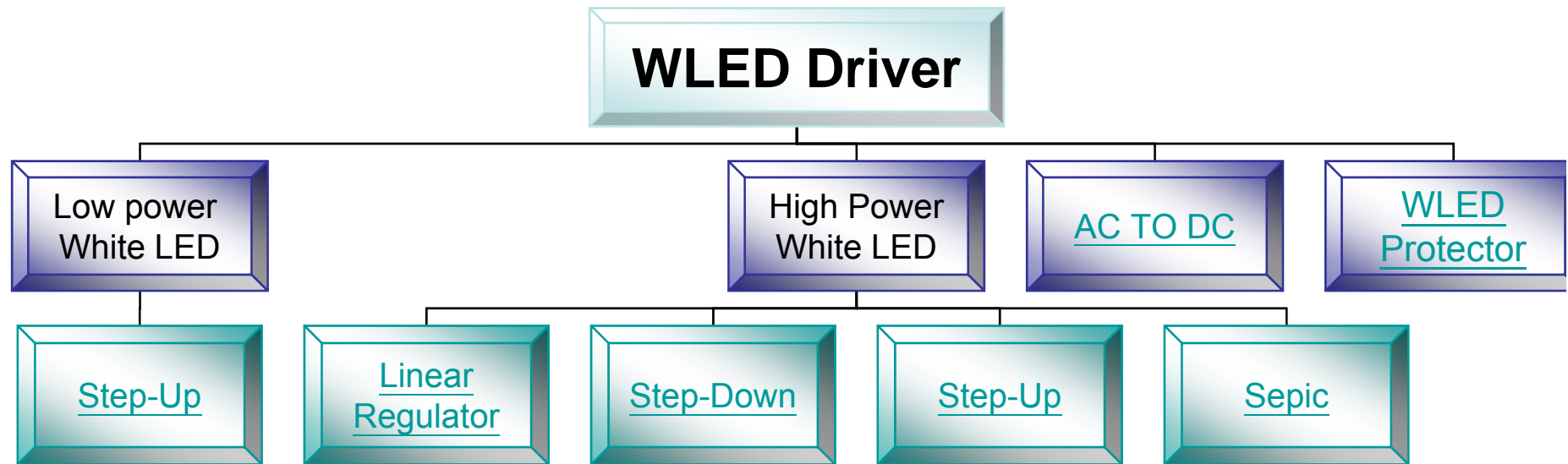


LED IC Promotion

July, 2009

Products Family



Low Power White LED Driver

Step-Up

Part Number	Input Voltage	Output Voltage	Output Current	Oscillation Frequency	Dimming Method	Iq	VFB	Package
LSP3301	2.5V~10V	29V(Max)	320mA	1.2MHZ	PWM	2mA	90mV	TSOT23-6L DFN2*2-8L
LSP3308A	4.8V~28V	40V	2.5A	500KHZ 1MHZ 1.6MHZ	PWM Rset	3mA	1.2V	QFN4*4-24L
LSP7503	2.6V~5.5V	18V(Max)	1.6A	640KHZ 1.3MHZ	PWM	1.2mA	200mV	MSOP8L
LSP7602	4.5V~25V	40V	1.35A	ADJ	PWM Rset	7mA	1.2V	QFN4*4-20L



High Power White LED Driver

Linear Regulator

Part Number	Input Voltage	Output Voltage	Output Current	Dropout Voltage	Dimming Method	Iq	Package
LSP7603	5V~50V	75V(Max)	700mA	0.5V	Rset	5mA	TO252-5L
LSP7706	5V~50V	75V(Max)	1.1A	0.8V	PWM Rset	7mA	TO220-5L TO263-5L TO252-5L



High Power White LED Driver

Step-Down

Part Number	Input Voltage	Output Voltage	Output Current	Oscillation Frequency	Dimming Method	Iq	VFB	Package
LSP3312	6V~35V	35V(Max)	1.4A	ADJ	PWM DC Voltage	1mA	100mV	SOT23-5L MSOP8L SOP8L-EP
LSP7501	3.6V~20V	20V(Max)	2A	600KHZ	-	3mA	200mV	SOP8L-EP
LSP7502	3.6V~20V	20V(Max)	3A	600KHZ	-	3mA	200mV	SOP8L-EP
LSP7701	3.6V~30V	30V(Max)	2A	600KHZ	-	3mA	200mV	SOP8L-EP
LSP7702	3.6V~30V	30V(Max)	3A	600KHZ	-	3mA	200mV	SOP8L-EP
LSP7704	4.5V~40V	40V(Max)	2A	ADJ	-	5mA	200mV	SOP8L-EP



How Power White LED Driver

Step-Up

Part Number	Input Voltage	Output Voltage	Output Current	Oscillation Frequency	Output Channel	I _q	VFB	Package
LSP3601	1.8V~15V	-	-	ADJ	PWM	5.5mA	500mV	MSOP8L TSSOP8L SOP8L
LSP3604	0.9V~6V	6V(Max)	750mA	1MHZ	-	1mA	95mV	SOT23-6L

Sepic

Part Number	Input Voltage	Output Voltage	Output Current	Oscillation Frequency	Output Channel	I _q	VFB	Package
LSP3309	5.5V~40V	40V(Max)	1A	ADJ	PWM	3mA	100mV	TSSOP-20L QFN6*6-40L

