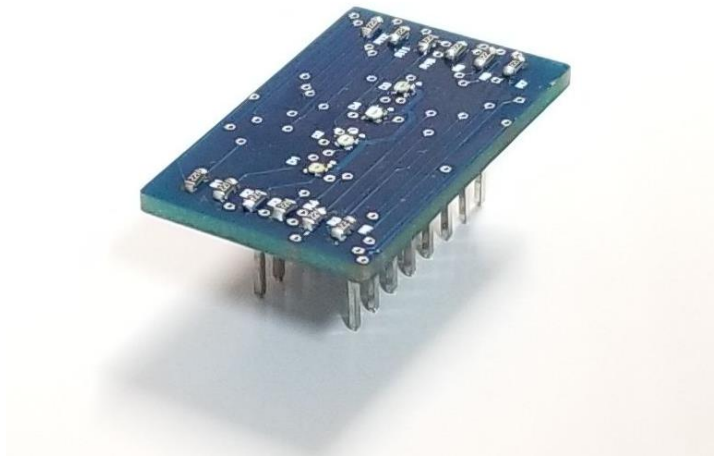# LED RGB Breakout Board
Data Sheet

The EPT-SML-LX04-LD-X2 is a breakout board that includes four LED RGBs. This Board provides a simple interface to control four LED RGBs for a total of 12 LEDs from any MCU (including the Arduino family). It is designed to connect directly to the standard bread board with a reduced footprint. Once connected to an MCU, the MCU can provide a sink for each LED.

The LED RGB Breakout board uses four SML-LX0404SIUPGUSB manufactured by Lumex. They include the Red, Green and Blue LEDs inside one package. The case size is 0404 (1010 metric) surface mount. The LED colors are standard within the color spectrum. The LEDs are arranged in a current sink style and can support forward currents of Red = 30, Green = 25, and Blue = 10 mA.

SML-LX0404 LED RGB Breakout Board

This Breakout board is compatible with both +3.3V and +5V Arduinos. However, the LED RGB Breakout board is for use only with +3.3V.
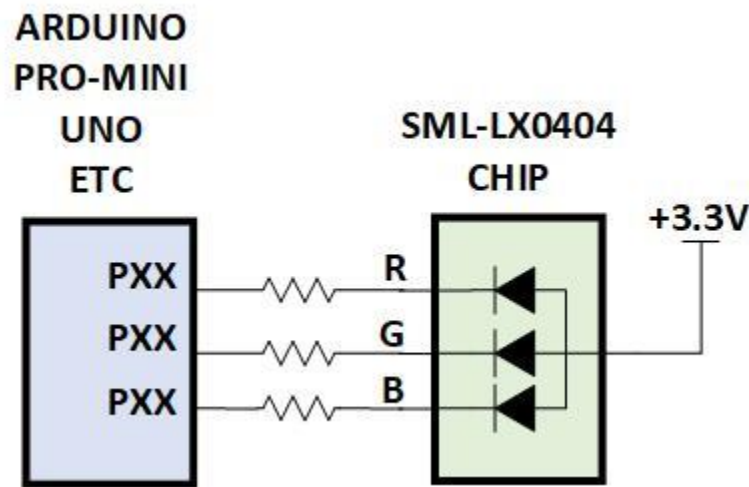
The SML-LX0404 chip is a current sink and can be connected to any MCU. The anode should be connected to +3.3V. The reason for this is the Series resistors are calculated for current limiting based on +3.3V. Changing the anode voltage to another source will change the brightness emitting from each LED. Because the SML-LX0404 chips are current sink, the user can connect to either +5V or +3.3V Arduino (or other MCUs) and control each LED.

Hardware Features:

- Stand Alone Bread Board Compatible
- Four Independently controlled LED RGBs
- Designed for +3.3V Control, Each LED has a pre-selected Current Resistor
- Each LED is sink controlled from any MCU including Arduinos
- Each LED connected to SMT pin on bottom of Board

LED Electrical Specifications

Each LED current limiting resistor is calculated to provide 5mA in each of the Red, Green and Blue LEDs. So, the current for each leg:

| Parameter	Red LED	Green LED	Blue LED	Units
Peak Wavelength	632	518	564	nm
Forward Voltage	1.75	2.75	2.60	Volts
Leg Current	5	5	5	mA
Resistor	310	110	140	Ohms
Axial Intensity	30	40	20	mcd

