

Features

- Low Cost, Green-Power Burst-Mode PWM
- Very Low Start-up Current (about 6 μ A)
- Low Operating Current (about 3mA)
- Current Mode Operation
- Under Voltage Lockout (UVLO)
- VDD Over Voltage Protection(OVP)
- programmable over-temperature protection
- Internal Latch Circuit(OTP,OVP)
- Built-in soft start with 1ms
- Built-in Frequency jitter for better EMI Signature
- Soft Clamped gate output voltage 16.5V
- VDD over voltage protect 25.5V
- Cycle-by-cycle current limiting
- Sense Fault Protection
- Output SCP (Short circuit Protection)
- Built-in Synchronized Slope Compensation
- Leading-edge blanking on Sense input
- Programmable PWM Frequency
- High-Voltage CMOS Process with ESD
- DIP-8 & SOP-8 Pb-Free Package
- **Compatible with SG6842J&LD7552**

Applications

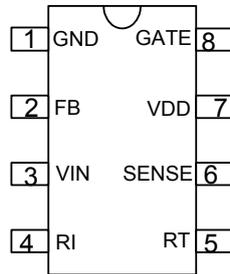
- Power Adaptor
- Battery Charger Adapter
- Open Frame Switching Power Supply
- LCD Monitor

General Description

The CR6842 is a low startup current , low cost, current mode PWM controller with Green-Power & burst-mode power-saving operation. The integrated functions such as the leading-edge blanking of the current sensing, internal slope compensation provide the users a high efficiency, low external component counts, and low cost solution for AC/DC power applications. The special Green-Power function provides off-time modulation to linearly decrease the switching frequency under light-load conditions. And under zero-load conditions, the power supply enters burst-mode to further reduce power consumption by

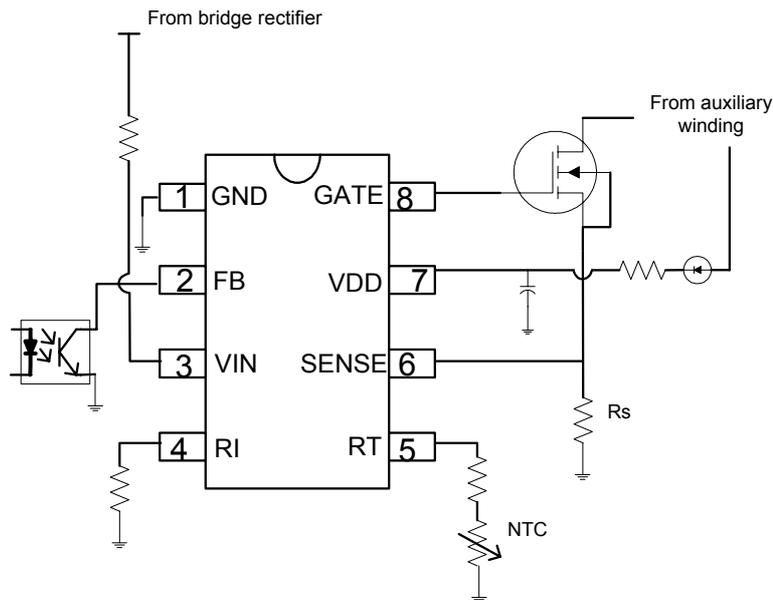
shutting off PWM output. When the output of power supply is short or over loaded, the FB voltage will increase ,and if the FB voltage is higher than 5.2V for longer than 56msec the PWM output will be turned off. A external NTC resistor connected from pin RT to ground can be applied to over-temperature protection. Pulse by pulse current limit ensures a constant output current even under short circuit. PWM output will be disabled as long as VDD exceeds a threshold. When internal latch circuit is used to latch-off the controller, the latch will be reset when the power supply VDD is disabled.

