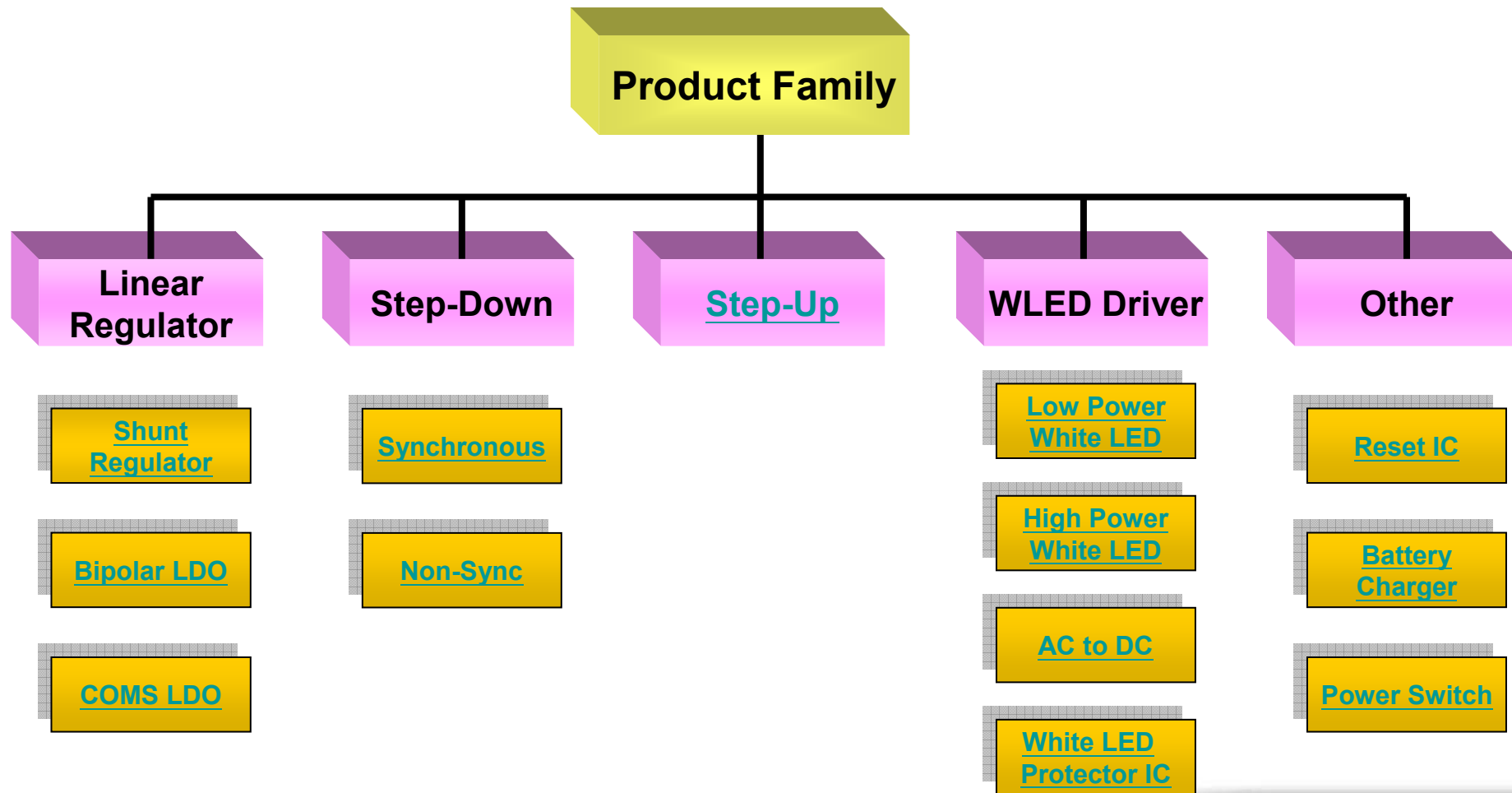


*LiteOn Semiconductor
Promotion Tool*

July, 2009

Products Block Diagram



Shunt Regulator

Part Number	Additional Features	Reference Voltage	Input Voltage	Current	Accuracy	Operating Temp	Package
LT431	Open Collector	2.495V	36V	200mA	±0.5% ±1%	-20~85	TO92-3L SOT23-3L

Bipolar LDO

Part Number	Additional Features	Input Voltage (max)	Output Voltage	Output Current (max)	Quiescent Current	Dropout Voltage	Package
LSP1117	a,b	20V	5.0V/3.3V/2.5V/1.8V/1.5V/1.2V/ADJ	1A	5mA	1.4V@1A	SOT223-3L TO252-3L
LSP1084	a,b	12V	5.0V/3.3V/2.5V/1.8V/1.5V/ADJ	5A	5mA	1.5V@5A	TO252-3L TO263-3L TO220-3L

a: Current Limit; b: Thermal Shutdown



CMOS LDO

Part Number	Additional Features	Input Voltage (max)	Output Voltage	Output Current (max)	Quiescent Current	Dropout Voltage	Package
LSP2130	a,b,c	5.5V	4.0V/3.3V/2.85V/2.8V/2.5V/1.8V/1.2V	300mA	65uA	180mV@300mA	SC70-3L SOT23-3L
LSP2132	a,b,c,d,f	5.5V	4.0V/3.3V/2.85V/2.8V/2.5V/1.8V/1.2V	300mA	65uA	180mV@300mA	SC70-5L SOT23-5L
LSP2133	a,b,c,d,f	5.5V	ADJ	300mA	65uA	180mV@300mA	SOT23-5L
LSP2155	a,b,c,d,e	5.5V	3.3V/2.5V/1.8V/1.5V/1.2V/ADJ	1A	90uA	200mV@1A	A
LSP2159	a,b,c,d,e	5.5V	5.0V/3.3V/2.85V/2.8V/2.5V/1.8V/1.5V	1.5A	90uA	600mV@1.5A	SOT223-3L TO252-3L
LSP2160	a,b,c,d,e	5.5V	3.3V/2.8V/2.5V/1.8V/1.5V/1.2V/1V/0.9V/ADJ	1.5A	90uA	150mV@1.5A	A
LSP2170	a,b,c,d,e	5.5V	3.3V/2.8V/2.5V/1.8V/1.5V/1.2V/1V/0.9V/ADJ	5A	90uA	300mV@3A	B

a: Current Limit; b: Thermal Shutdown; c: Low Quiescent current; d: Enable/shutdown control; e: Power good; f: Low noise bypass; g: Dual output

A: SOT223-3L, TO252-3L, TO252-5L, SOP8L-EP; B: TO263-3L, TO263-5L, TO220-3L, TO252-3L, TO252-5L, SOP8L-EP



Step-down (Synchronous)

Part Number	Additional Features	Input Voltage	Output Current	Oscillation Frequency	Output Channel	Efficiency	Package
LSP3100	a,c,d,e,g,j	2.5V~6.5V	600mA (1.8V/ADJ)	1.5MHZ	1	96%	SOT23-5L
LSP3101	a,c,d,e,g,j	2.5V~6.5V	800mA (3.3V/2.8/2.5V/1.5V/ 1.2V)	1.5MHZ	1	96%	SOT23-5L
LSP3102	a,c,d,e,g,j	2.5V~6.5V	1A (1.8V/1.5V/1.2V/ADJ)	1.5MHZ	1	96%	SOT89-5L QFN3*3-16L
LSP3103	a,c,d,e,g,j	2.5V~6.5V	500mA (1.8V/ADJ)	1.5MHZ	1	96%	SOT23-5L
LSP3105	a,c,d,e,g,j	2.5V~6.0V	2A (1.8V/ADJ)	1.2MHZ	1	96%	DFN3*3-10L
LSP3112	a,c,d,e,g,i	2.5V~5.5V	600mA Each Channel	1.5MHZ	2	96%	MSOP10L DFN3*3-10L
LSP3113	a,c,d,e,g,i	2.5V~6.5V	800mA Each Channel	1.5MHZ	2	96%	DFN3*3-10L
LSP5502	a,c,d,e,f,g,k	4.75V~30V	2A	450KHZ	1	95%	SOP8L
LSP5503	a,c,d,e,f,g,k	4.75V~30V	3A	450KHZ	1	95%	SOP8L-EP

a: Synchronous step-down; b: Non-synchronous step-down; c: Enable/shutdown control; d: Internal Switch; e: Current Limit; f: Thermal Shutdown; g: Idle mode operation; h: Fixed PWM Output; i: Dual channels; j: Under Voltage Lockout; k: Soft start



Step-down (Non-synchronous-1)

Part Number	Additional Features	Input Voltage (max)	Output Current	Oscillation Frequency	Output Channel	Efficiency	Package
LSP3120	b,c,d,e,f,g,h	40V	3A	52KHZ	1	85%	TO263-5L TO220-5L
LSP3121	b,c,d,e,f,g,h	40V	3A	52KHZ	1	85%	TO252-5L
LSP3122	b,c,d,e,f,g,h	40V	3A	150KHZ	1	85%	TO263-5L TO220-5L
LSP3122A	b,c,d,e,f,g,h	40V	5A	300KHZ	1	85%	TO263-5L TO220-5L
LSP3123	b,c,d,e,f,g,h	22V	3A	150KHZ	1	85%	TO263-5L TO220-5L
LSP3124	b,c,d,e,f,g,h	22V	3A	150KHZ	1	85%	TO252-5L
LSP3125	b,c,d,e,f,g,h	22V	2A	150KHZ	1	85%	SOP8L
LSP3125A	b,c,d,e,f,g,h	40V	2A	150KHZ	1	85%	SOP8L
LSP3127	b,c,d,e,f,g,h	40V	2A	52KHZ	1	85%	SOP8L-EP
LSP3128	b,c,d,e,f,g,h	30V	3A	400KHZ	1	93%	SOP8L-EP

a: Synchronous step-down; b: Non-synchronous step-down; c: Enable/shutdown control; d: Internal Switch; e: Current Limit; f: Thermal Shutdown; g: Idle mode operation; h: Fixed PWM Output



Step-down (Non-synchronous-2)

Part Number	Additional Features	Input Voltage (max)	Output Current	Oscillation Frequency	Output Channel	Efficiency	Package
LSP3130	b,c,d,e,f,g,h	18V	2A	300KHZ	1	92%	SOP8L
LSP3131	b,c,d,e,f,g,h	23V	3A	300KHZ	1	92%	SOP8L
LSP3132	b,c,d,e,f,g,h	23V	5A	300KHZ	1	92%	SOP8L
LSP3133	b,c,d,e,f,g,h	23V	2A	300KHZ	1	92%	SOP8L
LSP3170	b,c,d,e,f,g,h	20V	2A	400KHZ	1	95%	SOP8L
LSP3171	b,c,d,e,f,g,h	20V	2A	400KHZ	1	95%	MSOP10L-EP
LSP3172	b,c,d,e,f,g,h	22V	2.5A	400KHZ	1	95%	SOP8L
LSP5704	b,c,d,e,f,g	40V	2A	ADJ	1	90%	SOP8L-EP

a: Synchronous step-down; b: Non-synchronous step-down; c: Enable/shutdown control; d: Internal Switch; e: Current Limit; f: Thermal Shutdown; g: Idle mode operation; h: Fixed PWM Output



Step-up

Part Number	Additional Features	Input Voltage	Output Current	Oscillation Frequency	Output Channel	Efficiency	Package
LSP3601	a,b,c,f,g	1.8V~15V	40mA	1.0MHZ	1	90%	MSOP8L TSSOP8L SOP8L
LSP3602	b,c,e,g,h,i	0.6V~5V	600mA	1.4MHZ	1	96%	SOT23-6L
LSP3603	b,c,e,g,h,l,j	0.6V~5V	300mA	1.2MHZ	1	90%	SOT23-6L
LSP3604	b,c,e,g,h,l,j	0.9V~6V	750mA	1.0MHZ	1	90%	SOT23-6L
LSP6501	a,b,c,e,g,l,j	2.6V~5.5V	1.6A	640KHZ 1.3MHZ	1	90%	MSOP8L

a: Soft start; b: Enable/shutdown control; c: Short circuit protection; d: Thermal Shutdown; e: Internal Switch; f: Under Voltage Lockout; g: Idle mode operation; h: synchronous, step-up; i: Fixed PWM Output; j: Pulse Skipping Mode operation at light loads.



Low Power White LED Driver

Part Number	Additional Features	Input Voltage (max)	Output Current	Oscillation Frequency	Output Channel	Efficiency	Package
LSP3301	a,c,e,f,g,h,i,j,k	2.5V~6V	20mA	1.3MHZ	1	87%	DFN2*2-8L TSOT23-6L
LSP3308A	a,c,e,f,g,h,i,j	28V	2.5A	ADJ	6	90%	QFN4*4-24L
LSP7503	a,b,d,e,f,g,i,j	2.6V~5.5V	1.6A	640KHZ 1.3MHZ	1	90%	MSOP8L
LSP7602	a,c,e,f,g,h,i,j	25V	1.35A	ADJ	6	90%	QFN4*4-20L

a: Inductive mode; b: Constant voltage; c: Constant current; d: frequency adj; e: Internal switch; f: Soft start; g: UVLO; h: OVP; i: Short circuit protection; j: Thermal Shutdown; k: Fixed PWM Output



High Power White LED Driver

Part Number	Additional Features	Input Voltage (max)	Output Current	Oscillation Frequency	Output Channel	Efficiency	Package
LSP3309	a,c,e,f,g,h,i,j	40V	1A	ADJ	1	95%	QFN6*6-40L TSSOP-20L
LSP3312	a,c,e,f,g,h,i,j	35V	1.4A	ADJ	1	95%	SOT23-5L MSOP-8L SOP8L-EP
LSP7501	a,b,e,f,g,i,j,k	20V	2A	600KHZ	1	90%	SOP8L
LSP7502	a,b,e,f,g,i,j,k	20V	3A	600KHZ	1	90%	SOP8L
LSP7603	c,e,l,j	50V	700mA	-	1	-	TO252-5L
LSP7701	a,b,e,f,g,i,j,k	30V	2A	600KHZ	1	90%	SOP8L
LSP7702	a,b,e,f,g,i,j,k	30V	3A	600KHZ	1	90%	SOP8L
LSP7704	a,b,e,f,g,i,j,k	40V	2A	ADJ	1	90%	SOP8L-EP
LSP7706	c,e,l,j	50V	1.1A	-	1	-	TO252-5L TO263-5L TO220-5L

a: Inductive mode; b: Constant voltage; c: Constant current; d: frequency adj; e: Internal switch; f: Soft start; g: UVLO; h: OVP; i: Short circuit protection; j: Thermal Shutdown; k: Fixed PWM Output

AC to DC for WLED Driver

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

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



Reset IC

Part Number	Type	Operating Voltage	Quiescent Current	Detect Voltage	Accuracy	Operating Temp	Package
LSP2200	Active Low (Push-pull)	1V~5.5V	19uA	2.63V/2.93V/3.08V/4.0V/ 4.2V/4.38V/4.63V	±2.5%	-40~105	SOT23-3L

Battery Charger

Part Number	Additional Features	Input Voltage	Output Current	Standby Current	Output Channel	Operating Temp	Package
LSP4054	a,b,c,d	4.25V~6.5V	750mA	25uA	1	-40~85	SOT23-5L

a: Pre-Charge current; b: Soft start; c: Under voltage lock out; d: Thermal protection

Power Switch

Part Number	Input Voltage	Current Limit	R _{DS(ON)}	Quiescent Current	Output Channel	Operating Temp	Package
LSP5101	2.7V~5.5V	1A	160mΩ	15uA	1	-40~85	SOT23-5L



Linear Regulator

Adjustable Precision Shunt Regulator

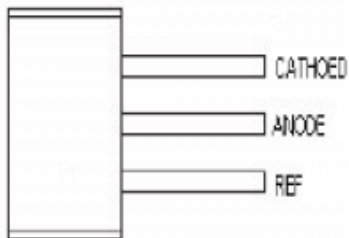
Application Circuit

Features

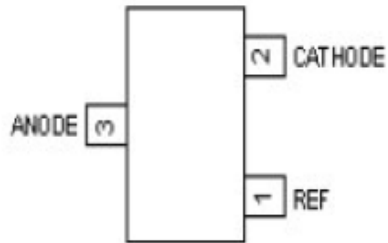
- Precision Reference Voltage:
2.495V±0.5% and 2.495V ±1%
- Adjustable Output Voltage is VREF to 36V
- Sink Current Capability is 200mA
- Low Dynamic Output Impedance is 0.2Ω (typ.)
- Low Output Noise
- TO92-3L, SOT23-3L(R-type) and SOT23-3L (W-type) Packages

Pin Assignments

(1) TO92-3L
(Top View)



(2) SOT23-3L(R type)
(Top View)



(3) SOT23-3L(W type)
(Top View)

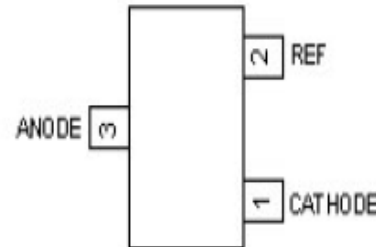


Fig1: $V_{KA}=V_{REF}$

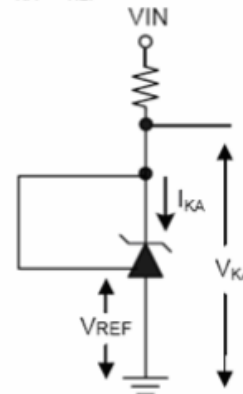


Fig2: $V_{KA}>V_{REF}$

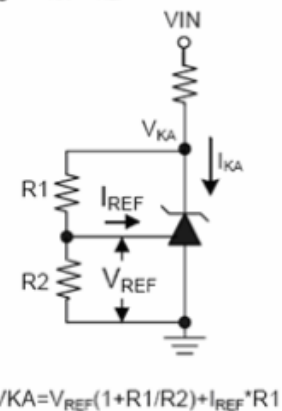
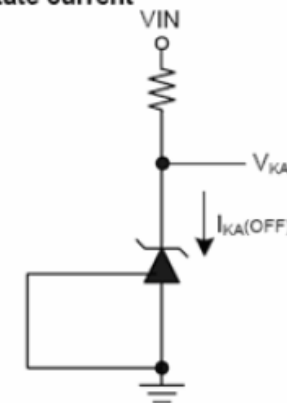


Fig3: Off state current



LSP1117

1A Linear Regulator

Features

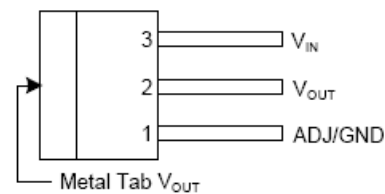
- Maximum 20V Input Voltage
- Low Dropout Voltage: 1.15V at 1A Output Current
- Trimmed Current Limit
- On-chip Thermal Shutdown
- Three-terminal Adjustable or Fixed 1.2V, 1.5V, 1.8V, 2.5V, 3.3V, 5V

Applications

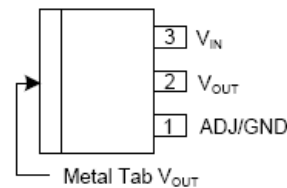
- PC Motherboard
- LCD Monitor
- Graphic Card
- Telecom Equipment
- ADSL Modem
- Printer and other Peripheral Equipment

