

General Description

The OCH183 is an integrated Hall effect latched sensor designed for electronic commutation of brush-less DC motor applications. The device using High Voltage process includes an on-chip Hall voltage generator for magnetic sensing, a comparator that amplifiers the Hall voltage, and a Schmitt trigger to provide switching hysteresis for noise rejection, and an open-collector output. An internal band-gap regulator is used to provide temperature compensated supply voltage for internal circuits and allows a wide operating supply range.

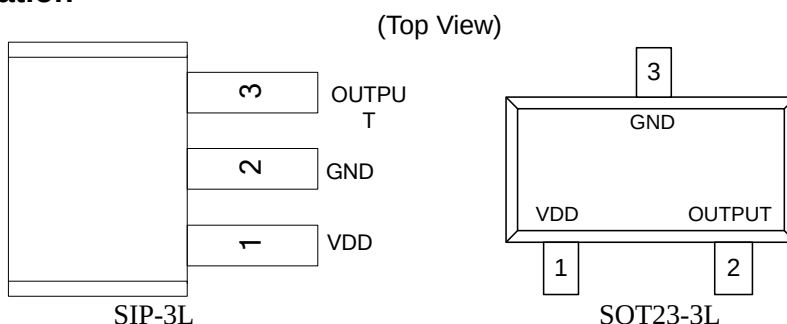
Features

- Wide operating voltage range: 2.7V~26V
- Operating temperature range: -40°C ~+125°C
- Temperature compensation
- Reverse polarity protection
- Integrated 10KΩ pull-up resistor
- Package: SIP-3L、SOT23-3L

Applications

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

Pin Configuration



Name	No.		Status	Description
	SIP-3L	SOT23-3L		
VDD	1	1	P	IC Power Supply
GND	2	3	P	IC Ground
OUTPUT	3	2	O	SIP-3L: It is low state during the S magnetic field SOT23-3L: It is low state during the N magnetic field

Application Circuit

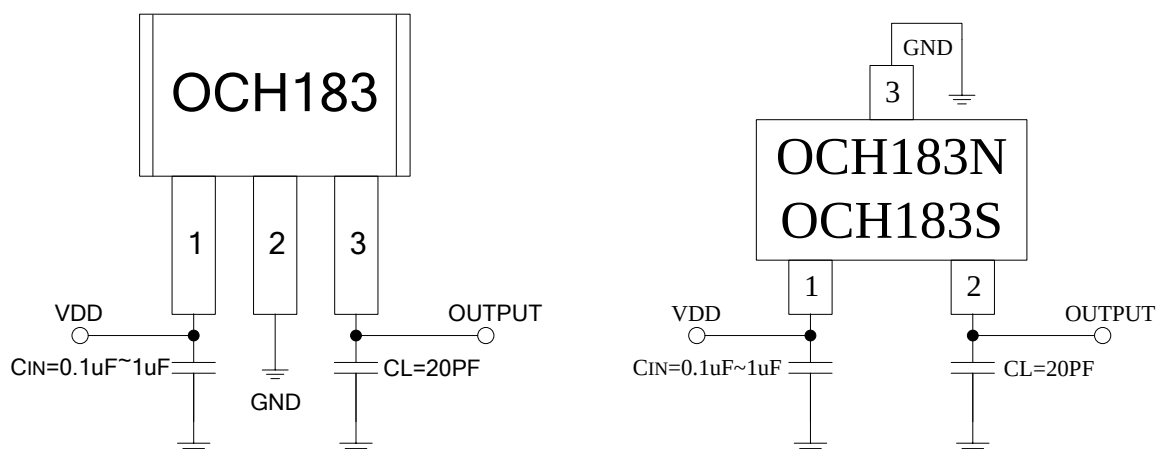


Figure 1, application circuit

Note: C_{IN} is for power stabilization and to strengthen the noise immunity, the recommended capacitance is 0.1~1uF. If the VCC 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
OCH183ME	SIP-3L	1000pcs	25(Typ.)	-25(Typ.)	-40 ~ 125℃	ROHS	Cu
OCH183NWAE	SOT23-3L	3000pcs	-25(Typ.)	25(Typ.)	-40 ~ 125℃	ROHS	Cu
OCH183SWAE	SOT23-3L	3000pcs	25(Typ.)	-25(Typ.)	-40 ~ 125℃	ROHS	Cu

