■ General Description

The OCH1511 is an integrated Hall effect omnipolar sensor. 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

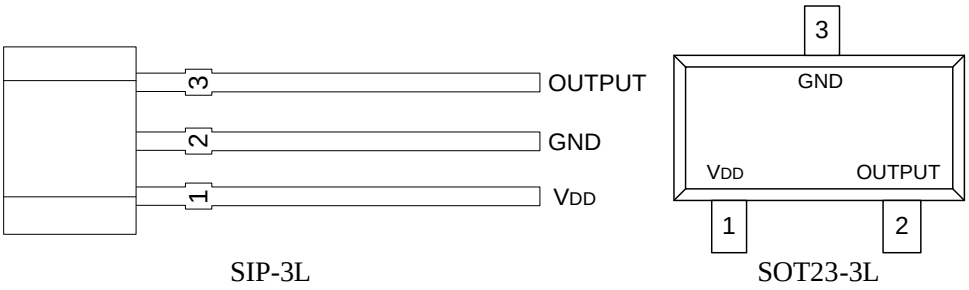
- Wide operating voltage range: 2.7V~30V
- Operating temperature range: -40°C ~+150°C
- Temperature compensation
- Reverse polarity protection
- Open-Drain pre-driver
- Package: SIP-3L、SOT23-3L

■ Applications

- Speed measurement
- Revolution counting
- Smart meter
- Position Detection

■ Pin Configuration

(Top View)



Name	PIN No.		Status	Description
	SIP-3L	SOT23-3L		
VDD	1	1	P	IC Power Supply
GND	2	3	P	IC Ground
OUTPUT	3	2	O	Output Pin

■ Application Circuit

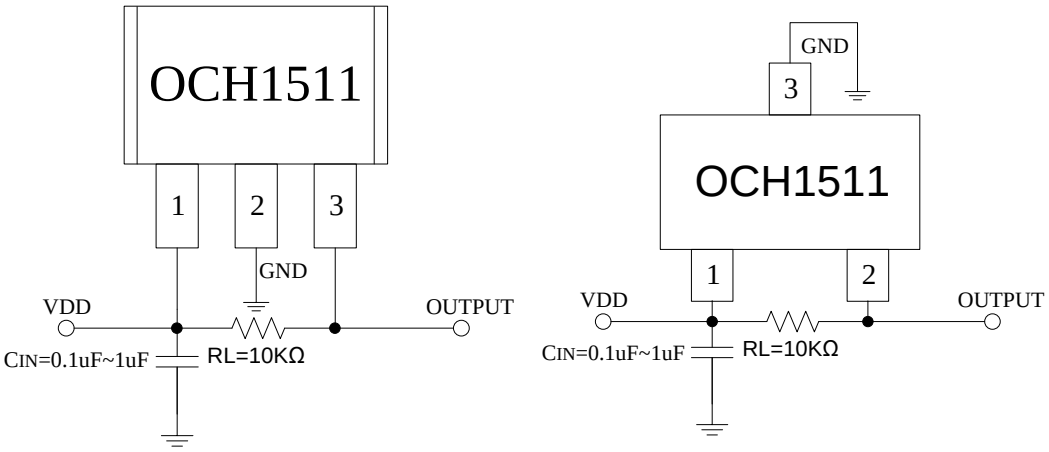


Figure 1, application circuit

Note: C_{IN} is for power stabilization and to strengthen the noise immunity, the recommended capacitance is 0.1~1uF.

■ Ordering Information

Part Number	Package Type	Packing Qty	B_{OP} (Gauss)	B_{RP}(Gauss)	Temperature	Eco Plan	Lead
OCH1511MF	SIP-3L	1000pcs	±155(Typ.)	±95(Typ.)	-40~ 150℃	ROHS	Cu
OCH1511WAF	SOT23-3L	3000pcs	±155(Typ.)	±95(Typ.)	-40~ 150℃	ROHS	Cu

