

## General Description

The BCT3611S is a switching control current regulator designed specially for 1 watt white LED driver with max 450mA dc current. The BCT3611S is intended for use with Li-ion rechargeable battery as the power source. The mode switches from continuous to flash mode is easily accommodated by main power switch to minimize the risk of battery leakage and corrosion. The internal thermal protection circuit will activate by cutting the output current in half if the chip temperature go above 110 °C.

## Features

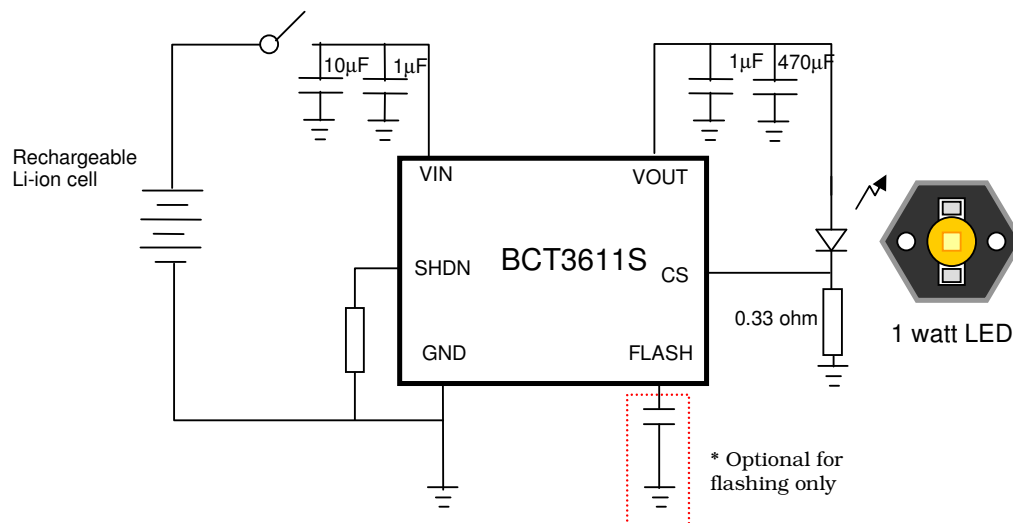
- Current regulator irrelevant to the LED forward voltage
- Wide input voltage range: 2.2V to 4.3V
- Enter flash mode without hardware switch:  
Flash mode is enabled by power switch ON, then OFF → ON within ~1 Second
- Maximum output current: 450mA
- Integrated thermal protection circuit
- On Chip Oscillator
- Low power consumption
- Wide operation temperature: -20°C to 70°C
- Output current adjustable by external resistor at pin CS
- SHDN can be used for dimming or shut down control by MCU
- Available in Pb-free SOP8

## Applications

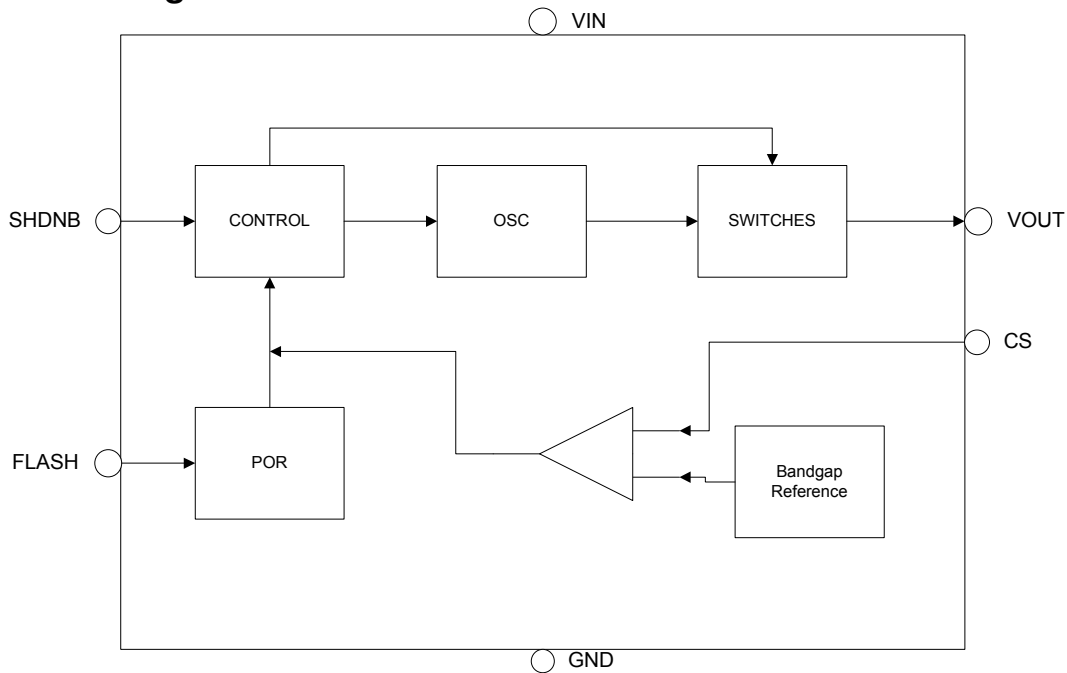
- High power white LED Torch
- White LED driver for mobile phone
- Handheld Electronics
- Lighting Applications