Block Diagram

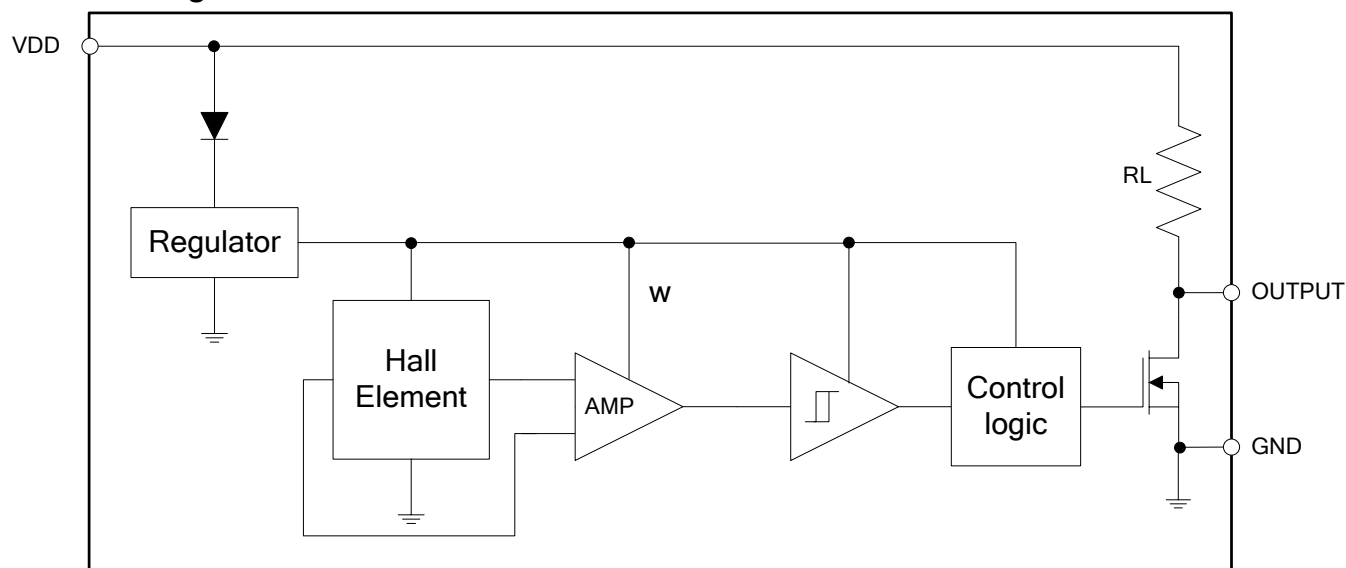


Figure 2, Block Diagram Of OCH183

Absolute Maximum Ratings

Supply Voltage		28V
Output OFF Voltage, V _{DS}		28V
Output Maximum Sink Current (AVG)		25mA
Power Dissipation (SIP-3L)	T _a =25℃	400mW
Power Dissipation (SOT23-3L)	T _a =25℃	260mW
Thermal Resistance (SIP-3L)	T _{ja}	0.34℃/mW
	T _{jc}	0.42℃/mW
Thermal Resistance (SOT23-3L)	T _{ja}	0.52℃/mW
	T _{jc}	0.64℃/mW
Operating Temperature Range		-40℃ ~ +125℃
Storage Temperature Range		-65℃ ~ +150℃
Junction Temperature		+150℃
Lead Temperature(Soldering,10 sec)		+260℃

DC Electrical Characteristics(at Ta=25℃)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Operating Voltage	V _{DD}		2.7	-	26	V
Supply current	I _{DD}	No use pin is open V _{DD} :2.7V~26V, OUT "H"	-	2.2	5	mA
Output Saturation Voltage	V _{SAT}	V _{CC} =5V, OUT "L"	-	-	0.4	V
Output drop voltage	V _d	V _{CC} =5V, OUT "H"			20	mV
pull-up resistor	RL		6	10	14	KΩ



■ Magnetic Characteristics

OCH183/OCH183S, Ta=25°C					
Parameter	Symbol	Min.	Typ.	Max.	Unit
Operate point	Bop	+5	25	55	G
Release Point	Brp	-55	-25	-5	G
Hysteresis	Bhys	30	50	80	G

OCH183N, Ta=25°C					
Parameter	Symbol	Min.	Typ.	Max.	Unit
Operate point	Bop	-55	-25	-5	G
Release Point	Brp	+5	25	55	G
Hysteresis	Bhys	30	50	80	G