Pin Assignments

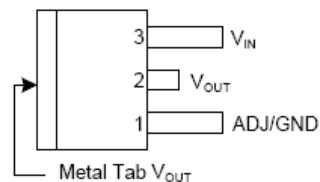
(1) TO220-3L



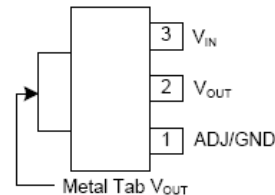
(2) TO263-3L



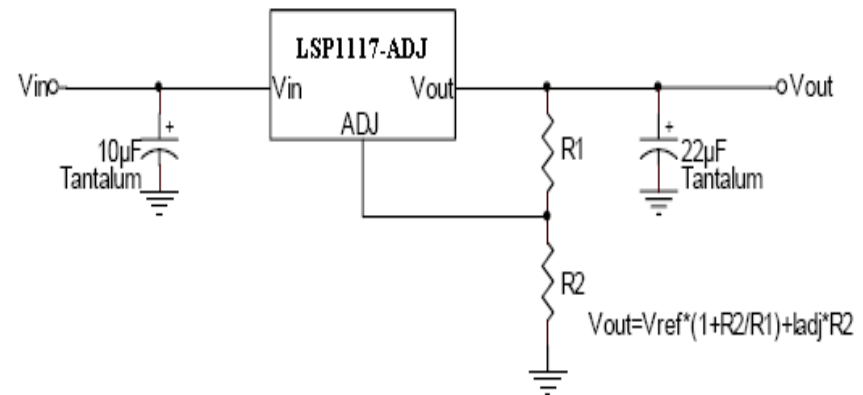
(3) TO252-2L



(4) SOT223



Application Circuit



LSP1084 5A Linear Regulator

Features

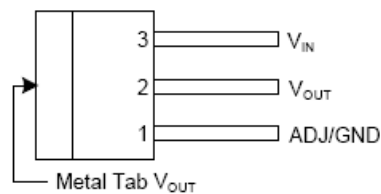
- Low Dropout Voltage: 1.3V Typically at 5A
- Current Limiting and Thermal Protecting
- Current Limit: 6.5A
- Operating Junction Temperature Range: 0 to 125°C
- Line Regulation: 0.015% (Typical)
- Load Regulation: 0.2% (Typical)

Applications

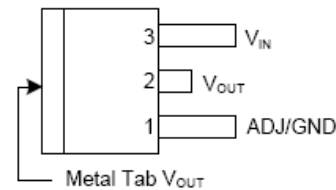
- PC Motherboard and Embedded Processor's Supply
- High Efficiency Linear Regulator
- Battery Chargers
- Post Regulation for Switching Supply
- Microprocessor Supply

Pin Assignments

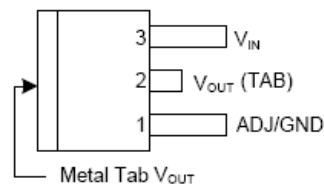
(1) TO220-3L



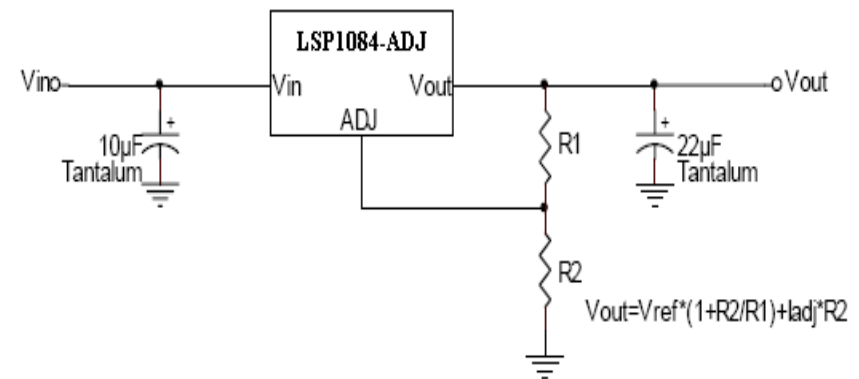
(2) TO252-2L



(3) TO263-2L



Application Circuit



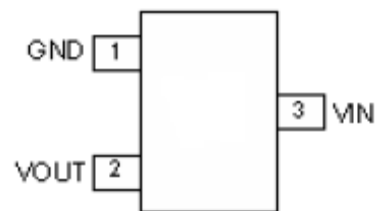
300mA High PSRR CMOS Linear Regulator

Features

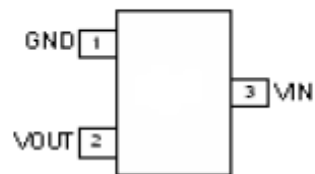
- Low Dropout Voltage: 180mV at 300mA ($V_o=3.3V$)
- Quiescent Current: Typ. 65uA
- 2% Voltage Accuracy
- High PSRR: 70dB at 1KHZ
- Current Limit and Thermal Shutdown
- Excellent Line and Load Regulation
- Short Circuit Protection
- Shutdown Current: 0.5uA
- Space saving: SOT23-3L, SC70-3L Package

Pin Assignments

SOT23-3L(Top View)



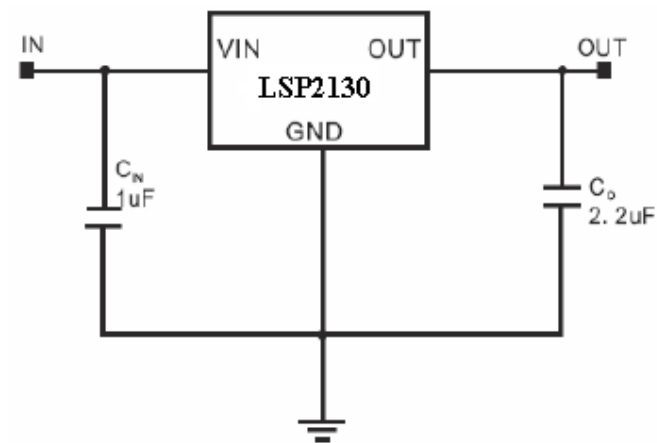
SC70-3L(Top View)



Applications

- Cordless Phones
- Cellular Phones
- Bluetooth Earphones
- Digital Cameras
- ADSL Modem
- Portable Electronics
- WLANs
- MP3 Players

Application Circuit



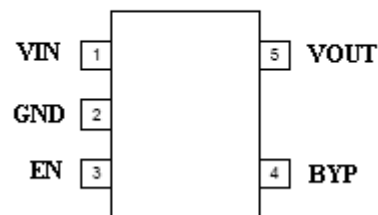
300mA High PSRR CMOS Linear Regulator

Features

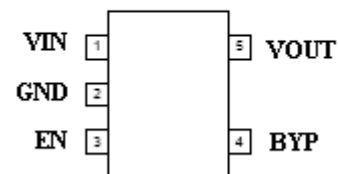
- Low Dropout Voltage: 180mV at 300mA ($V_o=3.3V$)
- Quiescent Current: Typ. 65uA
- 2% Voltage Accuracy
- High PSRR: 70dB at 1KHZ
- Current Limit and Thermal Shutdown
- Short Circuit Protection
- Shutdown Current: 0.5uA
- Space saving: SOT23-5L, SC70-5L Package

Pin Assignments

SOT23-5L (Top View)



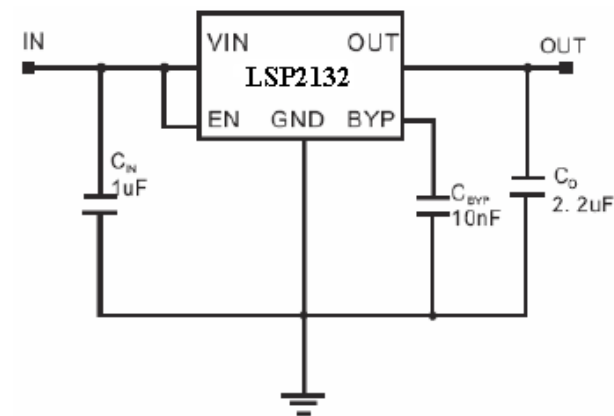
SC70-5L (Top View)



Applications

- Cordless Phones
- Cellular Phones
- Bluetooth Earphones
- Digital Cameras
- ADSL Modem
- Portable Electronics
- WLANs
- MP3 Players

Application Circuit



300mA High PSRR CMOS Linear Regulator

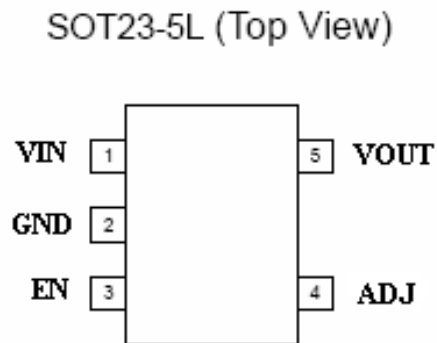
Features

- Low Dropout Voltage: 180mV at 300mA (Vo=3.3V)
- Quiescent Current: Typ. 65uA
- 2% Voltage Accuracy
- High PSRR: 67dB at 100HZ
- Current Limit and Thermal Shutdown
- Short Circuit Protection
- Shutdown Current: 0.5uA
- Space saving: SOT23-5L Package

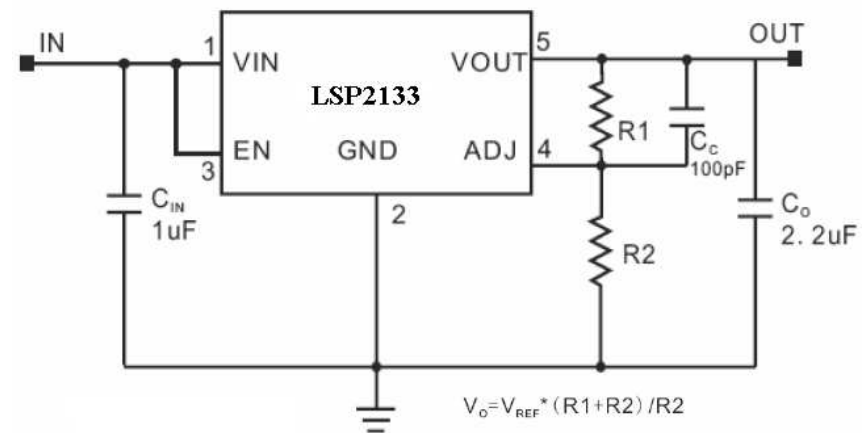
Applications

- Cordless Phones
- Cellular Phones
- Bluetooth Earphones
- Digital Cameras
- ADSL Modem
- Portable Electronics
- WLANs
- MP3 Players

Pin Assignments



Application Circuit



LSP2155

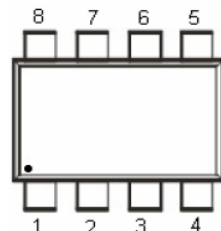
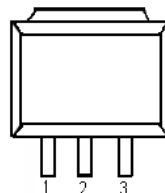
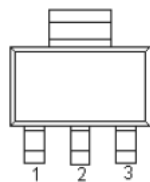
1A LDO CMOS Regulator

Features

- Supports Input Voltage Down to 1.4V
- Output Voltage Available in 0.9V, 1.0V, 1.2V, 1.5V, 1.8V, 2.5V, 2.8V, 2.85V, 3.0V, 3.3V
- Stable with a Ceramic Output Capacitor of 1uF
- Low Dropout Voltage: 200mV at 1A
- Low Quiescent Current
- Thermal Shutdown and Short Circuit Protection

Pin Assignments

1) SOT223-3L (Top View) 2) TO252-3L (Top View) 3) SOP8L-EP (Top View)

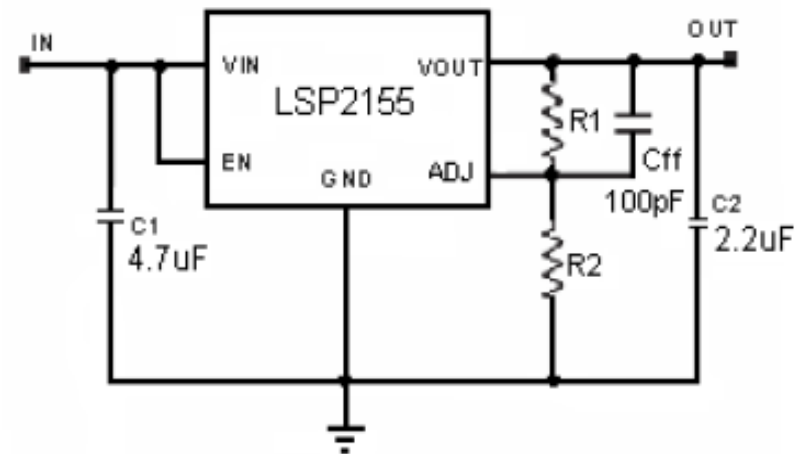


Pin Number					Pin Name	Pin Function
SOT223-3L B type	SOT223-3L	TO252-3L B type	TO252-3L	SOP8L-EP -ADJ		
3	1	3	1	2	VIN	Input
1	2,TAB	1	2,TAB	1,4,5,8	GND	Ground
2,TAB	3	2,TAB	3	7	VOUT	Output
				3	EN	Enable pin
				5	PWRGD	Power good
				6	ADJ	Adjust

Applications

- DSP, FPGA and Microprocessor Power Supplies
- 1.2V Core Voltage for DSPs
- SATA Power Supply
- LCD TV / Monitors
- Wireless Devices
- Communication Devices
- Portable Electronics

Application Circuit



LSP2159

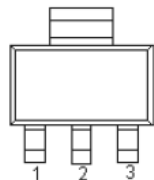
1.5A LDO CMOS Regulator

Features

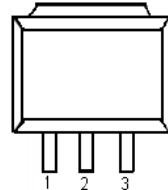
- Very Low Dropout Voltage
- Guaranteed 1.5A Output
- Accurate to within 1.5%
- 95uA Quiescent Current Typically
- Thermal Shutdown and Current Limiting
- Short Circuit Current Fold-back
- Power-Saving Shutdown mode

Pin Assignments

1) SOT223-3L (Top View)



2) TO252-3L (Top View)

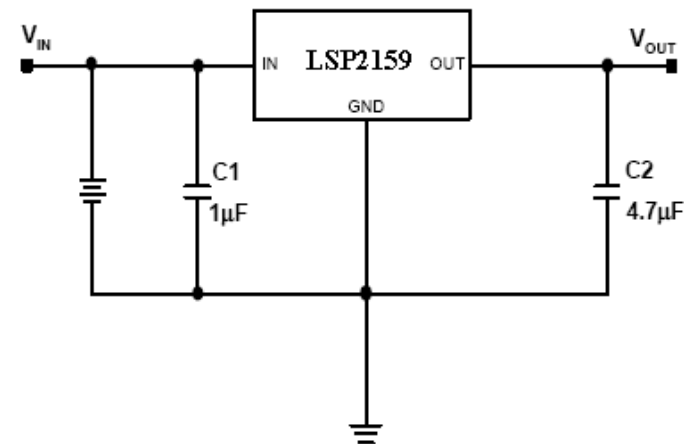


Pin Number				Pin Name	Pin Function
SOT223-3L B type	SOT223-3L	TO252-3L B type	TO252-3L		
3	1	3	1	V _{IN}	Input
1	2,TAB	1	2,TAB	GND	Ground
2,TAB	3	2,TAB	3	V _{OUT}	Output

Applications

- Instrumentation
- Portable Electronics
- Wireless Devices
- PC Peripherals
- Batter Powered Widgets

Application Circuit



LSP2160

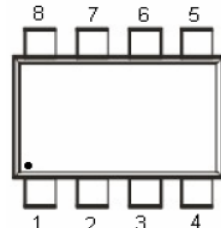
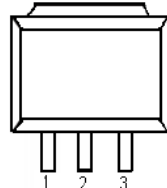
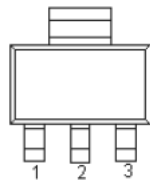
1.5A LDO CMOS Regulator

Features

- Supports Input Voltage Down to 1.4V
- Output Voltage Available in 0.9V, 1.0V, 1.2V, 1.5V, 1.8V, 2.5V, 2.8V, 2.85V, 3.0V, 3.3V
- Stable with a Ceramic Output Capacitor of 1uF
- Low Dropout Voltage: 150mV at 1.5A
- Low Quiescent Current
- Thermal Shutdown and Short Circuit Protection

Pin Assignments

1) SOT223-3L (Top View) 2) TO252-3L (Top View) 3) SOP8L-EP (Top View)

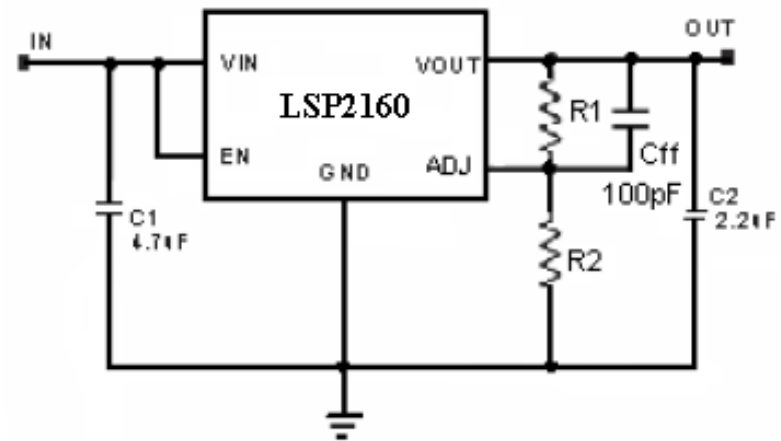


Pin Number					Pin Name	Pin Function
SOT223-3L B type	SOT223-3L	TO252-3L B type	TO252-3L	SOP8L-EP -ADJ		
3	1	3	1	2	VIN	Input
1	2,TAB	1	2,TAB	1,4,5,8	GND	Ground
2,TAB	3	2,TAB	3	7	VOUT	Output
				3	EN	Enable pin
				5	PWRGD	Power good
				6	ADJ	Adjust

Applications

- DSP, FPGA and Microprocessor Power Supplies
- 1.2V Core Voltage for DSPs
- SATA Power Supply
- LCD TV / Monitors
- Wireless Devices
- Communication Devices
- Portable Electronics

Application Circuit



LSP2170

3A LDO CMOS Regulator

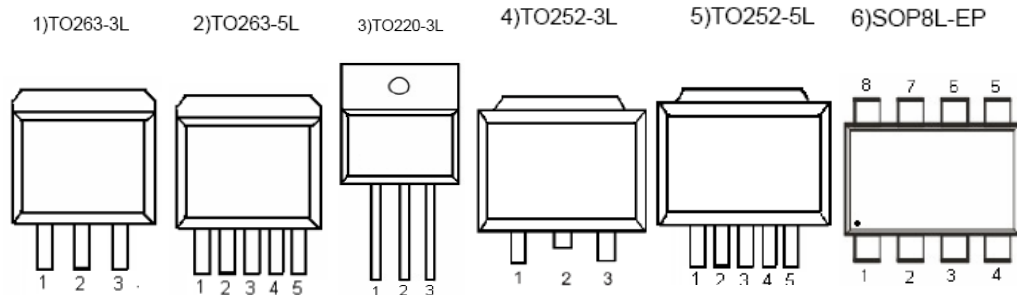
Features

- Supports Input Voltage Down to 1.4V
- Output Voltage Available in 0.9V, 1.0V, 1.2V, 1.5V, 1.8V, 2.5V, 2.8V, 2.85V, 3.0V, 3.3V
- Stable with a Ceramic Output Capacitor of 1uF
- Low Dropout Voltage: 300mV at 3A
- Low Quiescent Current
- Thermal Shutdown and Short Circuit Protection

Applications

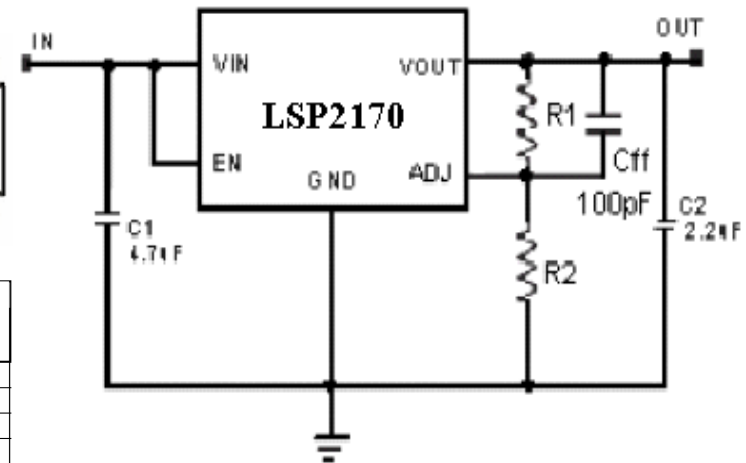
- DSP, FPGA and Microprocessor Power Supplies
- 1.2V Core Voltage for DSPs
- SATA Power Supply
- LCD TV / Monitors
- Wireless Devices
- Communication Devices
- Portable Electronics