AC to DC

Non- Isolated

Part Number	AC Voltage	Input Voltage	Sense Voltage	Quiescent Current	Oscillation Frequency	Max Duty	Package
LSP7604	85V~235V	6.5V~32V	500mV	3mA	65KHZ	50%	SOT23-5L

WLED Protector

Hugh Power LED

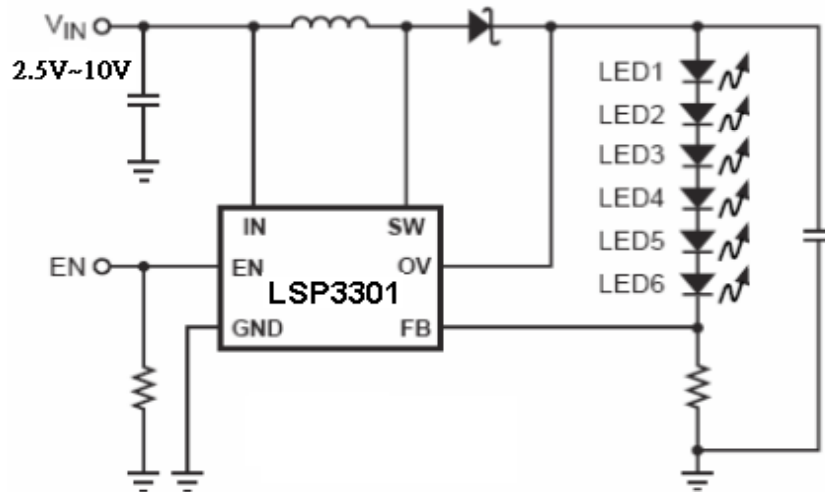
Part Number	Input Voltage	Trigger Voltage	Bypass Dropout Voltage	Bypass Current	Reverse Current	Monitoring Current	Package
LSP7606	38V	5V	1V	500mA	500mA	100uA	2-Pin 2*2 FBP



LSP3301

LED Backlight

■ Typical Application Circuit



■ Application

- Cell Phones
- Handheld Computers and PDAs
- Digital Still Cameras
- Small LCD Displays

■ Features

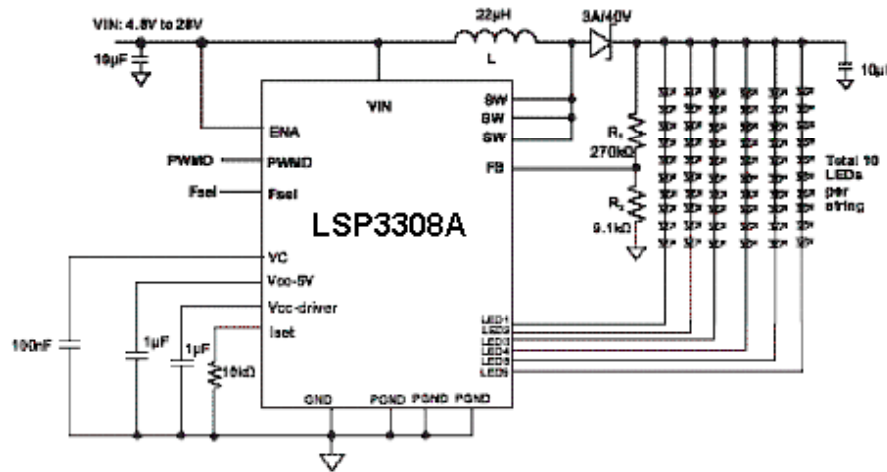
- On board power transistor
- Drive up to 6 series White LEDs
- Open load protection
- Over 1.2MHz fixed switching frequency
- Low 90mV Feedback voltage
- Internal current limit
- PWM dimming
- UVLO
- SOT23-6L and QFN8-L Package



LSP3308A

6 Channels LED

Typical Application Circuit



Features

- Wide input voltage range: 4.8V~28V
- Six constant current output channels (Io=40mA each @ Vin=12V; Io=30mA each @ Vin=5V)
- Drives 10 or more LEDs each string as long as the string voltage less than 40V
- Allow Digital PWM and Analog Dimming
- Wide(100:1)PWM dimming range without color shift
- Internal 2.5A Power MOSFET
- 3 frequency selection: 1.6M/1M/500K
- Available in QFN4*4-16L Package

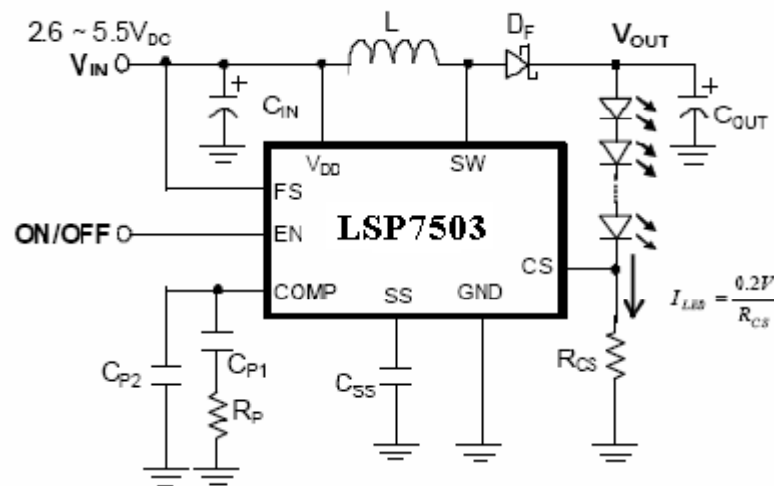
Application

- White or RGB Backlight for LCD TV, LCD Monitor Notebook, Handy Terminals and Avionics Displays Panel
- LED Lighting Devices
- High Power LED Driver



