



General Description

OCH11867 is a single-phase bipolar driving motor pre-driver with the variable speed function compatible with external PWM signal. With a few external parts, a highly-efficient and highly-silent variable drive fan motor with low power consumption can be achieved. This product is best suited for driving of the server requiring large air flow and large current and the fan motor of consumer appliances.

Features

- Direct drive P/N MOSFET
The speed can be adjusted and controlled externally
Soft start, and the time can be set externally
FG speed signal output (OCH11867F)
RD signal output (OCH11867R)
Under voltage protection
Periodic overcurrent protection
Locked rotor protection
Over temperature protection
Adopting encapsulated SSOP-16L

Application

- Industrial fans, server fans, welding machine fans
Purifier fan, mining machine fan
Sweeper fan, equipment fan
Brushless DC fan

Pin Configuration

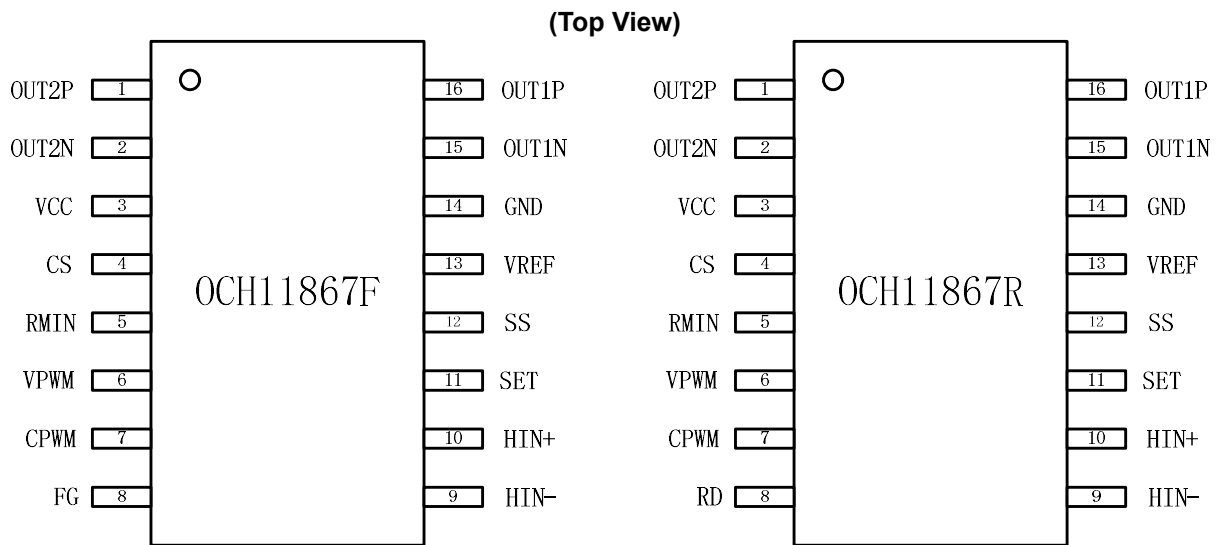


Figure 1, Pin Assignments Of OCH11867



■ Pin Description

Pin Number	Pin Name	Function
1	OUT2P	Second channel P-type driver output. open-drain output, must be connected with pull-up resistor to drive external power devices in operation
2	OUT2N	Second channel N-type driver output. push-pull output to drive external power devices
3	VCC	Power supply
4	CS	Current limiter indicator. Fixed to 0.2V internally. maximum allowable current is decided by external sample resistance. When the voltage of this pin exceeds 0.2V, the output will be shut down by current limit. If this function is not used, connect this pin to ground directly
5	RMIN	Minimum speed setting terminal. connect it to VREF when disused. In case it is tied to other power supply for controlling, an isolated resistor is necessary
6	VPWM	Speed control terminal. It is full speed mode when connected to ground. If the speed is controlled by PWM mode, the frequency of control signal is 20kHz to 100kHz. moreover, a low pass network is necessary to transfer PWM to DC level
7	CPWM	PWM basic oscillation frequency generator when connected with a capacitor of 220pF. 30kHz frequency is available
8	FG/RD	"FG" means pin 8 is an output pin of FG signal which is used for detecting rotation speed. "RD" means pin 8 is an output pin of RD signal, and is used for detecting fan rotate-stop state. "FG" and "RD" can be selected according to the requirement. this pin need to be connected with pull-up resistor when used. a new pulse will be generated once input signal changed. keep this pin open when it is not to be used
9	HIN-	Hall sensor negative input. to prevent noise, this pin is recommended to be placed as close as possible to Hall circuit. If necessary, a capacitor may be added between HIN+ and HIN- to reduce the influence caused by noise
10	HIN+	Hall sensor positive input. To avoid noise, this pin is recommended to be placed as close as possible to Hall circuit
11	SET	Lock protection and auto start frequency generator. It is connected with an external 0.47 μ F capacitor which decides lock-rotate time and start time. If lock-rotate protection function is disused, please connect this pin to GND
12	SS	Linear start terminal. this pin is connected to VREF externally via a capacitor of 0.47 μ F to 1 μ F which enables fan start steadily. start time is dependent to the capacitance. If linear start function is not used, connect this pin to ground
13	VREF	5V voltage reference
14	GND	Ground for circuit control
15	OUT1N	First channel N-type driver output. push-pull output to drive external power devices
16	OUT1P	First channel P-type driver output. open-drain output, must be connected with pull-up resistor to drive external power devices in operation

