

36V 3A Switching Current Boost / Buck-Boost / Inverting DC/DC Converter

Features

- Wide 5V to 35V Input Voltage Range
- 1.0V reference adjustable version
- Programmable Frequency (80KHz ~ 0.5MHz)
- Maximum 3A Switching Current
- SW PIN Built in Over Voltage Protection
- Excellent line and load regulation
- EN PIN TTL shutdown capability
- Internal Optimize Power MOSFET
- High efficiency up to 90%
- Available in SOIC-8 package

General Description

The GS3662D regulator is a wide input range, current mode, DC/DC converter which is capable of generating either positive or negative output voltages. It can be configured as either a boost, flyback, SEPIC or inverting converter. The GS3662D built in N-channel power MOSFET and fixed frequency oscillator, current-mode architecture results in stable operation over a wide range of supply and output voltages.

The GS3662D regulator is special design for portable electronic equipment.

Applications

- Automotive and Industrial Boost / Buck-Boost / Inverting Converters
- Portable Electronic Equipment



SOIC-8

Figure1. Package Type of GS3662D

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Pin Configurations

VDD	1	8	SW
EN	2	7	CS
GS3662D			
ROSC	3	6	NC
FB	4	5	GND

Figure2. Pin Configuration of GS3662D (Top View)

Table 1 Pin Description

PIN NUMBER	PIN NAME	FUNCTION
1	VDD	Power supply
2	EN	ON/OFF Control(High Enable)
3	ROSC	Frequency Setting
4	FB	Feedback
5	GND	Ground
6	NC	
7	CS	Current sensing
8	SW	Switch Output

