

IS31BL3212 3-CHANNEL CONSTANT CURRENT LED DRIVER

DESCRIPTION

The IS31BL3212 provides three regulated current sources, delivers up to 23mA of load current to accommodate three white LEDs. It requires no charge pump, has no noise and significantly improved the efficiency.

The serial digital input is used to enable, disable, and set current for each LED with 16 settings down to 0.69mA.

FEATURES

- Supply voltage range from 2.7V to 5.5V
- Ultra low headroom voltage
- Cost effective LED driver
- Three channel constant current output ideal for driving LEDs
- Best Noise and Efficiency Performance
- Ultra low quiescent supply current: 1.0mA (Typ.)
- Highly integrated design, minimal component
- Low shutdown current: 1.0µA (Typ.)
- SOT-6 package

QUICK START

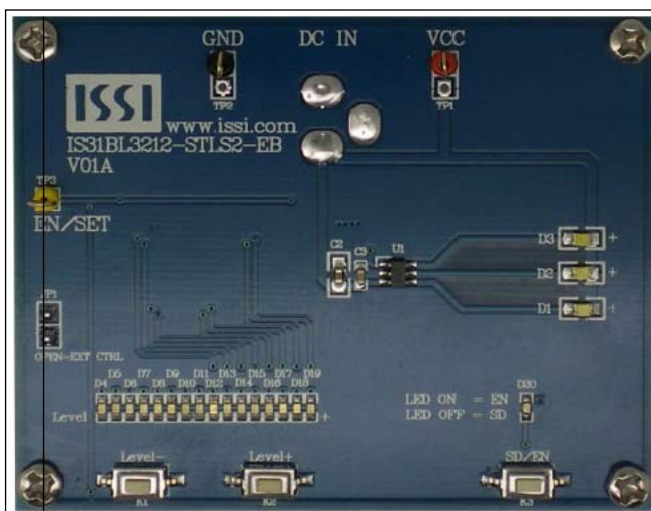


Figure 1: Photo of IS31BL3212 Evaluation Board

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 IS31BL3212 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 400mA, please check for circuit fault.
- 3) Press Level- or Level+ button to change current of white LEDs. The intensity of LEDs will be in 1 level (highest) when power on.
- 4) The button (SD/EN) controls the IS31BL3212 Shutdown or Enable. When power on the IS31BL3212 is Enable and the LED (D20) is on.

EVALUATION BOARD OPERATION

The IS31BL3212 evaluation board performs constant output current with Pulse Count Control (PCC wire) serial interface. The interface records rising edges of the EN/SET pin and decodes them into 16 different states.

The evaluation board uses a MCU generating Pulse signal at EN/SET pin adjusting the LEDs current. There are 16 blue LEDs (D4~D19) above the buttons showing the intensity level.

Note: IS31BL3212 solely controls the white LEDs function on the evaluation board.

SOFTWARE SUPPORT

Please refer to the integrated program.

JP1 default is set to close circuit. If it is set to open, the onboard MCU will stop working. The MCU pin to drive the EN/SET pin will set to High Impedance. An external driving signal can be connected to the TP3 connecting point to control the IS31BL3212 LED driver.

Refer to the datasheet for more information about how to control the IS31BL3212 LED driver.

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ORDERING INFORMATION

| Part No. | Temperature Range | Package |
|---------------------|----------------------------|------------------|
| IS31BL3212-STLS2-EB | -40°C ~ +85°C (Industrial) | SOT-6, Lead-free |