■ Typical Application Circuit

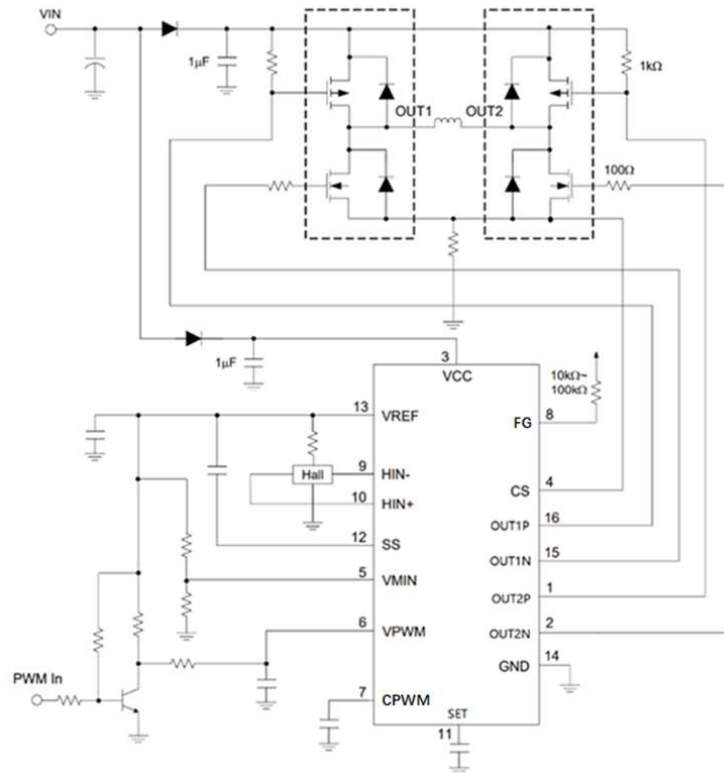


Figure 2, FG Signal Typical Application Circuit Of OCH11867F

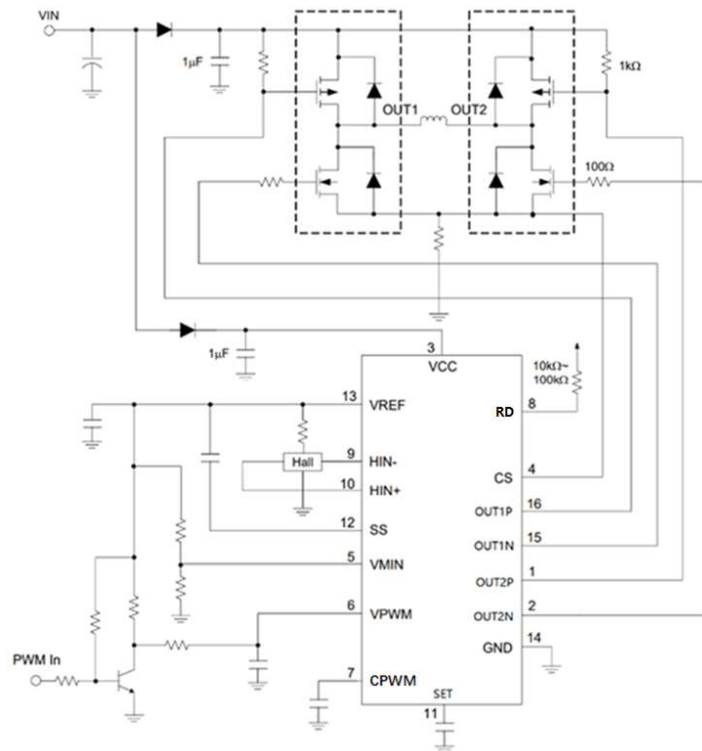


Figure 3, RD Signal Output Typical Application Circuit Of OCH11867R



■ Block Diagram

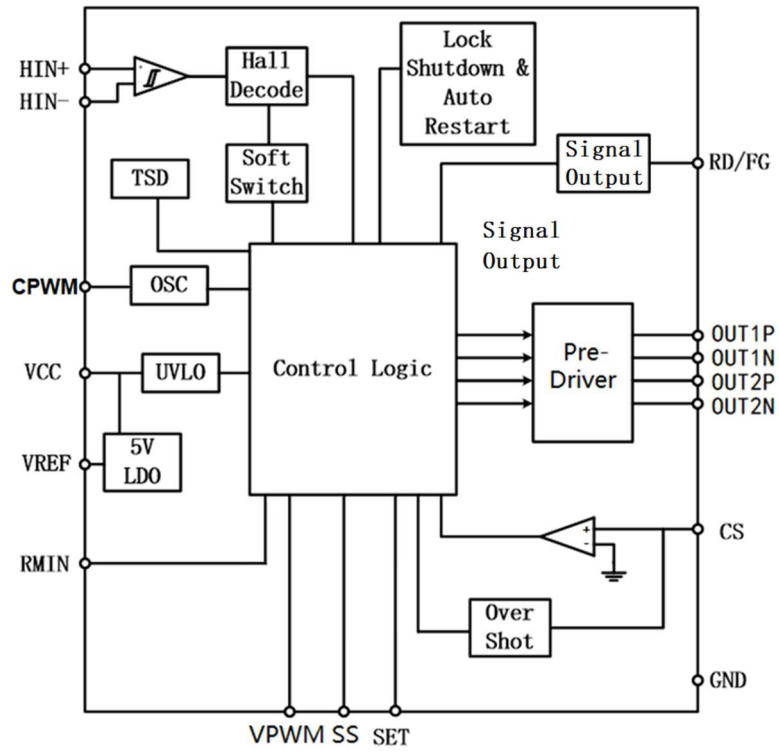


Figure 4, Block Diagram Of OCH11867