White LED Step-Up Converter

Typical Application Circuit



Features

- 1.6A, 0.23Ω, Internal Switch
- Input Range: 2.6V to 5.5V
- Low Shutdown Current: 0.1uA
- Adjustable Frequency: 640KHZ or 1.3MHZ
- Small MSOP8 Package

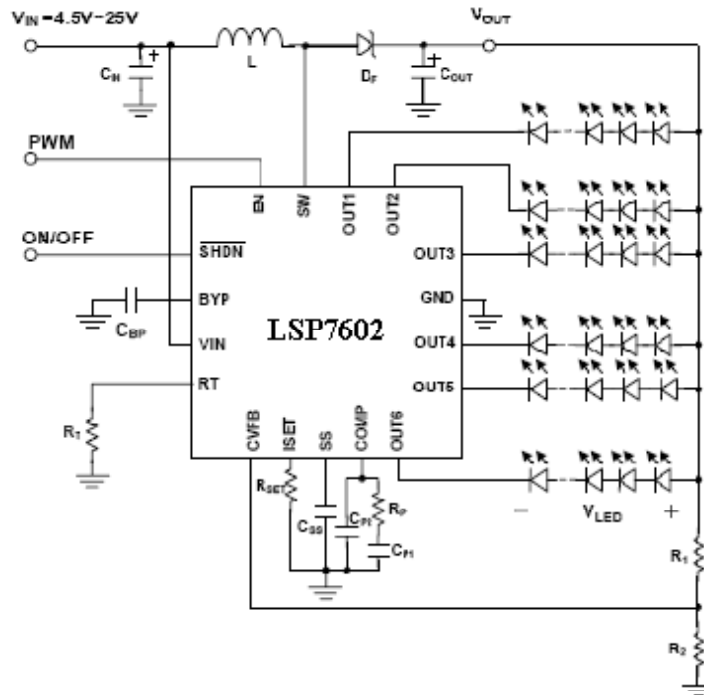
Application

- Cellular Phones, PDA
- Handheld Computer, UMPC
- Digital Cameras, Photo Frames
- MP3 Players
- GPS Receivers



White LED Step-Up Converter

■ Typical Application Circuit



■ Application

- Automotive Interior Lighting
- LED Backlight Driver for NB and Monitors

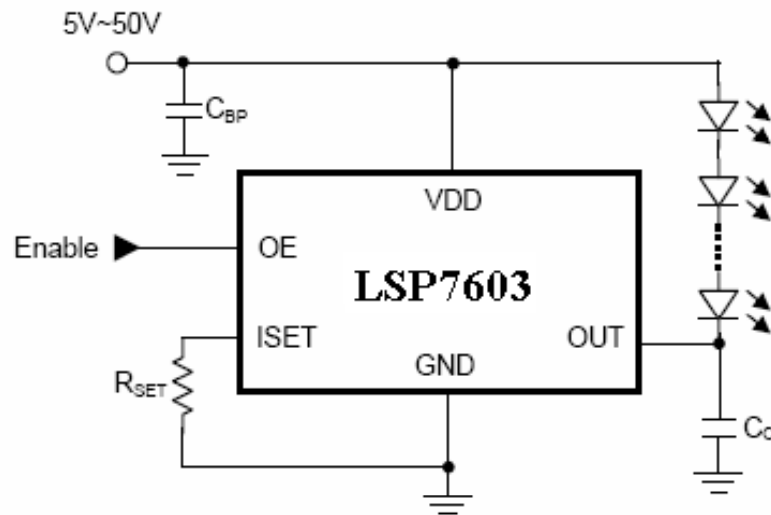
■ Features

- High Frequency DC/DC Converter for LEDs
- Integrated 40V Power MOSFET
- 4.5V~25V Wide Input Voltage Range
- Six Constant Current Output Channels
- Output Current Adjustable Through External Resistor
- Constant Output Current Range: 5mA~40mA
- 40V Output sustaining Voltage for Up to 10 pcs of LEDs
- LED Open/Short Protection
- QFN4*4 Package



700mA High Voltage Adjustable Current Regulator

■ Typical Application Circuit



■ Application

- High Power LED Driver
- RGB Full Color Power LED Driver
- LCD Monitor/TV LED Backlight Driver
- LED Table Lamp