Table1: Ordering Information

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

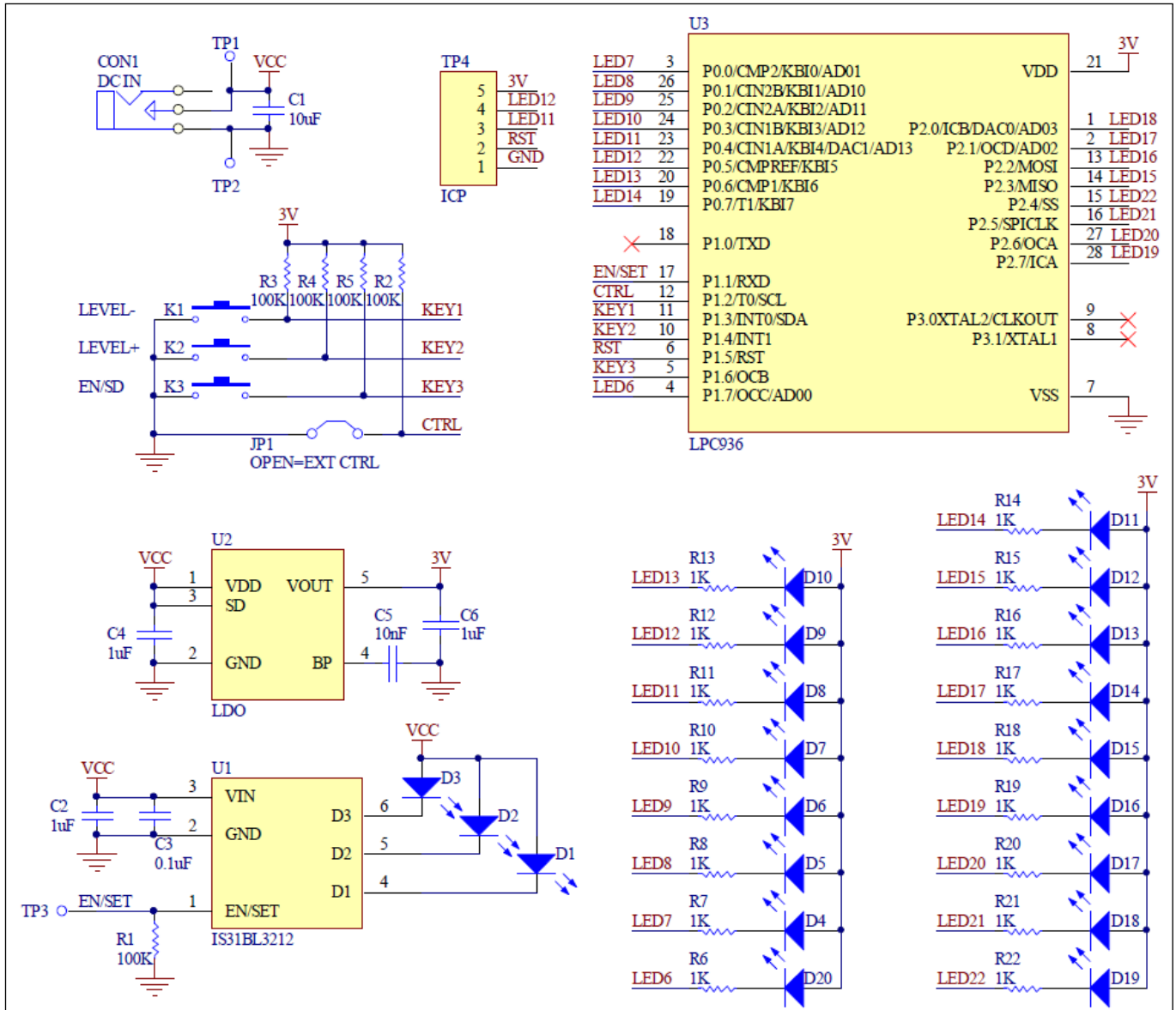


Figure 2: IS31BL3212 Application Schematic

IS31BL3212 3-CHANNEL CONSTANT CURRENT LED DRIVER

BILL OF MATERIALS

| Name | Symbol | Description | Qty | Supplier | Part No. |
|------------|----------|------------------------|-----|-----------|----------------------|
| LED Driver | U1 | 3 channels LED Driver | 1 | Lumissil | IS31BL3212 |
| LDO | U2 | Low-dropout Regulator | 1 | PAM | PAM3101 |
| MCU | U3 | Microcontroller | 1 | NXP | LPC936 |
| LED Blue | D4~D20 | Diode, LED Blue, SMD | 17 | Everlight | 19-217/BHCZL1M2RY/3T |
| LED White | D1~D3 | Diode, LED White, SMD | 3 | Everlight | EHP-C04/UT01-P01/TR |
| Resistor | R1~R5 | RES,100k,1/16W,±5%,SMD | 5 | | |
| Resistor | R6~R22 | RES,1k,1/16W,±5%,SMD | 17 | | |
| Capacitor | C1 | CAP,10µF,16V,±20%,SMD | 1 | | |
| Capacitor | C2,C4,C6 | CAP,1µF,16V,±20%,SMD | 3 | | |
| Capacitor | C3 | CAP,0.1µF,16V,±20%,SMD | 1 | | |
| Capacitor | C5 | CAP,10nF,16V,±20%,SMD | 1 | | |
| Buttons | K1~K3 | Buttons SMD | 3 | | |

Bill of materials, refer to Figure 2 above.

