

IS31FL3193 3-CHANNEL FUN LED DRIVER

DESCRIPTION

IS31FL3193 3-channel LED driver demo board is used to demonstrate and evaluate the IS31FL3193. IS31FL3193 is a constant current LED driver featuring One Shot Program Mode and PWM Control Mode for RGB lighting effects. The IS31FL3193 can drive three LEDs or one group RGB LED.

The demo board can perform breathing effect in One Shot Programming Mode to display the function of IS31FL3193.

FEATURES

- Voltage range from 3.5V to 5.5V
- One group RGB LED or three single color LEDs breathing system-free pre-established pattern
- 3 independently controlled outputs of 256 PWM steps
- I2C interface, automatic address increment function
- Available in DFN-10 (3mm×3mm) package

QUICK START

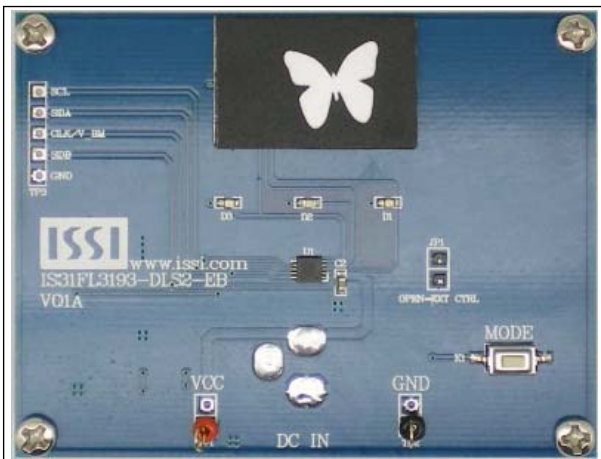


Figure 1: Photo of IS31FL3193 Evaluation Board

RECOMMENDED EQUIPMENT

- 5.0V, 2A power supply

ABSOLUTE MAXIMUM RATINGS

- ≤ 5.5V power supply

Caution: Do not exceed the conditions listed above, otherwise the board will be damaged.

PROCEDURE

The IS31FL3193 evaluation board is fully assembled and tested. Follow the steps listed below to verify board operation.

Caution: Do not turn on the power supply until all connections are completed.

- 1) Connect the ground terminal of the power supply to the GND and the positive terminal to the VCC. Or connect the DC power to the connector (DC IN).
- 2) Turn on the power supply and pay attention to the supply current. If the current exceeds 300mA, please check for circuit fault.
- 3) Enter the desired mode of display by toggling the MODE button.

ORDERING INFORMATION

| Part No. | Temperature Range | Package |
|--------------------|-----------------------------|-------------------|
| IS31FL3193-DLS2-EB | -40°C to +85°C (Industrial) | DFN-10, Lead-free |

Table 1: Ordering Information

For pricing, delivery, and ordering information, please contact Lumissil's analog marketing team at analog@Lumissil.com or (408) 969-6600.

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EVALUATION BOARD OPERATION

The IS31FL3193 evaluation board has three display modes. Press MODE button to switch configurations.

- 1) One-Shot Program Mode is set by default to function as a RGB unit exhibiting identical breathing patterns. There are twenty possible colors within the LED's breathing range color spectrum.
- 2) In automatic mode, the LED's will function as a RGB display with automatic color changing patterns.
- 3) In third configuration, three LED's will brighten individually and exhibit unique behaviors.

Note: IS31FL3193 solely controls the FxLED function on the evaluation board.

SOFTWARE SUPPORT

JP1 default setting is close circuit. If it is set to open, the on-board MCU will stop working. The I2C pins are set to High Impedance. External I2C signals can be connected to TP3 to control the IS31FL3193 LED driver.

Please refer to the datasheet to get more information about IS31FL3193.