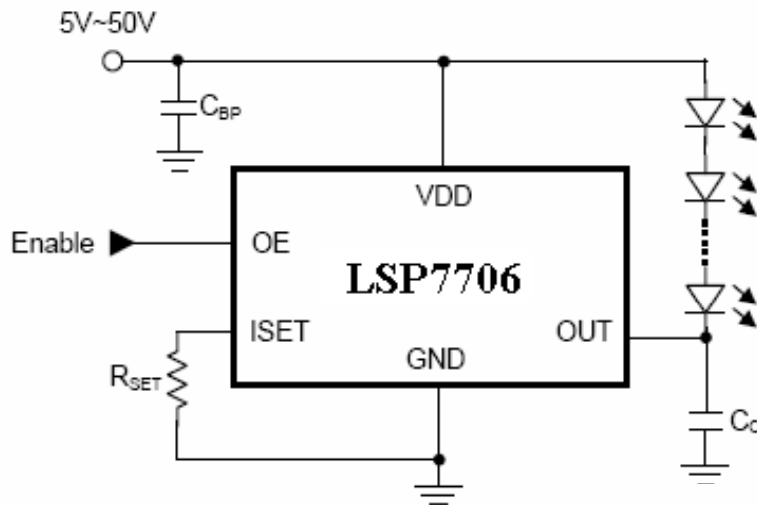
■ Features

- 0.5V Output Drop-out Voltage at 700mA
- 700mA Maximum Output Current
- Output Current Controlled by External Resistor
- 3 μ S Fast Response Output Stage Enable Control
- Output Driving Voltage Up To 75V
- Supply Voltage Range 5~50V
- Available in TO252-5L Package



1.1A High Voltage Adjustable Current Regulator

■ Typical Application Circuit

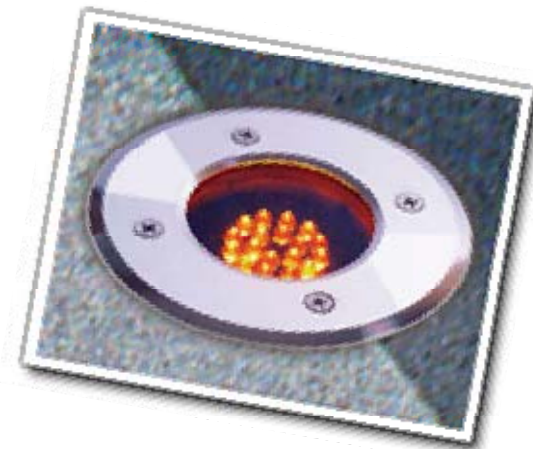


■ Application

- High Power LED Driver
- RGB Full Color Power LED Driver
- LCD Monitor/TV LED Backlight Driver
- LED Table Lamp

■ Features

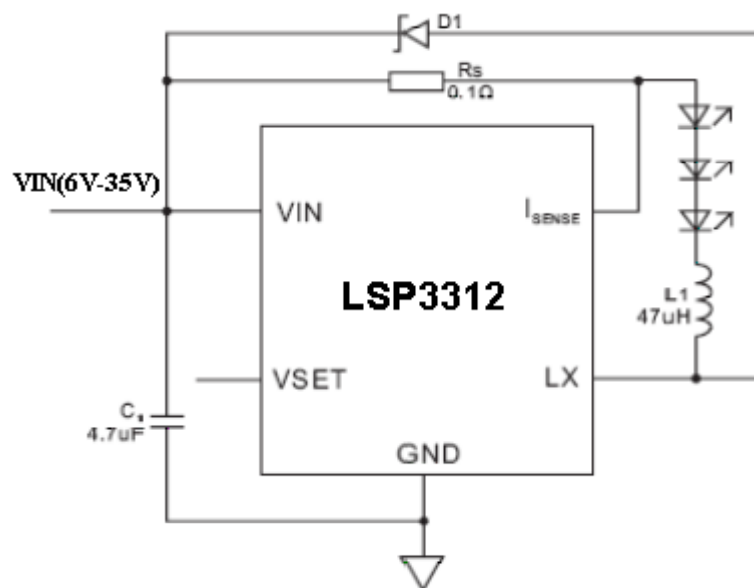
- 0.8V Output Drop-out Voltage at 1.1A
- 1.1A Maximum Output Current
- Output Current Controlled by External Resistor
- 3uS Fast Response Output Stage Enable Control
- Output Driving Voltage Up To 75V
- Supply Voltage Range 5~50V
- TO220-5L, TO263-5L, TO252-5L Package



LSP3312

1.4A High Voltage LED

■ Typical Application Circuit



■ Application

- Low voltage halogen replacement LEDs
- Low voltage industrial lighting
- LED back-up lighting
- Automotive lighting

■ Features

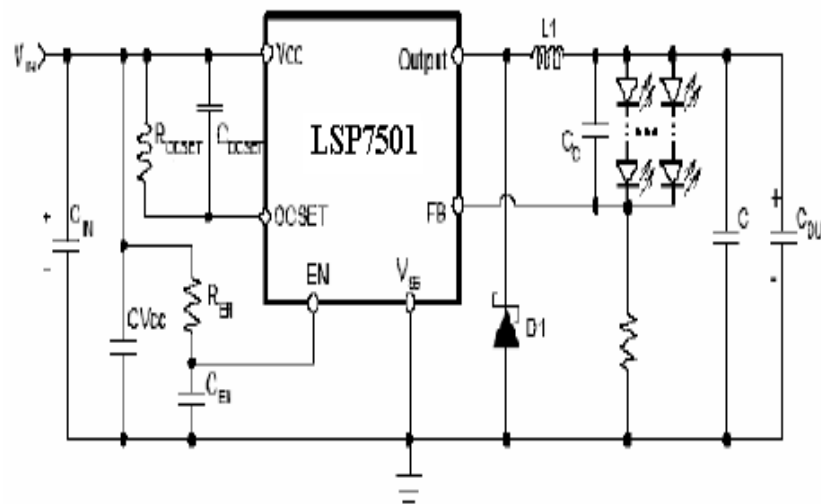
- Wide input voltage range: 6V to 35V
- Peak Efficiency up to 95%
- Internal 35V NDMOS switch
- 1.4A output current
- Up to 1MHz switching frequency
- Soft start function
- OCP, OVP, and Thermal Protection UVLO
- SOT-25, MSOP-8 and SOP8-EP packages