■ Block Diagram

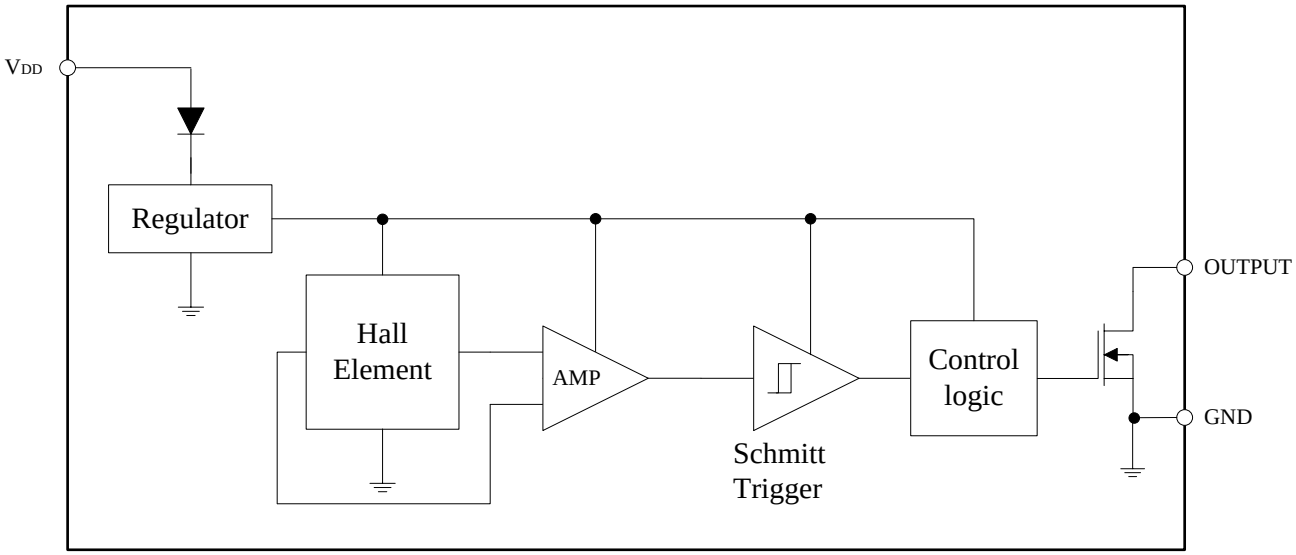


Figure 2, Block Diagram Of OCH1511

■ Absolute Maximum Ratings

Supply Voltage		36V
Output OFF Voltage, V_{DS}		36V
Output Maximum Sink Current (AVG)		25mA
Power Dissipation (SIP-3L)	Ta=25°C	400mW
Power Dissipation (SOT23-3L)	Ta=25°C	260mW
Thermal Resistance (SIP-3L)	T_{ja}	0.34°C/mW
	T_{jc}	0.42°C/mW
Thermal Resistance (SOT23-3L)	T_{ja}	0.52°C/mW
	T_{jc}	0.64°C/mW
Operating Temperature Range		-40°C ~+150°C
Storage Temperature Range		-65°C ~+150°C
Junction Temperature		+150°C
Lead Temperature(Soldering,10 sec)		+260°C

■ DC Electrical Characteristics(at Ta=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Operating Voltage	V_{DD}		2.7	-	30	V
Supply current	I_{DD}	No use pin is open V_{DD}:2.7V~30V, OUT "H"	0.8	2.45	5	mA
Output Saturation Voltage	V_{SAT}	Vcc=5V, OUT "L", Io=15mA	-	0.3	0.5	V
Output current limitation	I_L	Intenally limited	35	55	75	mA
Output rise time	t_r	RL1=1.5KΩ，CL=50PF	0.01	-	1	uS
Output fall time	t_f	RL1=1.5KΩ，CL=50PF	0.01	-	1	uS
ESD Voltage (HBM)	V_{ESD}	R=1.5KΩ，C=100pF	4			KV
Delay Time	t_d			15	25	uS
Chopper frequency	fc			350		KHZ

■ Magnetic Characteristics

Ta=25°C					
Parameter	**Symbol**	**Min.**	**Typ.**	**Max.**	**Unit**
South Pole Operate point	Bops	130	155	180	Gauss
South Pole Release Point	Brps	70	95	155	Gauss
South Pole Hysteresis	Bhys	3	50	17	Gauss
North Pole Operate point	Bop_N	-180	-155	-130	Gauss
North Pole Release Point	Brp_N	-155	-95	-80	Gauss
North Pole Hysteresis	Bhy_N	20	60	70	Gauss