■ Output VS Magnetic Pole

Part No.	Magnetic Pole	Test Conditions	Output
OCH183/OCH183S	South Pole	$B > BOP$	Low
OCH183/OCH183S	North Pole	$B < BRP$	High
OCH183N	North Pole	$B < BOP$	Low
OCH183N	South Pole	$B > BRP$	High

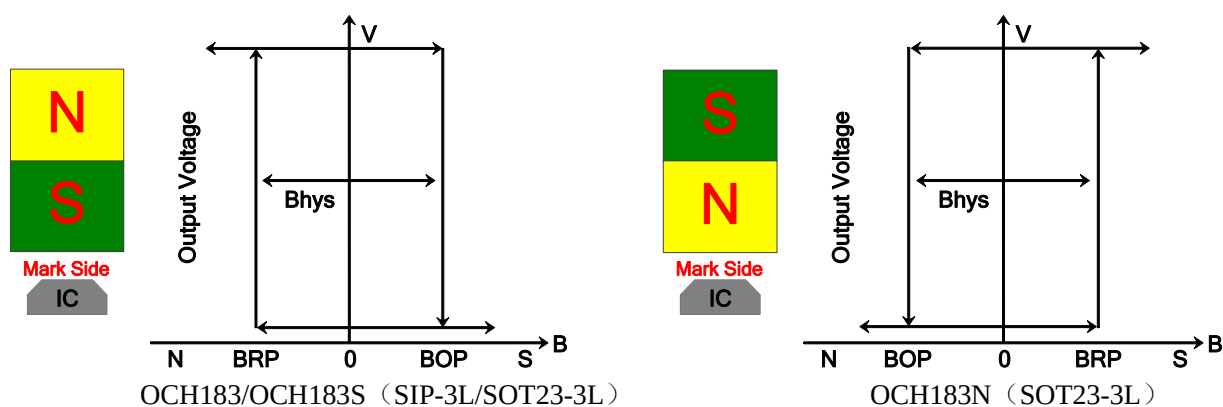


Figure 3, Operational Characteristics

■ Hall Sensor Location

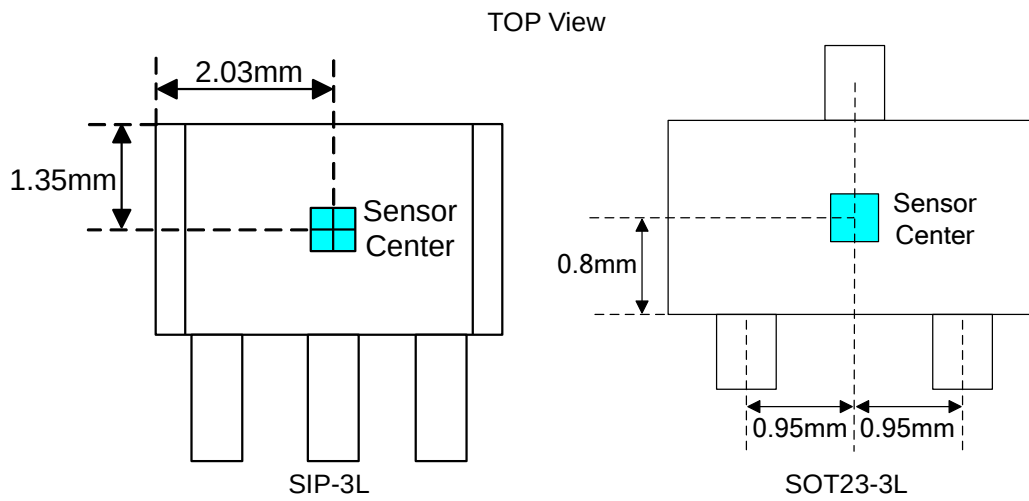


Fig. 4, Hall Sensor Location

■ Land Pattern (for reference only)

