



**ORIENT-CHIP**

■ **General Description**

The OCH140 is an integrated Hall effect latched sensor designed for electronic commutation of brush-less DC motor applications. The device includes an on-chip Hall voltage generator for magnetic sensing, a comparator that amplifies the Hall voltage, and a Schmitt trigger to provide switching hysteresis for noise rejection, and 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**

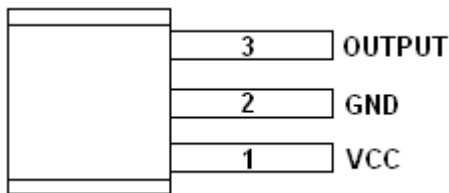
- Wide operating voltage range: 3.0V~24V
- Wide operating temperature range: -40°C ~+125°C
- Maximum output sink current 25mA
- Package: SIP3, TSOT23-3L, SOT89-3L and SOT23-3L

■ **Applications**

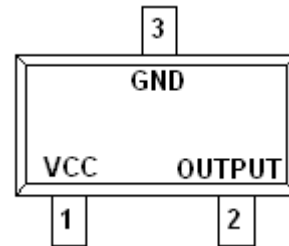
- Rotor Position Sensing
- Brush-less DC Motor
- Speed measurement

■ **Pin Configuration**

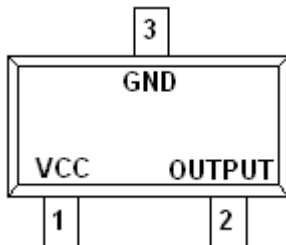
SIP-3L (Top View)



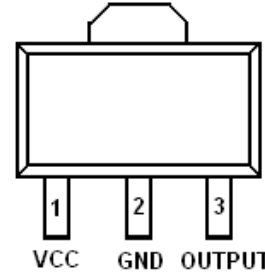
TSOT23-3L (Top View)



SOT23-3L (Top View)



SOT89-3L (Top View)



Pin Name	Pin No.				Status	Description
	SIP3	TSOT23-3L	SOT23-3L	SOT89-3L		
VCC	1	1	1	1	P	IC Power Supply
GND	2	3	3	2	P	IC Ground
OUTPUT	3	2	2	3	O	It is low state during the N magnetic field

■ **Application Circuit**

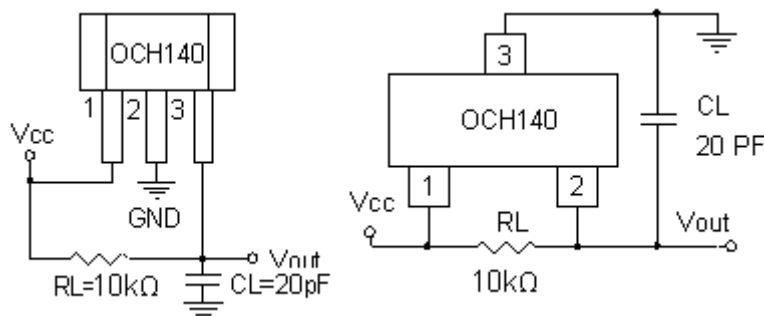


Fig 1, Typical Application Circuitry of OCH140

■ **Block Diagram**

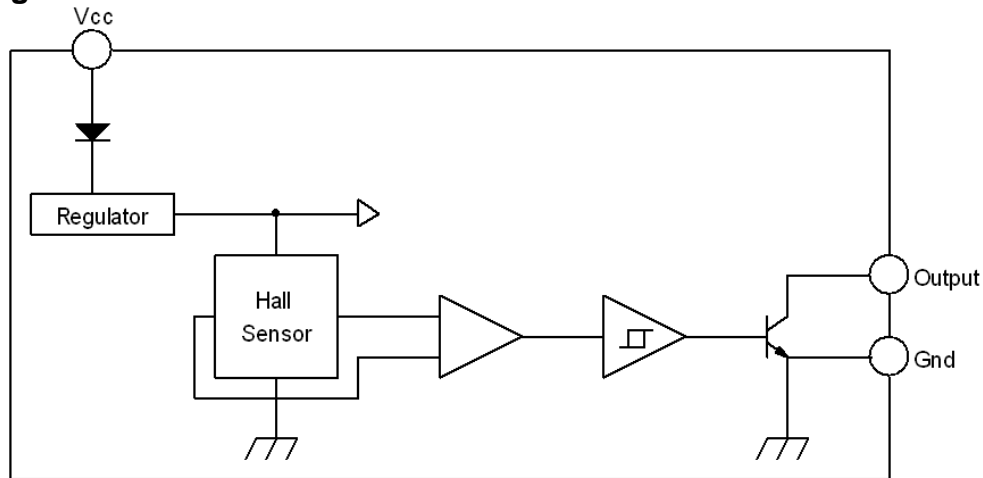


Fig 2, Block Diagram of OCH140

■ **Absolute Maximum Ratings** ( $T_A=25^\circ\text{C}$ )

Parameter	Symbol	Rating	Unit
Vcc Pin Voltage	VCC	24	V
Output OFF Voltage, Vce	V <sub>CE</sub>	24	V
Output ON Current(I <sub>o</sub> ) (Continuous Current)	I <sub>OUT</sub>	25	mA
Thermal Resistance (SIP3)	$\theta_{ja}$	0.34	$^\circ\text{C}/\text{mW}$
Power Dissipation (SIP3)	P <sub>D</sub>	30	mW
Thermal Resistance (SOT23-3L)	$\theta_{ja}$	0.436	$^\circ\text{C}/\text{mW}$
Power Dissipation (SOT23-3L)	P <sub>D</sub>	230	mW
Thermal Resistance (SOT89-3L)	$\theta_{ja}$	0.15	$^\circ\text{C}/\text{mW}$
Power Dissipation (SOT89-3L)	P <sub>D</sub>	660	mW
Operating Temperature Range	T <sub>OP</sub>	-40 ~+125	$^\circ\text{C}$
Storage Temperature Range	T <sub>S</sub>	-55 ~+150	$^\circ\text{C}$
Junction Temperature	T <sub>J</sub>	+160	$^\circ\text{C}$
Lead Temperature(Soldering,10 sec)		+260	$^\circ\text{C}$
ESD(Human Body Mode )		$\pm 8000$	V

■ **DC Electrical Characteristics** ( $T_A=25^\circ\text{C}$ )

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Operating Voltage	Vcc	No use pin is open(Fig1)	3.0	-	24.0	V
Supply current	Icc	No use pin is open Vcc:3.0V~24V(Fig1)	-	4.2	10	mA
Output Saturation Voltage	V <sub>SAT</sub>	Vcc=12V,I <sub>o</sub> =20mA(Fig1)	-	165	200	mV
Output Rise time	(t <sub>r</sub> )	RL=500Ω CL=20pF(Fig1)	0.2	-	0.75	μS
Output Fall time	(t <sub>f</sub> )	RL=500Ω CL=20pF(Fig1)	20	-	150	nS

Note: Fig1 The IC output state is under N magnetic field.

■ **Magnetic Characteristics** ( $T_A=25^\circ\text{C}$ )

Parameter	Min.	Typ.	Max.	Unit
Bop	+5	-	+80	G
Brp	-80	-	-5	G
Bhys	30	-	120	G