

BM014 High Intensity RGB LED Module

Super Bright Red, Green, and Blue Ceramic LED with MOSFET drivers



hardware made easy

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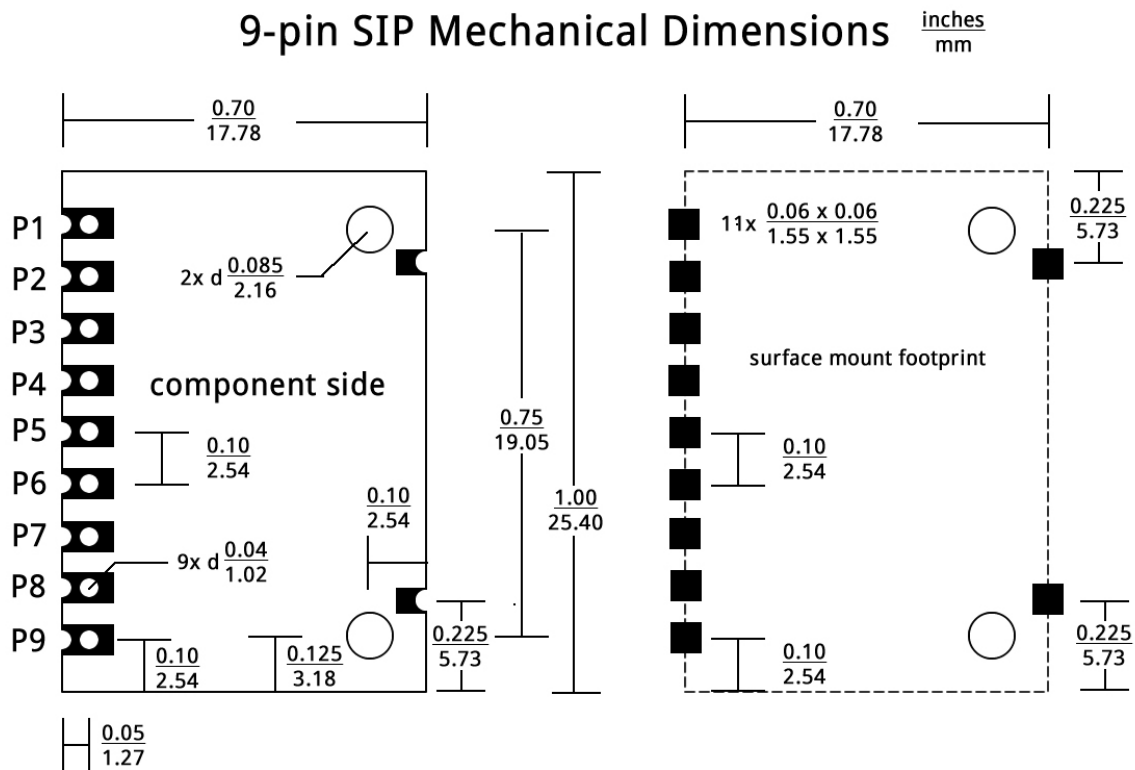
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Product Description:

This super bright red, green, and blue LED module can be used to generate hundreds of colors. The module comes with MOSFET switches used to turn on each LED. Pulse-width modulating the MOSFETs can allow you to mix color ratios.

- 140mA per LED drive current
- 120° viewing angle
- 625nm (red), 528nm (green), 470nm (blue)
- Bright like the sun!