Pin Assignments



Pin Number										Pin Name	Pin Function
TO263-3L B type	TO263-5L	TO263-5L ADJ	TO220-3L	TO220-3L B type	TO252-3L	TO252-3L B type	TO252-5L ADJ	SOP8L-EP	SOP8L-EP-ADJ		
3	1	1	1	3	1	3	1	2	2	VIN	Input
1	3,TAB	3,TAB	2,TAB	1	2,TAB	1	3,TAB	1,4,8	1,4,8	GND	Ground
2,TAB	5	5	3	2,TAB	3	2,TAB	5	7	7	VOUT	Output
	2	2					2	3	3	EN	Enable pin
	4							5	5	PWRGD	Power good
								6		SENSE	Sense
		4					4		6	ADJ	Adjust

Application Circuit



Step-down Converter

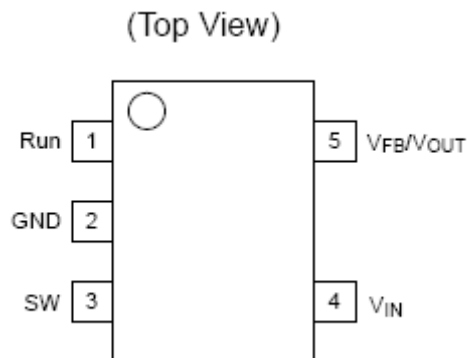
LSP3100

1.5MHZ 600mA Synchronous Step-Down Converter

Features

- High Efficiency: Up to 96%
- 1.5MHZ Constant Switching Frequency
- 600mA Output Current at VIN=3.0V
- 2.5V to 6.5V Input Voltage Range
- Output Voltage as low as 0.6V
- 100% Duty Cycle in Dropout
- Low Quiescent Current : 300uA
- <1uA Shutdown Current
- Short Circuit and Thermal Fault Protection
- Space Saving 5-pin SOT23 Package

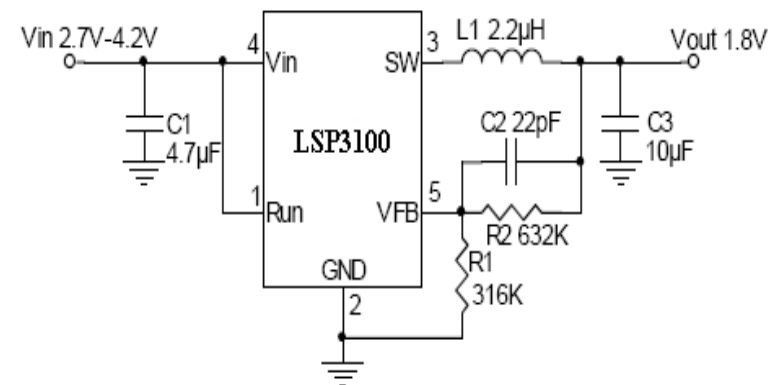
Pin Assignments



Applications

- Cellular and Smart Phones
- PDAs
- Digital Still and Video Cameras
- Portable Instruments
- Microprocessors and DSP Core Supplies
- Wireless and DSL Modems

Application Circuit



LSP3101

1.5MHZ 800mA Synchronous Step-Down Converter

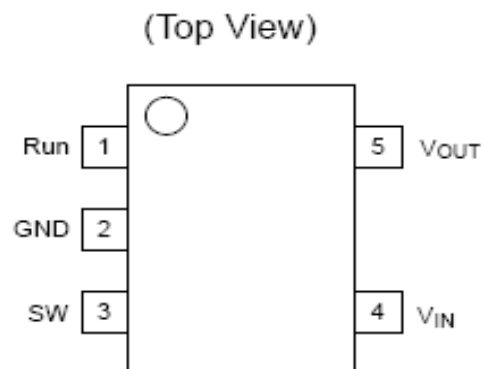
Features

- High Efficiency: Up to 96%
- 1.5MHZ Constant Switching Frequency
- 800mA Output Current at VIN=3.0V
- 2.5V to 6.5V Input Voltage Range
- Output Voltage as low as 0.6V
- 100% Duty Cycle in Dropout
- Low Quiescent Current : 40uA
- <1uA Shutdown Current
- Short Circuit and Thermal Fault Protection
- Space Saving 5-pin SOT23 Package

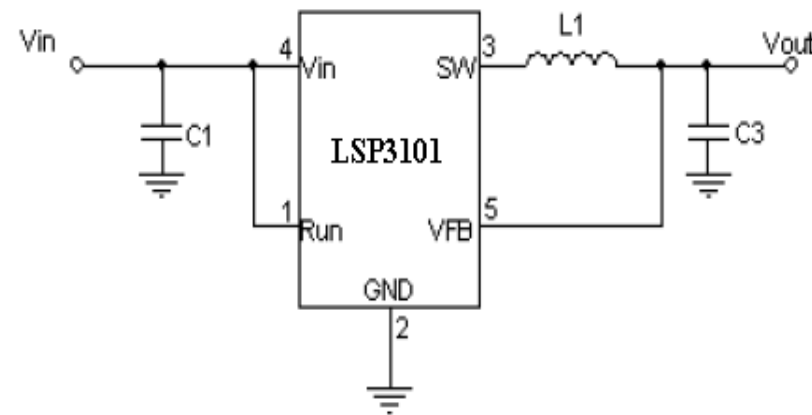
Applications

- Cellular and Smart Phones
- PDAs
- Digital Still and Video Cameras
- Portable Instruments
- Microprocessors and DSP Core Supplies
- Wireless and DSL Modems

Pin Assignments



Application Circuit



LSP3102

1A Synchronous Step-Down Converter

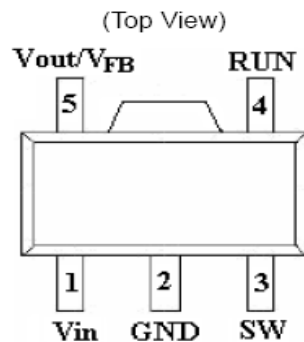
Features

- High Efficiency: Up to 96%
- 1.5MHZ Constant Switching Frequency
- Guaranteed 1000mA Output Current
- 2.5V to 6.5V Input Voltage Range
- Output Voltage as low as 0.6V
- 100% Duty Cycle in Dropout
- Low 350uA Quiescent Current
- <1uA Shutdown Current
- Short Circuit and Thermal Fault Protection
- SOT89-5L and QFN3*3-16L Package

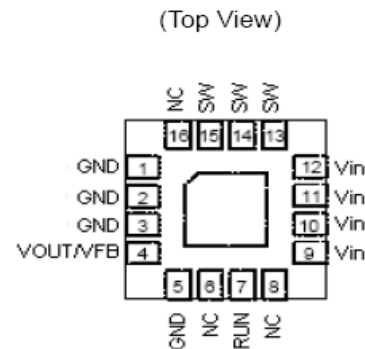
Applications

- Cellular and Smart Phones
- PDAs
- Digital Still and Video Cameras
- Portable Instruments
- Microprocessors and DSP Core Supplies
- Wireless and DSL Modems

Pin Assignments

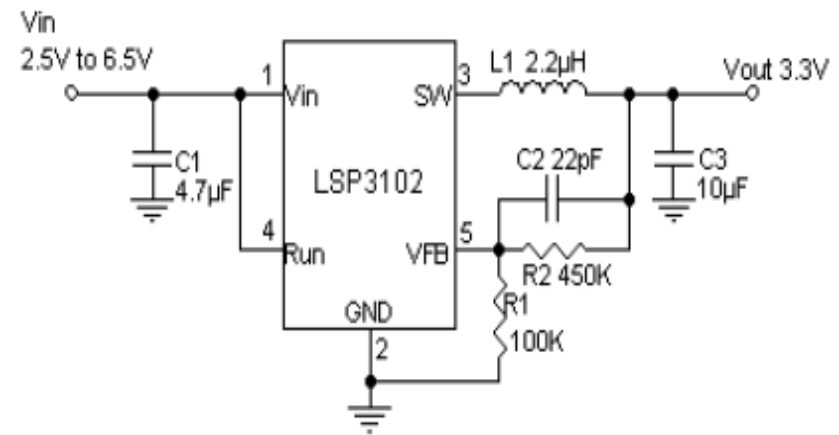


SOT89-5L



QFN3*3-16L

Application Circuit



1.5MHZ 500mA Synchronous Step-Down Converter

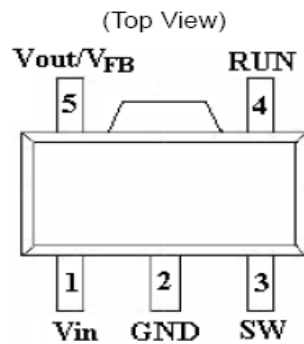
Features

- High Efficiency: Up to 96%
- 1.5MHZ Constant Switching Frequency
- Guaranteed 1000mA Output Current
- 2.5V to 6.5V Input Voltage Range
- Output Voltage as low as 0.6V
- 100% Duty Cycle in Dropout
- Low 350uA Quiescent Current
- <1uA Shutdown Current
- Short Circuit and Thermal Fault Protection
- SOT89-5L and QFN3*3-16L Package

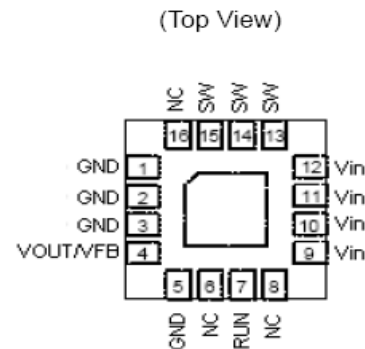
Applications

- Cellular and Smart Phones
- PDAs
- Digital Still and Video Cameras
- Portable Instruments
- Microprocessors and DSP Core Supplies
- Wireless and DSL Modems

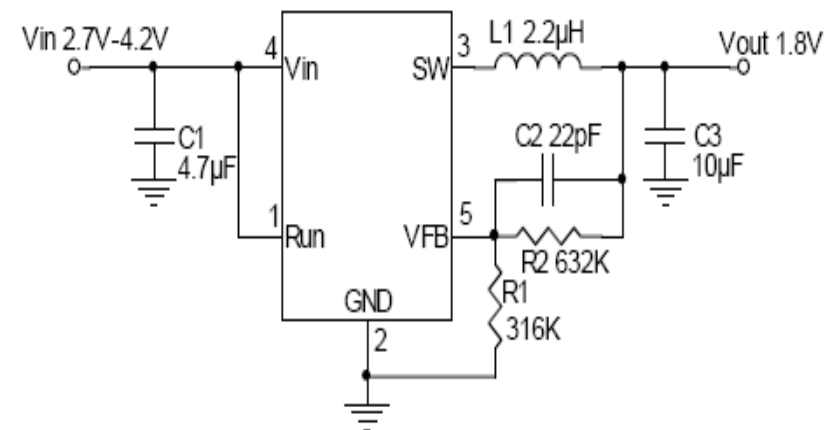
Pin Assignments



SOT89-5L



QFN3*3-16L



2A Synchronous TDFN3*3-10L Step-Down Converter

Features

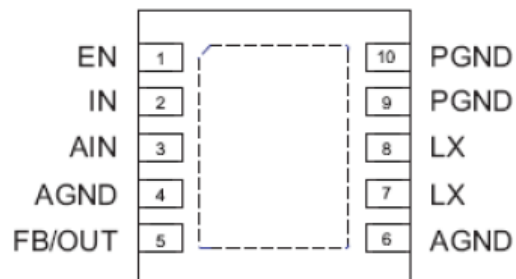
- High Efficiency: Up to 95%
- 1.2MHZ Constant Switching Frequency
- Guaranteed 2A Output Current
- 2.5V to 6.5V Input Voltage Range
- Adjustable Output Voltage From 0.6V to VIN
- 100% Duty Cycle in Dropout
- Low 300uA Quiescent Current
- <1uA Shutdown Current
- Soft Start Function
- Short Circuit and Thermal Fault Protection
- SOT89-5L and QFN3*3-16L Package

Applications

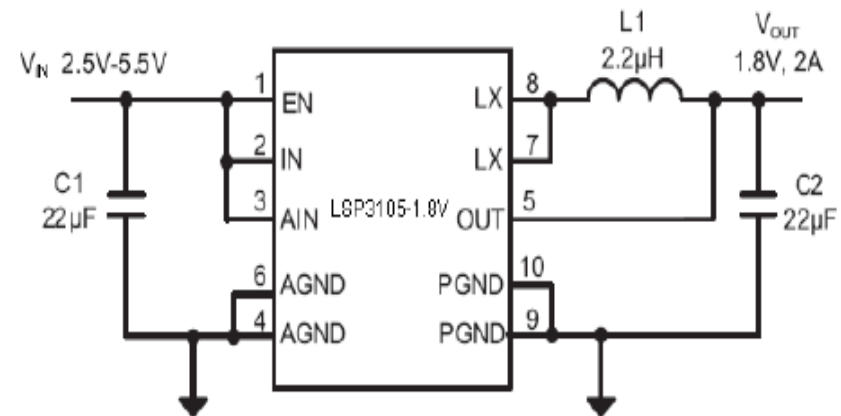
- Cellular and Smart Phones
- PDAs
- Digital Still and Video Cameras
- Portable Instruments
- Microprocessors and DSP Core Supplies
- Wireless and DSL Modems

Pin Assignments

(Top View)



Application Circuit



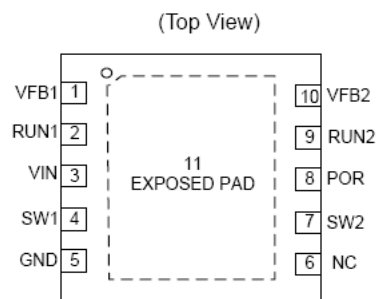
LSP3112

Dual Channel 1.5MHZ 600mA Synchronous Step-Down Converter

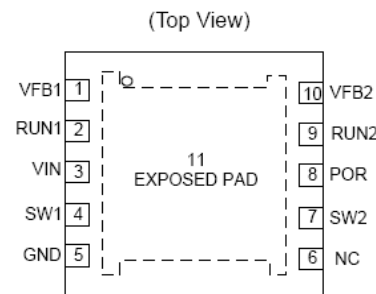
Features

- High Efficiency: Up to 96%
- 1.5MHZ Constant Switching Frequency
- 600mA Output Current Per Each Channel
- No Schottky Diode Required
- Low $R_{DS(ON)}$ Internal Switches: $0.35\ \Omega$
- 0.6V Reference Allow Low Output Voltage
- Low 500uA Quiescent Current
- <1uA Shutdown Current
- Power ON Reset Output
- Short Circuit and Thermal Fault Protection
- MSOP10 and DFN10 Package

Pin Assignments



10-Lead (3mm x3mm) Plastic DFN
 Exposed Pad is PGND (Pin 11)
 Must be connected to GND.

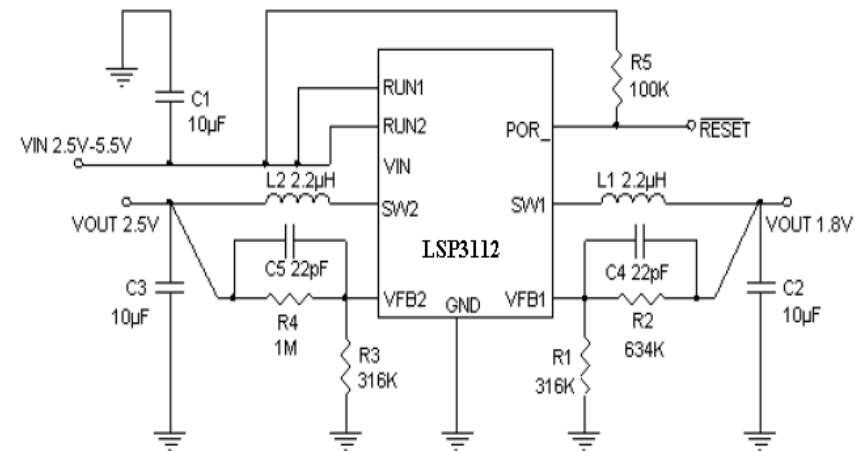


10-Lead Plastic MSOP
 Exposed Pad is PGND (Pin 11)
 Must be connected to GND.

Applications

- Cellular and Smart Phones
- PDAs
- Digital Still and Video Cameras
- Portable Instruments
- Microprocessors and DSP Core Supplies
- Wireless and DSL Modems

Application Circuit



LSP3113

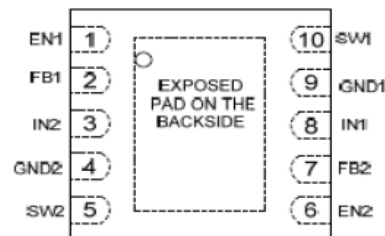
Dual Channel 1.5MHZ 800mA Synchronous Step-Down Converter

Features

- High Efficiency: Up to 95%
- 1.5MHZ Constant Switching Frequency
- 800mA Output Current Per Each Channel
- No Schottky Diode Required
- 2.5V to 6.5V Input Voltage
- 0.6V Reference Allow Low Output Voltage
- 100% Duty Cycle For Load Dropout Operation
- Low 400uA Quiescent Current
- <1uA Shutdown Current
- Short Circuit and Thermal Fault Protection
- Small Thermally Enhanced TDFN3*3-10L Package

Pin Assignments

(Top View)

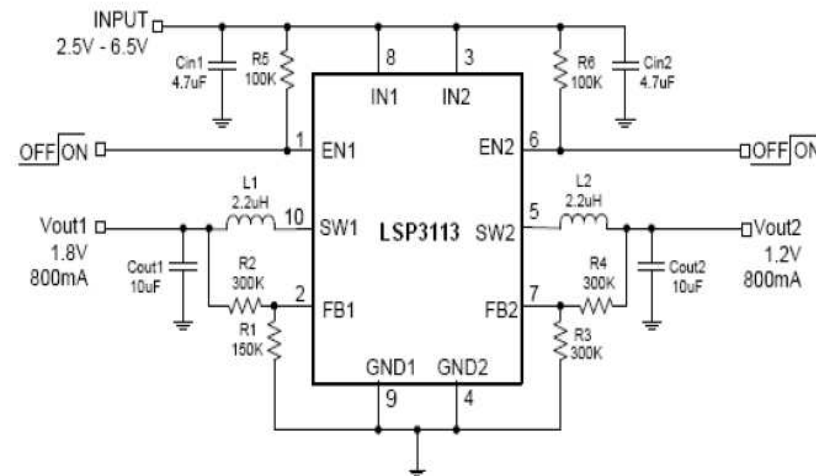


10-Lead (3mm x3mm) Plastic TDFN
 Exposed Pad is PGND
 Must be connected to GND.