## Package

## Typical Application Circuit



## Block Diagram



## Pin Descriptions

Pin Number	Pin Name	I/O	Description
2, 7	VIN	Power	Input Supply 2.2V – 4.3V
3	GND	Power	Ground 0V
5	SHDN	Input	Chip shutdown and reset (Active high)
4	FLASH	I/O	Capacitor pin for Flash Mode. To connect a 0.1 $\mu$ F ~ 1 $\mu$ F capacitor from FLASH to GND
1, 8	VOUT	Output	Voltage Output. To connect a 100 ~ 470 $\mu$ F capacitor from VOUT to GND
6	CS	Input	Current sense feedback for Regulation Control Loop, feedback voltage = 0.11V

## Absolute Maximum Specifications

Rating	Symbol	Value	Unit
Supply voltage range	$V_{IN}$	-0.3 to 4.3	Volts
Input voltage range	SHDN	-0.3 to $V_{IN}+0.3$	Volts
Output current Range	$I_{OUT}$	0 to 450	mA
Output voltage range	$V_{OUT}$	-0.3 to $V_{IN} +0.3$	Volts
Operating temperature range	$T_{OPR}$	-20 to 70	$^{\circ}C$
Storage temperature range	$T_{STR}$	-20 to 100	$^{\circ}C$

## Electrical Specifications

All electrical specifications are specified at  $T_{AMBIENT}$  from  $-20^{\circ}C$  to  $70^{\circ}C$ ,  $V_{IN}$  from 2.2V to 4.3V, unless otherwise specified.

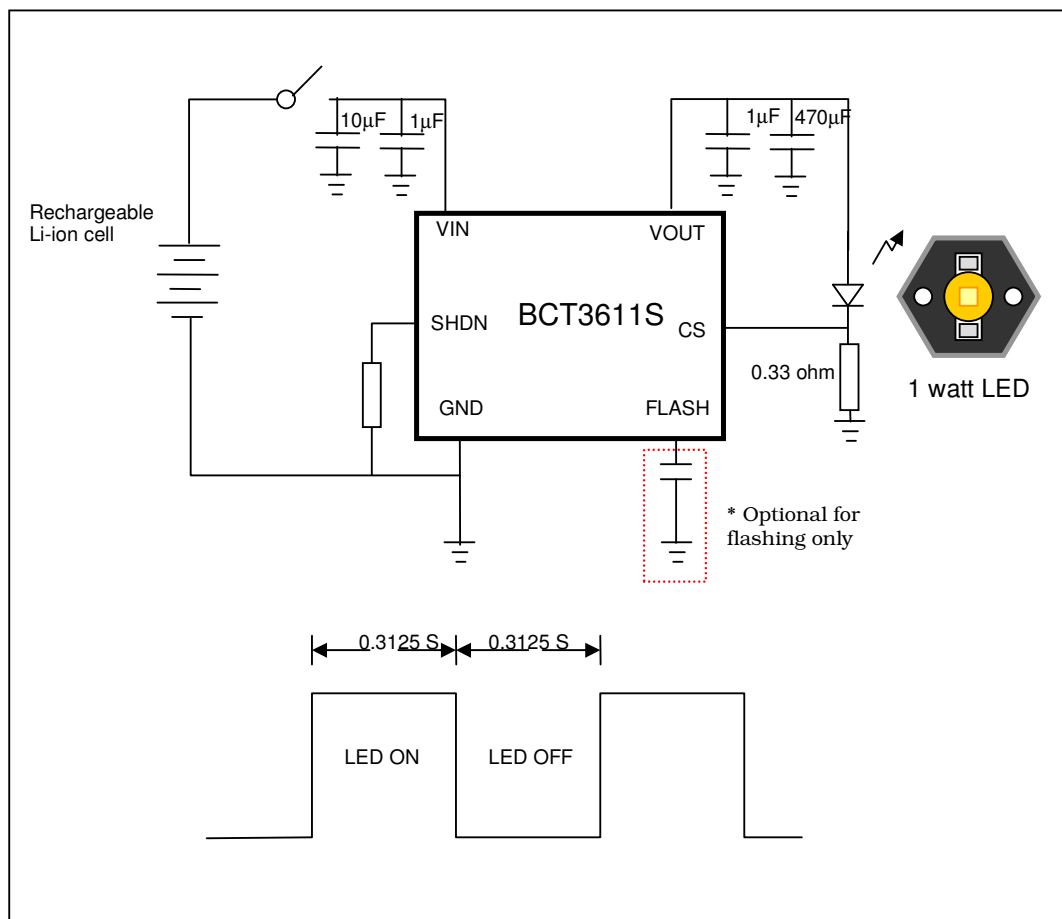
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
$V_{IN}$	Input Power Supply		2.2		4.3	V
$I_{CC}$	Operating Current	$I_{OUT} = 0mA$ $V_{OUT} = 3.6Volts$		1.1		mA
$I_{SHDN}$	Shutdown Current	SHDN= High $V_{OUT} = 0V$		5		$\mu A$
$V_{CS}$	Feedback Voltage at CS			110		mV
$F_{OSC}$	Internal Oscillator Frequency			1		MHz
$V_{IL}$	Input Voltage Low for SHDN		0		0.3	V
$V_{IH}$	Input Voltage High for SHDN		$V_{IN}-0.3$		$V_{IN}$	V
$T_j$	Junction Temperature			110		$^{\circ}C$