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Function Block

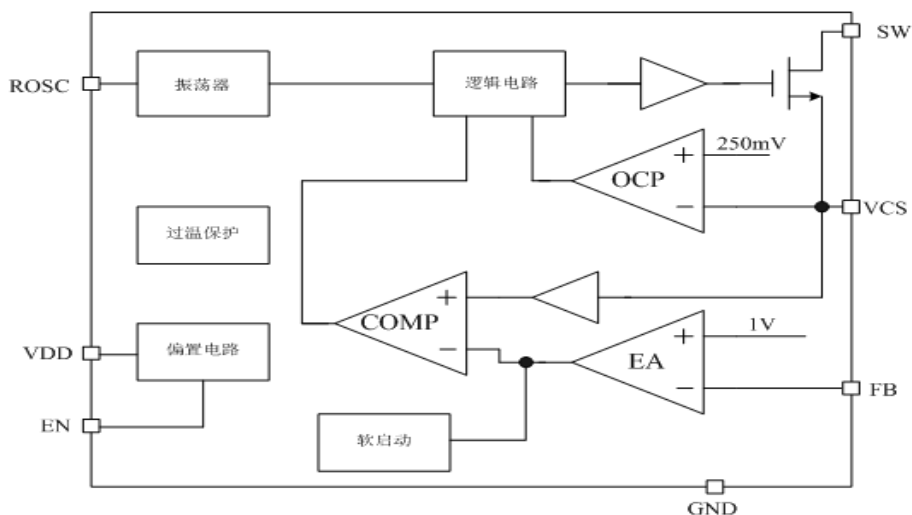


Figure3. Function Block Diagram of GS3662

Typical Application Circuit

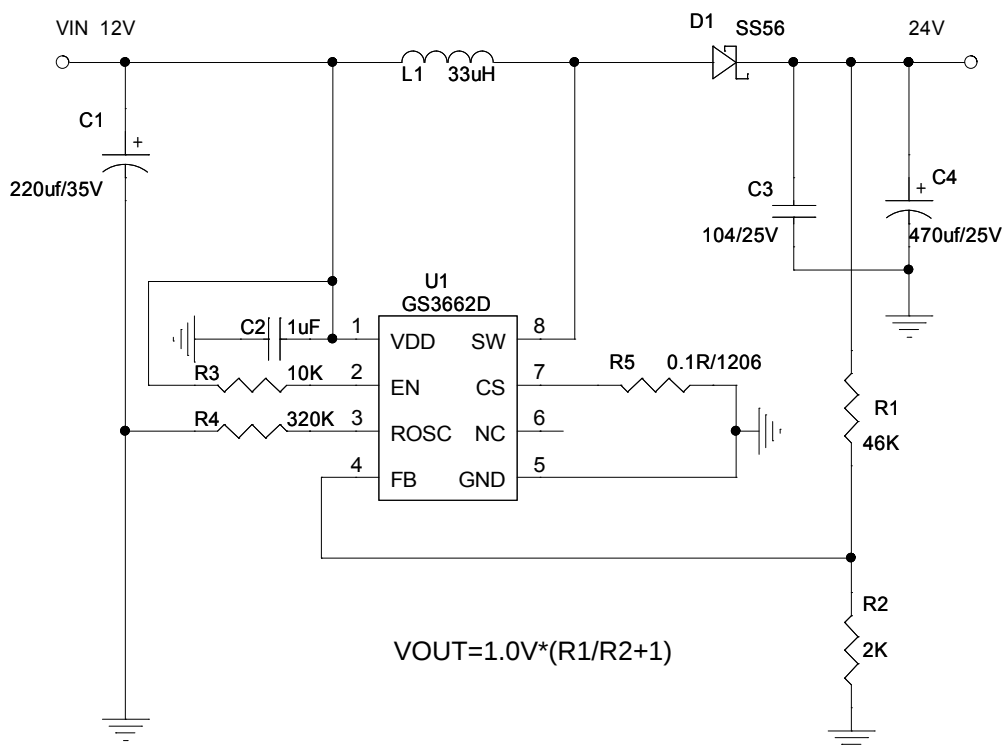


Figure4. GS3662 Typical Application Circuit (Boost Converter)

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Ordering Information

Package	Temperature Range	Part Number	Marking ID	Packing Type
		Lead Free	Lead Free	
		GS3662DX	GS3662DX	Tube

ZGSEMI Pb-free products, as designated with "G1." suffix in the par number, are RoHS compliant.

Absolute Maximum Ratings (Note1)

Parameter	Symbol	Value	Unit
Input Voltage	V _{IN}	5.0 to 35	V
Feedback Pin Voltage	V _{FB}	-0.3 to V _{IN}	V
EN Pin Voltage	V _{EN}	-0.3 to V _{IN}	V
Output Switch Pin Voltage	V _{Output}	6.0 to 42	V
Power Dissipation	P _D	Internally limited	mW
Thermal Resistance (SOP-8L) (Junction to Ambient, No Heatsink, Free Air)	R _{JA}	100	°C/W
Operating Junction Temperature	T _J	-40 to 125	°C
Storage Temperature	T _{STG}	-65 to 150	°C
Lead Temperature (Soldering, 10 sec)	T _{LEAD}	260	°C
ESD (HBM)		2000	V

Note1: Stresses greater than those listed under Maximum Ratings may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operation is not implied. Exposure to absolute maximum rating conditions for extended periods may affect reliability.

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GS3662 Electrical Characteristics

$T_a = 25^\circ\text{C}$; unless otherwise specified.

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
<i>System parameters test circuit figure4</i>						
VFB	Feedback Voltage	$V_{in} = 12\text{V to } 16\text{V}, V_{out}=18\text{V}$ $I_{load}=0.1\text{A to } 1\text{A}$	0.98	1.0	1.03	V
Efficiency	η	$V_{in}=12\text{V}, V_{out}=18.5\text{V}$ $I_{out}=1\text{A}$	-	90	-	%

Electrical Characteristics (DC Parameters)

$V_{in} = 12\text{V}$, $GND=0\text{V}$, V_{in} & GND parallel connect a 220uf/50V capacitor; $I_{out}=0.5\text{A}$, $T_a = 25^\circ\text{C}$; the others floating unless otherwise specified.

