IS32LT3129A

TRIPLE CHANNEL LINEAR LED DRIVER WITH I2C INTERFACE AND FADE IN/OUT

Advance Information
October 2017

GENERAL DESCRIPTION

The IS32LT3129A is a triple channel linear programmable current regulator capable of up to 150mA of each LED channel and up to 30mA for the backlight LED. It integrates a debounce and latch circuit on the channel enable pin (EN) to facilitate the use of a low cost momentary contact switch or a regular latched switch. The I2C interface can communicate with a MCU to either configure or drive the LED channels. The I2C interface has higher priority over the EN input. In additional, the I2C interface supports reading function for MCU to get the state of device and the fault flag of open/short circuit and thermal shutdown.

The device can operate as a stand-alone LED driver configurable with external resistors; no microcontroller is required. A single external resistor programs the current level, while two separate resistors independently program the fade in and fade out ramp rate for the channel.

The device integrates a 63 steps fade in and fade out algorithm (Gamma correction) which causes the output LED current to gradually ramp up to the full source value after the EN pin is triggered. The same controller causes the LED current to gradually ramp down to zero if the EN pin is triggered while the output channel is ON. The fade ramp can be interrupted mid-cycle before completion of the ramp cycle.

The IS32LT3129A is targeted at the automotive market with end applications to include map and dome lighting as well as exterior accent lighting. For 12V automotive applications the low dropout driver can support 1 to 3 LEDs (V_F = 3.2V) per channel. It is offered in a small thermally enhanced eTSSOP-20 package.

FEATURES

- Operating voltage 5V to 42V
- 1MHz I2C-compatible interface
- Dual channel current sources
  - Programmable current via either a single external resistor or I2C register
  - Configurable from 20mA to 150mA
- Max 30mA current source for push button backlight
- EN input supports both momentary contact and latched switch
  - Input is debounced and latched
  - Lower priority than I2C input
  - Gamma corrected Fade In/Out algorithm
- Pull down resistors set independent fade IN and OUT ramp time
- Fault Protection with reporting:
  - LED strings shorted
  - LED strings open
  - ISET pin shorted to GND (no reporting)
  - Over temperature
- eTSSOP-20 package
- Operating temperature range from -40°C ~ +125°C
- AEC-Q100 qualification in progress

APPLICATIONS

- Automotive Interior:
  - Map/Dome light
  - Puddle lamp in doors
  - Glove box
  - Vanity mirror

