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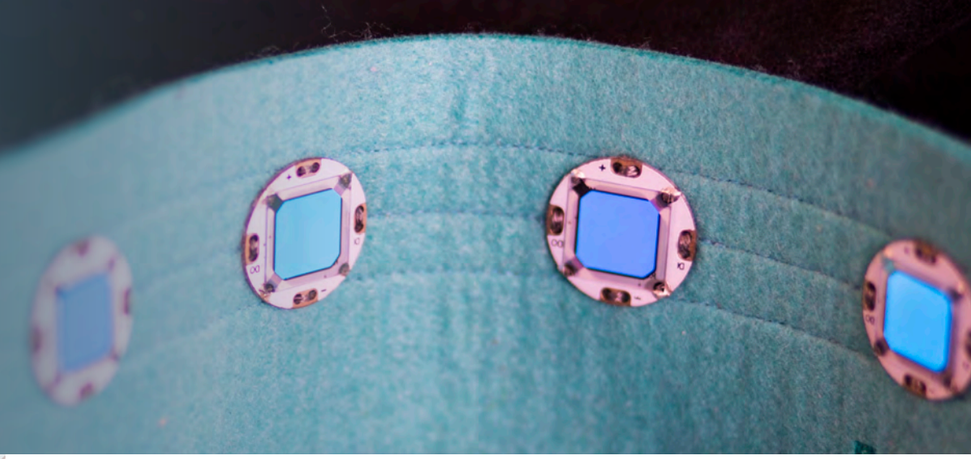
FRAUNHOFER INSTITUTE FOR ORGANIC ELECTRONICS, ELECTRON BEAM AND PLASMA TECHNOLOGY FEP

OLED FOR TEXTILE INTEGRATION

OBUTTON
WEARABLE OLED LIGHTING

OLED FOR TEXTILE INTEGRATION



OBUTTON : INTRODUCTION

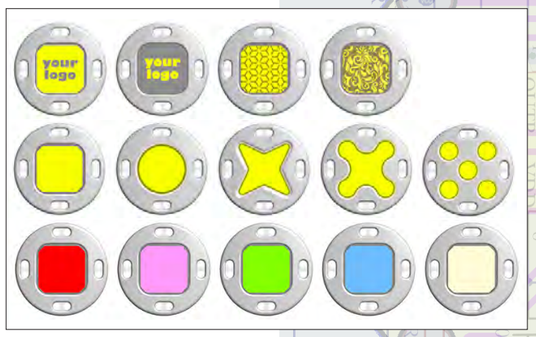
The Fraunhofer FEP, a research and development service provider in the field of organic electronics, is specialized in the development and manufacture of cutting-edge Organic Light Emitting Diode (OLED) designs.
Fraunhofer FEP offers its customers the realization of customer-specific OLED modules with a wide range of features and materials for converting design ideas into luminous objects using OLED technology. We utilize latest technologies and materials, and apply our extensive know-how to produce prototypes and small series for the desired applications of our customers.