Pin Assignment & Description

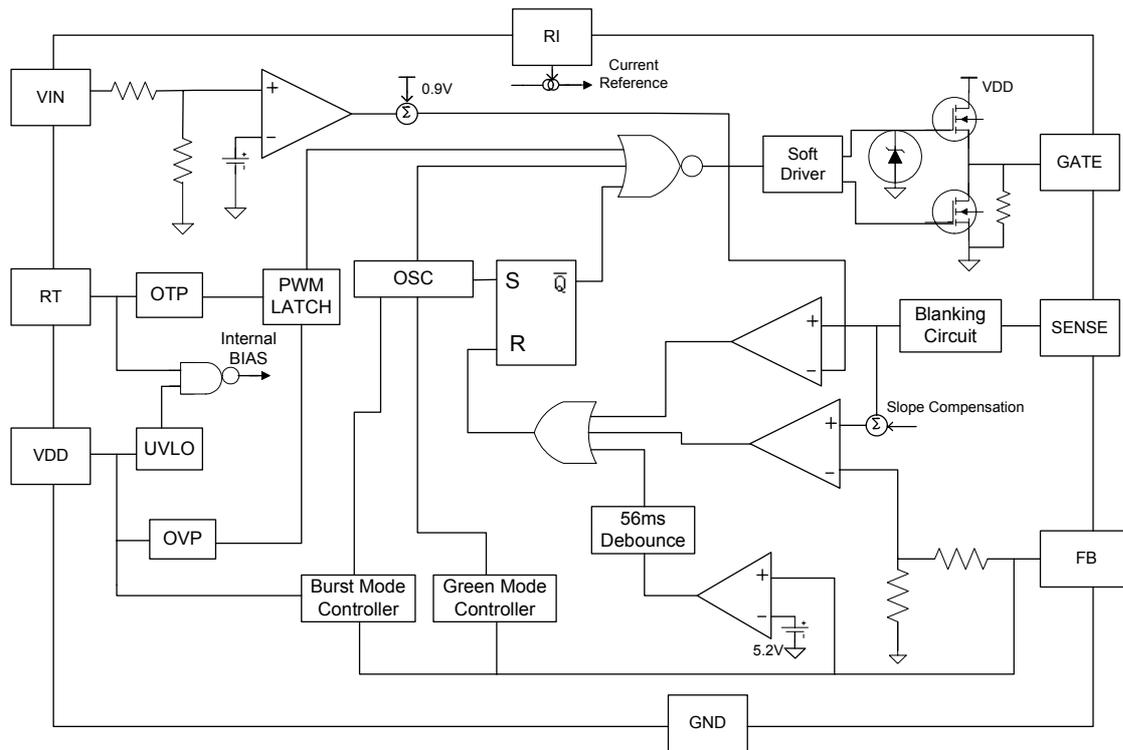


Name	Description
GND	GND Pin
FB	Voltage feedback pin. The PWM duty cycle is determined by FB and Sense.
VIN	This pin is pulled high to the rectified line input through a large resistor for start-up. This pin is also used to detect line voltage to compensate for constant output power limit for universal AC input.
RI	By connecting a resistor to ground to set the switching freq.. Increasing the resistor will reduce the switching freq..
RT	An NTC resistor is connected from this pin to ground for over-temperature protection.
SENSE	Current sense pin, The sensed voltage is used for current-mode control and pulse-by-pulse current limiting.
VDD	Power supply voltage pin.
GATE	Gate drive output to drive the external MOSFET.A soft driving waveform is implemented to improve EMI.

Typical Application Circuit



Block Diagram



Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit
V_{DD}	Supply voltage Pin Voltage	40	V
V_{FB}	Input Voltage to FB Pin	-0.3 to 6V	V
V_{Sense}	Input Voltage to SENSE Pin	-0.3 to 6V	V
P_D	Power Dissipation	1000	mW
	ESD Capability, HBM Model	2000	V
	ESD Capability, Machine Model	200	V
T_L	Lead Temperature(Soldering)	DIP-8(10sec) 260	
T_{STG}	Storage Temperature Range	-55 to + 150	

Electrical Characteristics ($T_a=27^{\circ}\text{C}$ unless otherwise noted, $V_{DD} = 15\text{V}$.)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Supply Voltage (V_{DD} Pin)						
I_{ST}	Startup Current	$V_{DD}=17$		5.6	30	μA
I_{SS}	Operating Current	$V_{FB}=V_{SENSE}=0\text{V}$ $V_{DD}=15$		3.5	5	mA
$V_{TH(ON)}$	Start Threshold Voltage	--	17.6	18.6	19.6	V
$V_{TH(OFF)}$	Min. Operating Voltage	--	10.1	11.1	12.1	V
VDD-OVP	VDD Over Voltage Protection(Latch off)		26.4	27.4	28.4	V
VDD-th-g	VDD Low-Threshold Voltage to Exit Green-OFF Mode		12	12.5	13	V
Voltage Feedback (FB Pin)						
I_{FB}	Short Circuit Current	$V_{FB}=0\text{V}$			1.5	mA
V_{FB}	Open Loop Voltage	$V_{FB}=\text{Open}$		5.88		V
Current Sensing (SEN Pin)						
V_{TH}	Threshold voltage for current limit	$I_{VIN}=0$		0.66	0.9	V
T_{PD}	Delay to Output			100	200	nsec
Z_{CS}	Input Impedance			12		$\text{K}\Omega$
B_{nk}	Leading Edge Blanking Time		260	360	460	nsec
Oscillator (RI Pin)						
F_{OSC}	Frequency in nominal mode	$RI=26\text{K}\Omega$	63	68	73	KHz
$F_{OSC-green}$	Frequency in green mode	$RI=26\text{K}\Omega$	33.3	36	38.5	KHz
V_N	Beginning of frequency reducing at FB Voltage	$V_{DD}=15\text{V}$	1.9	2.1	2.3	V
V_G	End of frequency reducing at FB voltage	$V_{DD}=15\text{V}$	1.4	1.6	1.8	V_G
	Frequency Temp. Stability	-30-85		5.0		$\%$
GATE Drive Output (GATE Pin)						
V_{OL}	Output Low Level	$V_{DD}=12\text{V}$, $I_O=50\text{mA}$			1.6	V
V_{OH}	Output High Level	$V_{DD}=12\text{V}$, $I_O=50\text{mA}$	6.7			V
T_R	Rising Time	$V_{DD}=15\text{V}, C_L=1\text{nF}$	150	203	350	ns
T_F	Falling Time	$V_{DD}=13\text{V}, C_L=1\text{nF}$	30	74	90	ns
DC_{MAX}	Maximum Duty Cycle		80	92	95	
Over-Temperature Protection Section						
I_{RT}	Output current of pin RT	$RI=26\text{K}\Omega$	64	68	76	μA
V_{OTP}	Threshold voltage for over-temperature protection.		1.015	1.053	1.115	V
RI Section						
RI_{NOR}	RI Operating Range		15.5		36	$\text{K}\Omega$
RI_{MAX}	Max RI value for Protection			216		$\text{K}\Omega$
RI_{MIN}				6		$\text{K}\Omega$