Applications

- Cellular and Smart Phones
- PDAs
- Digital Still and Video Cameras
- Portable Instruments
- Microprocessors and DSP Core Supplies
- Wireless and DSL Modems

Application Circuit



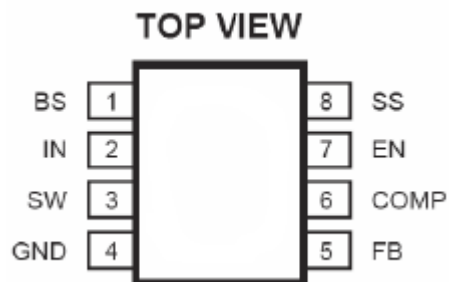
LSP5502

2A, 30V, 400KHZ Synchronous Rectified Step-Down Converter

Features

- 2A Output Current
- Wide 4.75V to 30V Operating Input Range
- Integrated 100mΩ Power MOSFET Switches
- Output Adjustable From 0.925V to 20V
- Programmable Soft-Start
- Stable With Low ESR Ceramic Output Capacitors
- Fixed 400KHZ Frequency
- Cycle-by-cycle Over Current Protection
- Input Under Voltage Lockout
- Thermally Enhanced SOP8L-EP Package

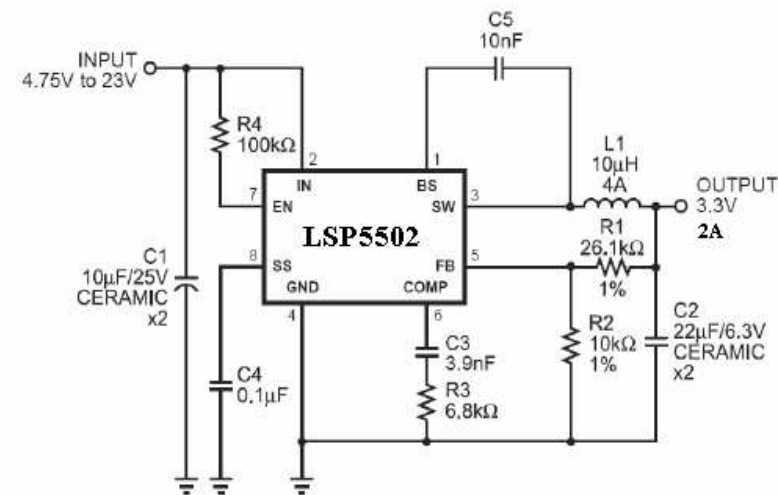
Pin Assignments



Applications

- Distributed Power Systems
- Networking Systems
- FPGA, DSP, ASIC Power Supplies
- Green Electronics/ Appliances
- Notebook Computers

Application Circuit



LSP5503

3A, 30V, 400KHZ Synchronous Rectified Step-Down Converter

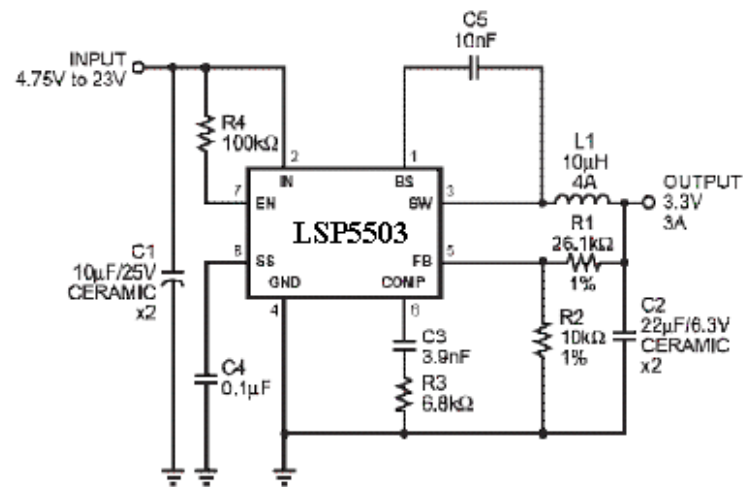
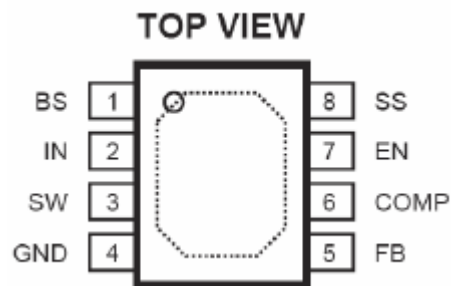
Features

- 3A Output Current
- Wide 4.75V to 30V Operating Input Range
- Integrated 100mΩ Power MOSFET Switches
- Output Adjustable From 0.925V to 20V
- Programmable Soft-Start
- Stable With Low ESR Ceramic Output Capacitors
- Fixed 400KHZ Frequency
- Cycle-by-cycle Over Current Protection
- Input Under Voltage Lockout
- Thermally Enhanced SOP8L-EP Package

Applications

- Distributed Power Systems
- Networking Systems
- FPGA, DSP, ASIC Power Supplies
- Green Electronics/ Appliances
- Notebook Computers

Pin Assignments



LSP3120

52KHZ 3A PWM Buck DC/DC Converter

Features

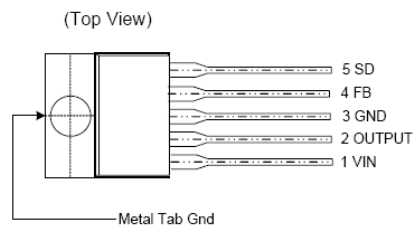
- Output Voltage: 3.3V, 5V, 12V and Adjustable
- Adjustable version output voltage range: 1.23V to 37V
- 52KHZ +/-15% Fixed Switching Frequency
- Voltage Mode Non-synchronous PWM Control
- Thermal Shutdown and Current Limit Protection
- ON/OFF Shutdown Control Input
- Operating Voltage can be up to 40V
- Output Load Current: 3A
- Built-in Switching Transistor on Chip
- TO220-5L, TO263-5L Packages

Applications

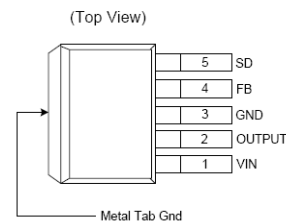
- Simple High efficiency Step-down Regulator
- On-card Switching Regulators
- Positive to Negative Converter

Pin Assignments

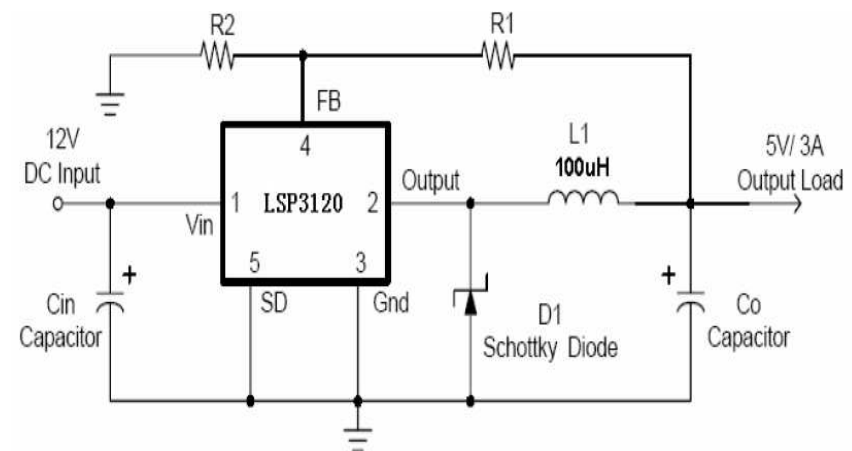
(1) TO220-5L



(3) TO263-5L



Application Circuit



LSP3121

52KHZ 3A PWM Buck DC/DC Converter

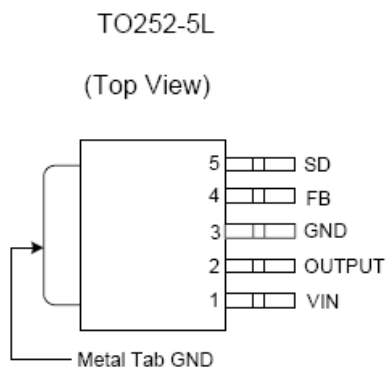
Features

- Output Voltage: 3.3V, 5V, 12V and Adjustable
- Adjustable version output voltage range: 1.23V to 37V
- 52KHZ +/-15% Fixed Switching Frequency
- Voltage Mode Non-synchronous PWM Control
- Thermal Shutdown and Current Limit Protection
- ON/OFF Shutdown Control Input
- Operating Voltage can be up to 40V
- Output Load Current: 3A
- Built-in Switching Transistor on Chip
- TO252-5L Packages

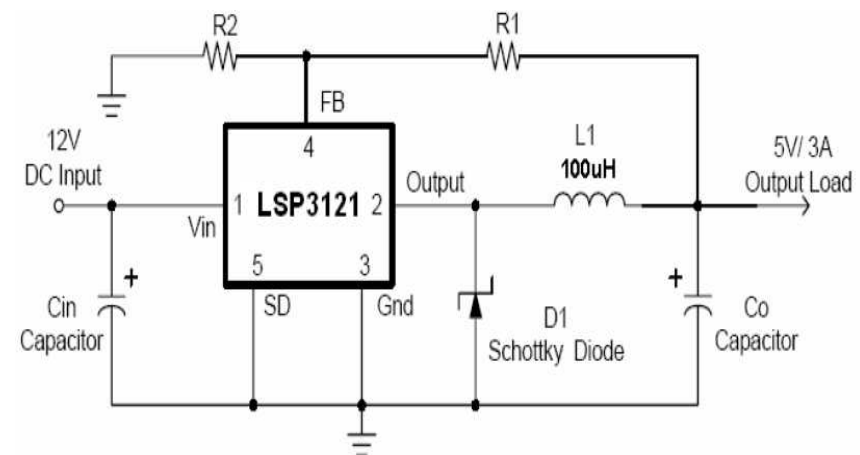
Applications

- Simple High efficiency Step-down Regulator
- On-card Switching Regulators
- Positive to Negative Converter

Pin Assignments



Application Circuit



LSP3122

150KHZ 3A PWM Buck DC/DC Converter

Features

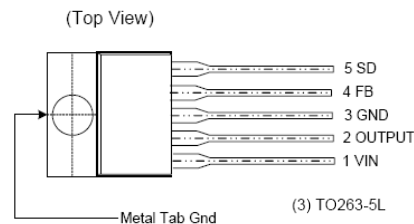
- Output Voltage: 3.3V, 5V, 12V and Adjustable
- Adjustable version output voltage range: 1.23V to 37V
- 150KHZ +/-15% Fixed Switching Frequency
- Voltage Mode Non-synchronous PWM Control
- Thermal Shutdown and Current Limit Protection
- ON/OFF Shutdown Control Input
- Operating Voltage can be up to 40V
- Output Load Current: 3A
- TO220-5L, TO263-5L and TO252-5L Packages

Applications

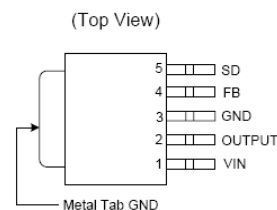
- Simple High efficiency Step-down Regulator
- On-card Switching Regulators
- Positive to Negative Converter

Pin Assignments

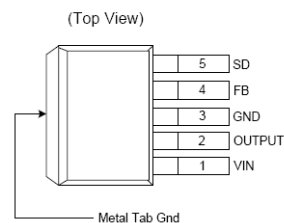
(1) TO220-5L



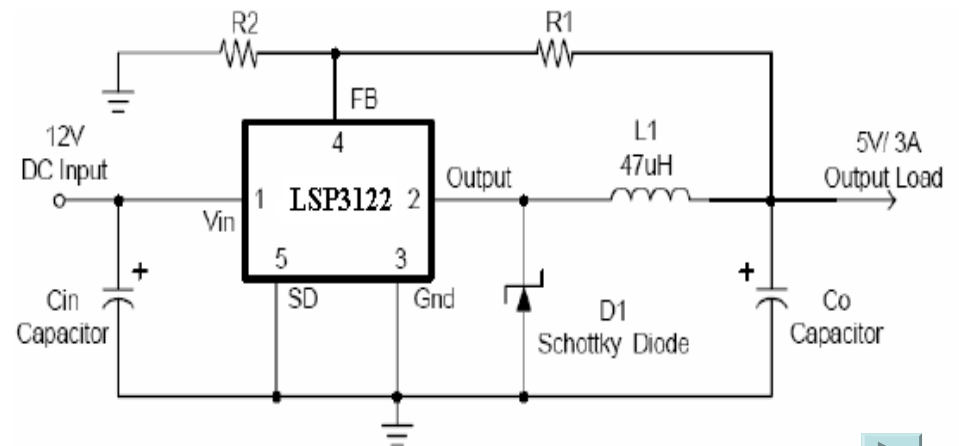
(2) TO252-5L



(3) TO263-5L



Application Circuit



LSP3122A

300KHZ 5A PWM Buck DC/DC Converter

Features

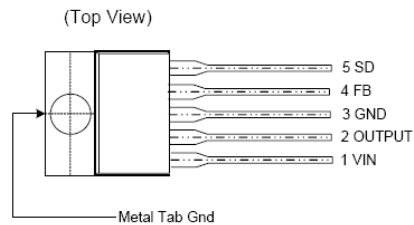
- Output Voltage: 3.3V, 5V, 12V and Adjustable
- Adjustable version output voltage range: 1.23V to 37V +/-3%
- 300KHZ +/-15% Fixed Switching Frequency
- Voltage Mode Non-synchronous PWM Control
- Thermal Shutdown and Current Limit Protection
- ON/OFF Shutdown Control Input
- Operating Voltage can be up to 40V
- Output Load Current: 5A
- Built-in Switching Transistor on Chip
- TO220-5L, TO263-5L Packages

Applications

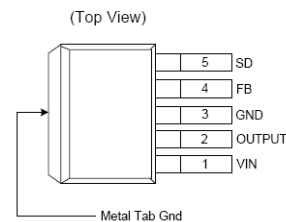
- Simple High efficiency Step-down Regulator
- On-card Switching Regulators
- Positive to Negative Converter

Pin Assignments

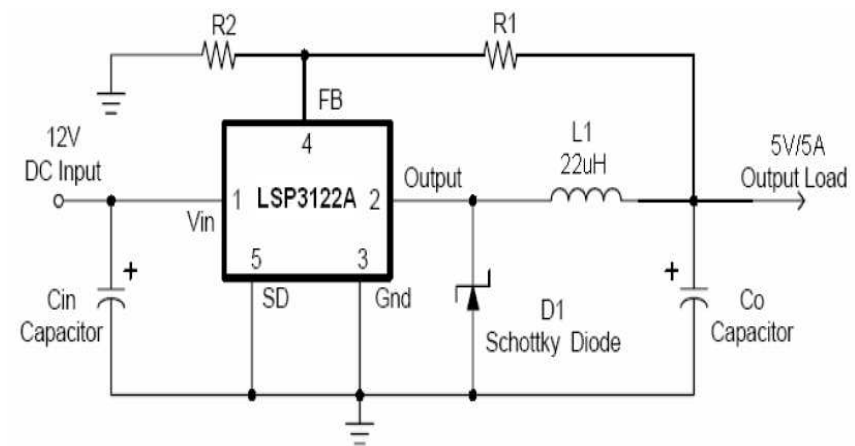
(1) TO220-5L



(3) TO263-5L



Application Circuit



LSP3123

150KHZ 3A PWM Buck DC/DC Converter

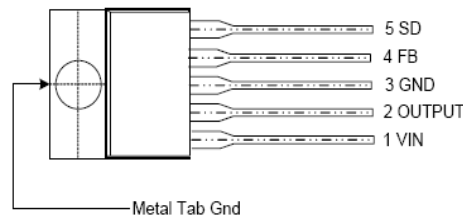
Features

- Output Voltage: 3.3V, 5V, 12V and Adjustable
- Adjustable version output voltage range: 1.23V to 18V
- 150KHZ +/-15% Fixed Switching Frequency
- Voltage Mode Non-synchronous PWM Control
- Thermal Shutdown and Current Limit Protection
- ON/OFF Shutdown Control Input
- Operating Voltage can be up to 22V
- Output Load Current: 3A
- TO-220-5L and TO263-5L Packages

Pin Assignments

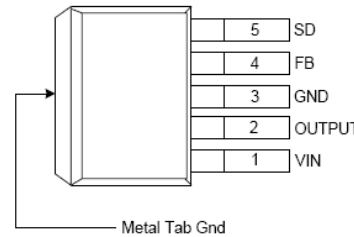
(1) TO220-5L

(Top View)



(2) TO263-5L

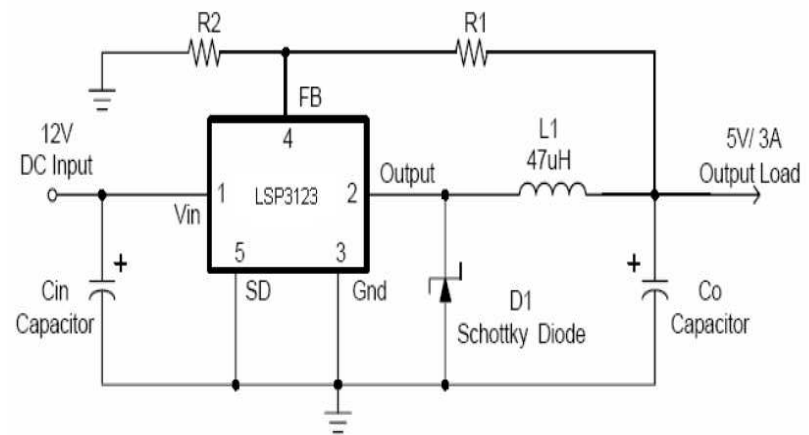
(Top View)



Applications

- Simple High efficiency Step-down Regulator
- On-card Switching Regulators
- Positive to Negative Converter

Application Circuit



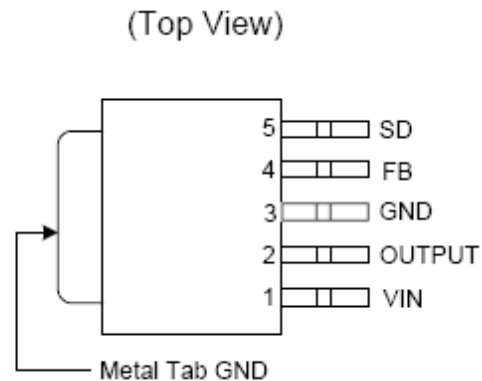
LSP3124

150KHZ 3A PWM Buck DC/DC Converter

Features

- Output Voltage: 3.3V, 5V, 12V and Adjustable
- Adjustable version output voltage range: 1.23V to 18V
- 150KHZ +/-15% Fixed Switching Frequency
- Voltage Mode Non-synchronous PWM Control
- Thermal Shutdown and Current Limit Protection
- ON/OFF Shutdown Control Input
- Operating Voltage can be up to 22V
- Output Load Current: 3A
- TO252-5L Packages

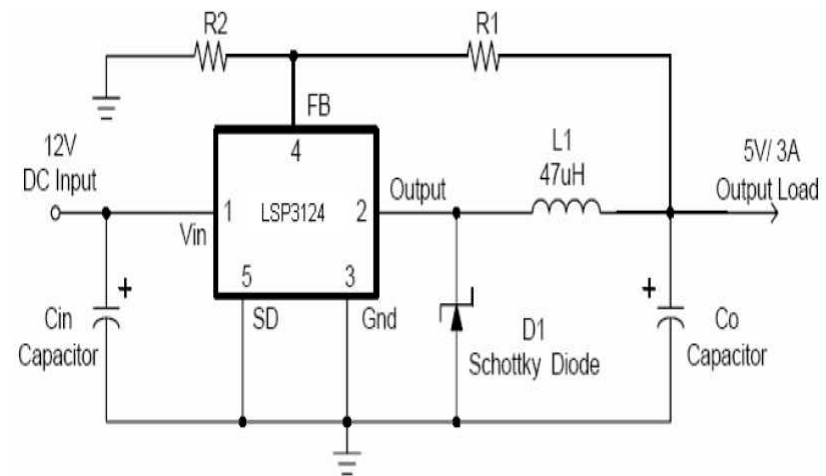
Pin Assignments



Applications

- Simple High efficiency Step-down Regulator
- On-card Switching Regulators
- Positive to Negative Converter

Application Circuit



LSP3125

150KHZ 2A PWM Buck DC/DC Converter

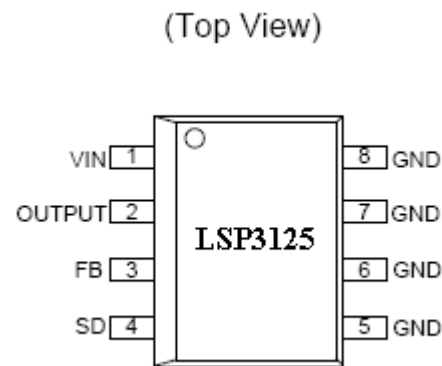
Features

- Output Voltage: 3.3V, 5V, 12V and Adjustable
- Adjustable version output voltage range: 1.23V to 18V
- 150KHZ +/-15% Fixed Switching Frequency
- Voltage Mode Non-synchronous PWM Control
- Thermal Shutdown and Current Limit Protection
- ON/OFF Shutdown Control Input
- Operating Voltage can be up to 22V
- Output Load Current: 2A
- SOP8L Package

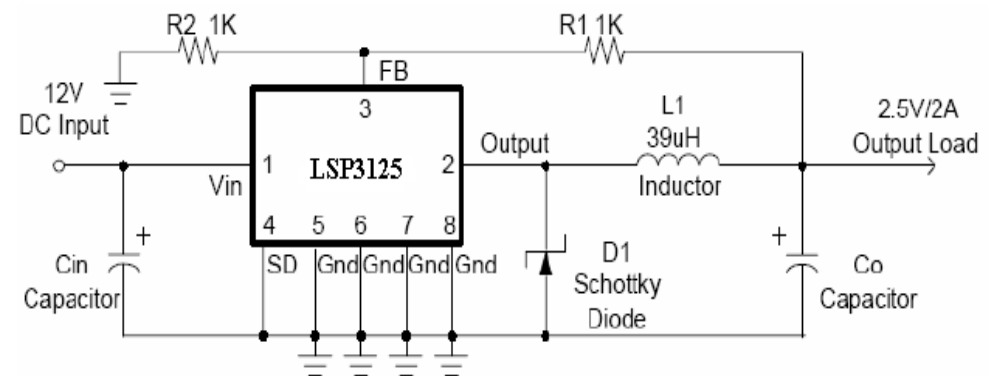
Applications

- Simple High efficiency Step-down Regulator
- On-card Switching Regulators
- Positive to Negative Converter