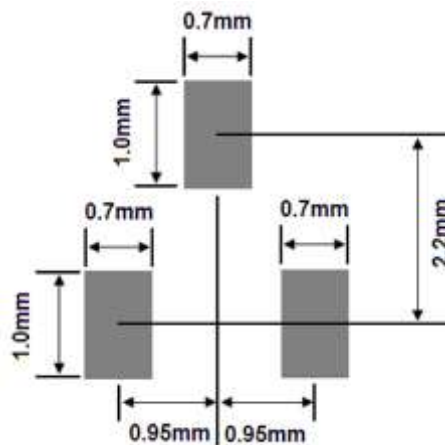
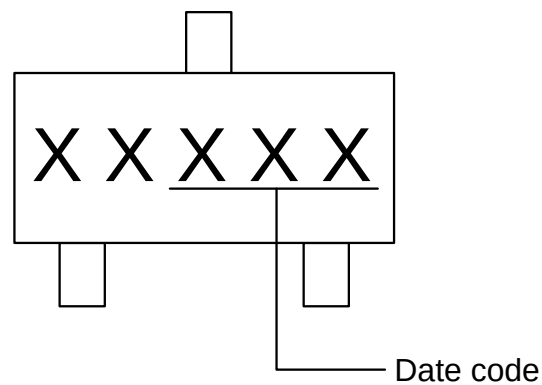


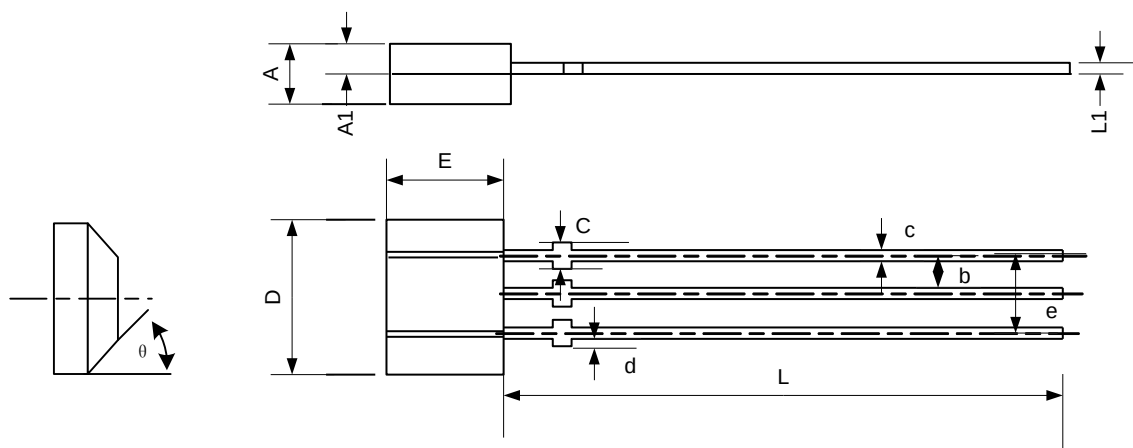
Figure 5, Land Pattern Dimension (SOT23-3L)