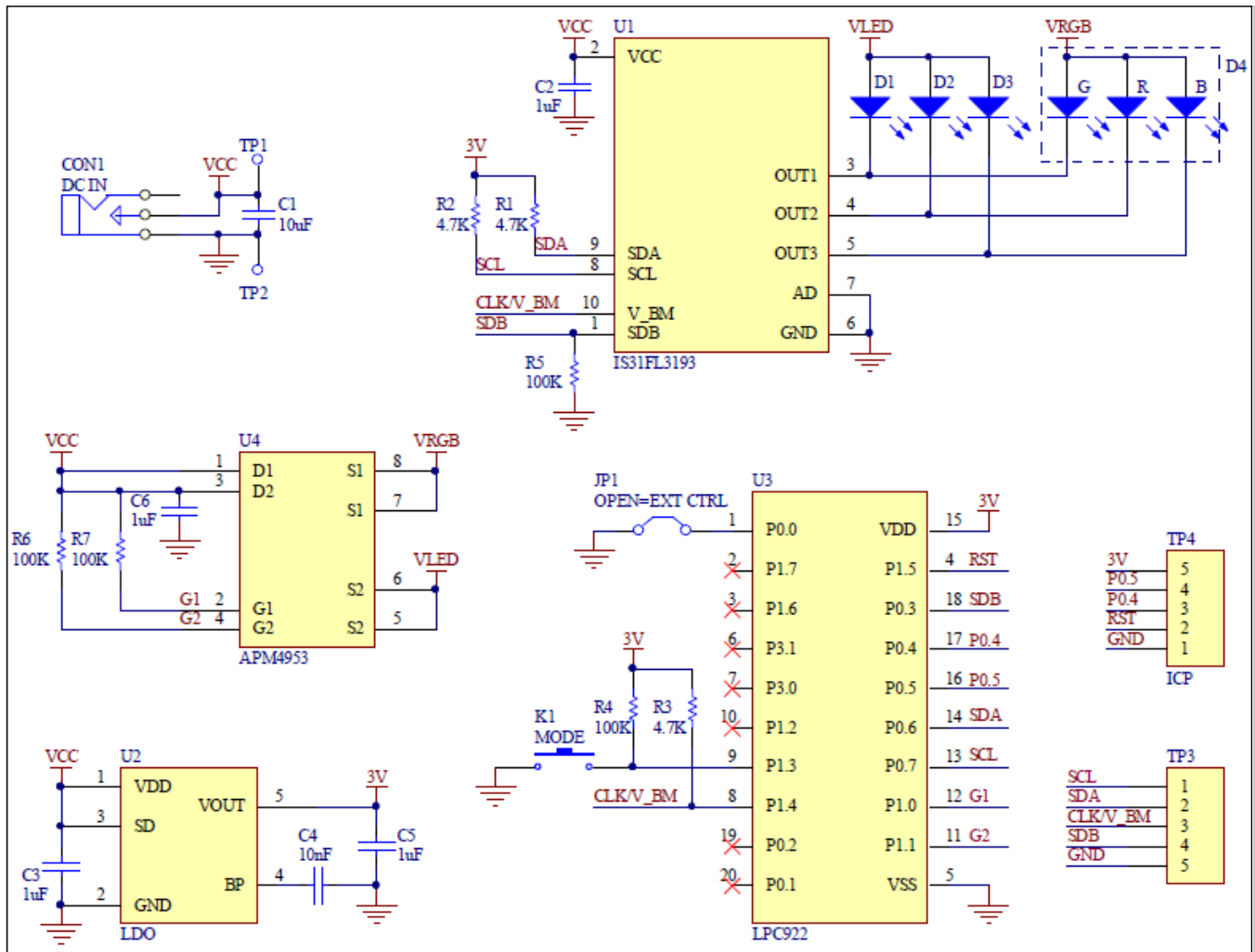


Figure 2: IS31FL3193 Application Schematic

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BILL OF MATERIALS

| Name | Symbol | Description | Qty | Supplier | Part No. |
|------------|-------------|------------------------|-----|-----------|-----------------------|
| LED Driver | U1 | 3CH FxLED Driver | 1 | Lumissil | IS31FL3193 |
| LDO | U2 | Low-dropout Regulator | 1 | PAM | PAM3101 |
| MCU | U3 | Microcontroller | 1 | NXP | LPC922 |
| PMOS | U4 | Dual PMOS | 1 | ANPEC | APM4953 |
| Diode | D1 | Diode, LED Red, SMD | 1 | Everlight | 19-217/BHC-ZL1M2RY/3T |
| Diode | D2 | Diode, LED Green, SMD | 1 | Everlight | 19-217/BHC-ZL1M2RY/3T |
| Diode | D3 | Diode, LED Blue, SMD | 1 | Everlight | EHP-C04/UT01-P01/TR |
| Diode | D4 | Diode, LED RGB, SMD | 1 | Everlight | 99-235/RGBC/TR8 |
| Resistor | R1~R3 | RES,4.7k,1/16W,±5%,SMD | 3 | | |
| Resistor | R4~R7 | RES,100k,1/16W,±5%,SMD | 4 | | |
| Capacitor | C1 | CAP,10µF,16V,±20%,SMD | 1 | | |
| Capacitor | C2,C3,C5,C6 | CAP,1µF,16V,±20%,SMD | 4 | | |
| Capacitor | C4 | CAP,10nF,16V,±20%,SMD | 1 | | |
| Button | K1 | Button SMD | 1 | | |

Bill of Materials, refer to Figure 2 above.