Pin Assignments



Application Circuit



LSP3125A

150KHZ 2A PWM Buck DC/DC Converter

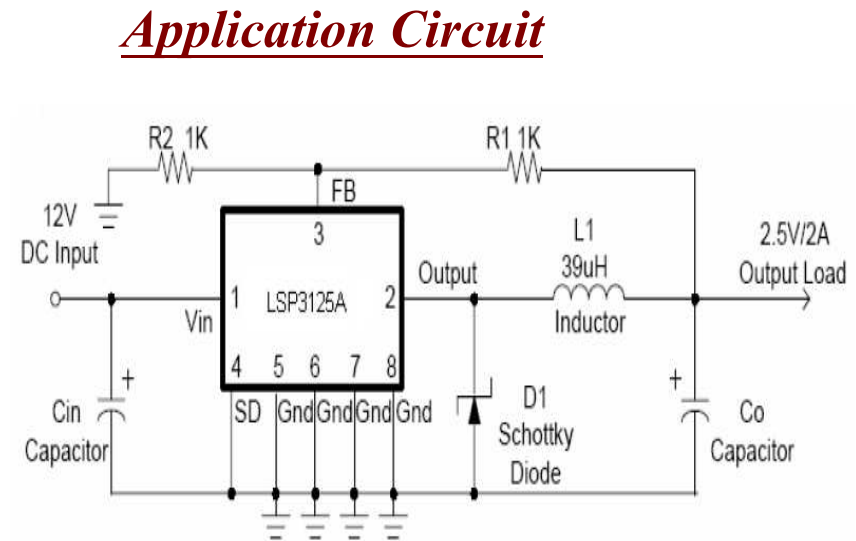
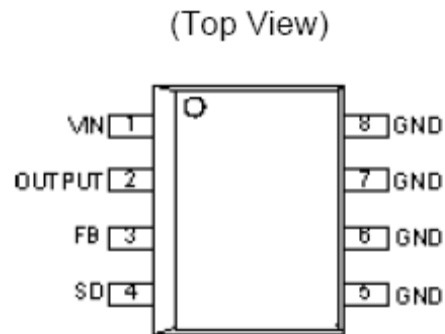
Features

- Output Voltage: 3.3V, 5V, 12V and Adjustable
- Adjustable version output voltage range: 1.23V to 37V
- 150KHZ +/-15% Fixed Switching Frequency
- Voltage Mode Non-synchronous PWM Control
- Thermal Shutdown and Current Limit Protection
- ON/OFF Shutdown Control Input
- Operating Voltage can be up to 40V
- Output Load Current: 2A
- SOP8L Package

Applications

- Simple High efficiency Step-down Regulator
- On-card Switching Regulators
- Positive to Negative Converter

Pin Assignments



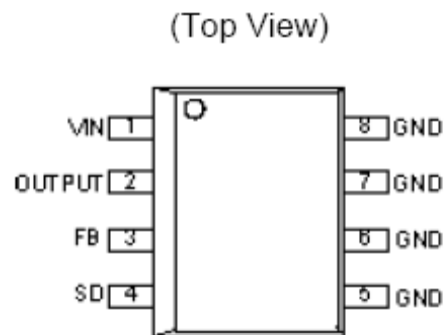
LSP3127

52KHZ 2A PWM Buck DC/DC Converter

Features

- Output Voltage: 3.3V, 5V, 12V and Adjustable
- Adjustable version output voltage range: 1.23V to 37V
- 52KHZ +/-15% Fixed Switching Frequency
- Voltage Mode Non-synchronous PWM Control
- Thermal Shutdown and Current Limit Protection
- ON/OFF Shutdown Control Input
- Operating Voltage can be up to 40V
- Output Load Current: 2A
- SOP8-EP Package

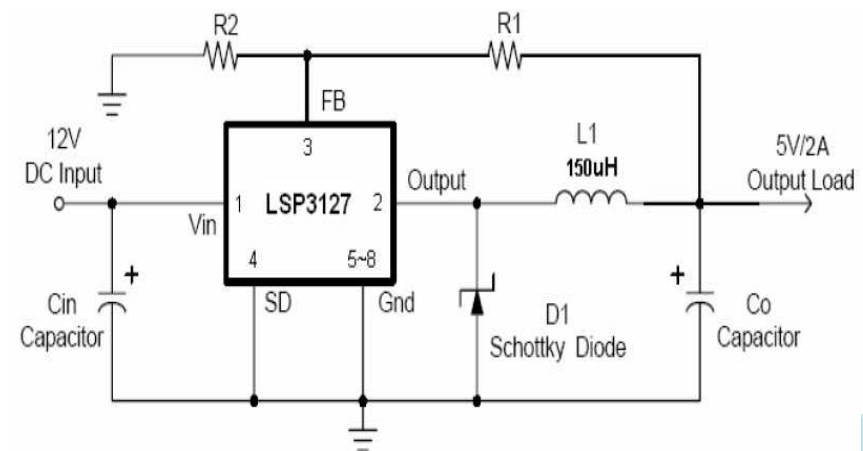
Pin Assignments



Applications

- Simple High efficiency Step-down Regulator
- On-card Switching Regulators
- Positive to Negative Converter

Application Circuit



LSP3128

30V Wide Input 3A Step Down Converter

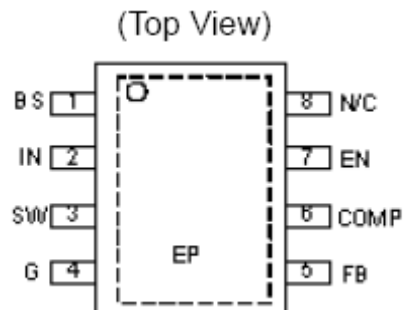
Features

- 3A Output Current
- Up to 30V Input Voltage
- 8uA Shutdown Supply Current
- 400KHZ Switching Frequency
- Adjustable Output Voltage
- Thermal Shutdown and Current Limit Protection
- Frequency Foldback at Short Circuit
- Stability with a Low ESR Ceramic Capacitors
- SOP8L-EP Package

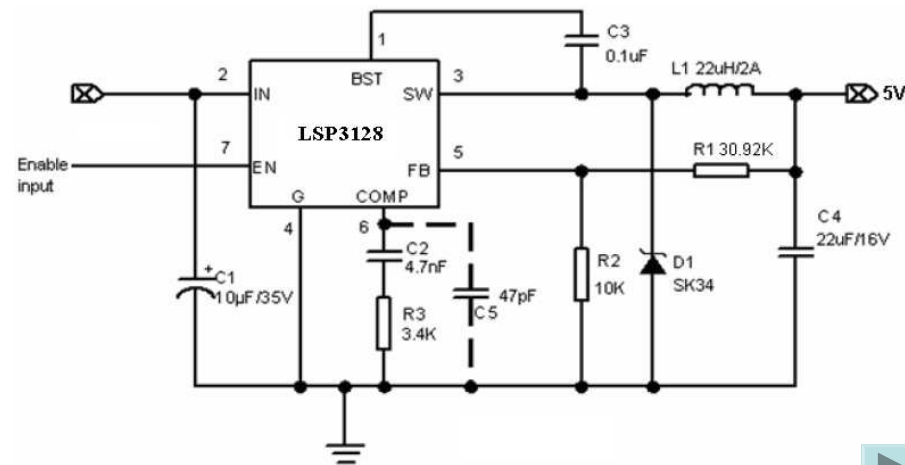
Applications

- TFT LCD Monitors
- Portable DVDs
- Car-Powered or Battery-Powered Equipment
- Set-Top Boxes
- Telecom Power Supplies
- DSL and Cable Modems and Routers
- Termination Supplies

Pin Assignments



Application Circuit



LSP3130

PWM Control 2A Step Down Converter

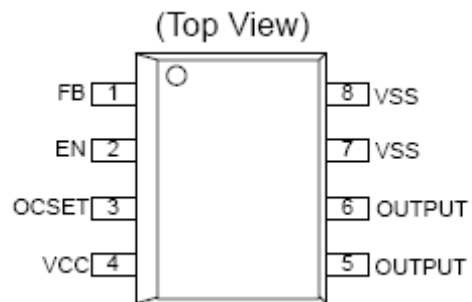
Features

- Input Voltage: 3.6V to 18V
- Output Voltage: 0.8V to VCC
- Duty ratio: 0% to 100% PWM Control
- Oscillation Frequency: 300KHZ typ.
- Soft-start, Current Limit, Enable Function
- Thermal Shutdown Function
- Built-in Internal SW P-Channel MOSFET
- SOP8L Package

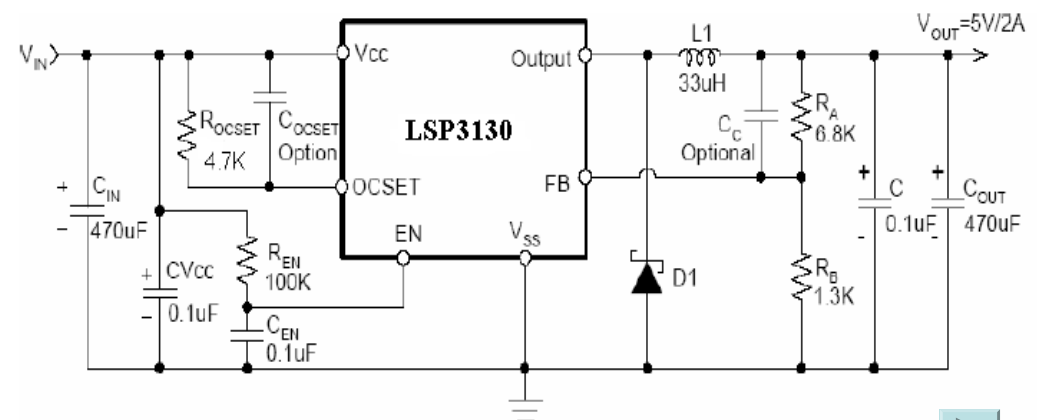
Applications

- TFT LCD Monitors
- DVD Video Player
- PC Motherboard
- Set-Top Boxes
- Telecom Power Supplies
- Printer and Other Peripheral Equipment
- Networking Power Supply

Pin Assignments



Application Circuit



LSP3131

PWM Control 3A Step Down Converter

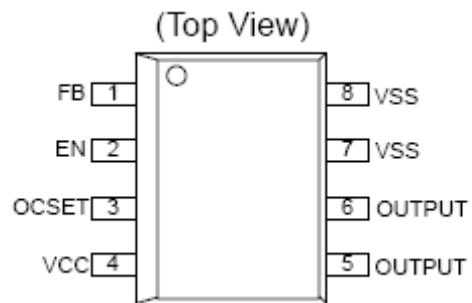
Features

- Input Voltage: 3.6V to 23V
- Output Voltage: 0.8V to VCC
- Duty ratio: 0% to 100% PWM Control
- Oscillation Frequency: 300KHZ typ.
- Soft-start, Current Limit, Enable Function
- Thermal Shutdown Function
- Built-in Internal SW P-Channel MOSFET
- SOP8L Package

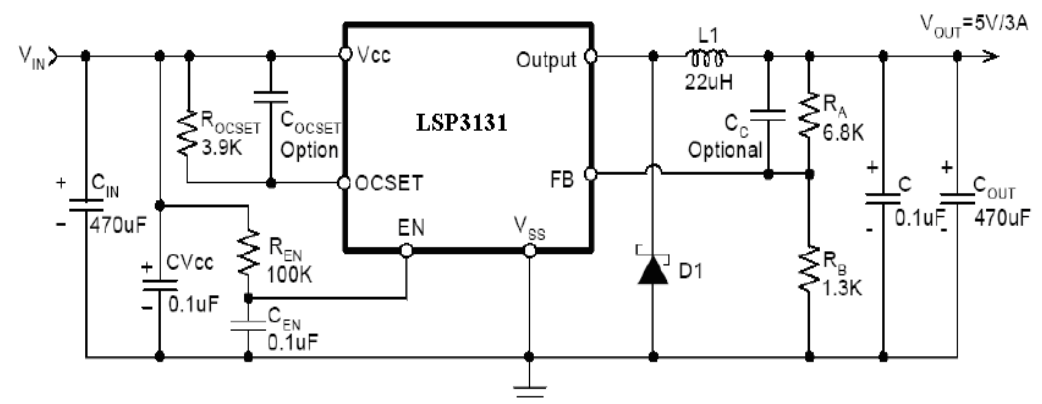
Applications

- TFT LCD Monitors
- DVD Video Player
- PC Motherboard
- Set-Top Boxes
- Telecom Power Supplies
- Printer and Other Peripheral Equipment
- Networking Power Supply

Pin Assignments



Application Circuit



LSP3132

PWM Control 5A Step Down Converter

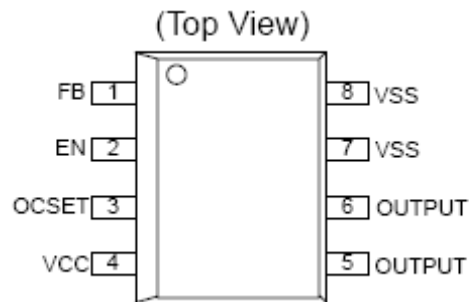
Features

- Input Voltage: 3.6V to 23V
- Output Voltage: 0.8V to VCC
- Duty ratio: 0% to 100% PWM Control
- Oscillation Frequency: 300KHZ typ.
- Soft-start, Current Limit, Enable Function
- Thermal Shutdown Function
- Built-in Internal SW P-Channel MOSFET
- SOP8L Package

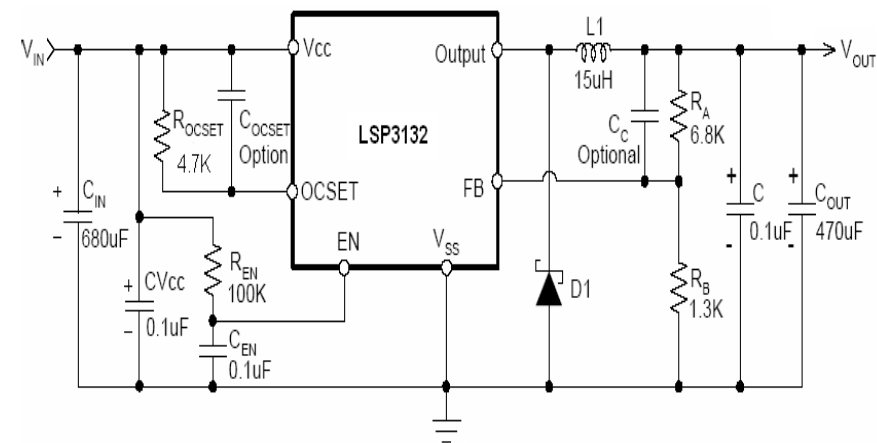
Applications

- TFT LCD Monitors
- DVD Video Player
- PC Motherboard
- Set-Top Boxes
- Telecom Power Supplies
- Printer and Other Peripheral Equipment
- Networking Power Supply

Pin Assignments



Application Circuit



LSP3133

PWM Control 2A Step Down Converter

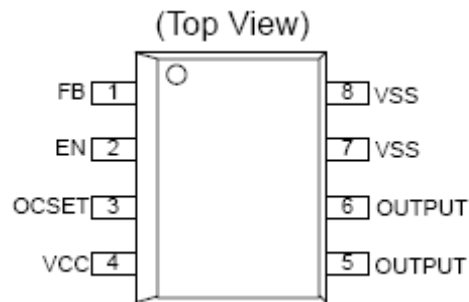
Features

- Input Voltage: 3.6V to 23V
- Output Voltage: 0.8V to VCC
- Duty ratio: 0% to 100% PWM Control
- Oscillation Frequency: 300KHZ typ.
- Soft-start, Current Limit, Enable Function
- Thermal Shutdown Function
- Built-in Internal SW P-Channel MOSFET
- SOP8L Package

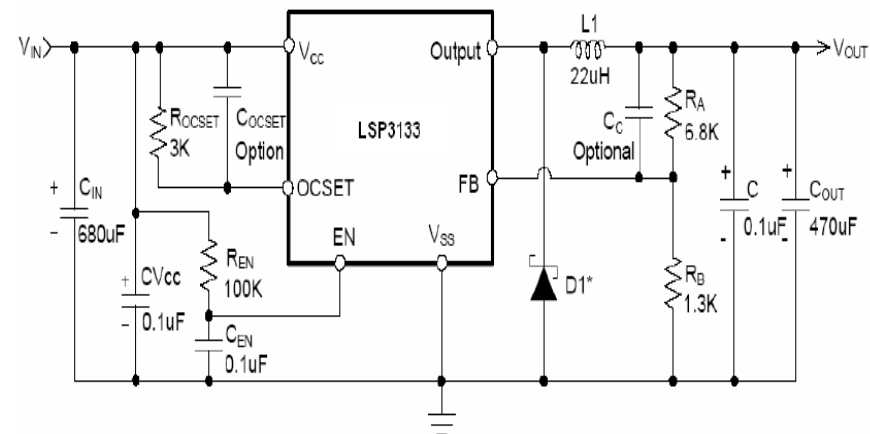
Applications

- TFT LCD Monitors
- DVD Video Player
- PC Motherboard
- Set-Top Boxes
- Telecom Power Supplies
- Printer and Other Peripheral Equipment
- Networking Power Supply

Pin Assignments



Application Circuit



LSP3170

2A Step Down DC/DC Converter

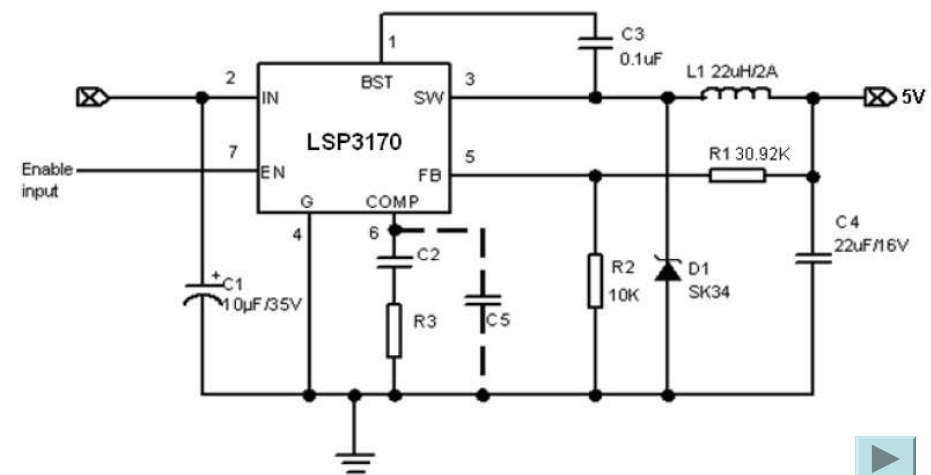
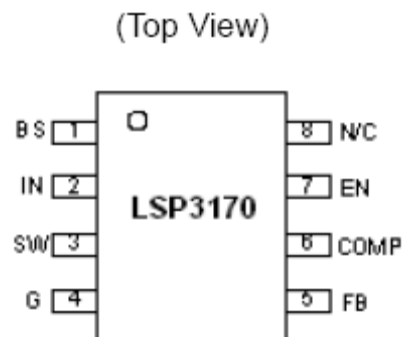
Features

- 2A Output Current
- 7V to 20V Input Range
- 40uA Shutdown Supply Current
- 400KHZ Switching Frequency
- Adjustable Output Voltage
- Thermal Shutdown and Current Limit Protection
- Frequency Foldback at Short Circuit
- Stability with a Low ESR Ceramic Capacitors
- SOP8L Package

Applications

- TFT LCD Monitors
- Portable DVDs
- Car-Powered or Battery-Powered Equipment
- Set-Top Boxes
- Telecom Power Supplies
- DSL and Cable Modems and Routers
- Termination Supplies