## Applications

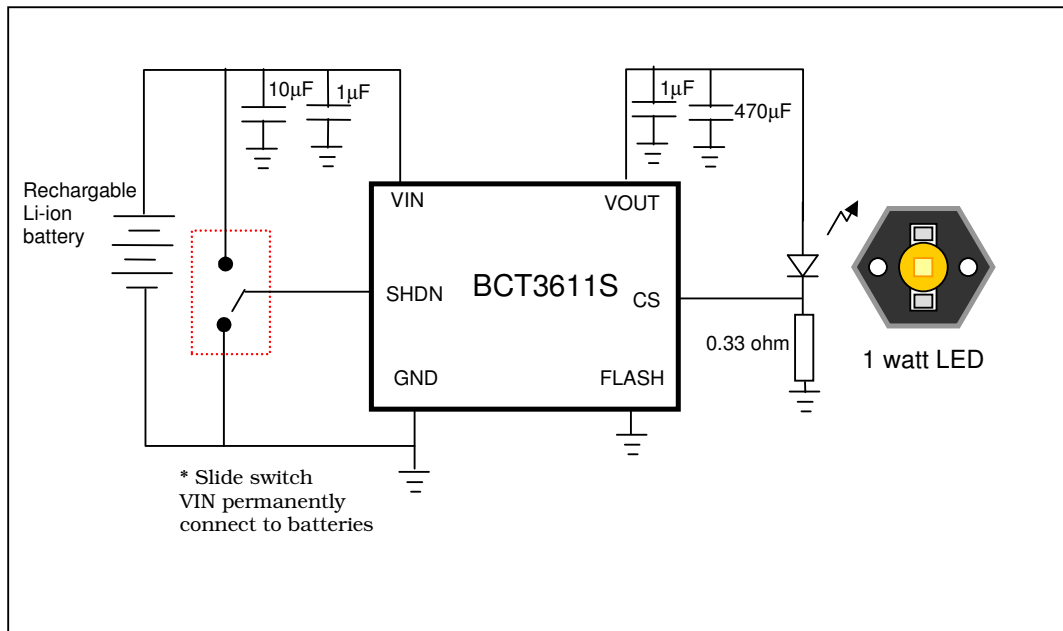
Care should be taken when batteries are connected to the chip. It will damage the chip when batteries are connected with reverse polarity.

### 1. One Watt White LED Torch with Digital Timer Flash

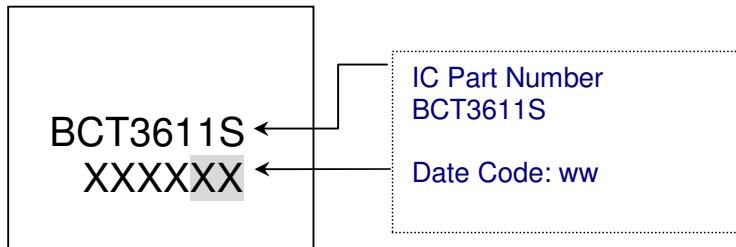
The flash mode is enabled by power switch ON, then OFF → ON within ~1 second. The switching frequency is fixed digitally at 1.6Hz with 50% duty cycle as shown in follow diagram:



## 2. White LED Torch without Flash



## Marking Notation / Ordering Information



## Sales Offices

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