■ Output VS Magnetic Pole

Part No.	Magnetic Pole	Test Conditions	Output
OCH1511	South Pole	B >Bops	Low
OCH1511	South Pole	B <Brps	High
OCH1511	North Pole	B >Bop_N	High
OCH1511	North Pole	B <Brp_N	Low

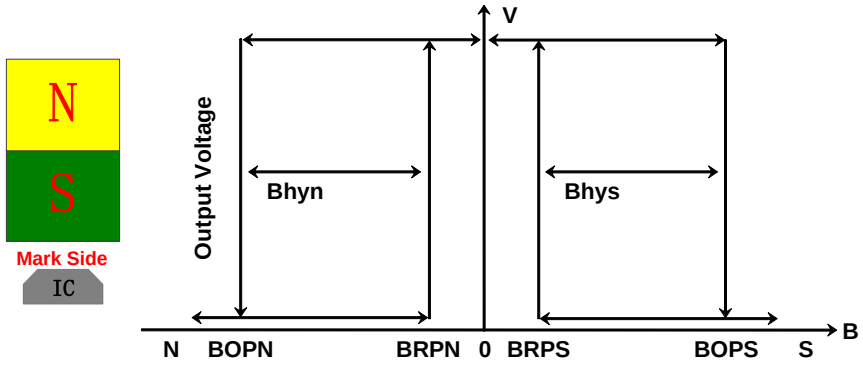


Figure 3, Operational Characteristics

■ Hall Sensor Location

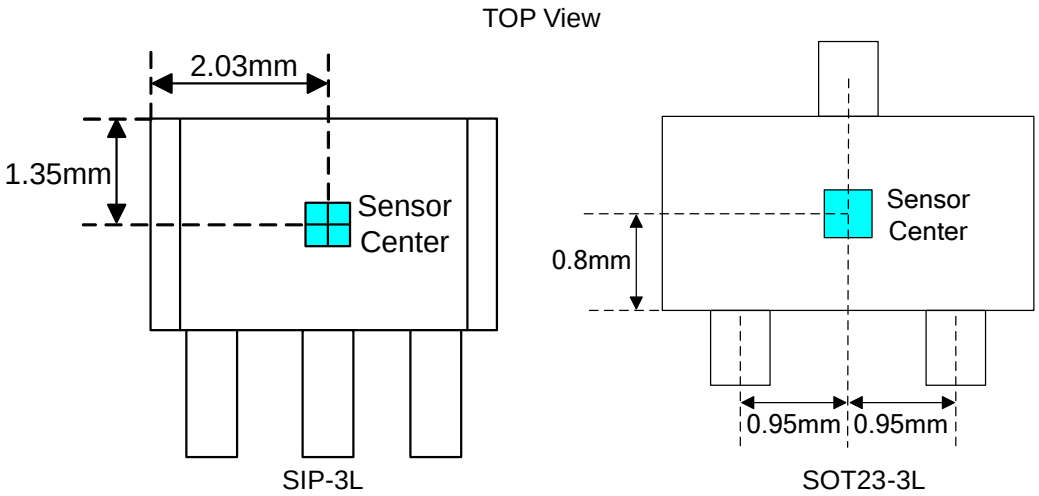


Figure. 4, Hall Sensor Location

■ Land Pattern (for reference only)