Pin Assignments



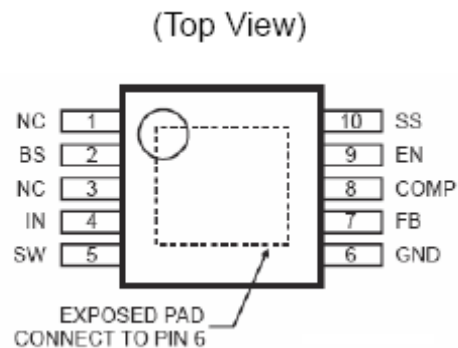
LSP3171

MSOP10L 2A Step Down DC/DC Converter

Features

- 2A Output Current
- 7V to 20V Input Range
- 40uA Shutdown Supply Current
- 400KHZ Switching Frequency
- Adjustable Output Voltage
- Thermal Shutdown and Current Limit Protection
- Frequency Foldback at Short Circuit
- Stability with a Low ESR Ceramic Capacitors
- MSOP10L-EP Package

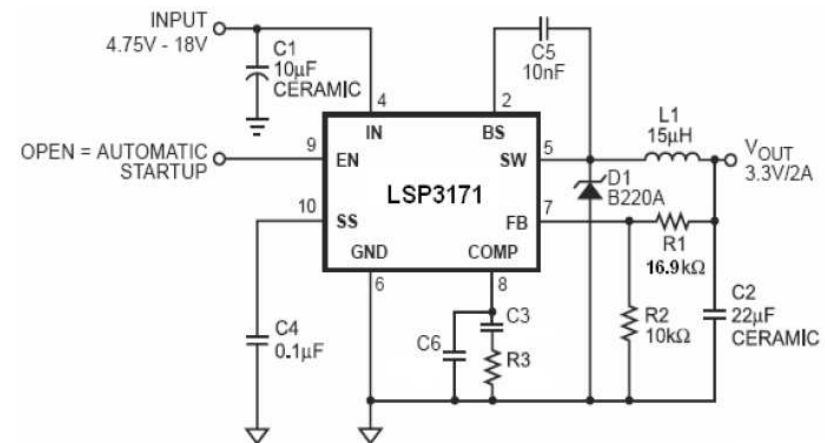
Pin Assignments



Applications

- TFT LCD Monitors
- Portable DVDs
- Car-Powered or Battery-Powered Equipment
- Set-Top Boxes
- Telecom Power Supplies
- DSL and Cable Modems and Routers
- Termination Supplies

Application Circuit



LSP3172

Wide Input 2.5A Step Down DC/DC Converter

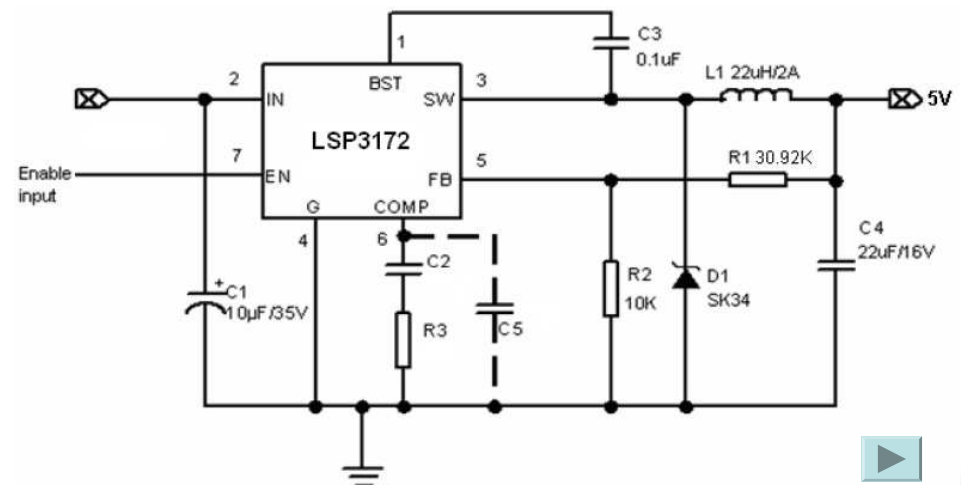
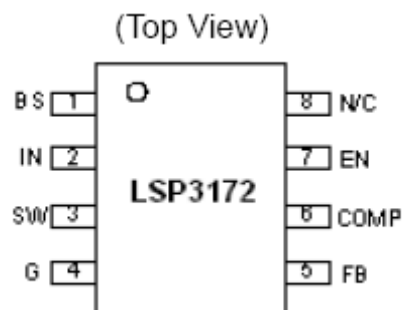
Features

- 2.5A Output Current
- 7V to 30V Input Range
- 40uA Shutdown Supply Current
- 400KHZ Switching Frequency
- Adjustable Output Voltage
- Thermal Shutdown and Current Limit Protection
- Frequency Foldback at Short Circuit
- Stability with a Low ESR Ceramic Capacitors
- SOP8L Package

Applications

- TFT LCD Monitors
- Portable DVDs
- Car-Powered or Battery-Powered Equipment
- Set-Top Boxes
- Telecom Power Supplies
- DSL and Cable Modems and Routers
- Termination Supplies

Pin Assignments



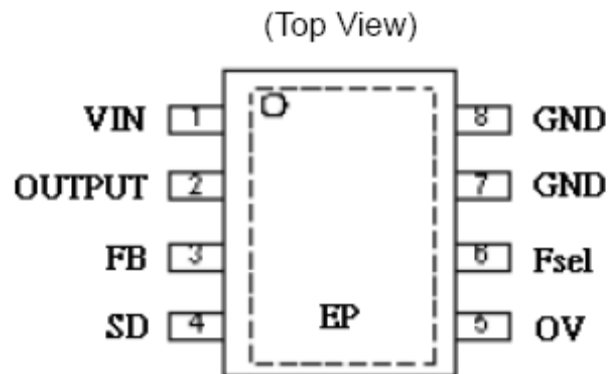
LSP5704

High Input Voltage 2A Step Down DC/DC Converter

Features

- 2A Output Current
- Maximum 40V Input Voltage
- 70uA Shutdown Supply Current
- Adjustable Switching Frequency
- Adjustable Output Voltage
- Over Voltage Protection
- Voltage Mode Non-synchronous PWM Control
- Current Limit and Thermal Shutdown Protection
- SOP8-EP Package

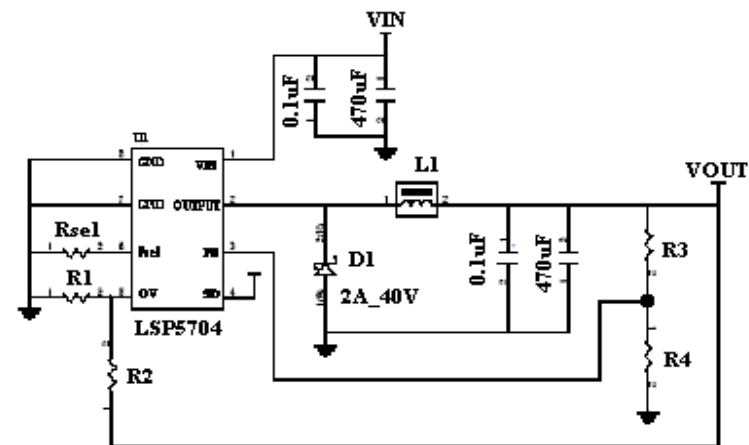
Pin Assignments



Applications

- TFT LCD Monitors
- Portable DVDs
- Car- Powered or Battery-Powered Equipments
- Set-Top Boxes
- Telecom Power Supplies
- DSL and Cable Modems and Routers
- Termination Supplies

Application Circuit



Step-up Converter

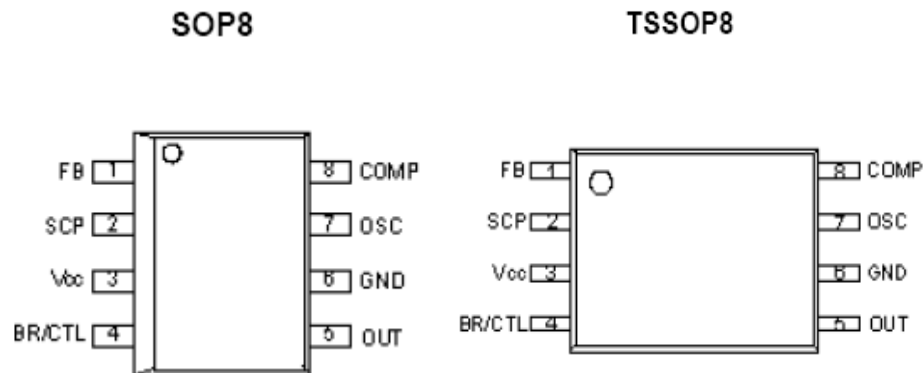
LSP3601

Step-Up DC/DC Converter

Features

- Wide Supply Voltage Operating Range: 1.8V to 15V
- Reference Voltage Precision: 4%
- 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

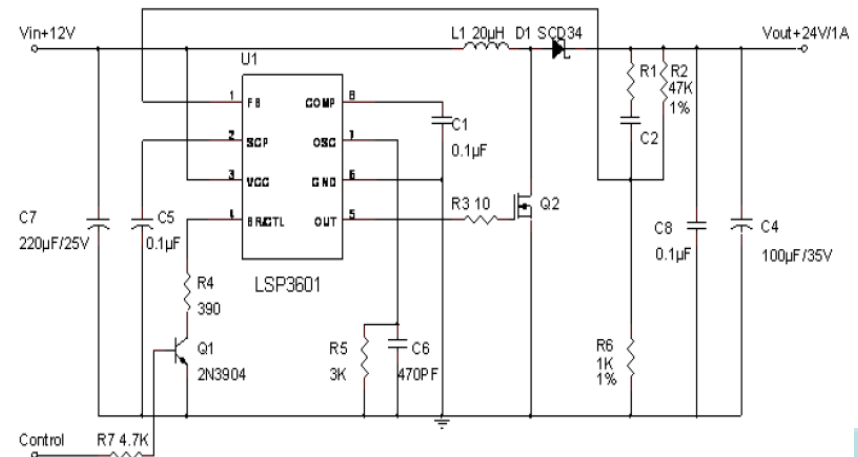
Pin Assignments



Applications

- Portable DVDs
- Battery-Powered Equipment
- Digital Camera
- PDA
- GPS
- Portable Equipment

Application Circuit



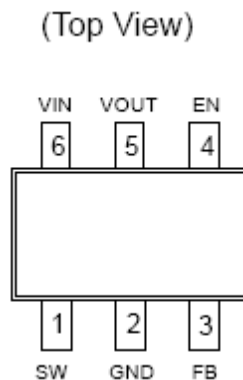
LSP3602

1.2MHZ 600mA Synchronous Step-Up Converter

Features

- High Efficiency: Up to 96%
- 1.2MHZ Constant Switching Frequency
- Low Start-up Voltage: 0.85V
- Integrated Main Switch and Synchronous Rectifier.
- No Schottky Diode Required
- 2.5V to 5V Output Voltage Range
- Automatic Pulse Skipping Mode Operation
- Tiny External Components
- <1uA Shutdown Current
- SOT23-6 Package

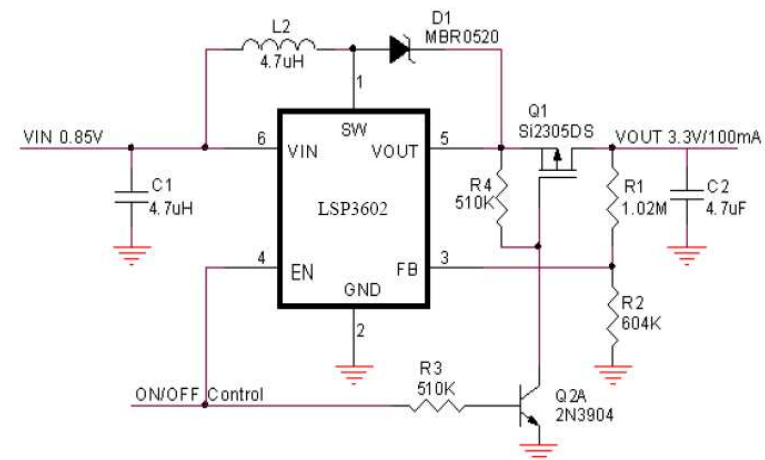
Pin Assignments



Applications

- Palmtop Computers
- Cellular Phones
- Digital Camera and MP3
- PDA
- PC Cards
- Portable Media Player
- Wireless Handsets and DSL Modems

Application Circuit



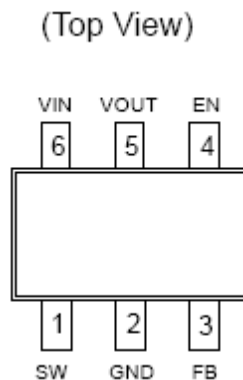
LSP3603

1.2MHz 300mA Synchronous Step-Up Converter

Features

- High Efficiency: Up to 96%
- 1.2MHz Constant Switching Frequency
- Low Start-up Voltage: 0.85V
- Integrated Main Switch and Synchronous Rectifier.
- No Schottky Diode Required
- 2.5V to 5V Output Voltage Range
- Automatic Pulse Skipping Mode Operation
- Tiny External Components
- <1uA Shutdown Current
- SOT23-6 Package

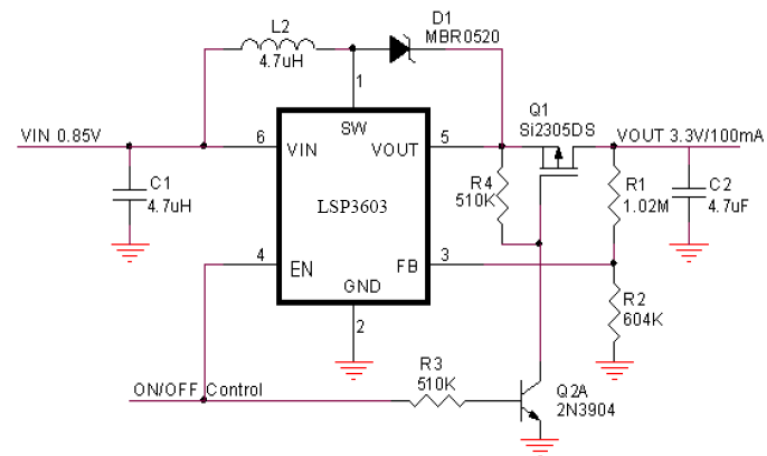
Pin Assignments



Applications

- Palmtop Computers
- Cellular Phones
- Digital Camera and MP3
- PDA
- PC Cards
- Portable Media Player
- Wireless Handsets and DSL Modems

Application Circuit



LSP3604

3W High Power White LED Driver

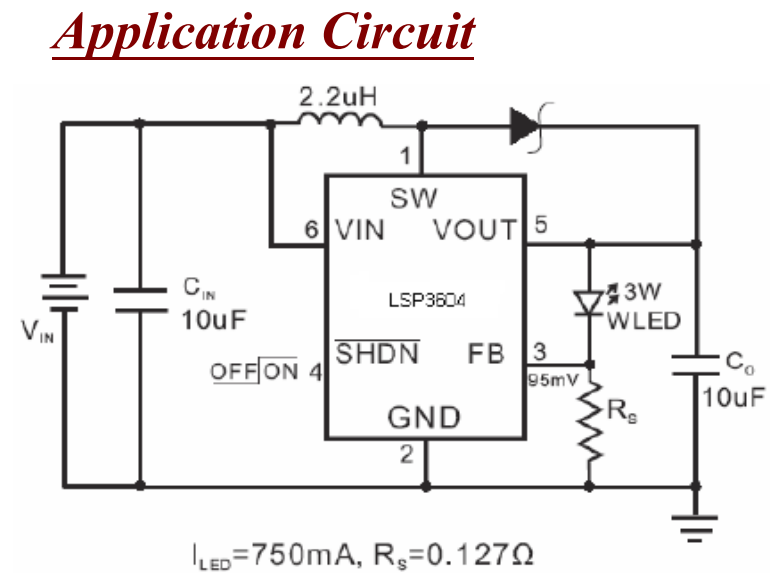
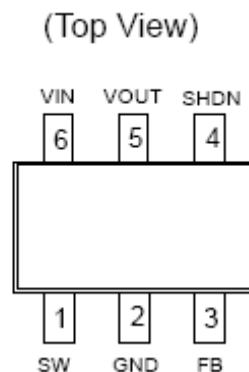
Features

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

Applications

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

Pin Assignments



LSP6501

1.6A, Boost DC-DC Converter

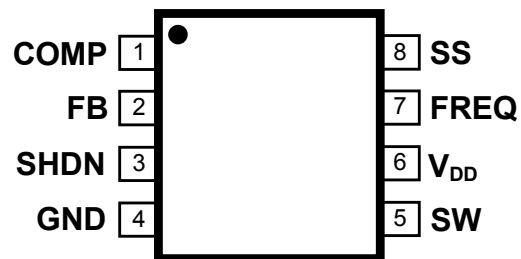
Features

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

Applications

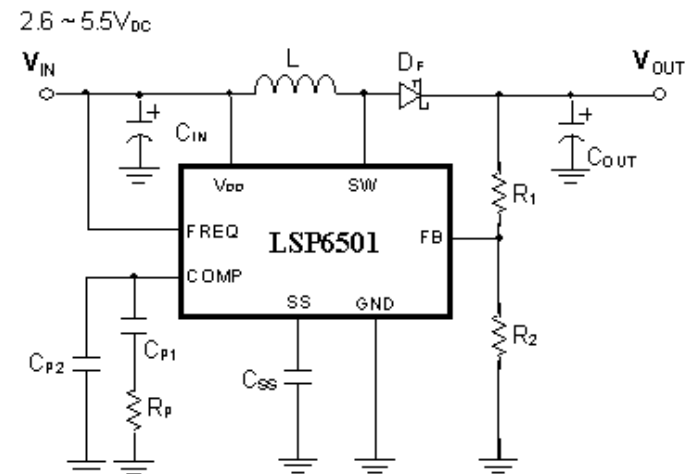
- TFT-LCD Power Management
- Portable DVD player Power Management
- Battery-Powered Equipment
- Digital Camera
- PDA
- GPS
- Portable Equipment

Pin Assignments



**MSOP-8
(Top View)**

Application Circuit



White LED Driver

LSP3301

Fixed Frequency White LED Driver

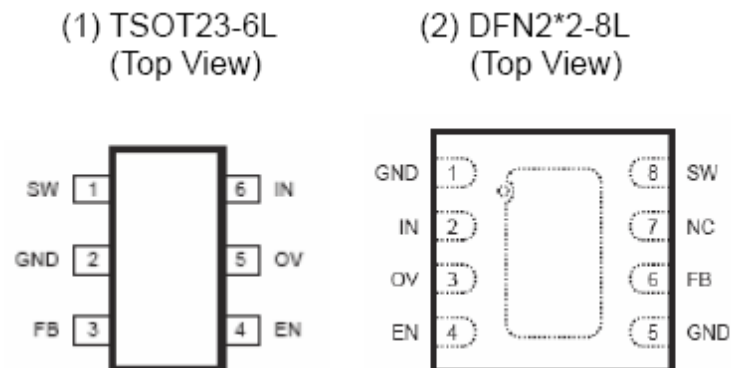
Features

- ON Board Power Transistor
- Drives up to 6 Series White LEDs
- Up to 87% Efficiency
- Over 1MHz Fixed Switching Frequency
- Open Load Protection
- Low 90mV Feedback Voltage
- PWM Dimming
- UVLO and Current Limit
- Available in TSOT23-6L and DFN2*2-8L Package

