



The SL0700 is a LED driver control IC suitable for indoor lighting. The device is capable of driving output current from a few milliamps up to 1.0A and has a voltage range of 7v to 20v input. The SL0700 controls an external MOSFET with PWM switching frequencies up to 100kHz. The SL0700 is packaged in SOT23-5 package for minimal area usage.

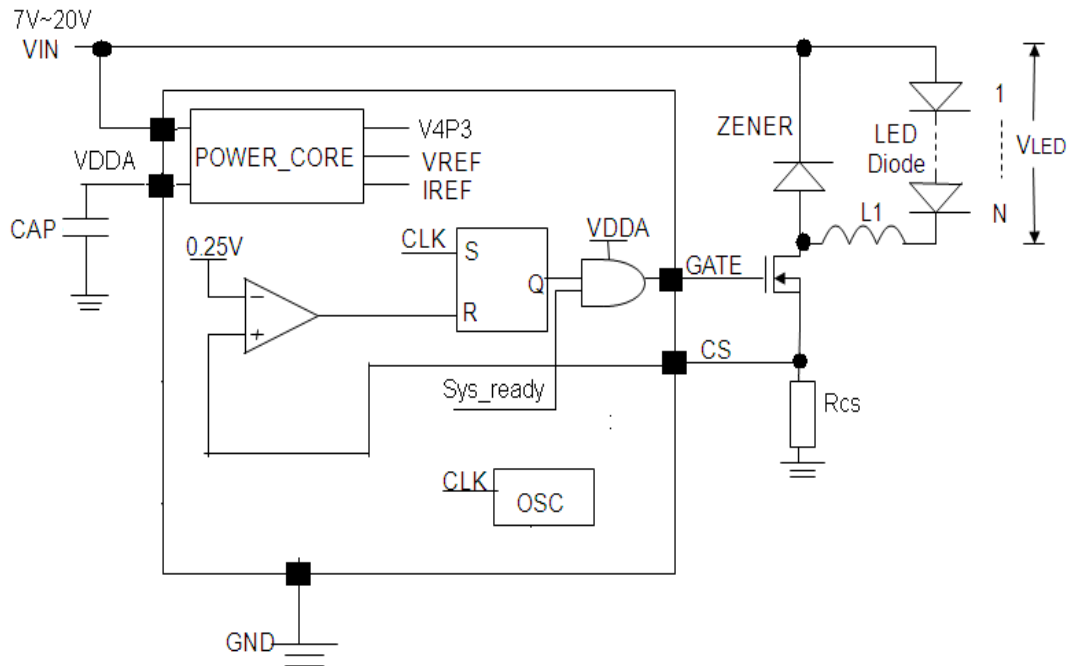
Features

- Input Voltage 7V ~ 20V
- 100kHz fixed frequency internal oscillator
- Constant Current Mode
- Over temperature protection
- Undervoltage lockout
- Operating junction temperature range 0°C ~ 70°C

Applications

- DC/DC LED Driver Application
- AC/DC LED Driver Application
- MR16 Light Modules
- Decorative LED Lighting

Block Diagram



Pin Assignments

Pin Name	Pad	Description
VIN	Power	Input Power Supply Voltage 7V - 20V
CS	Analog	Current Sense (Senses LED string current)
GND	Power	Device Ground
GATE	Analog	PWM Signal to drive the gate of the external MOSFET
VDDA	Power	Internally regulated supply voltage (4.3V-5.0V nominal) Always connect a capacitor of 1uF or above to ground

Functional Description

The SL0700 is a constant current configuration device. It is broken up into 2 stages. Stage 1 is the buck-boost configuration whose purpose is to regulate the incoming voltage range from 7V to 20V to internal V_{dd} at approximately 5V.

This internal 5V powers up the 2nd stage, which is the output PWM control. This internal circuitry comprising of the comparator, SR flip flop, and input oscillator control block. The comparator checks that the V_{dd} exceeds the UVLO (3.3V) to turn on the GATE. The CS (Current Sense connected to external sense resistor) checks that the external LED voltage does not exceed the peak voltage threshold (250mV). Else it will turn the GATE off. A simple estimation on the V_{led} is calculated from the Duty cycle of PWM, $D = T_{on}/T_{cycle} = V_{led}/V_{in}$

Packaging