LSP7501

20V, 2A High Power LED

■ Typical Application Circuit

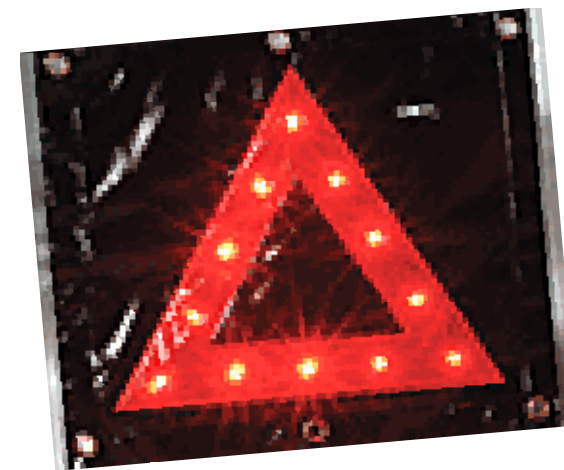


■ Application

- DC/DC LED Driver applications
- Back Lighting system
- Signage and Decorative LED Lighting

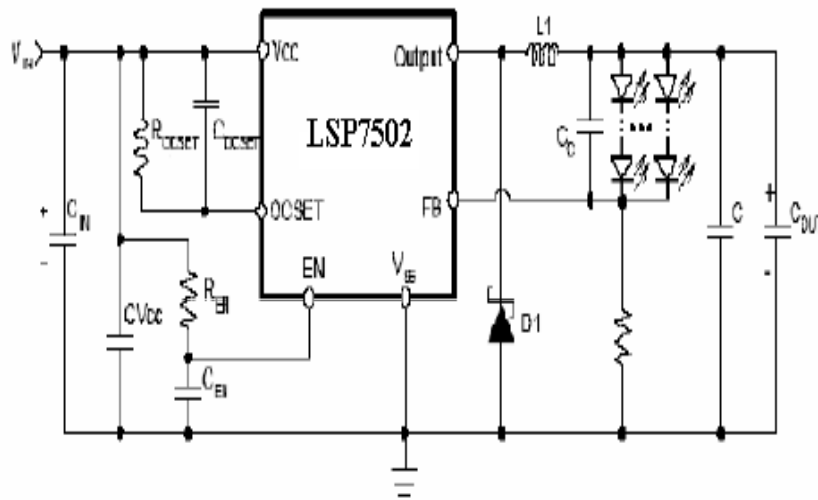
■ Features

- Input Voltage: 3.6V~20V, 2A
- 0.2V Low Feedback voltage
- Efficiency up to 92%
- Oscillation frequency: 600KHz typical
- Duty Ratio: 0%~100% PWM control
- Soft-Start, Current Limit, Enable function
- Built-in internal SW P-channel MOSFET
- SOP8L-EP Package



20V, 3A High Power LED

■ Typical Application Circuit



■ Application

- DC/DC LED Driver applications
- Back Lighting system
- Signage and Decorative LED Lighting

■ Features

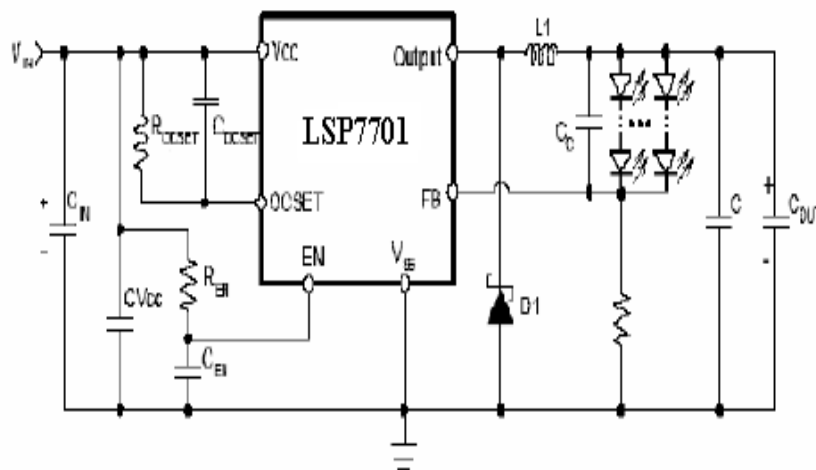
- Input Voltage: 3.6V~20V, 3A
- 0.2V Low Feedback voltage
- Efficiency up to 92%
- Oscillation frequency: 600KHz typical
- Duty Ratio: 0%~100% PWM control
- Soft-Start, Current Limit, Enable function
- Built-in internal SW P-channel MOSFET
- SOP8L-EP Package