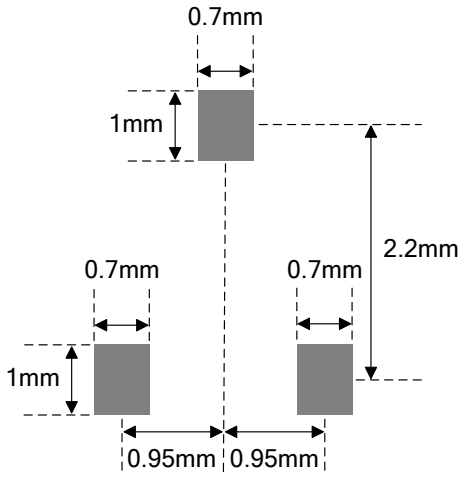
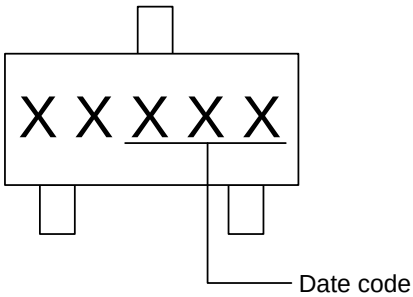


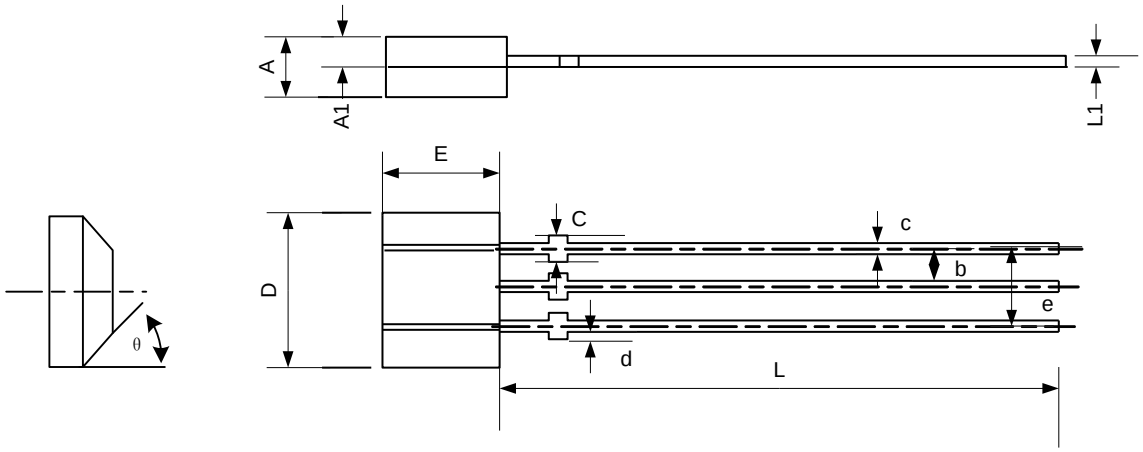
Figure 5, Land Pattern Dimension (SOT23-3L

