

# IS31FL3265B

## HIGH-VOLTAGE, 18-CHANNEL LED DRIVER

Preliminary Information  
August 2019

### GENERAL DESCRIPTION

The IS31FL3265B is an LED driver with 18 high voltage (40V) constant current channels. Each channel can be pulse width modulated (PWM) by 8 bits for smooth LED brightness control. In addition, each channel has an 8-bit output current control register which allows fine tuning of the channel current for rich RGB color mixing, e.g., a pure white color LED application. The maximum output current of each channel is designed to be 60mA, which can be adjusted by one 32 steps global control register. Proprietary algorithms are used in IS31FL3265B to minimize audible noise caused by the MLCC decoupling capacitors. All registers can be programmed via 12MHz SPI interface.

The IS31FL3265B can be configured to a minimum current consumption mode by either pulling the SDB pin low or by using the software shutdown feature.

The IS31FL3265B is available in eTSSOP-28 package. It operates from 3.0V to 5.5V over the temperature range of -40°C to +125°C.

### APPLICATIONS

- AI-speakers and smart home devices
- LED in home appliances
- LED display for hand-held devices

### FEATURES

- 3V to 5.5V operating supply
- Output current capability and number of outputs: 60mA × 18 outputs, tolerance voltage 40V
- 12MHz SPI with automatic address increment
- Programmable H/L logic: 1.4V/0.4V, 2.4V/0.6V
- Accurate Color Rendition
  - 32 steps Global current adjust
  - 8-bit Dot correction for each channel
  - 8-bit PWM for each channel
- Selectable PWM method (200Hz or 25KHz)
- 256-Step group blink with frequency programmable from 24Hz to 10.66 s and duty cycle from 0% to 99.6%
- Clock IO pin for multi-chip synchronization
- Fault report (open detect/thermal roll off /thermal shutdown)
- Thermal roll-off programmable set point
- SDB rising edge resets SPI interface
- EMI reduction technology
  - Spread spectrum
  - Selectable 9 phase delay
- Operating temperature range, -40°C ~ +125°C
- Package: eTSSOP-28
- Current accuracy (All output on)
  - Bit to bit: < ±4%
  - Device to device: < ±6%

