

General Description

OCH1451 is a switched Hall-Effect IC, which is for contactless switching applications. The device includes an on-chip Hall voltage generator for magnetic sensing, an amplifier that amplifies the Hall voltage, a Schmitt trigger to provide switching hysteresis for noise rejection, and an open-collector output. The bandgap regulator allows a wide operating voltage range. OCH1451 is rated for operating temperature range from -40°C to 150°C and voltage range from 3.8V to 24V. OCH1451 are capable of continuous 25mA sinking out and maybe cycled as high as 50mA maximum.

Features

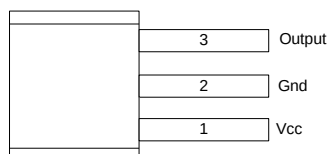
- Unipolar Hall Effect Switch Sensor
- Wide operating voltage range: 3.8V~24V
- Open Collector Pre-Driver
- Maximum output sink current: 50mA
- Chip Power Reverse-Connection Protection
- Operating Temperature: -40°C ~ $+150^{\circ}\text{C}$
- Small Size Package: SIP-3L, SSIP-3L

Applications

- Non-Contact Switch
- Automotive Ignition
- Braker ICs
- Position Control
- Revolution Detection
- Safe Alarm Device
- Textile Control System

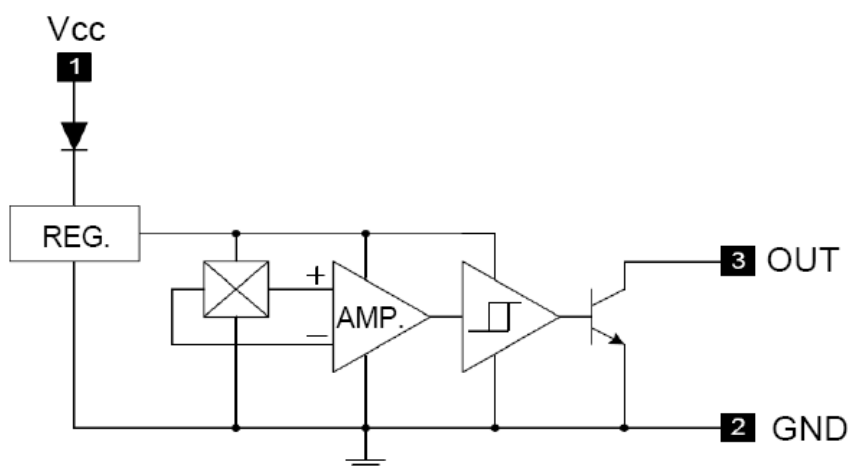
Pin Configuration

(Top View)



Name	No.	Status	Description
Vcc	1	P	Input Power Supply
Gnd	2	P	Ground
Output	3	O	Output Stage of Open Collector

Functional Block Diagram



■ Absolute Maximum Ratings

Parameter	Symbol	Rating
Supply Voltage	VCC	-24 V to +24VDC
Voltage externally applied to output	Vout (off)	+26 VDC max, OFF condition only -0.5 V min., OFF or ON condition
Output "ON" Current	Io (sink)	50 mA
Power Dissipation	PD	450mW
Operation Temperature Range	Top	-40 to +150°C
Storage Temperature Range	Tst	-65 to +150°C
Magnetic Flux	B	No limit.

Note : Absolute Maximum Rating are those values beyond which the life of a device may be impaired.

