SP2788X

Main Line Power Up Non-Isolated Buck APFC LED Driver

Features

- ·Active PFC for High power factor and low THD
- ·Built-in HV start-up and IC power supply circuit. The VDD power supply resistors and power feedback circuits from LED chips are not needed
- ·600V high voltage MOSFET integrated
- ·±3% LED output current accuracy
- ·Excellent line and load regulation
- Quasi-Resonant (QR) Buck topology
- ·System efficiency up to 95%
- ·Ultra low start up & operating current
- ·Cycle-by-cycle current limit
- ·LED short protection
- ·LED open protection
- ·Over-temperature protection

General Description

The SP2788X are built-in HV start-up and IC power supply circuit, main line power up constant current LED regulators with high current accuracy which applies to single stage step-down power factor corrected LED drivers. 600V power MOSFET is integrated, which can significantly simplify the design of LED lighting system.

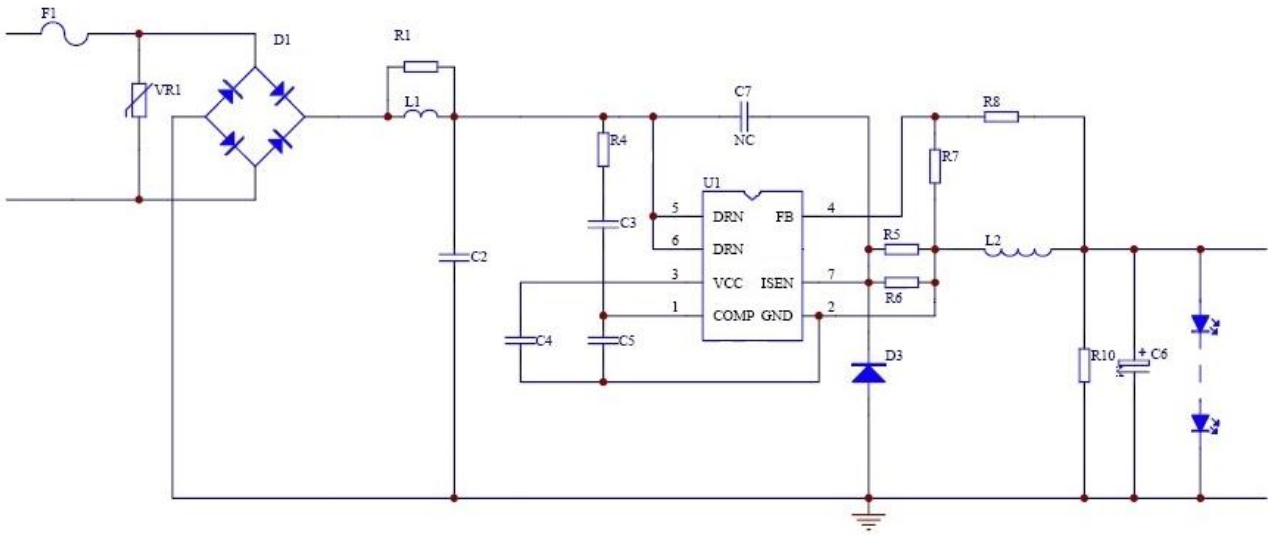
High accuracy of output current is achieved by sampling the output current directly. Quasi Resonant (QR) Buck topology reduces the switching losses and largely increases the efficiency.

The SP2788X are supplied from the main line, the VDD power supply resistors and power feedback circuits from LED chips are not needed, save cost and help for assemble efficiency.

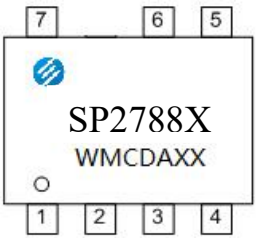
The SP2788X have multi-protection functions which largely enhance the safety and reliability of the system, including VDD over-voltage protection, VDD UVLO, short-circuit protection, LED open protection, cycle-by-cycle current limit and over-temperature protection.

The SP2788X are available in SOP-7package.

Typical Application



Marking



SOP-7

Recommended Operation Conditions

Products	Symbol	Range	Unit
SP2788A	$I_{LED}1$	<150 @V_{OUT}=80V	mA
	$I_{LED}2$	<180 @V_{OUT}=36V	
SP2788B	$I_{LED}1$	<180 @V_{OUT}=80V	mA
	$I_{LED}2$	<240 @V_{OUT}=36V	
SP2788C	$I_{LED}1$	<300 @V_{OUT}=80V	mA
	$I_{LED}2$	<420 @V_{OUT}=36V	

Pin Description

Pin	Pin Name	Description
1	COMP	Compensation Pin for Internal Error Amplifier. Connect a capacitor between the pin and GND to compensate the internal feedback loop.
2	GND	Ground.
3	VDD	Power Supply Pin. This pin supplies current to the internal start-up circuit. This pin must be bypassed with a capacitor nearby.
4	FB	Voltage Loop Feedback Pin. FB is used to detect LED open by sampling the output voltage.
5/6	DRAIN	DRAIN of the MOSFET.
7	ISEN	Output Current Sense Pin. The pin is used for output current control.

Ordering Information

Part Number	Description	Marking
SP2788A	SOP-7，ROHS、Tape，4000Pcs/Roll	SP2788A
SP2788B	SOP-7，ROHS、Tape，4000Pcs/Roll	SP2788B
SP2788C	SOP-7，ROHS、Tape，4000Pcs/Roll	SP2788C

Functional Block Diagram