

High-Voltage Buck Control ICs for Constant LED Current Regulation

Features

- Internal high voltage regulator
- Hysteretic current control
- High side current sensing
- PWM dimming with analog or PWM control input
- Free running frequency with maximum limiting (150kHz)

Benefits

- Low component count
- Off-line operation
- Very simple design
- Inherent stability
- Inherent short circuit protection

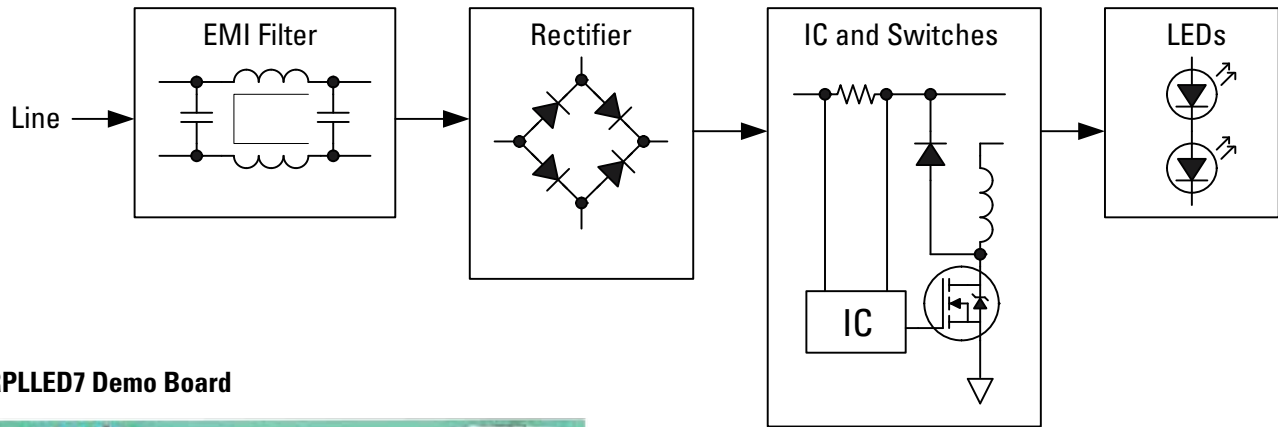


The IRS2980 is the latest addition to IR's range of Buck controllers complementing the existing IRS25401/11 series for non-isolated LED driver applications. The IRS2980 includes a high voltage regulator which enables the IRS2980 to be supplied directly from the input voltage bus and differential high side current sensing enabling the use of a single MOSFET and ultra-fast diode as well as maximum frequency limiting. These improvements provide design simplification and cost saving while being able to operate up to 450V with adequate thermal relief. A PWM dimming interface is also incorporated making the IRS2980 a versatile low cost LED driver solution.

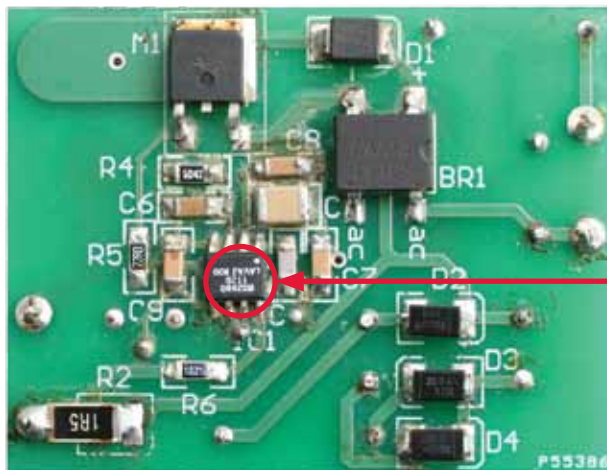
Applications include LED bulb replacement, indoor and outdoor signage as well as architectural, entertainment design and decorative lighting.

The IRS2980 and IRS25401/11 operate in continuous conduction mode using hysteretic average current control.

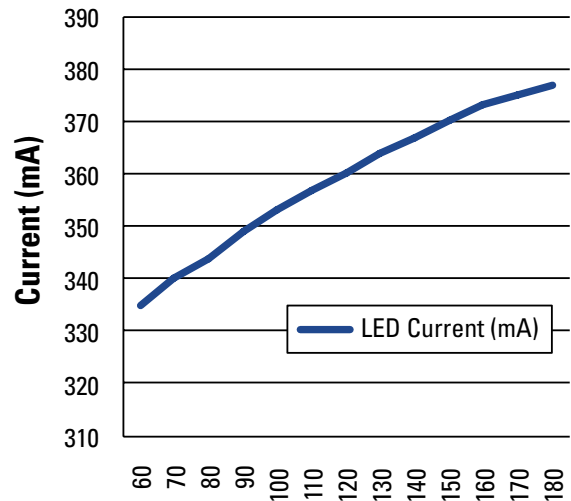
High-Voltage Buck Control ICs for Constant LED Current Regulation



IRPLED7 Demo Board



LED Current vs Input Voltage



Input Voltage

LED^{driv}IR™ IRS2980

Specifications

- Input Voltage 70V to 250V (AC)
- Output Voltage 0V to 50V (DC)
- Regulated Output Current: 350mA
- Power Factor > 0.9
- Low component count
- Dimmable 0 to 100%
- Non-isolated Buck regulator

Part Number	Package	Voltage	Load Current Regulation	Startup Current	Frequency
IRS2980S	SO-8	450V	+/-5%	<250 μ A	<150 kHz
IRS25401S	SO-8	200V	+/-5%	<500 μ A	<500 kHz
IRS25411S	SO-8	600V	+/-5%	<500 μ A	<500 kHz