OCH1810

80V, High Performance Hall-Effect Latch Sensors

■ General Description

The OCH1810 is an integrated High Performance Hall effect latched sensor designed for electronic commutation of high-voltage high-power brush-less DC motor applications. produced with Bipolar technology. The HALL IC includes an on-chip Hall voltage generator for magnetic sensing, a comparator that amplifiers the Hall voltage, a voltage regulator for operation with supply voltages of 3.5 to 80V ,a reverse diode, a temperature compensation circuitry, a Schmitt trigger to provide switching hysteresis for noise rejection, and an open-collector output. An internal bandgap regulator is used to provide temperature compensated supply voltage for internal circuits and allows a wide operating supply range.

■ Features

- Wide operating voltage range ： 3.5V~80V
- Operating Temperature Range ：
  -40°C ~ +150°C
  DC Voltage Withstand（Vcc to GND）：>120V
- DC Voltage Withstand（OUTPUT to GND）：>100V
- Reverse polarity protection (100V)
- ESD：HBM-4KV
- Magnetic Sensitivity
  Bop=45Gauss(typical), Brp=-45Gauss (typical)
- Maximum output sink current ： 30mA
- Open-Collector pre-driver
- Package: SIP-3L(TO92S)

■ Applications

- High-voltage BLDC
- High-power BLDC
- BLDC communication for E-Motorcycle Rotor
- BLDC communication for E-Bike
- Automotive electronics
- Rotor Position Sensing
- Speed measurement
- Revolution counting

■ Pin Configuration

(Top View)

Name	Pin No.	Description
Vcc	1	IC Power Supply
GND	2	IC Ground
OUTPUT	3	It is low state during the S magnetic field

■ Application Circuits

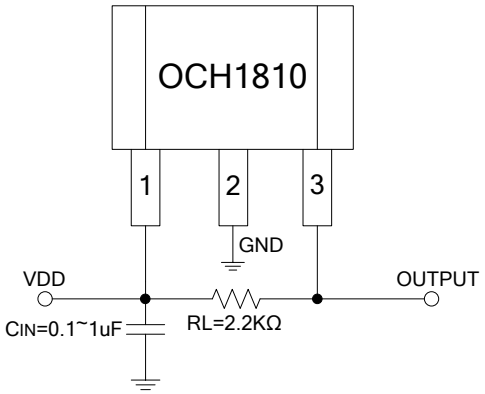


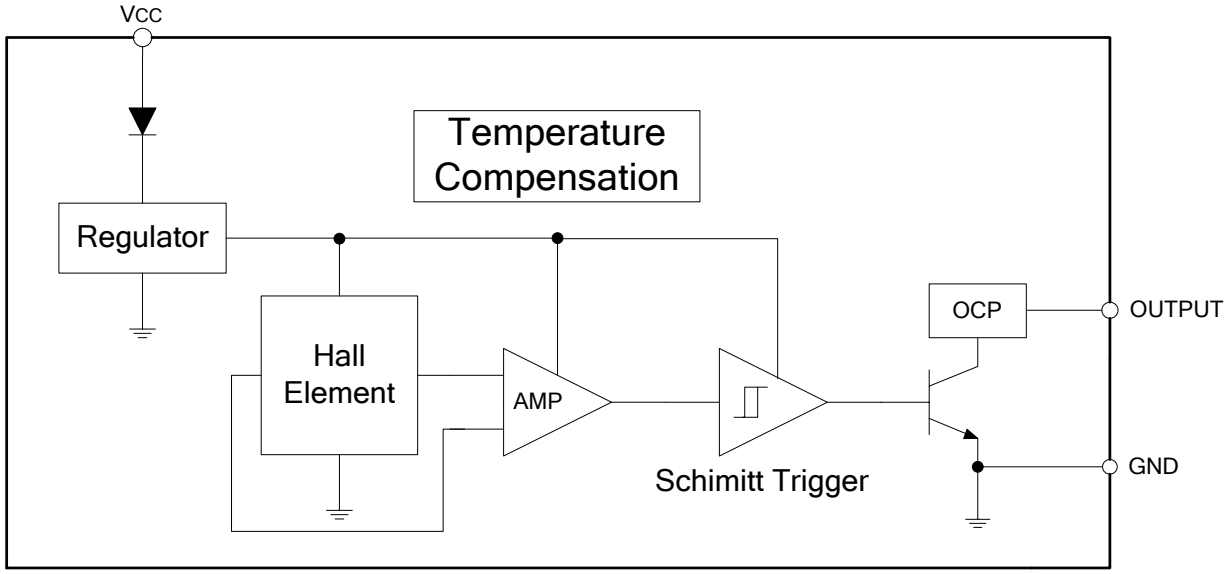
Figure 1, application circuit

Note: C_{IN} is for power stabilization and to strengthen the noise immunity, the recommended capacitance is 0.1~1uF. If the VDD power supply is clean, the C_{IN} can be cancelled.

■ Ordering Information

Part Number	Package Type	Packing Qty	B_{OP} (Gauss)	B_{RP}(Gauss)	Temperature	Eco Plan	Lead
OCH1810MF	SIP-3L	1000pcs/Bag	45(Typ.)	-45(Typ.)	-40 ~ 150℃	ROHS	Cu Sn

■ Block Diagram



■ Absolute Maximum Ratings

Vcc to GND Pin Peak Voltage		120V
Output OFF Peak Voltage,Vce		100V
Output ON Current(Io) (Continuous Current)		30mA
Power Dissipation	Ta=25°C	400mW
	Ta=100°C	178mW
Thermal Resistance	T_{ja}	0.34°C/mW
	T_{jc}	0.42°C/mW
Operating Temperature Range		-40°C ~ +150°C
Storage Temperature Range		-65°C ~ +165°C
Junction Temperature		+165°C
Lead Temperature(Soldering,10 sec)		+260°C

■ DC Electrical Characteristics(Vcc=5V,at Ta=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Operating Voltage	Vcc	Figure1	3.5	-	80	V
Supply current	Icc	B=-100 Gauss,Pin3 is open	-	2.2	7	mA
Output leakage current	I_{OL}	Vcc=0,VOUT=80V	-	0.1	10	μA
Output Saturation Voltage	V_{SAT}	Io=25mA	-	120	200	mV
Output Rise time	t_r	RL=2.2KΩ	-	1.66	2.5	uS
Output Fall time	t_f	RL=2.2KΩ	-	60	200	nS