

Product Brief

RGB LED Lighting Shield with XMC1202 for Arduino

The RGB LED Lighting Shield from Infineon is one of the first intelligent evaluation boards compatible with Arduino as well as Infineon's XMC1100 Boot Kit. It is designed to be easily configurable and combinable for different LED light engines and lamps, for fast prototyping and in-expensive evaluation of LED lighting applications.

The RGB LED Lighting Shield with XMC1202 for Arduino uses a DC/DC buck topology and is able to drive up to 3 LED channels with constant current. The Shield itself is powered by a programmable XMC 32-bit ARM® MCU with embedded Brightness Color Control Unit (BCCU, XMC1200 MCU series), for flicker-free LED dimming and color control.

The BCCU enables extreme low-cost but high quality LED lighting solutions, with minimal user code. The RGB LED Lighting Shield with XMC1202 for Arduino has also been designed to provide options for the evaluation of smooth, eye-friendly dimming, color mixing for different topologies, and it can be extended with for example radar or by using the mounting option for DMX512.

Applications

- LED lighting

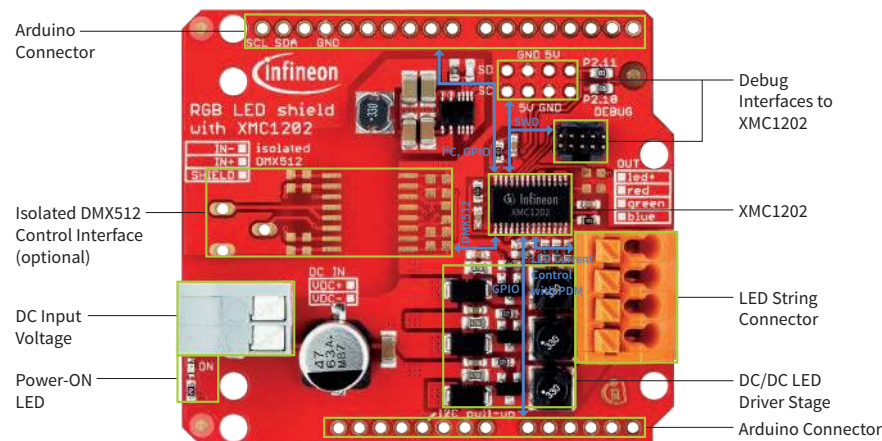
Features

- Compatible with Arduino Uno R3 and XMC1100 boot kit from Infineon
- Easily configurable for various light engines and any input voltage (within operating conditions)
- Wide DC input voltage range
- Simple I²C interface

Operating Conditions up to 100W

- Nominal: 12–48V input voltage (max 6–60V)
- Average LED current up to 700mA (max peak current 1A)

RGB LED Lighting Shield with XMC1202 for Arduino – Main Components



RGB LED Lighting Shield

with XMC1202 for Arduino

The RGB LED Shield adds brilliant flicker-free light control to Arduino projects. It communicates with a master board via the I²C protocol as a slave. Either an Arduino Uno R3 or the XMC1100 Boot Kit from Infineon can be used as the master board.

The Shield is equipped with an XMC1202 microcontroller, featuring a dimming control peripheral for LED lighting applications – the Brightness and Color Control Unit (BCCU). It contains 3 independent dimming engines with 9 independent Pulse Density Modulated (PDM) channels.

1 dimming engine and 6 channels are used in this shield. There are 10 basic sets of I²C commands that can be sent to the shield to control the connected LED lamp with various lighting effects. 22 easy to configure parameters enhance the freedom to connect different LED lamps.

DMX512 control is supported with a mounting option for the interface chip. The board's design allows for easy connection to any Arduino board or the XMC1100 boot kit via headers.

Benefits

- Fast prototyping of LED lighting
- Flicker-free light thanks to high-speed pulse density modulation
- Easy-to-use dynamic dimming and color control
- Small size thanks to high-frequency current control (high power density)
- Backdoor access to on-board microcontroller for advanced users and parameterization

Product Summary

| Type | Description | Ordering Code (OPN) |
|-------------------|--|-------------------------|
| XMC1202-T028X0016 | 32MHz ARM® Cortex®-M0 with Brightness Color Control Unit (BCCU), 16KB Flash, 16KB RAM, rich analog-mixed signal, timer/PWM and communication peripherals in PG-TSSOP-28 | XMC1202T028X0016AAXUMA1 |
| BSR606N | OptiMOS™-3 small-signal-transistor, n-channel with R _{DS(on)} , max of 60mΩ at V _{GS} = 10V. Qualified according to AEC-Q101, logic level (4.5V rated) | BSR606NH6327XTSA1 |

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Useful Links

- www.infineon.com/arduino
- www.infineon.com/dave
- www.infineon.com/xmc
- www.infineon.com/xmc1000



CAN ICES-3 (B)/NMB-3(B)

Published by
Infineon Technologies AG
85579 Neubiberg, Germany

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Order Number: B158-I0039-V1-7600-EU-EC-P
Date: 01 / 2015

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