



■ **General Description**

The OCH29831 is an integrated Hall sensor with H-Bridged output driver designed for brushless DC motor applications. The device is using high voltage BCD process includes an on-chip Hall sensor for magnetic sensing, an amplifier that amplifies the Hall voltage, a comparator to provide switching hysteresis for noise rejection, a bi-directional driver for sinking and driving large current load.

OCH29831 built-in power supply reverse connection protection circuit enables the OCH29831 do no need for external reverse diode in application, can reducing the fan cost.

OCH29831 is available in SIP-4L package and is rated over the -40°C to 125°C.

■ **Features**

- Built-in VCC to GND reverse voltage protection
- Low Output Switching Current Noise
- One-chip Solution (Hall Element+Driver)
- Input Voltage Range: 3.5V to 36V
- High Sensitivity Hall Sensor BOP(20GS), BRP(-20GS)
- Thermal Shutdown Protection
- $R_{DS(ON)} : 1.65\Omega$
- **Special ULTRA-SAFE<sup>®</sup> Design**
- RoHS Compliant
- Available in SIP-4L(TO94) package

■ **Applications**

- Single Coil Design Cooling Fan
- Single Coil DC Brushless Motor

■ **Pin Configuration**

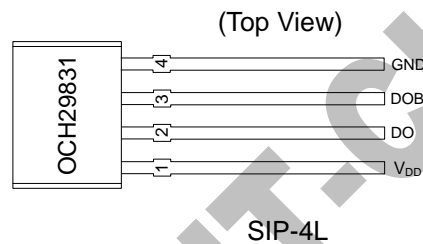


Figure 1, Pin Assignments of OCH29831

Pin Name	Pin No.	Pin Function
V <sub>DD</sub>	1	Positive Power Supply
DO	2	Output 1
DOB	3	Output 2
GND	4	Ground

■ **Typical Application Circuit**

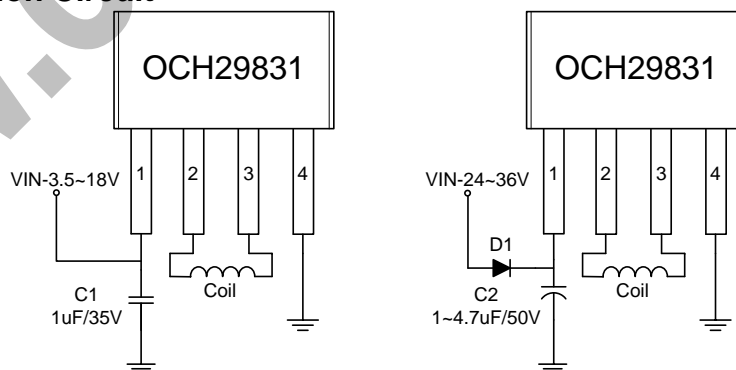


Figure 2, Typical Application Circuit Of OCH29831

Note1: When the power pulse is relatively large, Must use least C1=1μF ceramic capacitor or C2=1~4.7μF electrolytic capacitor for the decoupling between V<sub>DD</sub> and GND and place the capacitor as close to the IC as Possible.

Note2: When VIN is large than 18V, a diode D1 for reversed protection is need.



## ORIENT-CHIP

## ■ Ordering Information

Part Number	Output Current	Package Type	Packing Qty.	B <sub>OP</sub> (Gauss)	B <sub>RP</sub> (Gauss)	Temperature	Eco Plan	Lead
OCH29831ME-D	450mA	SIP-4L	1000pcs /Bag	20(Typ.)	-20(Typ.)	-40 ~ 125°C	ROHS	Cu

## ■ Block Diagram

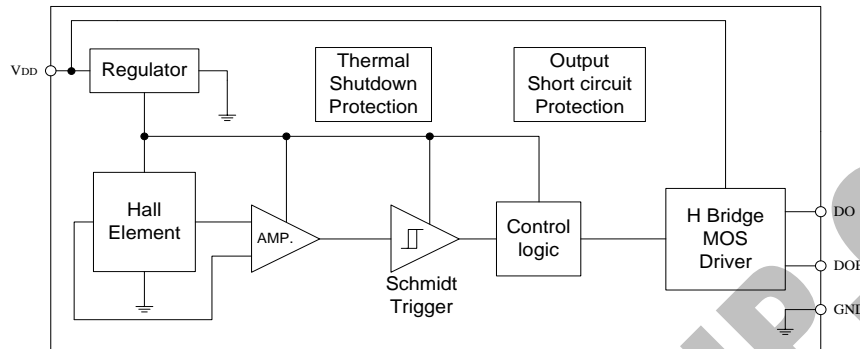


Figure 3, Block Diagram Of OCH29831

■ Absolute Maximum Ratings (T<sub>A</sub>=25°C, unless otherwise noted)

Parameter	Symbol	Rating	Unit
V <sub>DD</sub> Pin to GND	V <sub>DD</sub>	-20 to +42	V
Continuous Output Current	I <sub>O(CONT)</sub>	450	mA
Hold Output Current	I <sub>O(HOLD)</sub>	1000	mA
Peak Output Current	I <sub>O(PEAK)</sub>	1500	mA
Maximum Power Dissipation	P <sub>D</sub>	860	mW
Thermal Resistance	θ <sub>JA</sub>	157	°C/W
Junction temperature	T <sub>J</sub>	160	°C
Storage Temperature Range	T <sub>S</sub>	-55 to +150	°C
Maximum Soldering Temperature(at leads, 10 sec)	T <sub>LEAD</sub>	260	°C

Note2: The maximum dissipation power P<sub>D</sub> allowed at any ambient temperature point is calculated: P<sub>D</sub>(max) = (T<sub>J</sub> - T<sub>A</sub>) / θ<sub>JA</sub>, T<sub>J</sub> = 160°C. When applied, do not exceed the maximum rating to prevent chip damage, and work for a long time at maximum rating may affect chip reliability.

## ■ Recommended Operating Conditions

Parameter	Symbol	Rating	Unit
V <sub>DD</sub> Pin to GND	V <sub>DD</sub>	3.5 to 36	V
Operating Temperature Range	T <sub>OP</sub>	-40 to +125	°C

Note3: In practical application, the effect of fan coil heating on the chip must take into account, with the actual over temperature protection point of actual test of high temperature fan for reference. On the basis of pre leave relatively safe temperature allowance, avoid chip in the critical limit (maximum ratings) for a long time and affects the reliability.

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