TYPICAL APPLICATION CIRCUIT

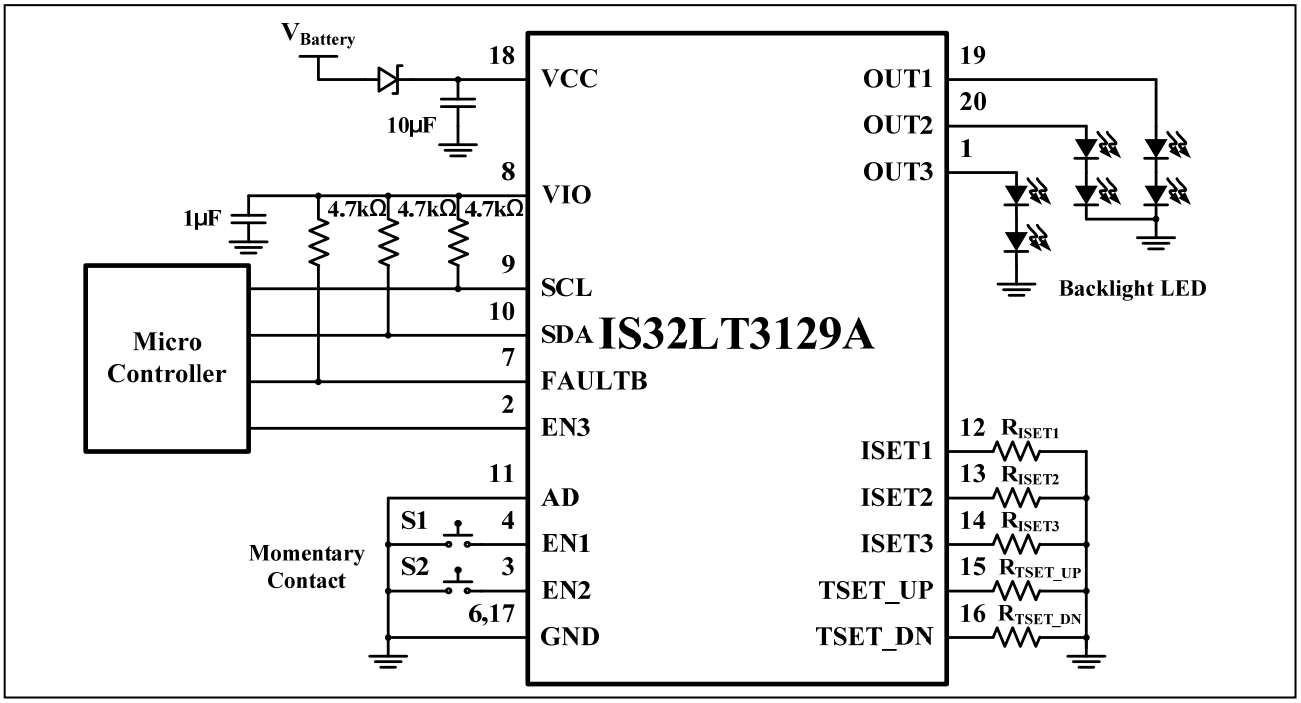

Figure 1 Typical Application Circuit with Momentary Contact Switch

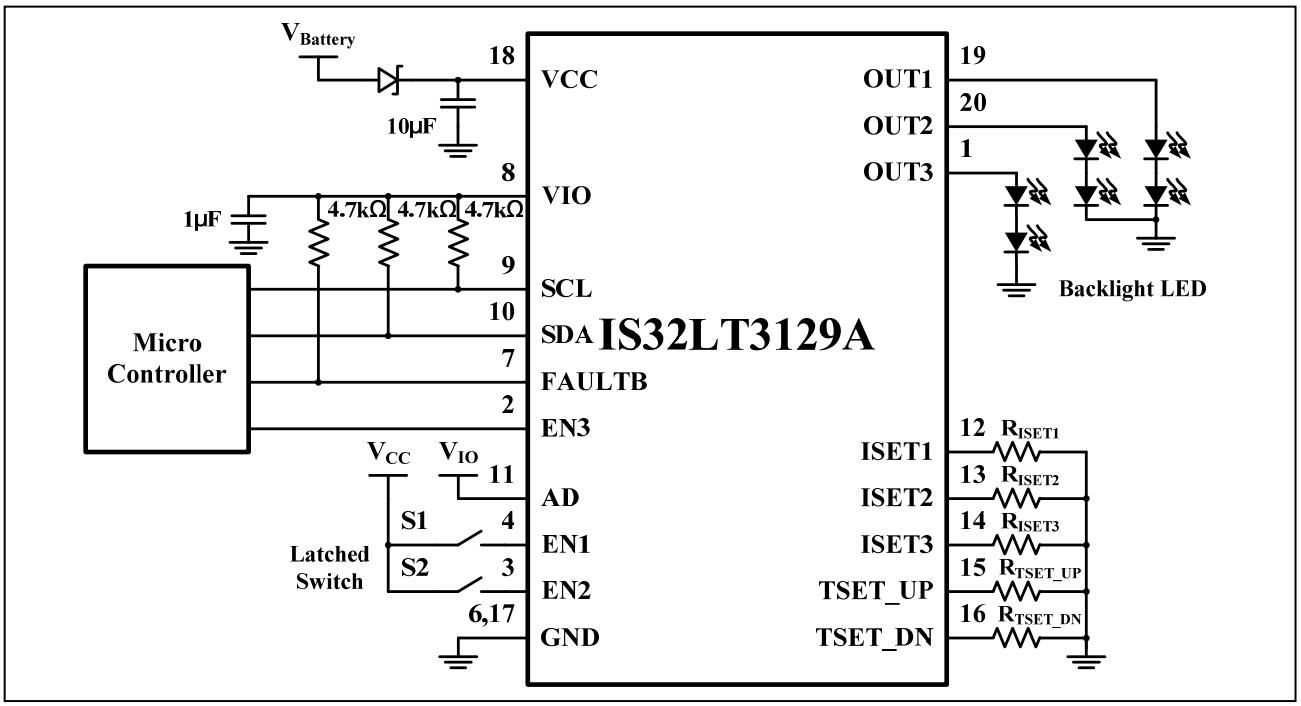

Figure 2 Typical Application Circuit with Latched Switch