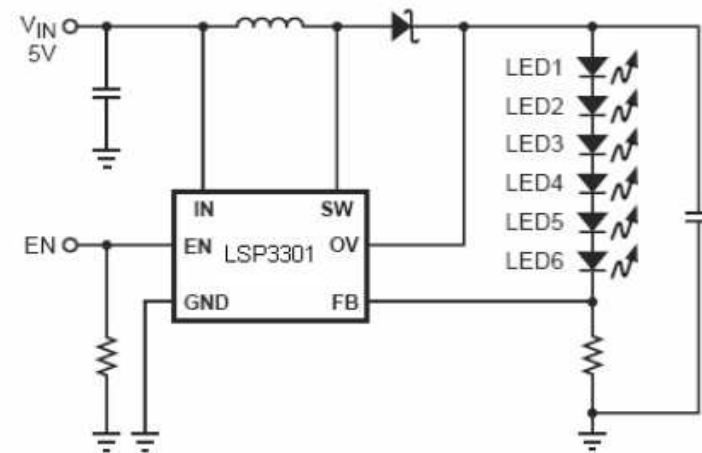
Applications

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

Pin Assignments



Application Circuit



LSP3308A

Six Channels LED Boost Driver

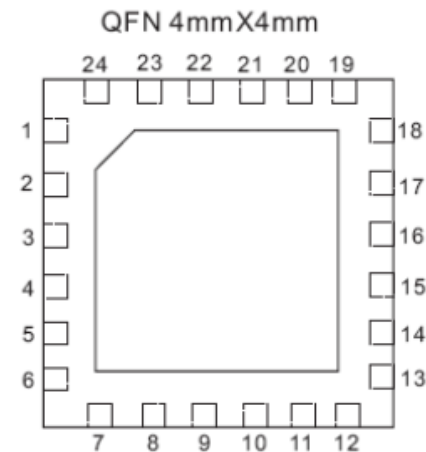
Features

- Six constant-current Output Channels ($I_o=40\text{mA}$ each at $V_{in}=12\text{V}$; $I_o=30\text{mA}$ each at $V_{in}=5\text{V}$)
- Parallel Channels Allow Higher Current per LED String
- Maximum 40V Continuous Voltage Output Limit for Each Channel
- Self-adaptive V_{out} to Fit Different LED Number
- Adjustable Constant LED Current
- Drives 10 or more LEDs Each String as long as the String Voltage less Than 40V
- Internal 2.5A Power MOSFET
- Allow Digital PWM and Analog Dimming
- Wide (100:1) PWM Dimming Range without Color Shift
- Independent Dimming and Shutdown
- Open LED Protection: Adjustable Clamp Voltage
- Short LED Protection
- 3 Frequency Selection: 1.6MHZ/1MHZ/500KHZ
- Wide Input Voltage Range: 4.8V to 28V
- Over Temperature Protection
- Available in QFN4*4-16L Pb-free Package

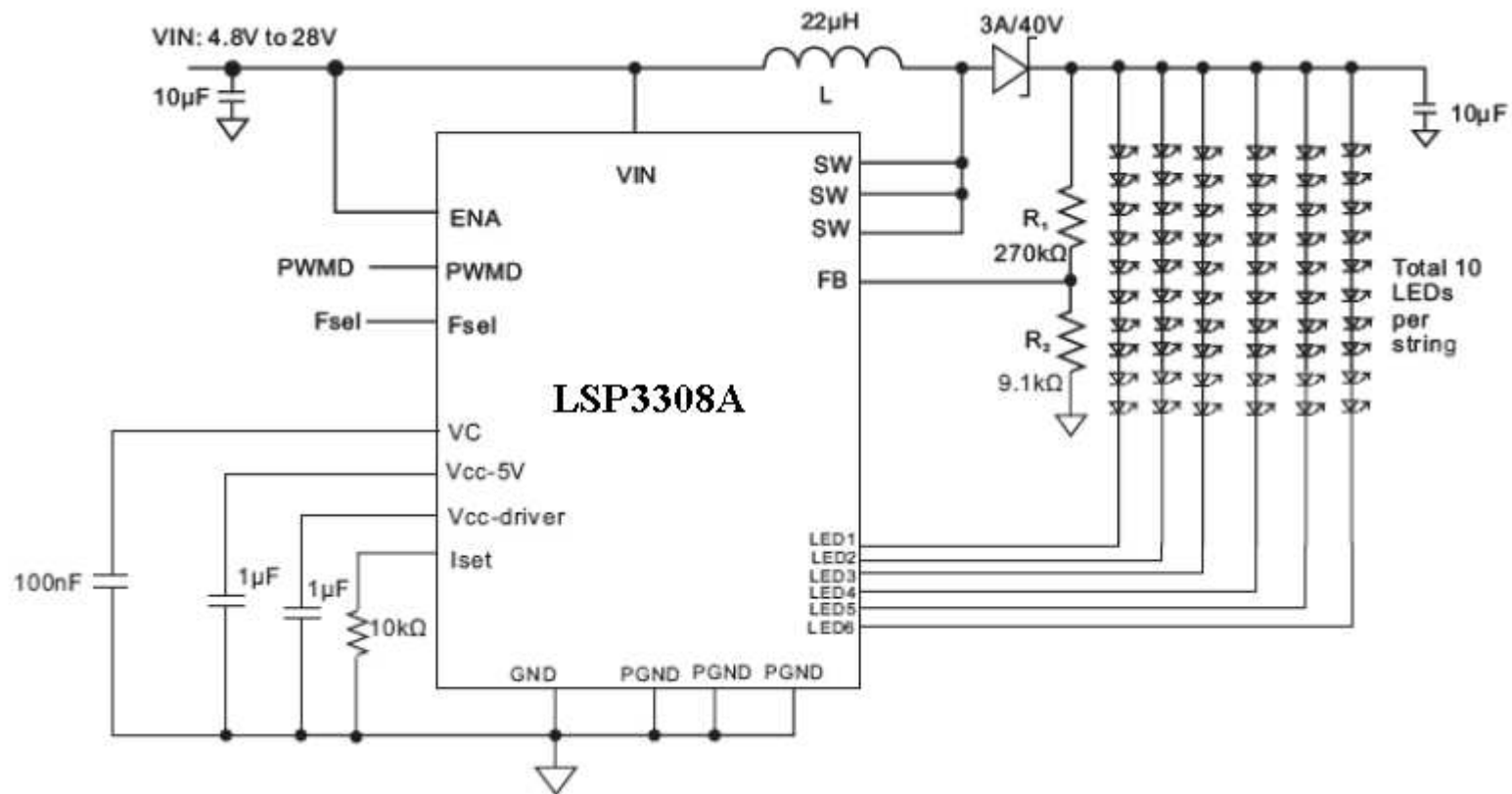
Applications

- TFT LCD Monitors
- Portable DVDs
- Car-Powered or Battery-Powered Equipment
- Set-Top Boxes
- Telecom Power Supplies
- DSL and Cable Modems and Routers
- Termination Supplies

Pin Assignments



Application Circuit



LSP7503

White LED Step-Up Converter

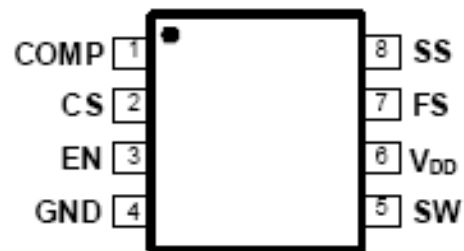
Features

- 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

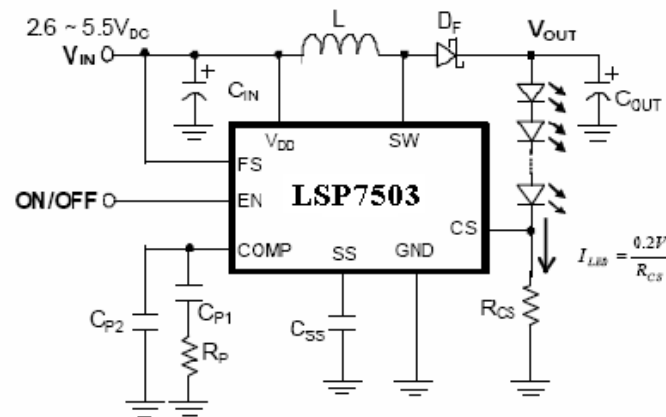
Applications

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

Pin Assignments



MSOP-8
(Top View)



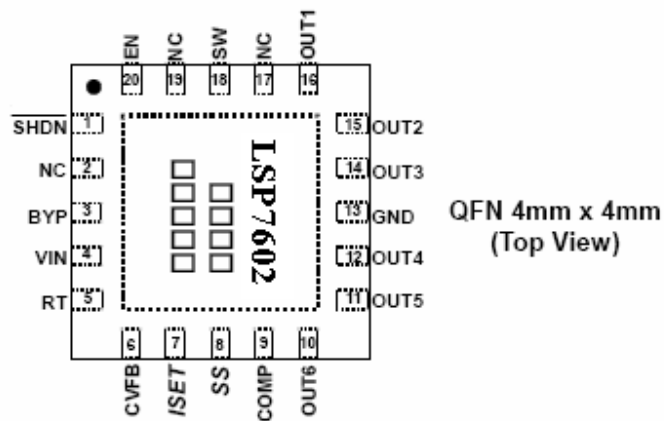
LSP7602

White LED Step-Up Converter

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
- 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

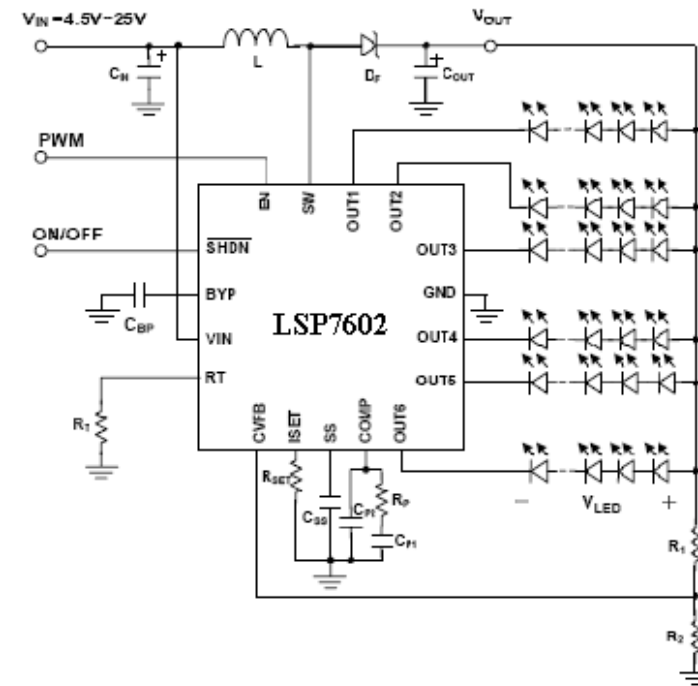
Pin Assignments



Applications

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

Application Circuit



LSP3309

High Power White LED Driver

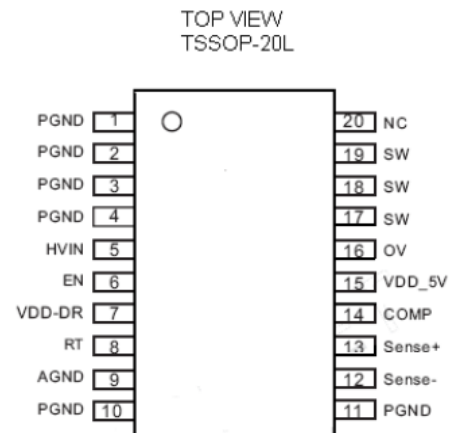
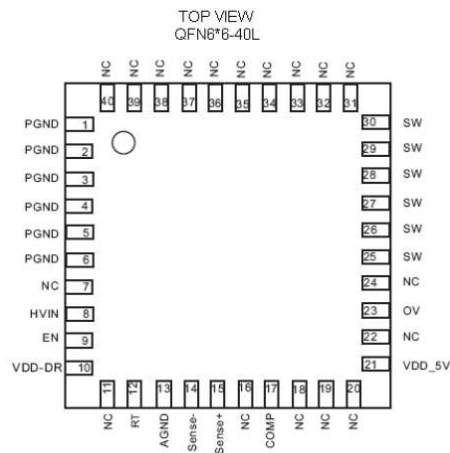
Features

- Output Power Up to 30W
- Chip Enable With Soft-start
- Analog and PWM Dimming
- Low Quiescent Current
- Switching Frequency Adjustable
- Support Buck/ Boost/ Sepic Topology
- Over Current Protection and Over Voltage Protection
- UVLO and Thermal Shutdown
- 40-Pin QFN6*6 and TSSOP-20 Package

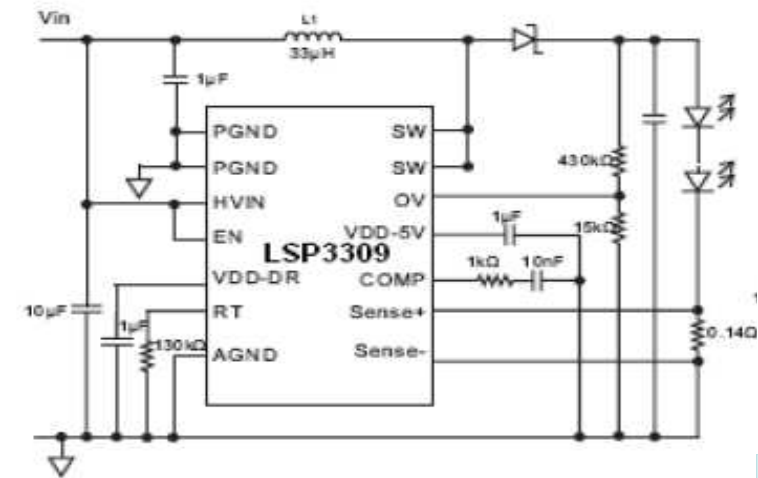
Applications

- Low Voltage Halogen Replacement LEDs
- Home Lighting
- Automotive Lighting
- Low Voltage Industrial Lighting
- Street Lighting
- LED Back-up Lighting

Pin Assignments



Application Circuit



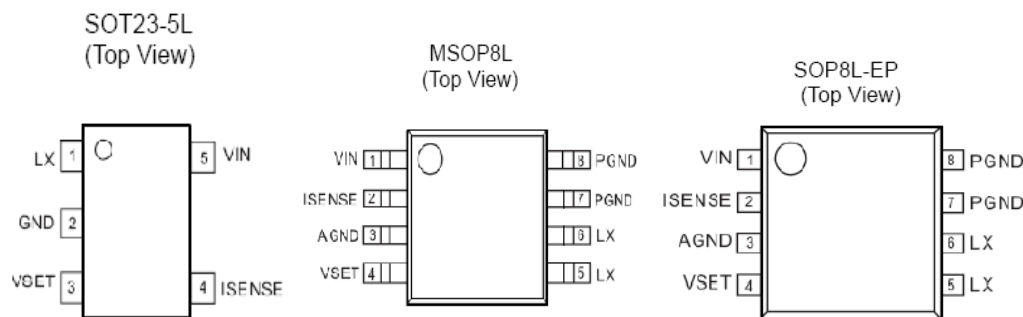
LSP3312

1.4A High Voltage White LED Driver

Features

- Wide Input Voltage Range: 6V~38V
- 1.4A Output Current
- Dimming Control: DC Voltage and PWM
- Internal PWM Filter
- Soft-start Function
- Enable Function
- Up to 1MHZ Switching Frequency
- Inherent Open-circuit LED Protection
- Typical 4% Output Current Accuracy
- SOT23-5, MSOP8 and SOP8-EP Package

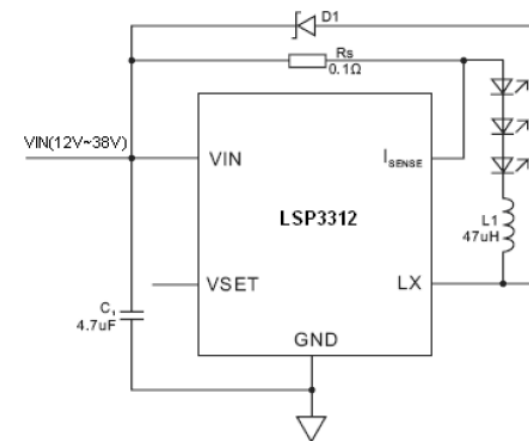
Pin Assignments



Applications

- Low Voltage Halogen Replacement LEDs
- Home Lighting
- Automotive Lighting
- Low Voltage Industrial Lighting
- Street Lighting
- LED Back-up Lighting

Application Circuit



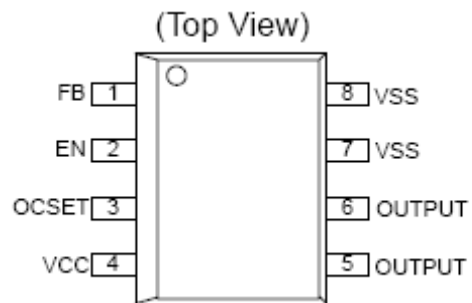
LSP7501

20V/2A High Power LED Driver

Features

- Input Voltage: 3.6V to 20V
- 0.2V Low Feedback Voltage
- Duty ratio: 0% to 100% PWM Control
- Oscillation Frequency: 600KHZ typ.
- Soft-start, Current Limit, Enable Function
- Thermal Shutdown Function
- Built-in Internal SW P-Channel MOSFET
- SOP8L Package

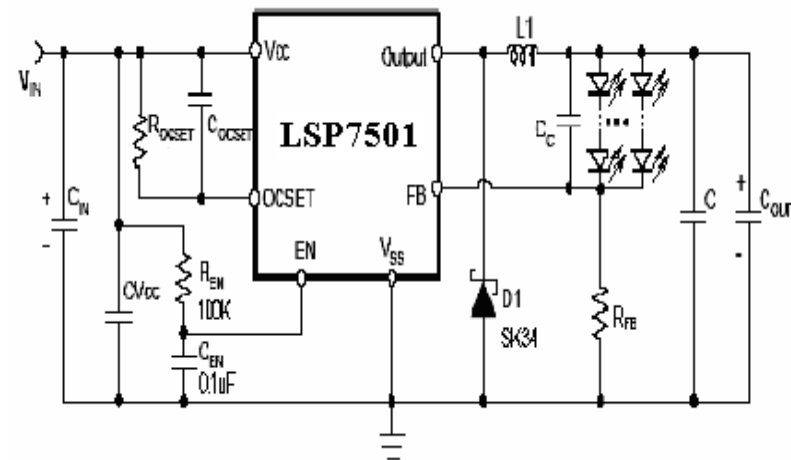
Pin Assignments



Applications

- Low Voltage Halogen Replacement LEDs
- Home Lighting
- Automotive Lighting
- Low Voltage Industrial Lighting
- Street Lighting
- LED Back-up Lighting

Application Circuit



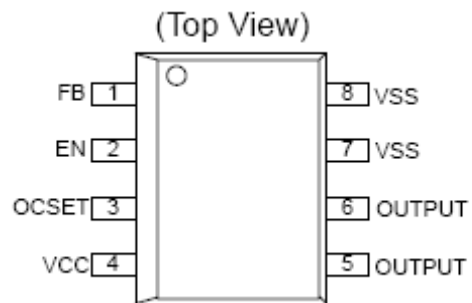
LSP7502

20V/3A High Power LED Driver

Features

- Input Voltage: 3.6V to 20V
- 0.2V Low Feedback Voltage
- Duty ratio: 0% to 100% PWM Control
- Oscillation Frequency: 600KHZ typ.
- Soft-start, Current Limit, Enable Function
- Thermal Shutdown Function
- Built-in Internal SW P-Channel MOSFET
- SOP8L Package

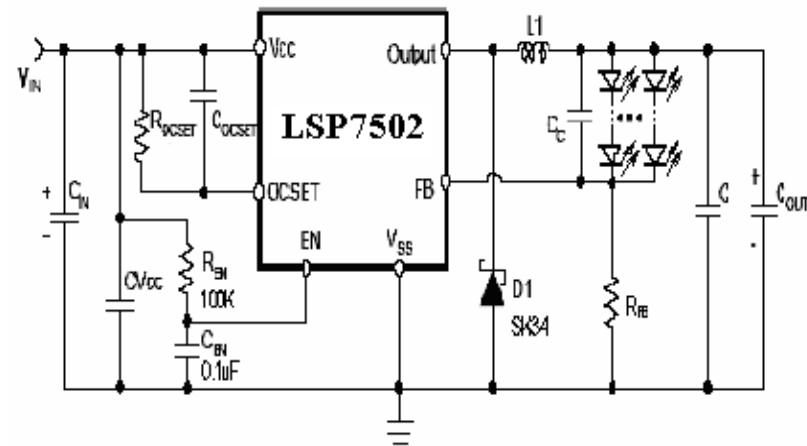
Pin Assignments



Applications

- Low Voltage Halogen Replacement LEDs
- Home Lighting
- Automotive Lighting
- Low Voltage Industrial Lighting
- Street Lighting
- LED Back-up Lighting