Parameters	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input operation voltage	V_{in}		5		35	V
Shutdown Supply Current	I_{STBY}	$V_{EN}=0\text{V}$		70	100	uA
Quiescent Supply Current	I_q	$V_{EN}=2\text{V}$, $V_{FB}=V_{in}$		3.5	5	mA
Oscillator Frequency	F_{osc}		50		500	Khz
Switch Current Limit	I_L	$V_{FB}=0$		5		A
EN Pin Threshold	V_{EN}	High (Regulator ON) Low (Regulator OFF)		2.5 0.5		V
EN Pin Input Leakage Current	I_H	$V_{EN}=2\text{V (ON)}$				uA
	I_L	$V_{EN}=0\text{V (OFF)}$		70	100	uA
Max. Duty Cycle	D_{MAX}	$V_{FB}=0\text{V}$		90		%

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Schottky Diode Selection Table

Current	Surface Mount	Through Hole	VR (The same as system maximum input voltage)				
			20V	30V	40V	50V	60V
1A		√	1N5817	1N5818	1N5819		
3A		√	1N5820	1N5821	1N5822		
		√	MBR320	MBR330	MBR340	MBR350	MBR360
	√		SK32	SK33	SK34	SK35	SK36
	√			30WQ03	30WQ04	30WQ05	
		√		31DQ03	31DQ04	31DQ05	
		√	SR302	SR303	SR304	SR305	SR306

Typical System Application – Boost (Output 24V/0.5A)