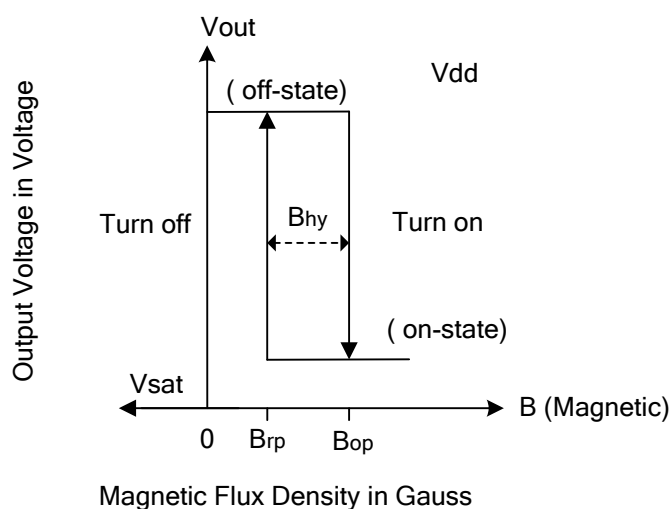
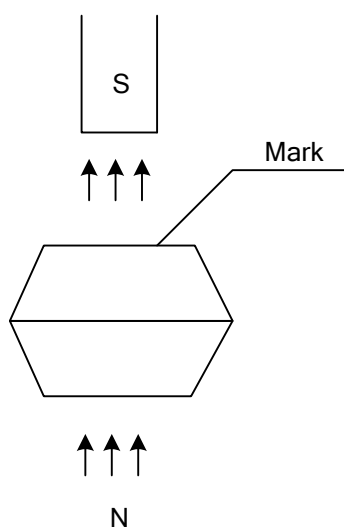
■ Electrical Characteristics(Ta=25°C)

Symbol	Parameter	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Vcc	Supply Voltage	Operating	3.8		24	V
VO (SAT)	Output Saturation Voltage	Vcc = 12V, OUT "ON", Io = 25mA	-	145	400	mV
Icc	Supply Current	Vcc = 3.8V~24V, OUT "OFF"	-	1.9	6	mA
ILE	Output Leakage Current (Leakage into sensor output)	Released	-		5	μA
Tr	Output Switching	Rise Time		143		nS
Tf	Time	Fall Time		89		nS

■ Magnetic Characteristics(Ta=25°C, Vcc=5V)

Symbol	Parameter	MIN.	TYP.	MAX.	UNIT
Bop	Operation Point	30	-	100	Gauss
Brp	Release Point	10	-	80	Gauss
Bhy	Hysteresis		40		Gauss

■ Operating Characteristics



Test Circuits

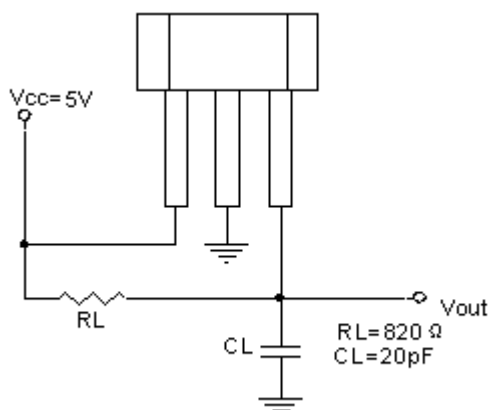
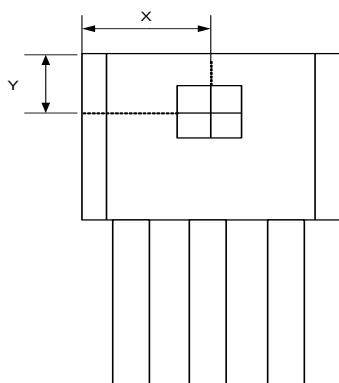


Fig1

Hall Sensor Location

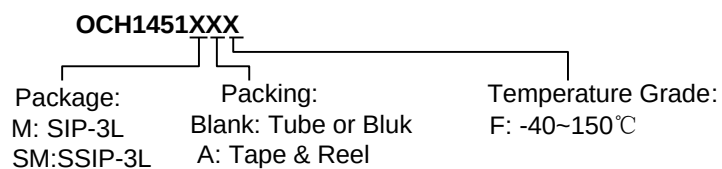
The Fig2 is hall sensor location, where marks the IC number.