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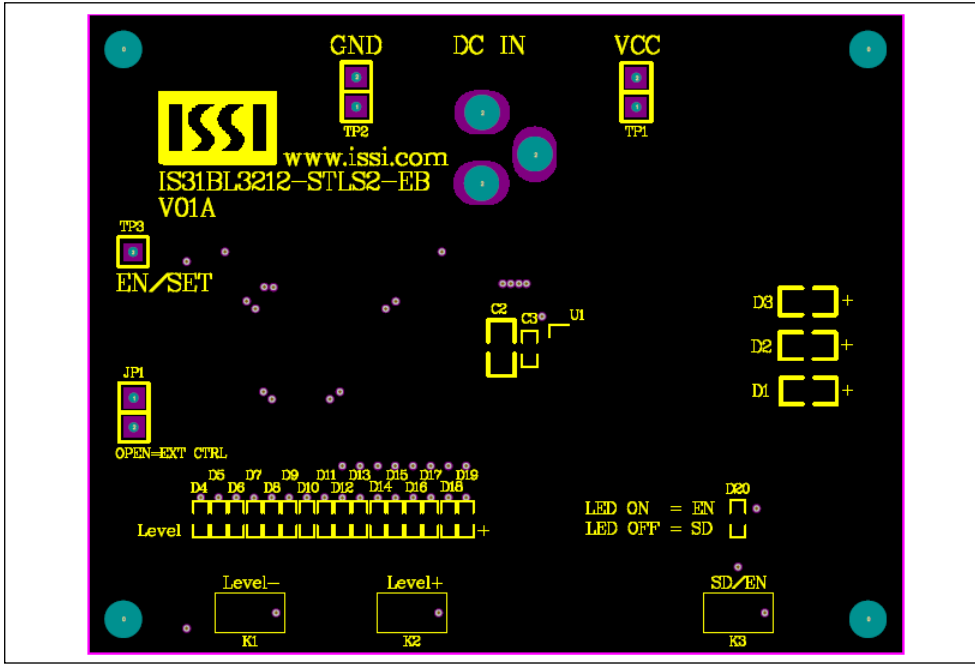