LSP7701

30V,2A High Power LED

■ Typical Application Circuit



■ Application

- DC/DC LED Driver applications
- Back Lighting system
- Signage and Decorative LED Lighting

■ Features

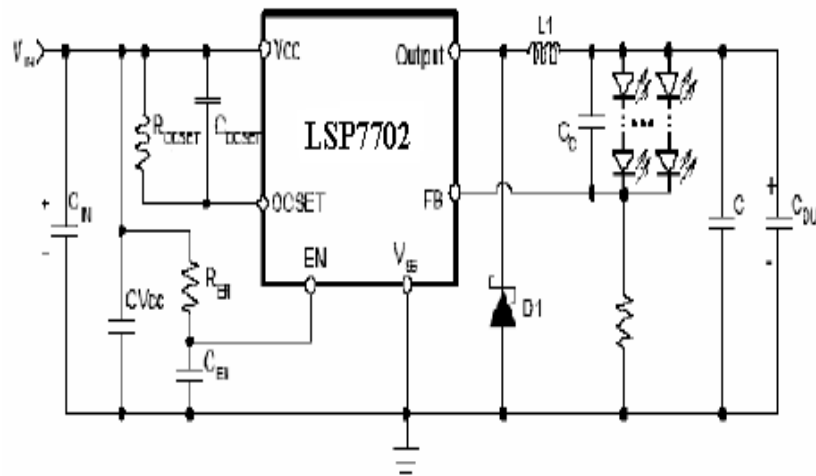
- Input Voltage: 3.6V~30V, 2A
- 0.2V Low Feedback voltage
- Efficiency up to 92%
- Oscillation frequency: 600KHz typical
- Duty Ratio: 0%~100% PWM control
- Soft-Start, Current Limit, Enable function
- Built-in internal SW P-channel MOSFET
- SOP8L-EP Package



LSP7702

30V, 3A High Power LED

■ Typical Application Circuit

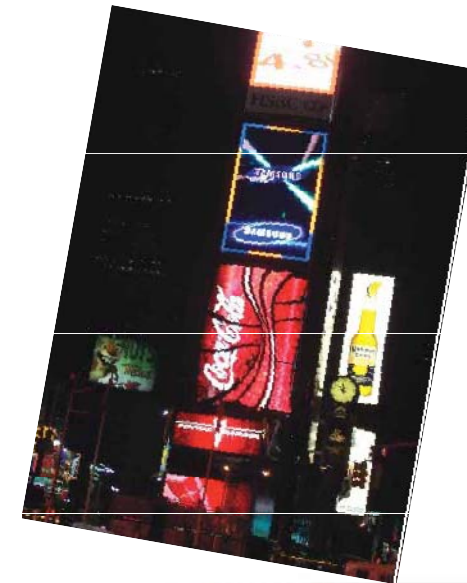


■ Application

- DC/DC LED Driver applications
- Back Lighting system
- Signage and Decorative LED Lighting

■ Features

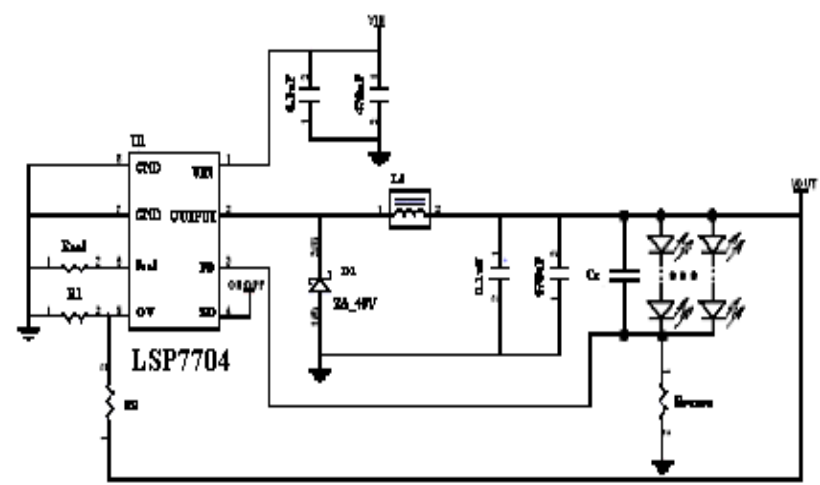
- Input Voltage: 3.6V~30V, 3A
- 0.2V Low Feedback voltage
- Efficiency up to 92%
- Oscillation frequency: 600KHz typical
- Duty Ratio: 0%~100% PWM control
- Soft-Start, Current Limit, Enable function
- Built-in internal SW P-channel MOSFET
- SOP8L-EP Package



LSP7704

High Input Voltage 2A Step Down LED Driver

■ Typical Application Circuit



■ Features

- 2A Output Current
- Maximum 40V Input Voltage
- 70uA Shutdown Supply Current
- Adjustable Switching Frequency
- 0.2V Low Feedback Voltage
- Voltage Mode Non-synchronous PWM control
- OCP, OVP, and Thermal Protection
- SOP8-EP packages