		Unit
X	2.00	mm
Y	1.15	mm

Fig2 OCH1451 Hall Sensor Location

Ordering Information

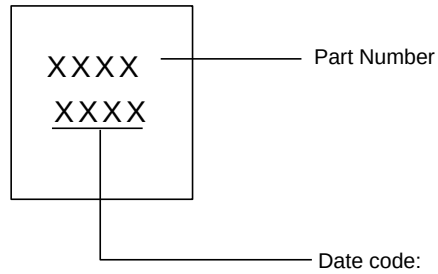


Part Number	Package Type	Package Qty	Brp (Gauss)	Bop (Gauss)	Temperature	Eco Plan	Lead
OCH1451MF	SIP-3L	Bulk 1000pcs/bag	10 ~ 80	30~ 100	-40~150℃	RoHS	Cu
OCH1451SMAF	SSIP-3L	13-in reel 4000pcs/reel	10 ~ 80	30~ 100	-40~150℃	RoHS	Cu



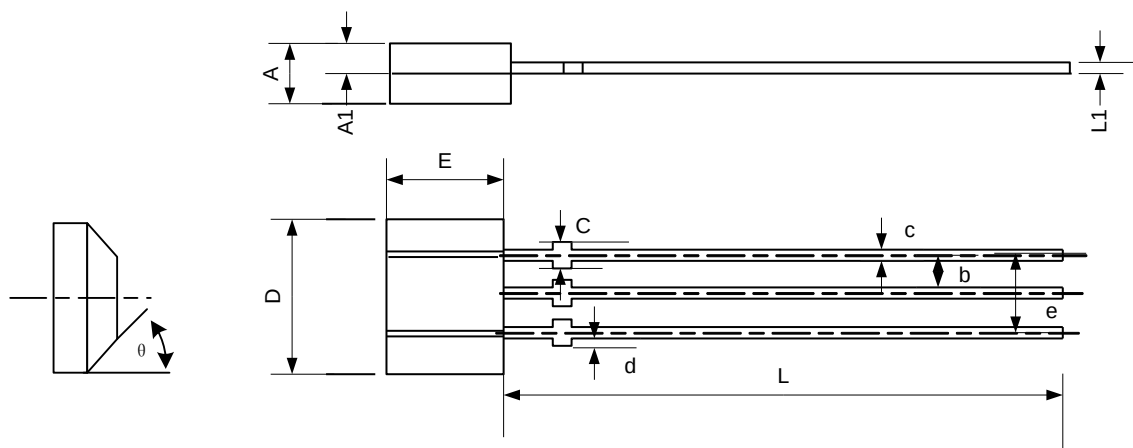
■ Marking Information

SIP-3L/SSIP-3L



■ Package Information

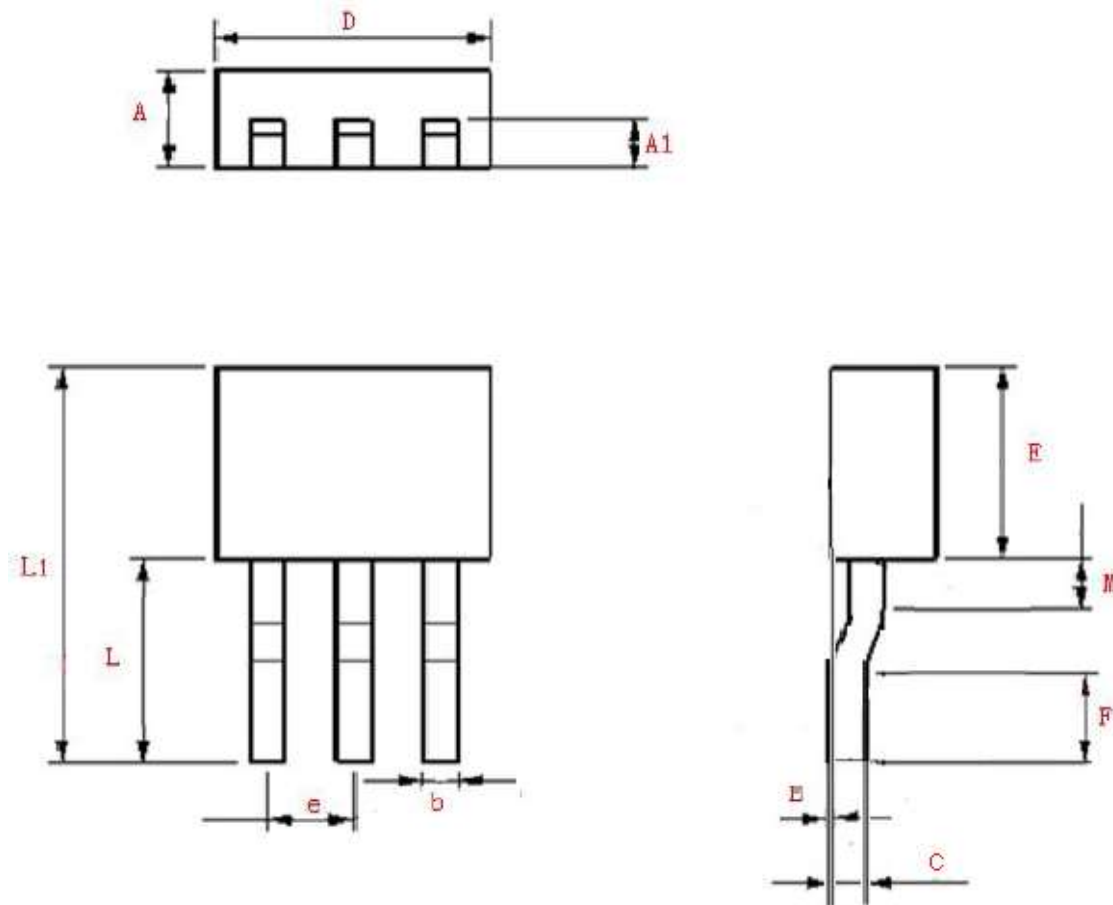
1、SIP-3L



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	0.508	0.016	0.020
c	0.330	0.432	0.013	0.017
D	3.960REF		0.156REF	
d		0.100		0.004
E	2.870	3.124	0.113	0.123
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、SSIP-3L

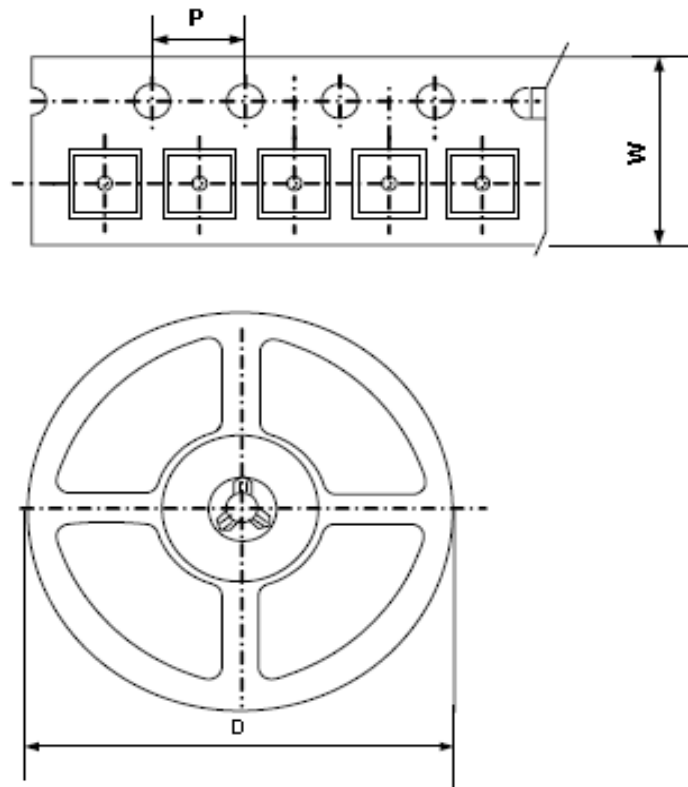


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.245	1.753	0.049	0.069
A1	0.750REF		0.030REF	
b	0.330	0.432	0.013	0.017
C	0.380REF		0.015REF	
D	3.890	4.090	0.153	0.161
B	0.050	0.250	0.002	0.010
F	1.450	1.650	0.057	0.065
E	2.870	3.124	0.113	0.123
e	1.270REF		0.050REF	
L	3.050	3.250	0.120	0.128
L1	6.050	6.250	0.238	0.246
M	0.700	0.900	0.028	0.035



■ Packing Information

1), SSIP-3L



Package Type	Carrier Width(W)	Pitch(P)	Reel Size(D)	Packing Minimum
SSIP-3L	12±0.1mm	4.0±0.1mm	330±1mm	4000pcs

Note: Carrier Tape Dimension, Reel Size and Packing Minimum

2), SIP-3L

Bulk

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



Unipolar Hall Effect Digital Switches For High Temperature

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