Figure 3: Board Component Placement Guide -Top Layer

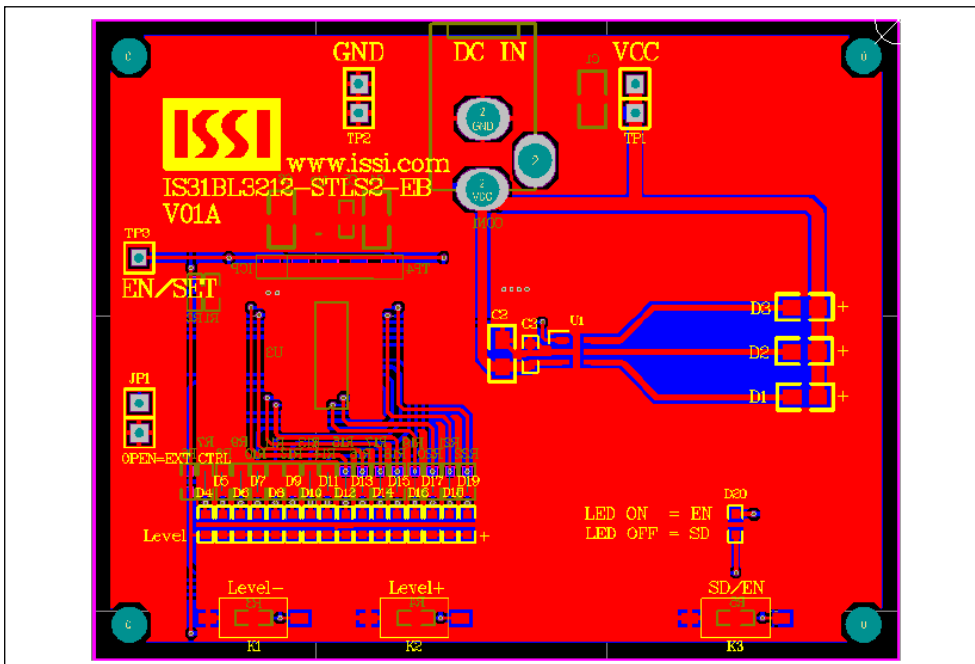


Figure 4: Board PCB Layout- Top Layer

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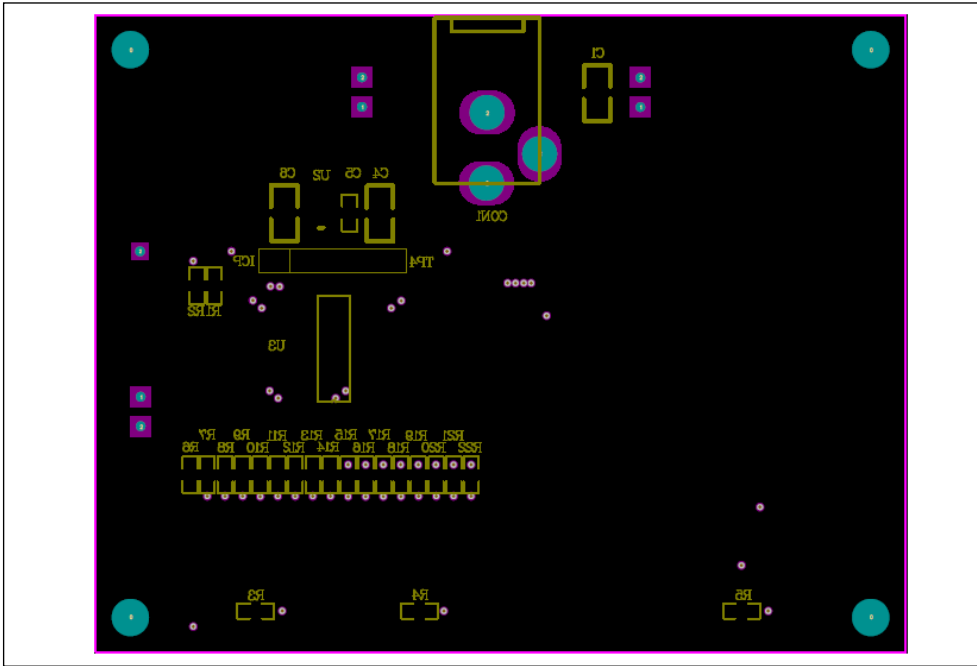


Figure 5: Board Component Placement Guide -Bottom Layer

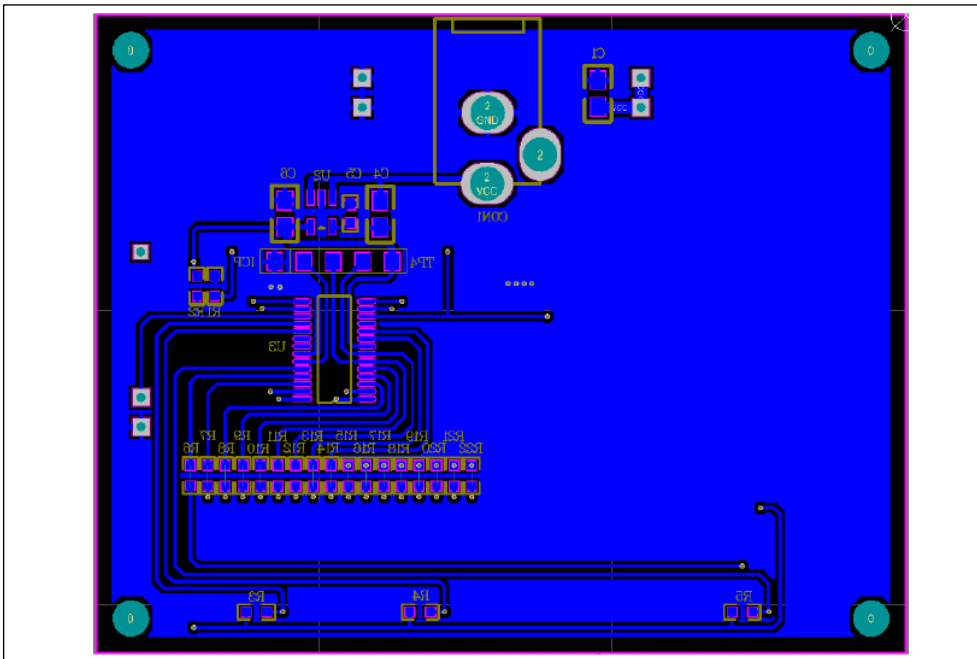


Figure 6: Board PCB Layout-Bottom Layer

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