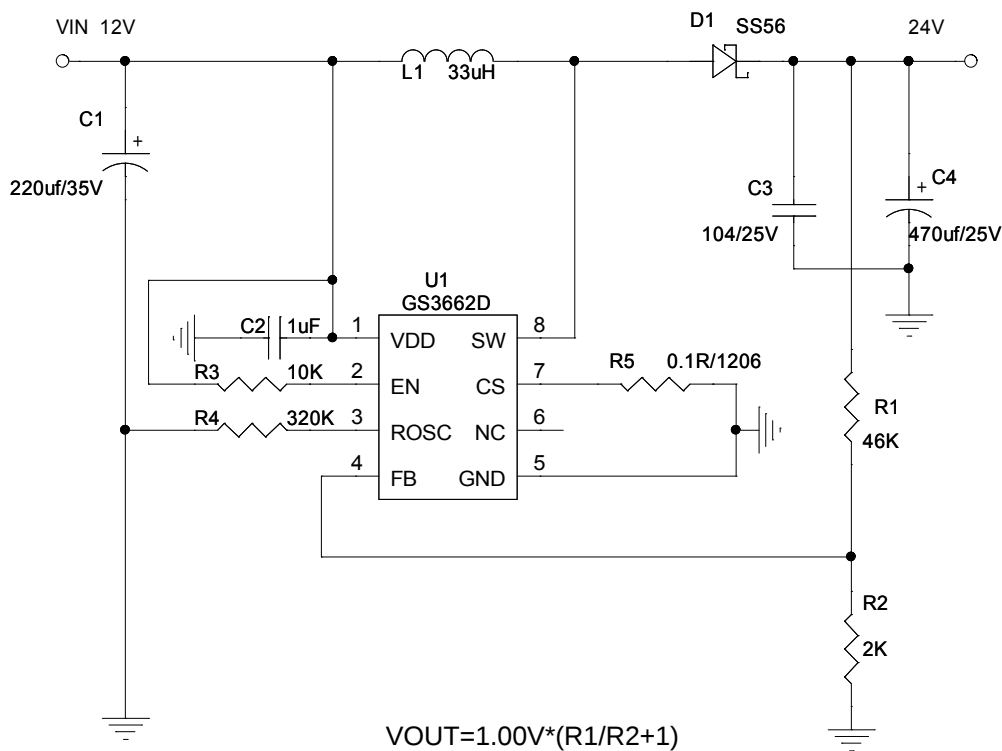
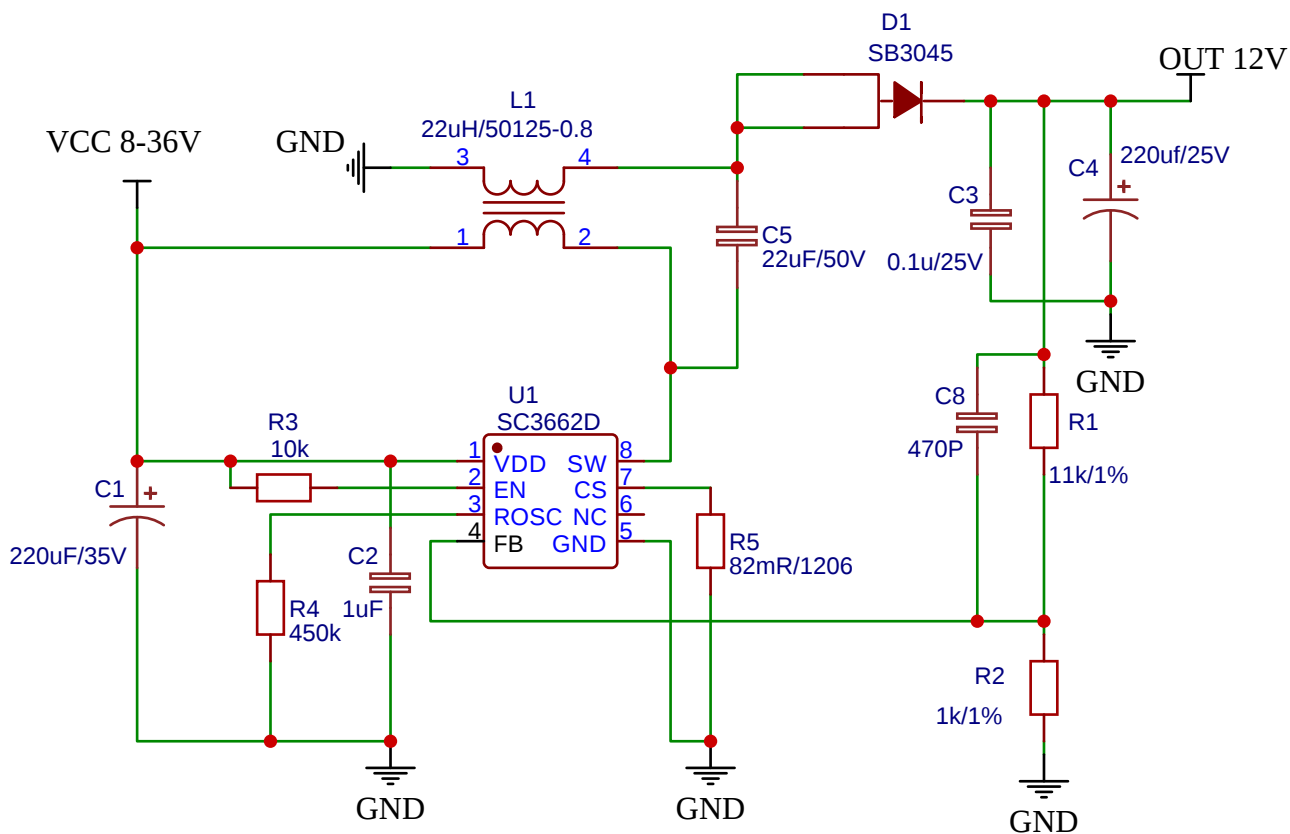


Figure5. GS3662 Typical System Application (Boost Converter)

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Typical System Application – SEPIC Buck-Boost (Input 10V~24V, Output 12V/1.0A)



$$V_{OUT} = 1.0V * (R1/R2 + 1)$$

Figure6. GS3662 Typical System Application (SEPIC Buck-Boost Converter)

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Package Information

SOP8 Package Mechanical Dimensions

SOIC-8

Unit: mm(inch)