# IS31FL3265B

## TYPICAL APPLICATION CIRCUIT

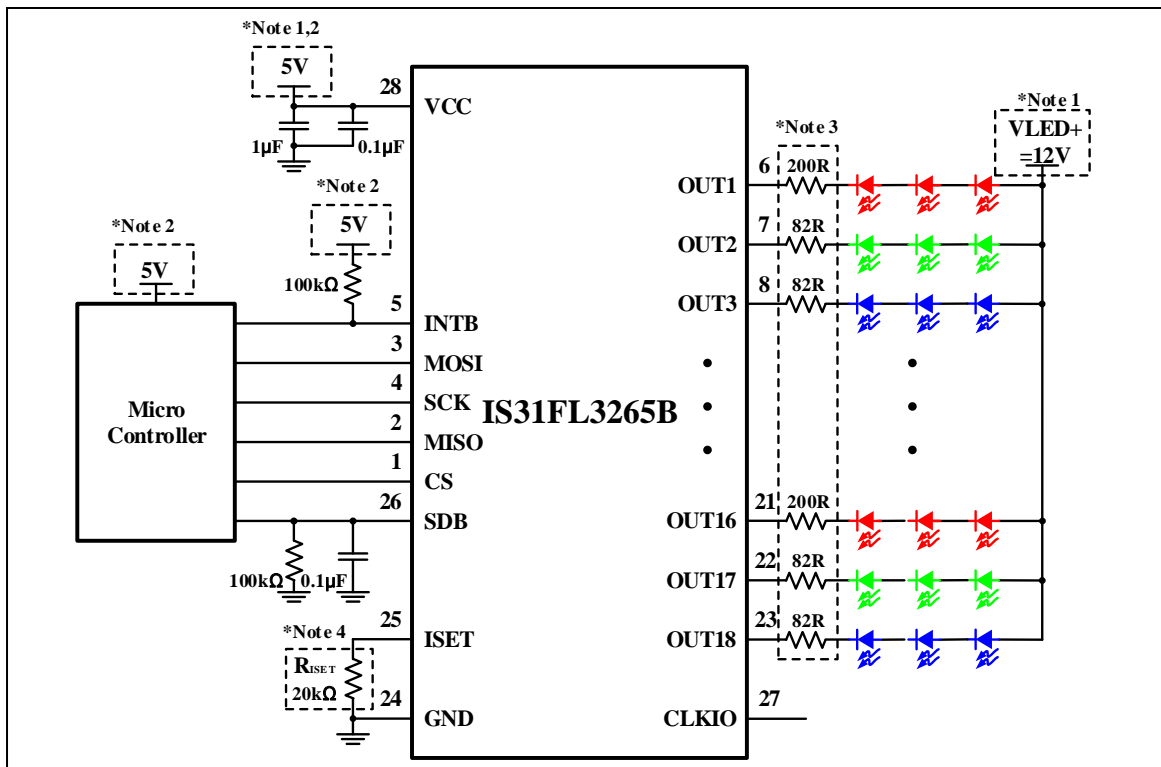


Figure 1 Typical Application Circuit

**Note 1:** VCC pin should not be higher than 5.5V, VLED+ can be higher than VCC.

**Note 2:**  $V_{IH}$  is the high level voltage for IS31FL3265B's SDA, SCL and INTB, which is usually same as VCC pin and VCC of Micro Controller, e.g. if VCC of Micro Controller is 3.3V,  $V_{CC}(IS31FL3265B)=V_{IH}=3.3V$ , if VCC of Micro Controller is 5V,  $V_{CC}(IS31FL3265B)=V_{IH}=5V$ , but  $V_{CC}(IS31FL3265B)$  should not be lower than 3V.

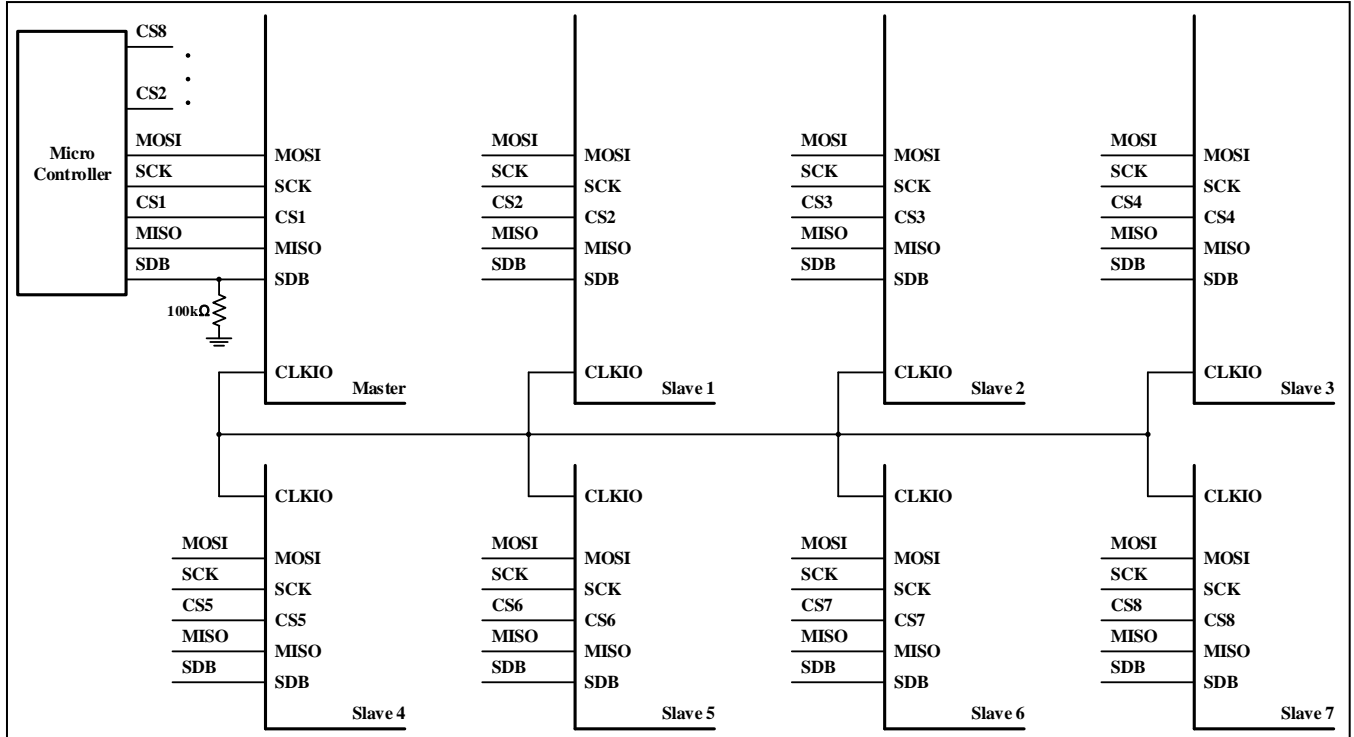
**Note 3:** These resistors are for offloading the thermal dissipation ( $I^2R$ ) away from the IS31FL3265B,

**Note 4:** The maximum global output current is set by external resistor,  $R_{ISET}$ . Please refer to the application information in  $R_{ISET}$  section.

**Note 5:** The IC and LED string should be placed far away from any local antenna in order to prevent EMI contamination.

# IS31FL3265B

## TYPICAL APPLICATION CIRCUIT (CONTINUED)



**Figure 2** Typical Application Circuit (Eight Device Synchronization)

**Note 6:** One device is configured as master mode, all the other 7 devices are configured as slave mode (slaves should be configured before configuring the selected master). Master or slave mode is specified by the Configuration Register. The master will output a master clock (CLKIO), and all the other devices configured as slaves will synchronize their CLKIO inputs to the master clock.