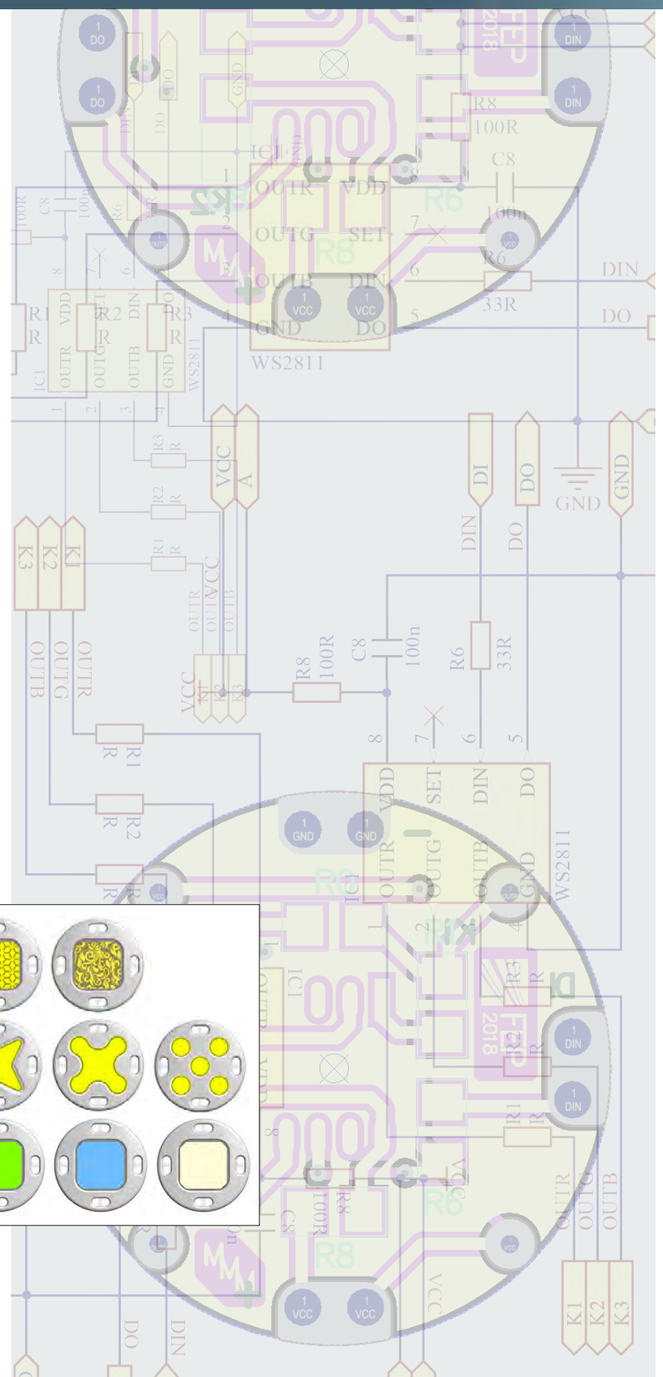
OLED Lighting for Fashion

OLED lighting elements are recognized as light emitting graphical elements. They can be shaped, patterned or inscribed in a plethora of ways. The possible feature diversity of OLEDs is highly attractive for the creative industry. With its outstanding key feature to provide high-quality glare-free area light with crisp light colors, as well as its flexibility and low weight, OLED technology is ideally suited for the use in fashion items like garments or accessories and other near body applications.
In addition to the consumer-oriented fashion business also a lot of professional applications in the security, rescue and outdoor industry are potential application fields for this new technology.

OBUTTON

Fraunhofer FEP is providing a standard OLED layout as a basis for integration of area light into textiles and garments utilizing OLED technology. The OBUTTON is a tiny circular module that is equipped with a shatterproof plastic-foil-based OLED lighting element on a rigid printed circuit board, which ensures the electrical control of the OLED. This enables designers and makers to get in touch with OLED lighting technology. The OBUTTON is an easy-to-integrate OLED lighting element, that enables electrical and mechanical textile assembly via conductive yarn on the one hand and demonstrates the processability, behaviour and aesthetics of a common button on the other.





OBUTTON : FEATURES

- monochrome (OBUTTON I) or dual-chrome (OBUTTON II) light emission, fully dimmable
- Worldsemi WS2811 driver integrated in each OBUTTON PCB for individual control when for chaining of OBUTTONs
- compatible to „Adafruit Neopixel“
- glass free, shatterproof and lightweight
- numerous design, patterning and colour options available
- textile integration with conventional sewing techniques
- electrical and mechanical connection with conductive yarn
- minimized electrical contact resistance at Yarn-PCB-Interface by metallized double holes

AVAILABLE OPTIONS

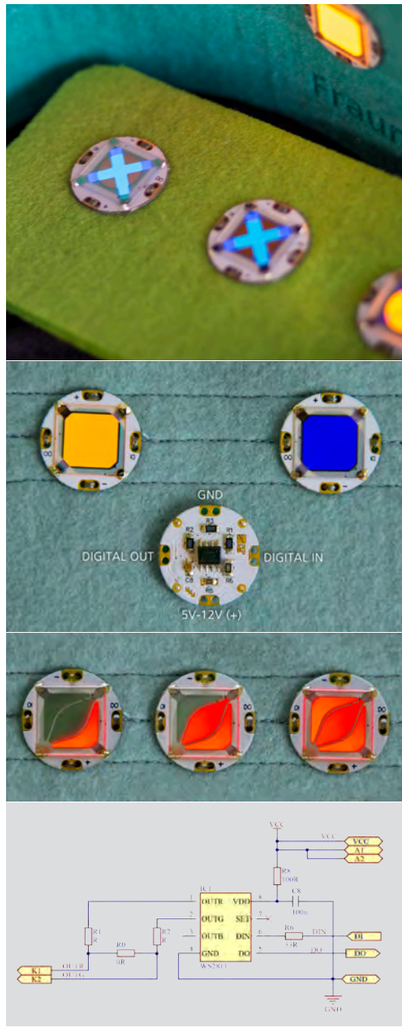
OBUTTON I
- monochrome - OLED emits in one color, brightness can be adjusted by dimming (PWM)

OBUTTON II
- dualchrome - OLED emits in two colors - OLED features stacked OLED units with different colors, brightness of each color can be controlled; color mixing possible
- monochrome - with two OLED segments addressable

OBUTTON III
- monochrome OLED with three OLED segments individually addressable

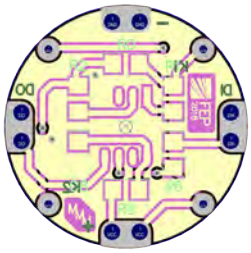
SPECIAL OPTIONS

(quotation and manufacturing on request):
- specific emission colors
- customized OLED (shape and size) and/or PCB
- active area patterning of OLED
- high-brightness OLED (>1000 cd/m²)
- waterproof resin housing (under development)



OBUTTON WEARABLE OLED LIGHTING

TECHNICAL SPECIFICATIONS



OBUTTON I: monochrome (single color) OLED
OBUTTON II: 2-color-variable (dual color) OLED or OLED with two addressable segments
OBUTTON III: three addressable segments

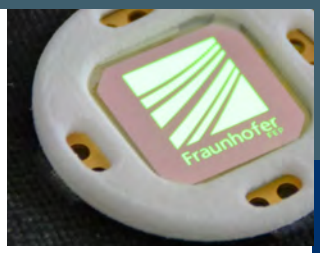
Size:
PCB diameter: 22 mm
OLED active area: 12 × 12 mm² (140 mm²)

Power consumption:
10 mA @ > 6 V per button (per color)
Power supply unit recommended (pins „+“ & „GND“)

Electrical connection:
four connectors:
2 x power supply ports (+ ; GND)
2 x data ports (IN; OUT)
connection via conductive yarn recommended

Controller:
WS2811 driver integrated in OBUTTON-PCB
Arduino family recommended to control OBUTTON chain (compatible to Adafruit Neopixel libraries)
External power supply or battery (9V) recommended to power OBUTTON chain

CONTACT



For additional information about OLED technology or the availability of OBUTTON samples please contact:

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