Dimensions:**9-pin SIP Mechanical Dimensions**

Specifications:

Characteristic	Min	Typ	Max	Unit	Notes
VIN Operating voltage		5		V	VIN pins
Operating current	30		250	mA	No motors/servos attached
Vforward red LED	1.9	2.1	2.65	V	20 Ω 1/2W resistor in series with LED
Vforward green LED	2.9	3.4	4.1	V	12 Ω 1/2W resistor in series with LED
Vforward blue LED	2.9	3.3	4.1	V	12 Ω 1/2W resistor in series with LED
Vreverse red LED		12			
Vreverse green LED		5			
Vreverse blue LED		5			
Operating temperature	-40		+110	$^{\circ}$ C	

Pin Functions and Notes

#	Name	Maximum Voltage	Notes
1	VIN	5V	Tied to anode of all LEDs
2	VIN	5V	Tied to anode of all LEDs
3	NC	-	Not connected
4	NC	-	Not connected
5	GND	0V	Common ground
6	GND	0V	Common ground
7	BLUE ENABLE	5V	Connected to gate of N-channel MOSFET through 1K Ω resistor (note: on rev 1 PCB this pin is labeled as "RED" on silk-screen. 5V turns on LED.
8	GREEN ENABLE	5V	Connected to gate of N-channel MOSFET through 1K Ω resistor. 5V turns on LED.
9	RED ENABLE	5V	Connected to gate of N-channel MOSFET through 1K Ω resistor (note: on rev 1 PCB this pin is labeled as "BLUE" on silk-screen. 5V turns on LED.

User Notes/Tips:

1. The red LED enable pin is labeled "blue" on the bottom silk-screen of the REV1 PCB. Follow pin-out in this document. Likewise, the blue LED is labeled "red" on the rev1 PCB.
2. This high intensity LED is very bright. You should not look directly at it. When viewing the LED it is worthwhile to cover it with frosted glass or a similar material. This will reduce the pin-point brightness by diffusing the colors making them more pleasing to the eye.
3. You can mix and create colors by driving the LED enable pins with PWM signals. In a similar fashion you can reduce and increase brightness by reducing the PWM duty-cycle but maintaining the ratio.

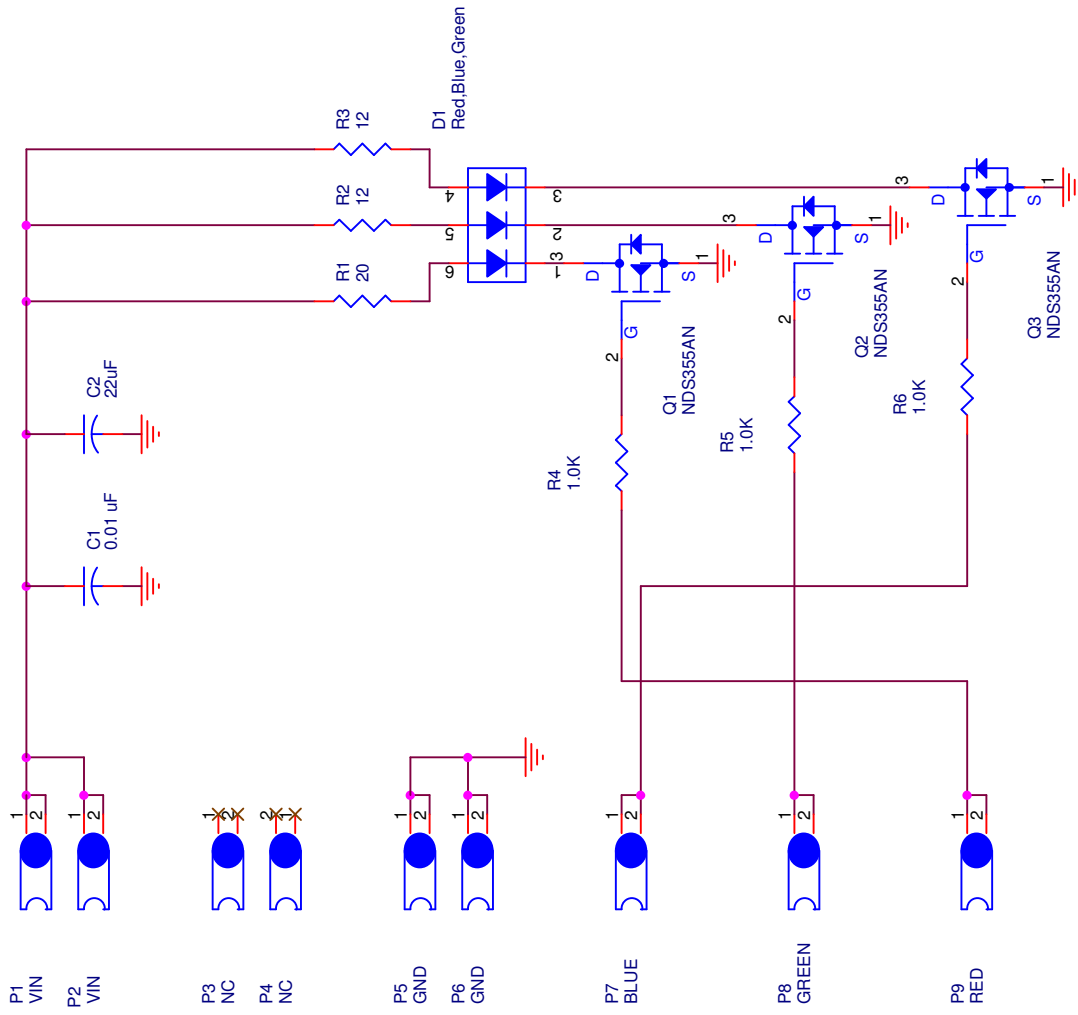
Color	Red	Green	Blue
White	100%	100%	100%
Red	100%	0%	0%
Green	0%	100%	0%
Blue	0%	0%	100%
Light Blue	0%	100%	100%
Magenta	100%	0%	100%
Yellow	100%	100%	0%
Orange	100%	40%	0%
Purple	40%	20%	80%
Tan	60%	20%	0%