■ Marking Information



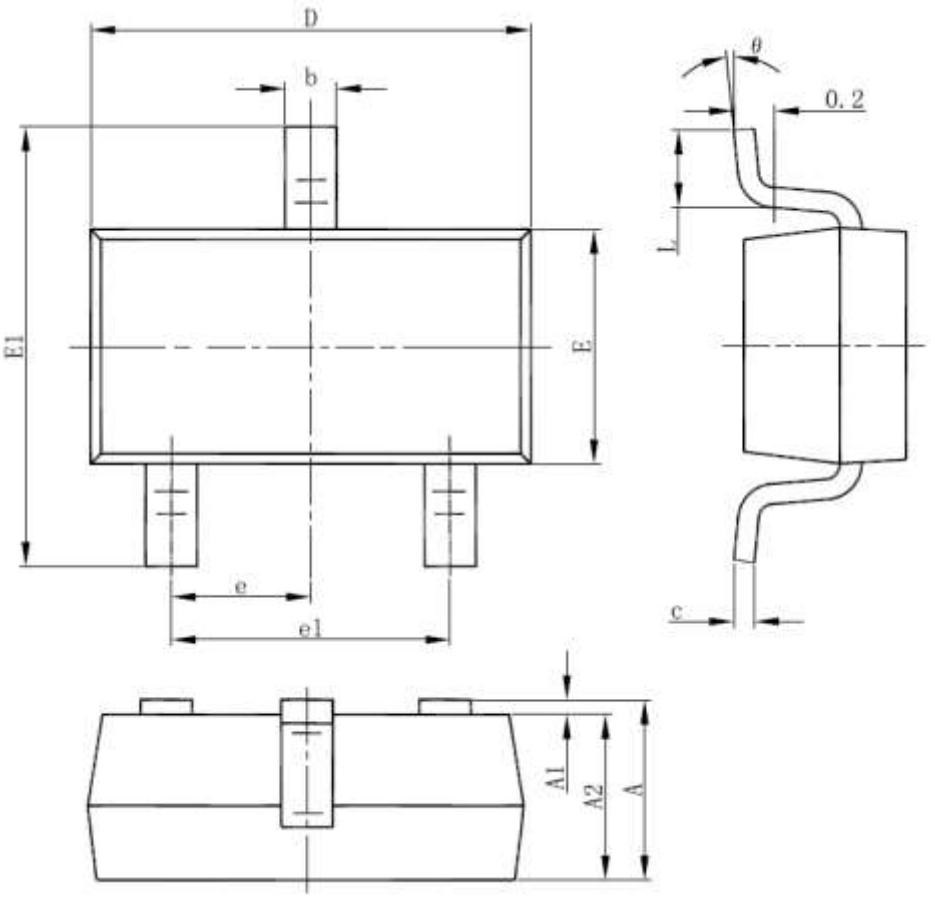
■ Package Information

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



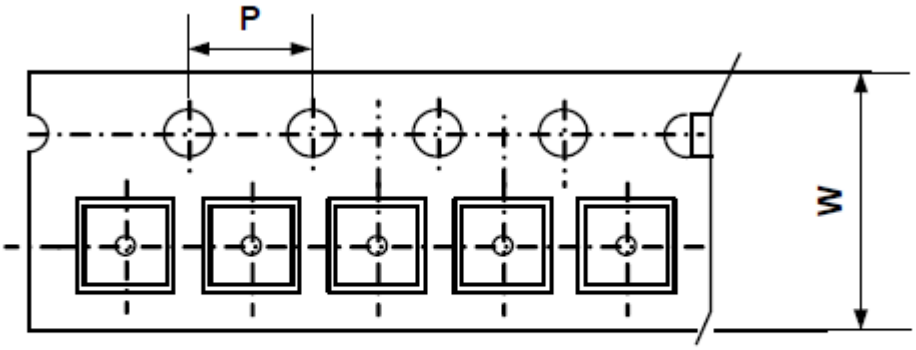
Symbol	Dimensions In Millimeters			Dimensions In Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.050	1.15	1.250	0.041	0.045	0.049
A1	0.000	0.050	0.100	0.000	0.002	0.004
A2	1.050	1.100	1.150	0.041	0.043	0.045
b	0.300	0.400	0.500	0.012	0.016	0.020
c	0.100	0.150	0.200	0.004	0.006	0.008
D	2.820	2.920	3.020	0.111	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°

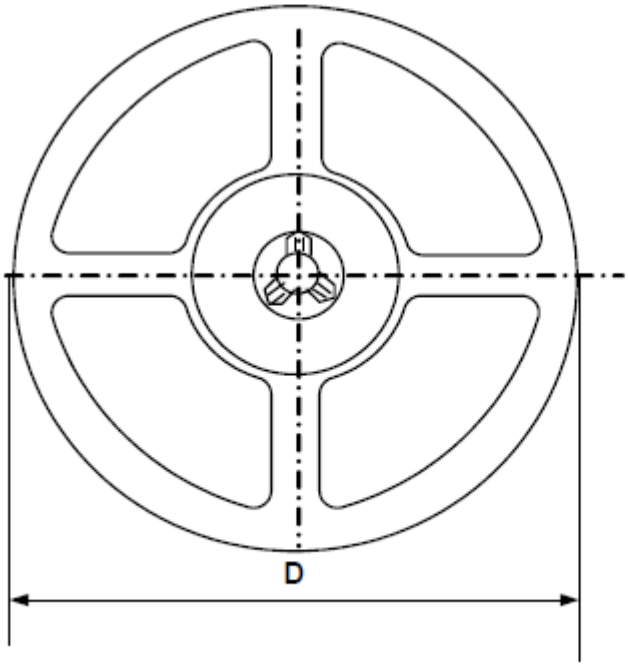
■ Packing Information

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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