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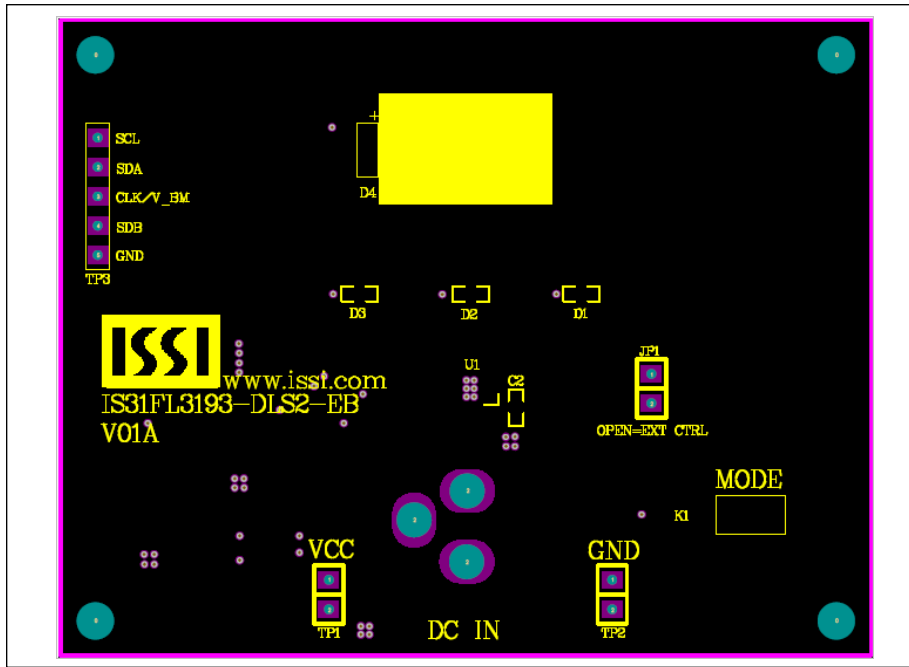


Figure 3: Board Component Placement Guide - Top Layer

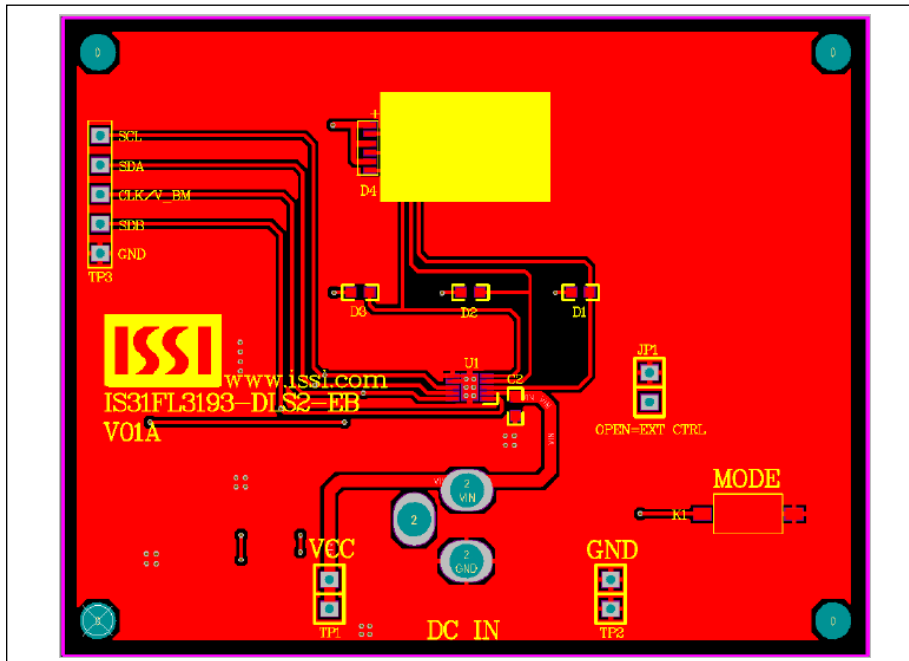


Figure 4: Board PCB Layout - Top Layer