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User Datasheet

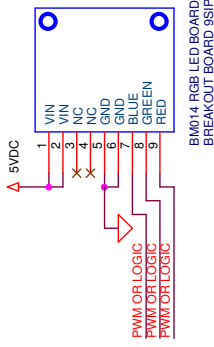
August 2013

Schematics:

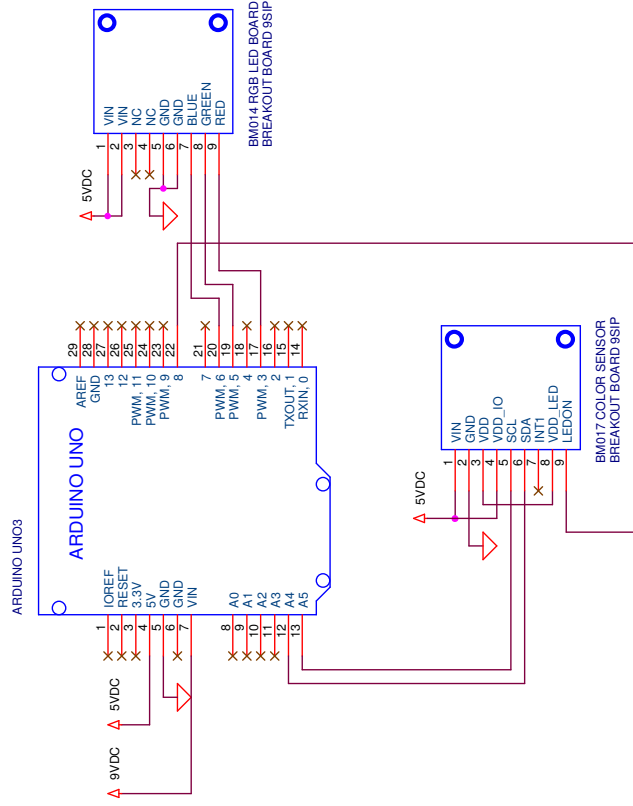


Application Schematics:

BASIC CONNECTIONS



COLOR SENSOR TO RGB LED



RGB LED PWM CONTROL