Pin Out Description

The LED RGB Breakout Board has 16 pins located on the bottom of the board. These are two 8x1 0.1 inch headers. These headers are SMT. The headers are located to allow the breakout board to connect to a typical solderless breadboard. Because of the use of SMT headers on the bottom of the board, the entire real estate of the top of the board is open for SMT part location and traces unobstructed by through hole parts.
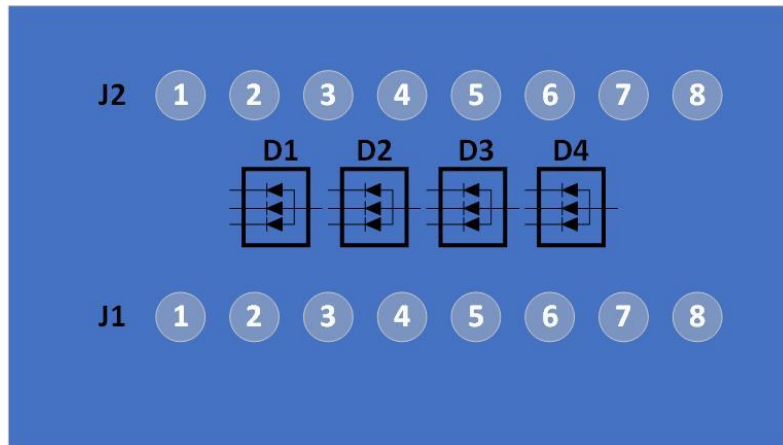
LED RGB Breakout Board
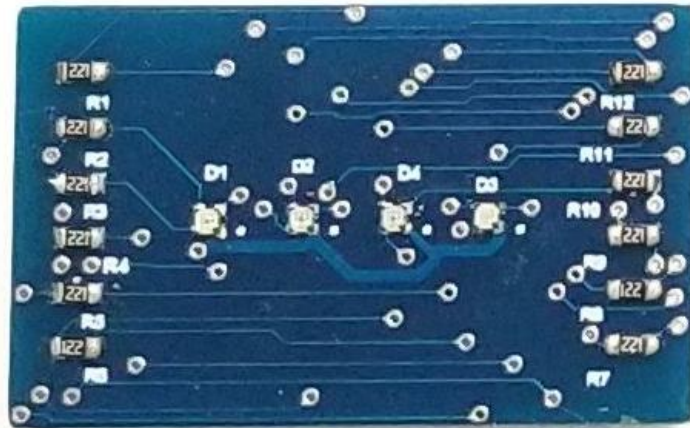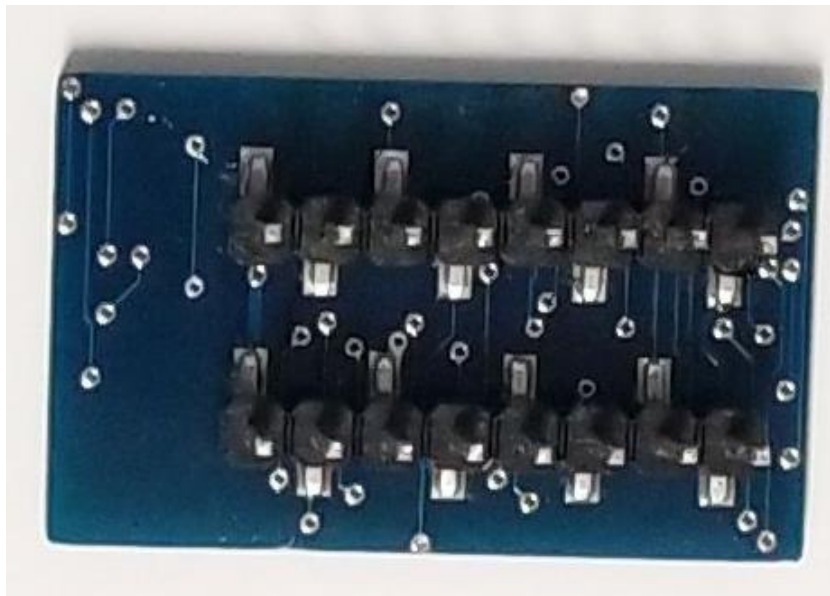
The top down view is shown below. The LEDs are located on the top and organized as D1 through D4. The connectors are shown as looking through the board.

LED RGB Breakout Board

Connector	Pin #	Signal		
J1	1	+3.3V		
	2	D1-Red		
	3	D1-Blue		
	4	D1-Green		
	5	D3-Red		
	6	D3-Blue		
	7	D3-Green		
	8	Ground		

Connector	Pin #	Signal		
J2	1	+3.3V		
	2	D2-Red		
	3	D2-Blue		
	4	D2-Green		
	5	D4-Red		
	6	D4-Blue		
	7	D4-Green		
	8	Ground		