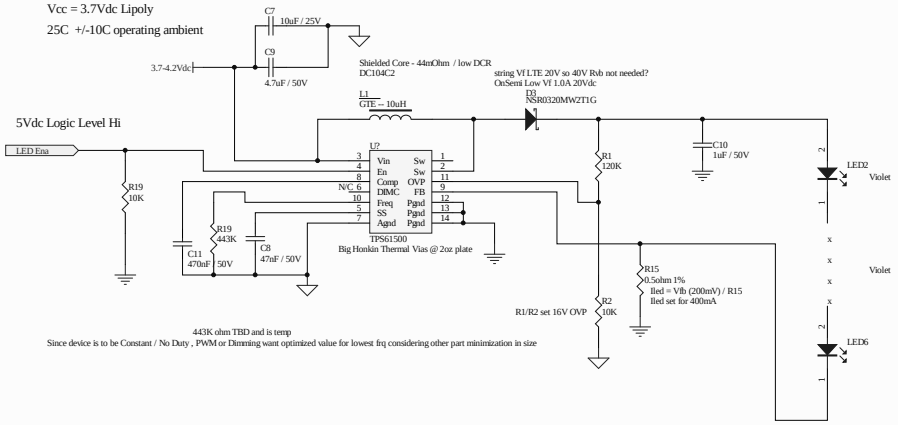
Conditions: Vcc = 3.7Vdc Lipoly with 1C Rated 2400 mAh
Contant Current --- NO Dimming
Vcc = 3.7Vdc Lipoly
25C +/-10C operating ambient

Drive 5 series Cree XBD 801 series LEDs
2.25Vdc Typ Vf --- 2.6Vdc Max @ 350mA 25C
5 Cree @ 2.6 = 13Vf dc Max @ 350mA
13Vf x 400mA = 5.2 Watts



TPS61165 High-Brightness, White LED Driver in WSON and SOT-23 Packages

1 Features

- 3-V to 18-V Input Voltage Range
- 38-V Open LED Protection
- 200-mV Reference Voltage With 2% Accuracy
- 1.2-A Switch FET With 1.2-MHz Switching Frequency
- Flexible One-Wire Digital and PWM Brightness Control
- Built-in Soft Start
- Up to 90% Efficiency
- 2-mm × 2-mm × 0.8-mm 6-Pin WSON Package With Thermal Pad, and SOT-23 Package

2 Applications

- High-Brightness LED Lighting
- White LED Backlighting for Media Form Factor Display
- Handheld Data Terminals (EPOS)
- Thermostat Display
- Human Machine Interface (HMI)
- Video Surveillance Camera
- Exit Signs
- HMI and Control Panels
- Industrial PCs
- IR LED driver
- Refrigerator
- Ovens

3 Description

With a 40-V rated integrated switch FET, the TPS61165 device is a boost converter that drives LEDs in series. The boost converter runs at a 1.2-MHz fixed switching frequency with 1.2-A switch current limit, allowing the use of a high-brightness LED in general lighting.

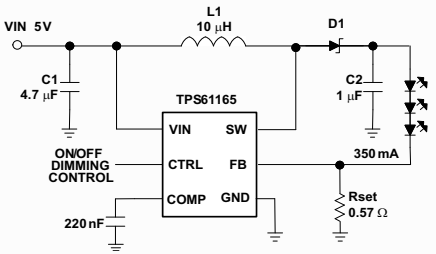
The default white LED current is set with the external sensor resistor Rset, and the feedback voltage is regulated to 200 mV, as shown in *Typical Application*. During the operation, the LED current can be controlled using the one-wire digital interface (EasyScale™ protocol) through the CTRL pin. Alternatively, a pulse-width-modulation (PWM) signal can be applied to the CTRL pin through which the duty cycle determines the feedback reference voltage. In either digital or PWM mode, the TPS61165 device does not burst the LED current; therefore, it does not generate audible noises on the output capacitor. For maximum protection, the device features integrated open-LED protection that disables the TPS61165 device to prevent the output from exceeding its absolute maximum voltage ratings during open LED conditions.

Device Information(1)

PART NUMBER	PACKAGE	BODY SIZE (NOM)
TPS61165	SOT-23 (6)	2.90 mm × 1.60 mm
	WSON (6)	2.00 mm × 2.00 mm

(1) For all available packages, see the orderable addendum at the end of the data sheet.

Typical Application



L1: TOKO #A915_Y-100M
C1: Murata GRM188R61A475K
C2: Murata GRM188R61E105K
D1: ONsemi MBR0540T1
LED: OSRAM LW-W5SM

Title		
Size: C	Number	Revision
Date: 3/19/2018	Sheet of	
File: C:\Azure - PSAE Items\..\Driver Idea 1.SchDoc	Drawn By:	