Application Circuit



LSP7603

700mA High Voltage Adjustable Current Regulator

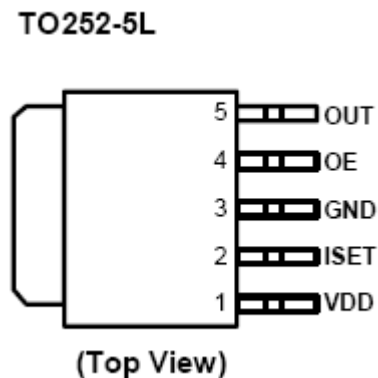
Features

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

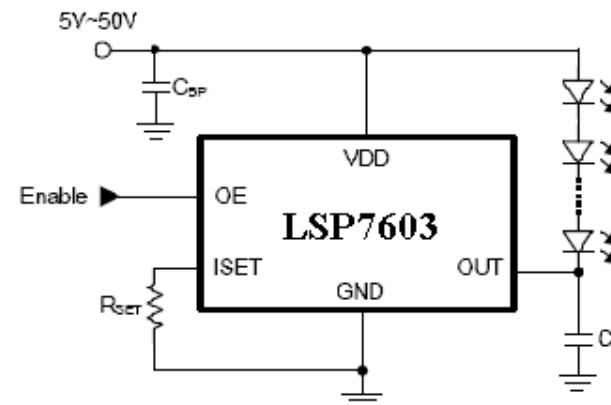
Applications

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

Pin Assignments



Application Circuit



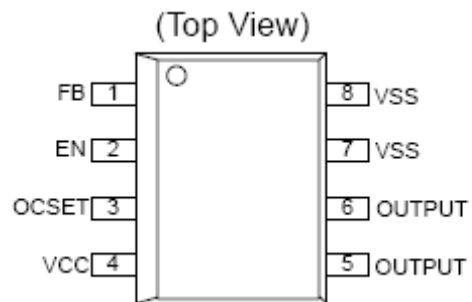
LSP7701

30V/2A High Power LED Driver

Features

- Input Voltage: 3.6V to 30V
- 0.2V Low Feedback Voltage
- Duty ratio: 0% to 100% PWM Control
- Oscillation Frequency: 600KHZ typ.
- Soft-start, Current Limit, Enable Function
- Thermal Shutdown Function
- Built-in Internal SW P-Channel MOSFET
- SOP8L Package

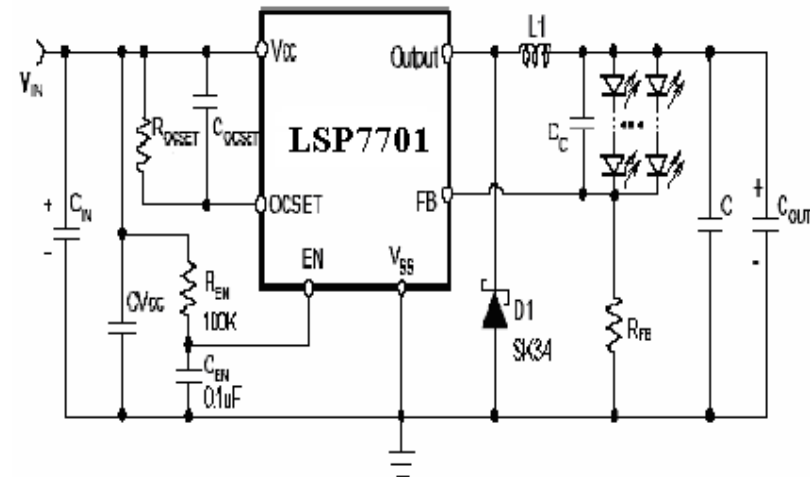
Pin Assignments



Applications

- Low Voltage Halogen Replacement LEDs
- Home Lighting
- Automotive Lighting
- Low Voltage Industrial Lighting
- Street Lighting
- LED Back-up Lighting

Application Circuit



LSP7702

30V/3A High Power LED Driver

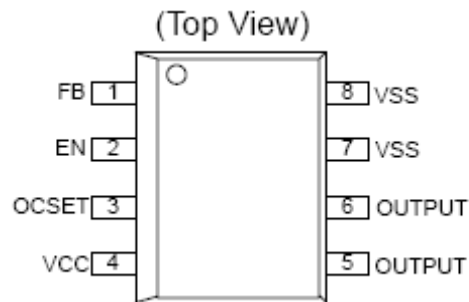
Features

- Input Voltage: 3.6V to 30V
- 0.2V Low Feedback Voltage
- Duty ratio: 0% to 100% PWM Control
- Oscillation Frequency: 600KHZ typ.
- Soft-start, Current Limit, Enable Function
- Thermal Shutdown Function
- Built-in Internal SW P-Channel MOSFET
- SOP8L Package

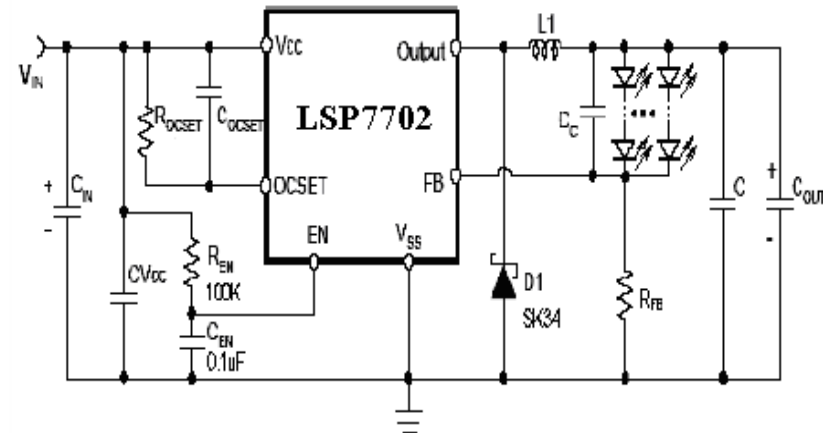
Applications

- Low Voltage Halogen Replacement LEDs
- Home Lighting
- Automotive Lighting
- Low Voltage Industrial Lighting
- Street Lighting
- LED Back-up Lighting

Pin Assignments



Application Circuit



LSP7704

High Input Voltage 2A Step Down DC/DC Converter

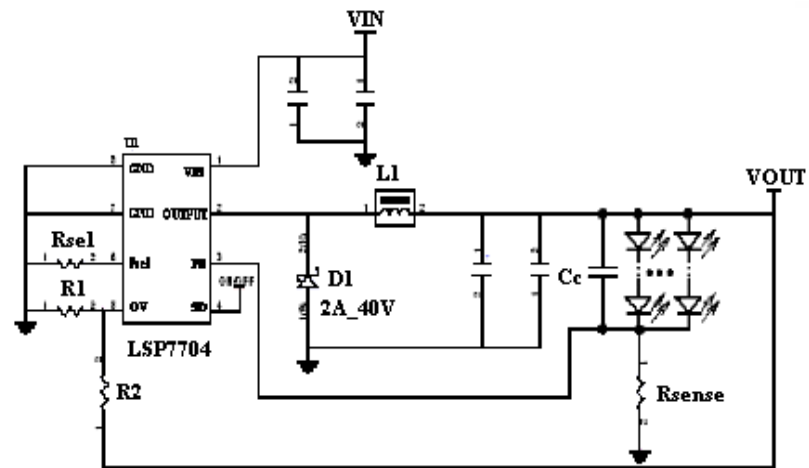
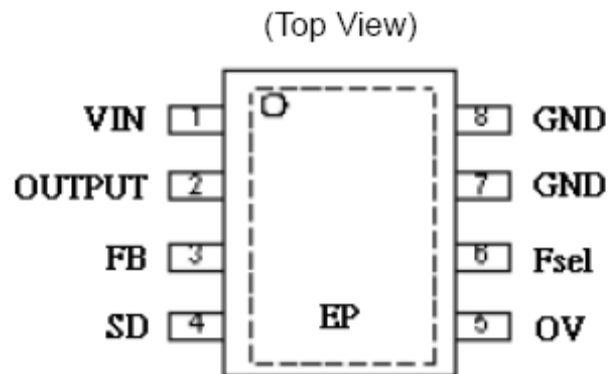
Features

- 2A Output Current
- Maximum 40V Input Voltage
- 70uA Shutdown Supply Current
- Adjustable Switching Frequency
- 0.2V Feedback Voltage
- Over Voltage Protection
- Voltage Mode Non-synchronous PWM Control
- Current Limit and Thermal Shutdown Protection
- SOP8-EP Package

Applications

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

Pin Assignments



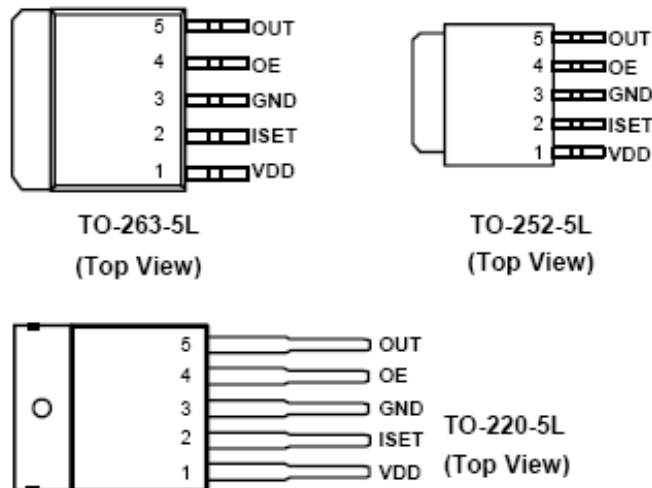
LSP7706

1.1A High Voltage Adjustable Current Regulator

Features

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

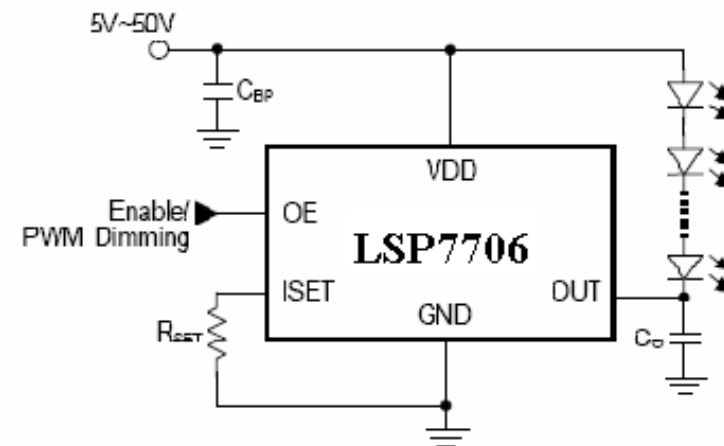
Pin Assignments



Applications

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

Application Circuit



LSP7604

Switching Mode LED Driver

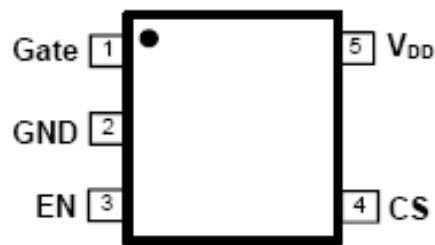
Features

- 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

Applications

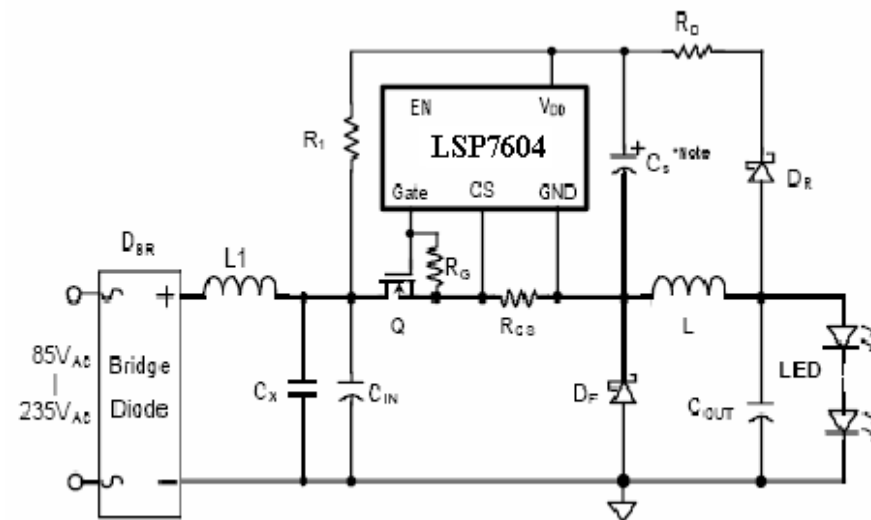
- B22, E27 Lamp Device
- General Purpose Lighting

Pin Assignments



SOT-23-5
(Top View)

Application Circuit



LSP7606

High Brightness WLED Protector

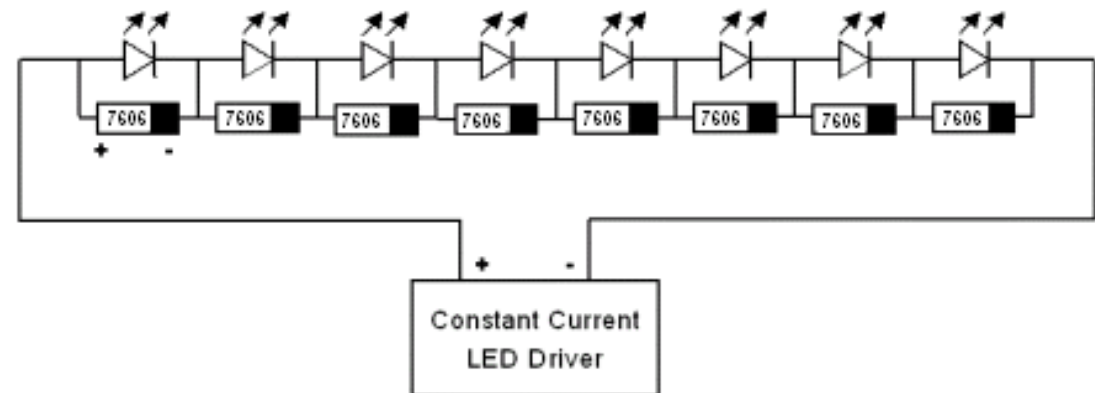
Features

- 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

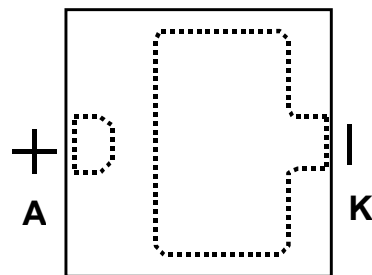
Applications

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

Application Circuit



Pin Assignments



2-Pin 2x2 FBP
(Top View)



Other

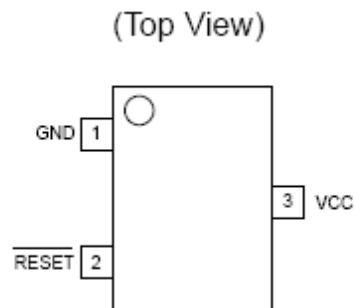
LSP2200

3 PIN Microprocessor Reset Monitors

Features

- Precision VCC Monitor For 2.5V, 3.0V, 3.3V and 5.0V
- Fully Specified Over Temperature
- Available in Three Output Configurations Push-Pull RESET Output
- 250mS Typical Power-On Reset Pulse Width
- 2uA Typical Supply Current
- Guaranteed Reset Valid to Vcc=+1V
- Power Supply Transient Immunity
- SOT23-3L Package

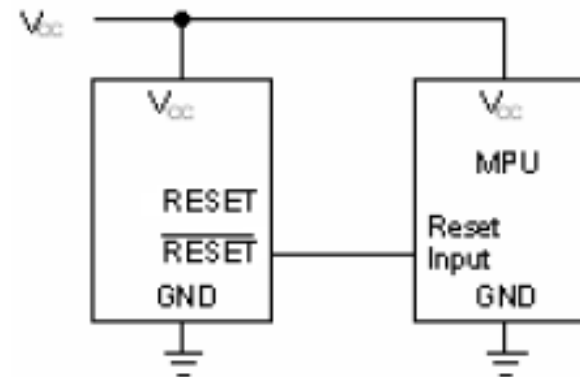
Pin Assignments



Applications

- Computers
- Controllers
- Intelligent Instruments
- Critical MPU and MPU Power Monitoring
- Portable/ Battery-Powered Equipment
- Automotive

Application Circuit

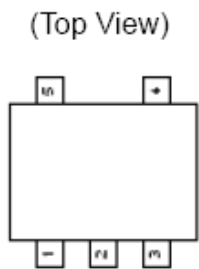


Standalone Linear Li-ion Battery Charger with Thermal Regulation

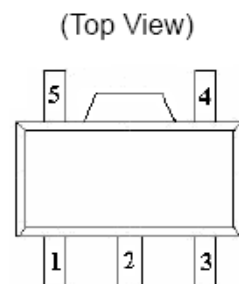
Features

- Programmable Charge Current up to 750mA
- Constant-current/ Constant-voltage Operation
- Charges Single Cell Li-ion Batteries Directly from USB
- Preset 4.2V Charge Voltage with +/-1% Accuracy
- Charge Current Monitor Output For Gas Gauging
- Automatic Recharge
- Charge Status Output Pin
- C/10 Charge Termination
- 25uA Supply Current in Threshold
- 2.9V Trickle Charge Threshold
- Soft-start Limits Inrush Current
- Available in SOT23-5L and SOT89 Packages

Pin Assignments



SOT23-5L

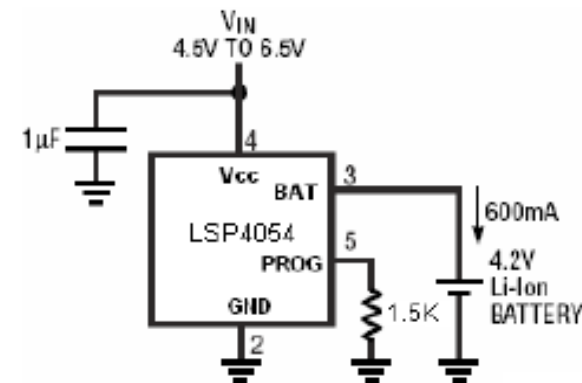


SOT89-5L

Applications

- Cellular Phones
- PDAs
- Bluetooth Application
- Charging Docks and Cradles
- MP3 Players

Application Circuit



600mA single cell Li-ion charger



LSP5101

Current Limited Power Switch

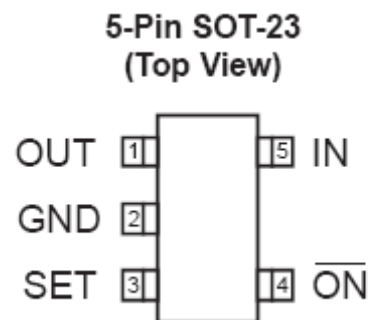
Features

- 2.7V to 5.5V Input Voltage Range
- Programmable Over Current Threshold
- Fast Transient Response
- <1us Response to Short Circuit
- Low Quiescent Current: 15uA Typical
- 160mΩ Typical R_{DS(ON)}
- Only 2.5V needed For ON/OFF Control
- Under Voltage Lockout
- Available in SOT23-5L Packages

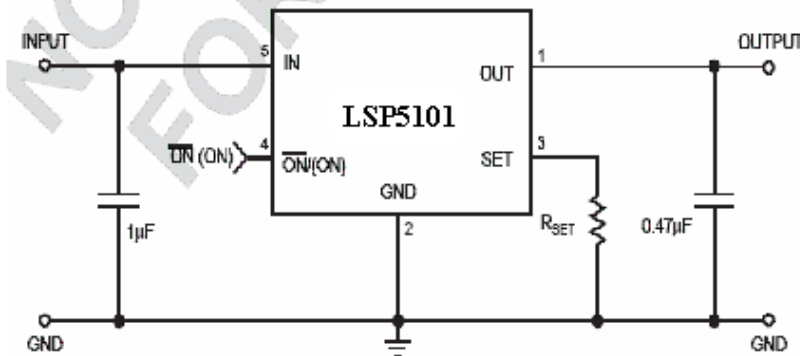
Applications

- Peripheral Poets
- Notebook Computers
- Personal Communication Devices
- Hot Swap Supplies

Pin Assignments



Application Circuit



Q & A

Thank You!