■ Marking Information



■ Package Information

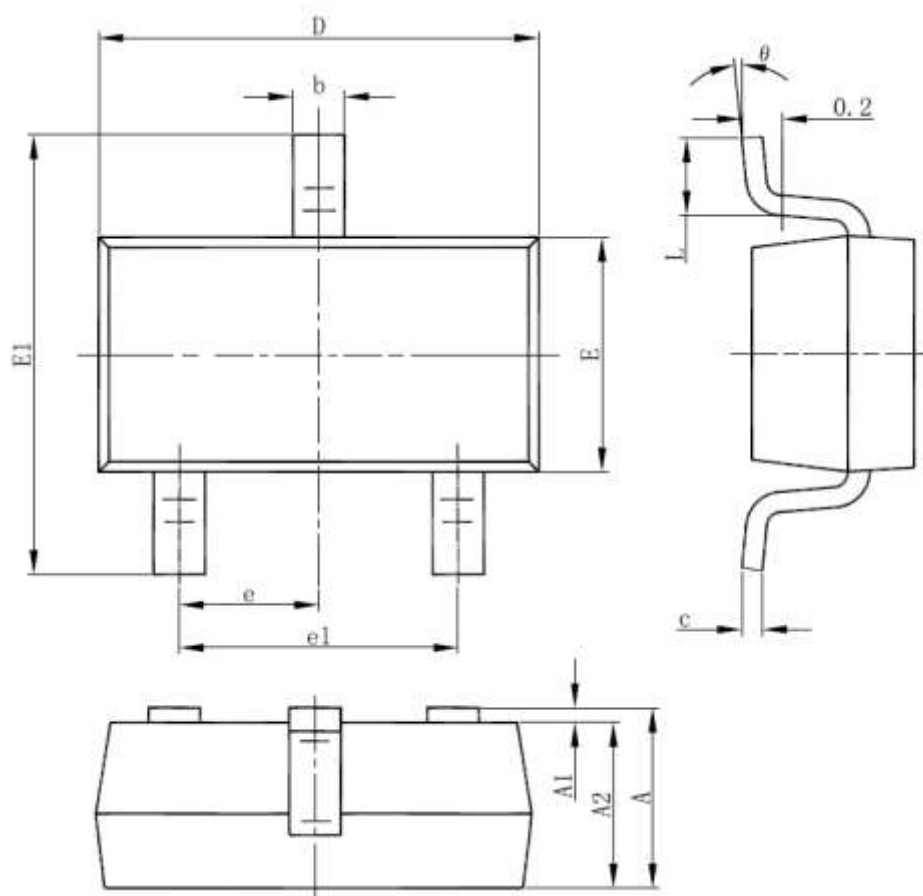
1) SIP-3L



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.245	1.753	0.049	0.069
A1	0.750REF		0.030REF	
b	1.270REF		0.050REF	
C	0.406	0.550	0.016	0.022
c	0.330	0.495	0.013	0.019
D	4.05REF		0.159REF	
d		0.100		0.004
E	2.73	3.27	0.107	0.129
e	2.540REF		0.100REF	
L	13.60	15.60	0.535	0.614
L1	0.350	0.410	0.014	0.016
θ		45°		45°



2) SOT23-3L



Symbol	Dimensions In Millimeters			Dimensions In Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.050	1.15	1.250	0.041	0.045	0.049
A1	0.000	0.050	0.100	0.000	0.002	0.004
A2	1.050	1.100	1.150	0.041	0.043	0.045
b	0.300	0.400	0.500	0.012	0.016	0.020
c	0.100	0.150	0.200	0.004	0.006	0.008
D	2.820	2.920	3.020	0.111	0.115	0.119
E	1.500	1.600	1.700	0.059	0.063	0.067
E1	2.650	2.800	2.950	0.104	0.110	0.116
e1	1.800	1.900	2.000	0.071	0.075	0.079
e	0.950 REF			0.037 REF		
L	0.300	0.450	0.600	0.012	0.018	0.024
θ	0°	4°	8°	0°	4°	8°

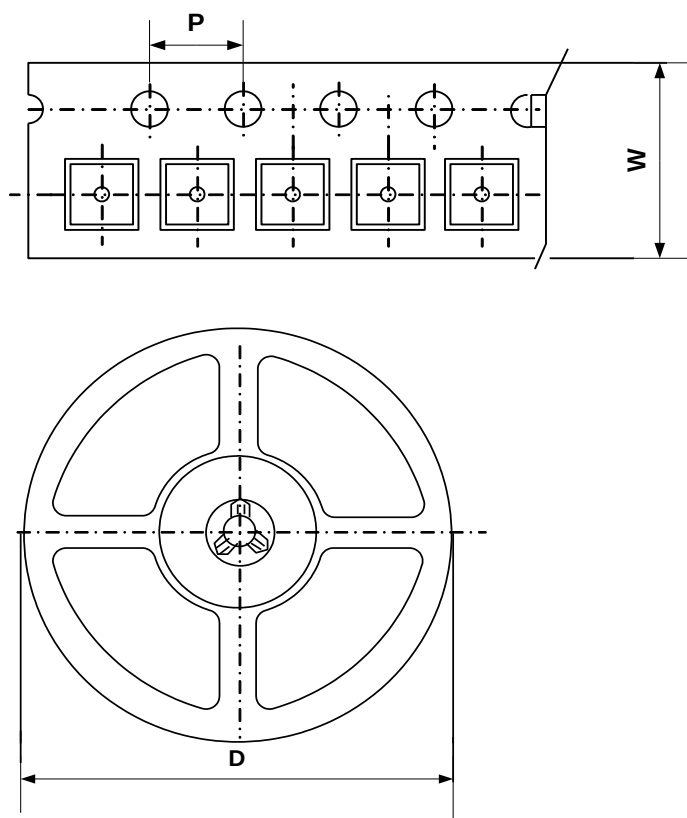


■ Packing Information

1) SIP-3L

1. Packing type: Box
2. Packing minimum: 1000pcs

2) SOT23-3L



Package Type	Carrier Width (W)	Pitch (P)	Reel Size(D)	Packing Minimum
SOT23-3L	8.0±0.1 mm	4.0±0.1 mm	180±1 mm	3000pcs

Note: Carrier Tape Dimension, Reel Size and Packing Minimum



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