■ Application

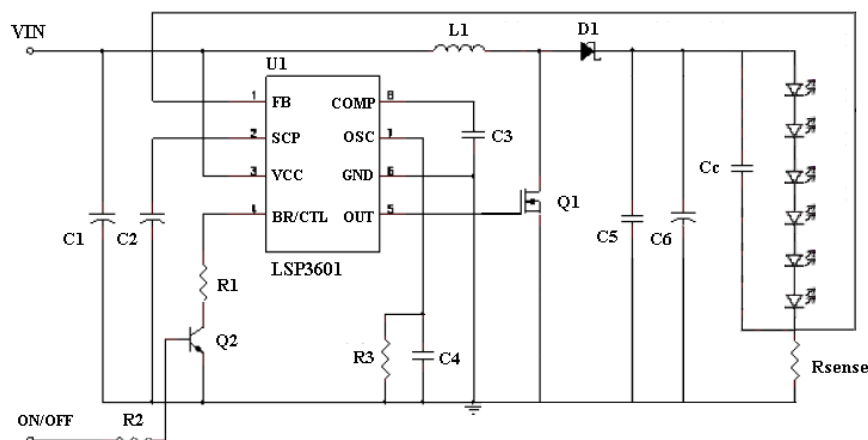
- DC/DC LED Driver applications
- Back Lighting system
- Signage and Decorative LED Lighting



LSP3601

Step-Up DC/DC Converter

■ Typical Application Circuit



■ Features

- Wide Supply Voltage Operating Range: 1.8V to 15V
- Operation Current 5.5mA
- Standby Current 1uA
- High Speed Oscillator Frequency: 1MHz Max
- Programmable Soft Start Function (SS)
- Short Circuit Protection Function (SCP)
- Totem-pole Output With Adjustable ON/OFF Current (For NPN Transistor or N-Channel MOSFET)
- SOP8 and TSSOP8 Package

■ Application

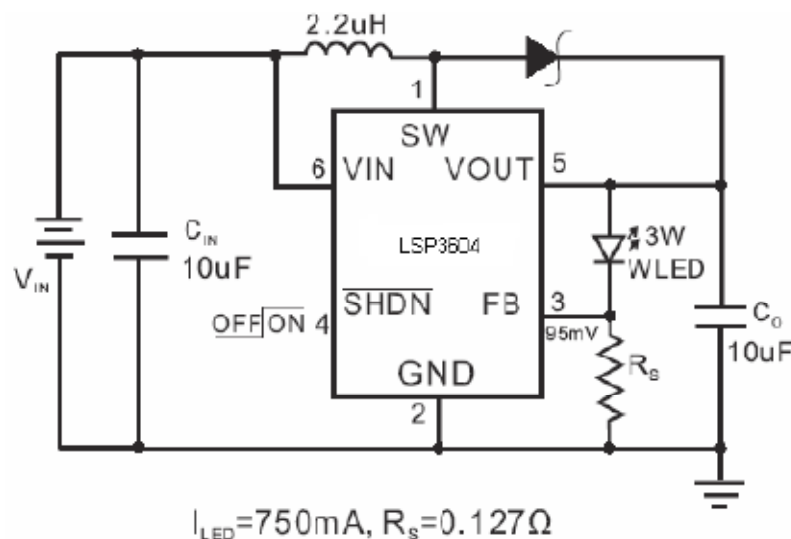
- DC/DC LED Driver applications
- Back Lighting system
- Battery-Powered Equipment
- Portable Equipment



LSP3604

Step-Up DC/DC Converter

■ Typical Application Circuit



■ Application

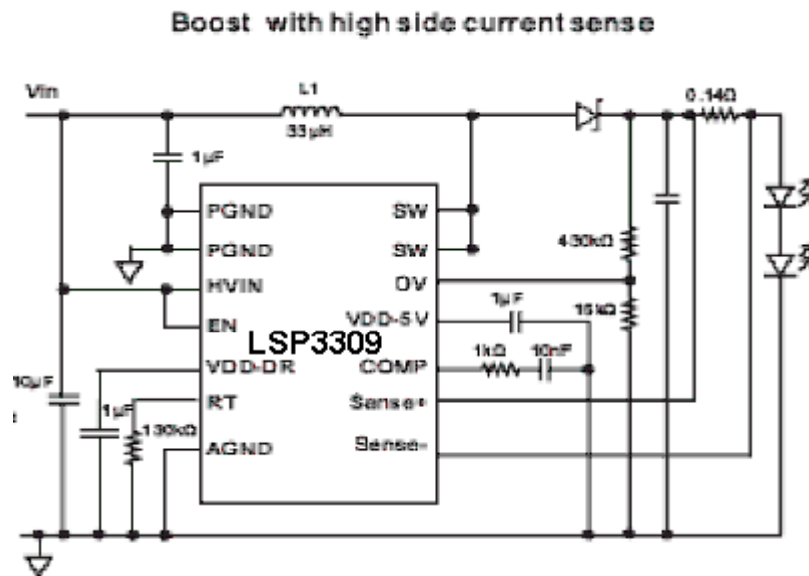
- White LED Torch (Flashlight)
- White LED Camera Flash
- DSC (Digital Still Camera) Flash
- Cellular Camera Phone Flash
- PDA Camera Flash
- Camcorder Torch (Flashlight) Lamp

