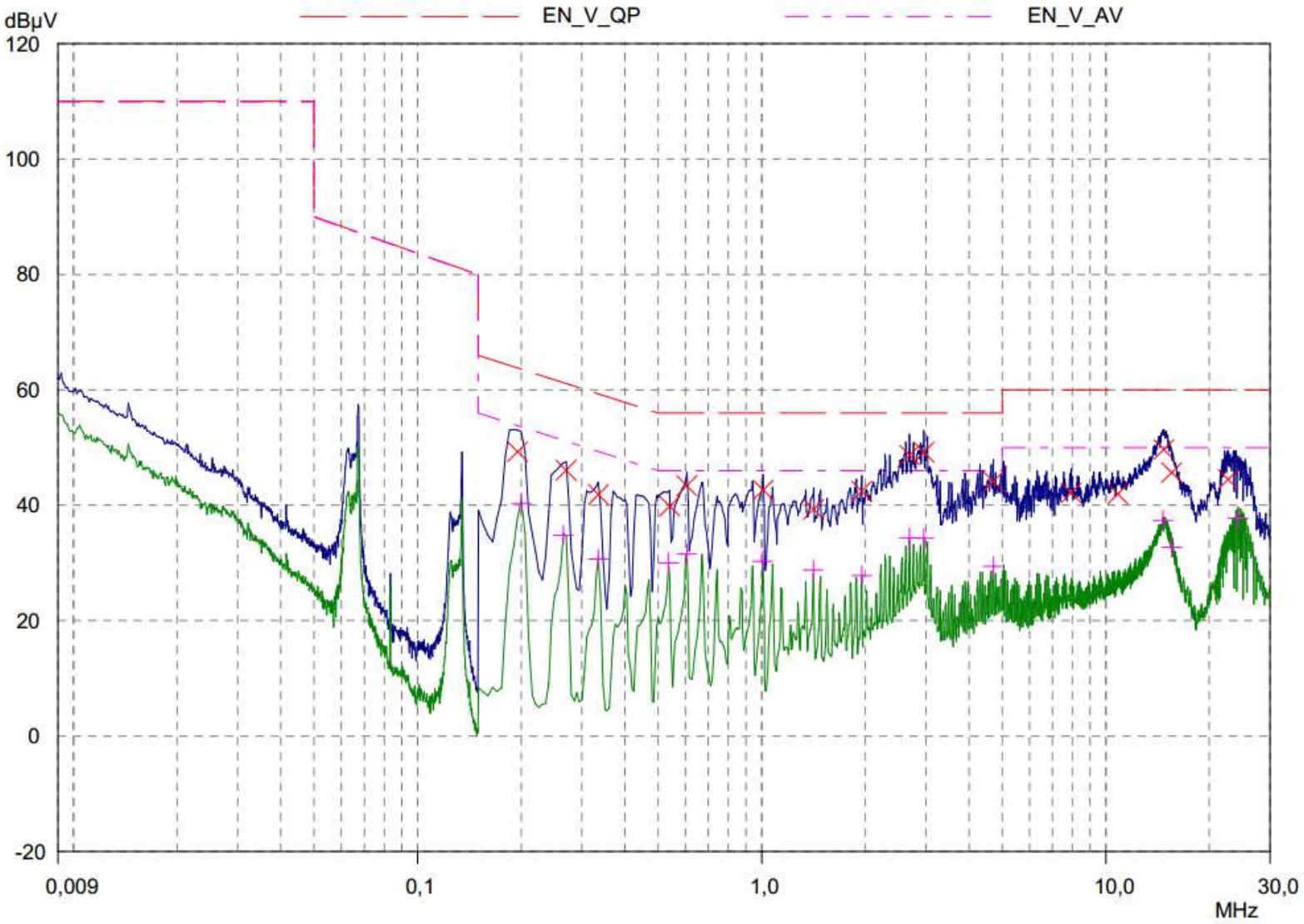


Height Just 12mm



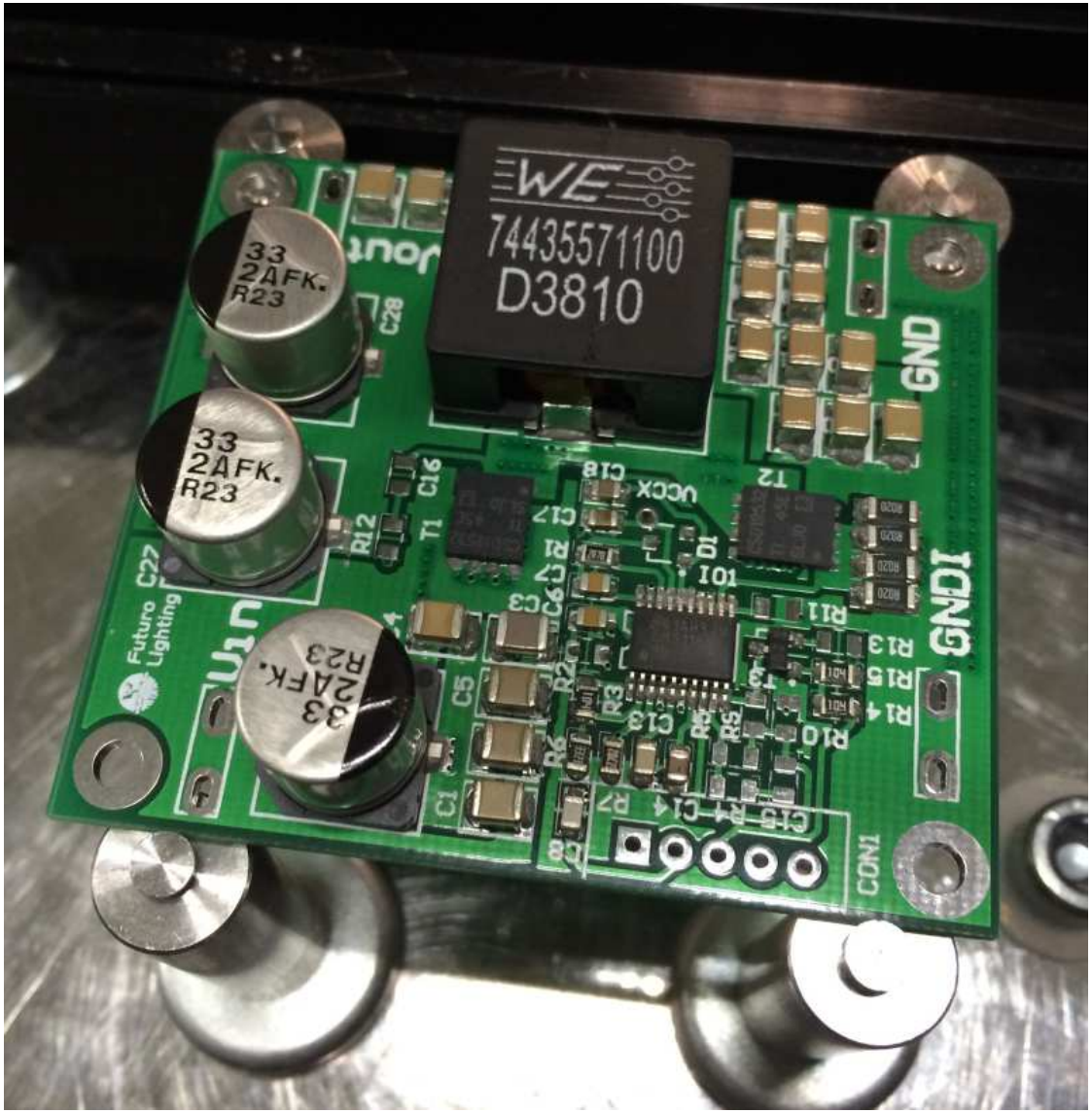
Dimensions: 33x50x12mm
Power: 12 W
Vout = 24 VDC
Iout = 0,55A
Mode: CVCC

FuturoLighting, primary sensing CVCC SMPS design (12-15 W), EMI results = PASS

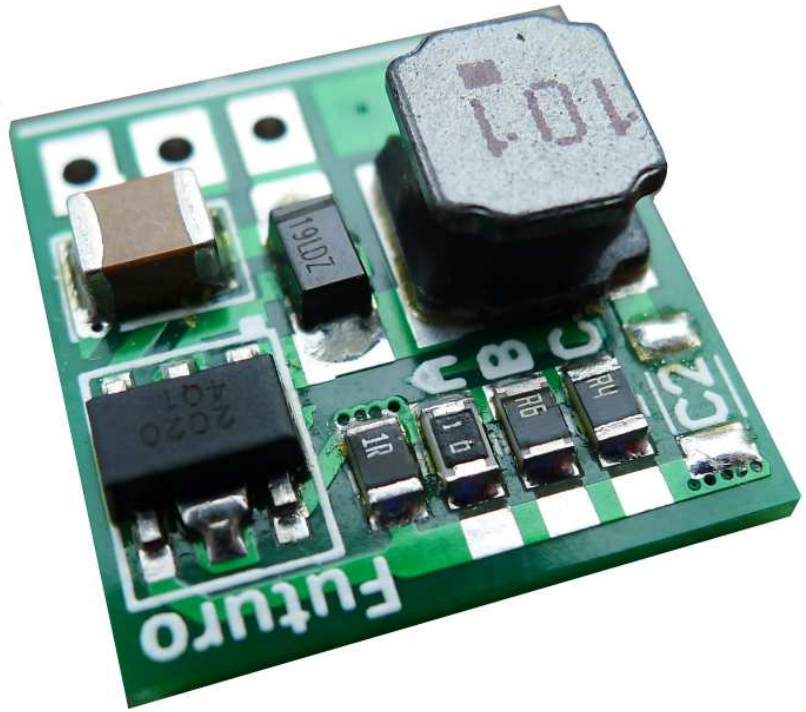


Test spec.
According to
EN55015

FuturoLighting, 600W DC/DC prototype, Vin = 70V, Vout = 3-60V



LED Driver 376V

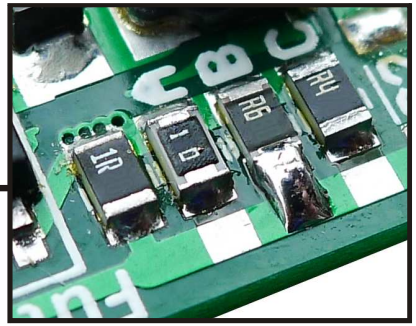


LED current setting

LED current selection from 0,1 A up to 0.53 A

ILED	A	B	C
0,1 A	-	-	-
0,23 A	X	-	-
0,3 A	-	X	-
0,39 A	-	-	X
0,45 A	X	X	-
0,53 A	X	-	X
0,59 A	do not use !		
0,73 A	do not use !		

X - linked by soldering iron



Output current ripple reduction: adding capacitor across LED string (1 uF on module). Note: capacitor will not affect operating frequency and efficiency, but it will increase startup delay and reduce maximum dimming PWM frequency. Using ceramic capacitor may result in audio noise during PWM dimming depending on PWM frequency.

Futuro Lighting design

So much to say and so short time…

Thank you for your attention