■ Features

- LED Power Efficiency: up to 90%
- 1MHz Switching Frequency
- Uses small, Low Profile External Components
- Low Start-Up Voltage: 0.9V ($I_{LED} = 270\text{mA}$)
- Low $R_{DS(ON)}$: 100m Ω (TYP.)
- Open LED Protection
- Over Temperature Protection
- SOT23-6L Package



■ Typical Application Circuit



■ Application

- DC/DC LED Driver applications
- Back Lighting of Flat Panel Displays
- Signage and Decorative LED Lighting
- Automotive

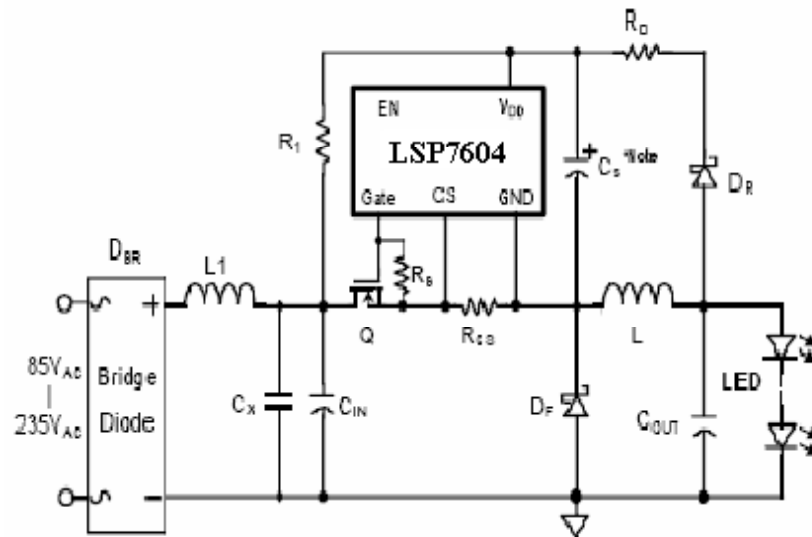
■ Features

- Output Power up to 30W
- Peak Efficiency up to 95%
- VIN range: 5.5V to 40V
- Vout maximum: 40V
- Switching Frequency Adjustable
- Support Buck/Boost/ Sepic Topology
- OCP, OVP, and Thermal Protection UVLO
- 40-Pin QFN6x6 and TSSOP-20



Switching Mode LED Driver

■ Typical Application Circuit



■ Application

- B22, E27 Lamp Device
- General Purpose Lighting

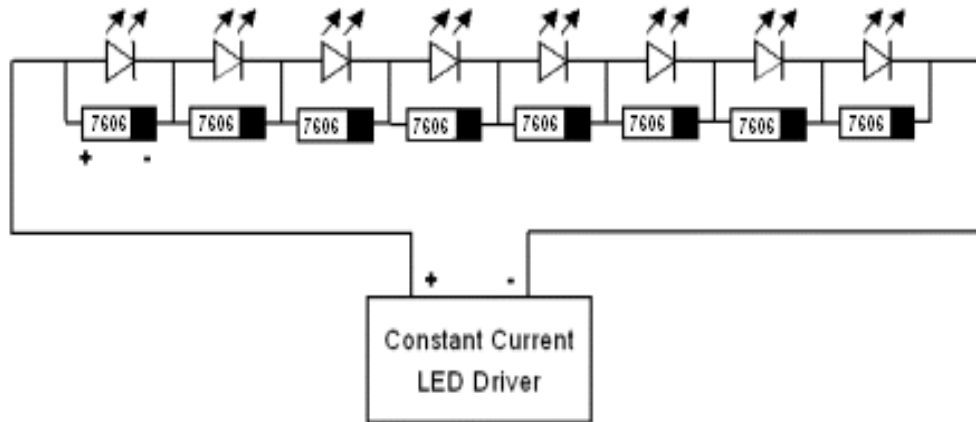
■ Features

- Low Startup Current (5uA in typical)
- Low Operating Current (3mA in typical)
- Lead-Edge Blanking
- Internal OVP Detected
- 150°C OTP Sensor with Hysteresis
- Under Voltage Lockout (UVLO)
- Fixed PWM Frequency 70KHZ Max
- PFC > 0.9 with Suitable External Components
- SOT23-5L Package



High Brightness WLED Protector

■ Typical Application Circuit



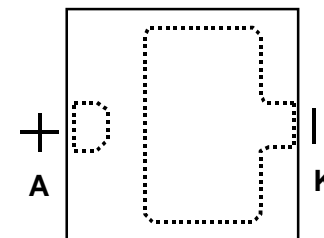
■ Application

- LED Lighting
- LED Backlight for LCD TV/ Monitor
- High Power LED Protection

■ Features

- 5V Protection Trigger Voltage
- 500mA Bypass Current Capability
- 1V Bypass Dropout Voltage
- 500mA Reverse Current Capability
- 150°C OTP Sensor with Hysteresis
- 8KV ESD Protection
- 2-Lead 2mm * 2mm FBP Package

■ Application



2-Pin 2x2 FBP
(Top View)

Q & A

Thank You!

