General Description

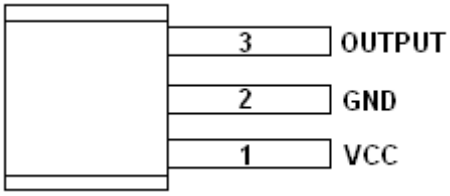
The OCH149 is an integrated Hall effect latched sensor designed for electronic commutation of brush-less high-voltage high-power DC motor applications. The device includes an on-chip Hall voltage generator for magnetic sensing, a comparator that amplifiers the Hall voltage, and a Schmitt trigger to provide switching hysteresis for noise rejection, and an open-collector output. An internal bandgap regulator is used to provide temperature compensated supply voltage for internal circuits and allows a wide operating supply range. The internal filter and protection block can keep the output voltage at safety level and avoid the damage of the sensors.

Features

- Wide operating voltage range: 3.8V~60V
- ESD:HBM-8KV;MM-800V
- Wide operating temperature range: -40°C~+150°C
- Robust open-collector output
- Package: SIP3(TO92S)

Pin Configuration

SIP-3L (Top View)



Name	No. SIP3	Status	Description
VCC	1	P	IC Power Supply
GND	2	P	IC Ground
Output	3	O	It is low state during the S magnetic field

Application Circuit

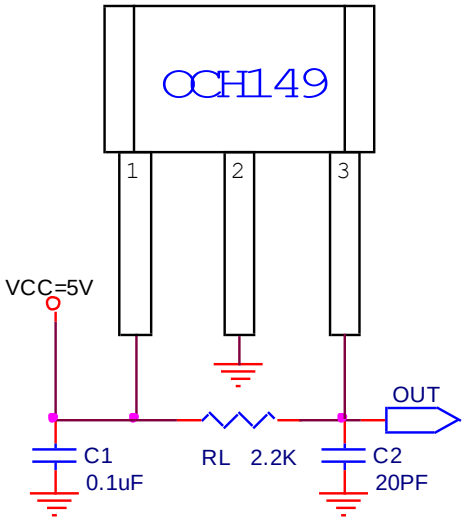


Fig 1, Typical Application Circuitry of OCH149

■ Block Diagram

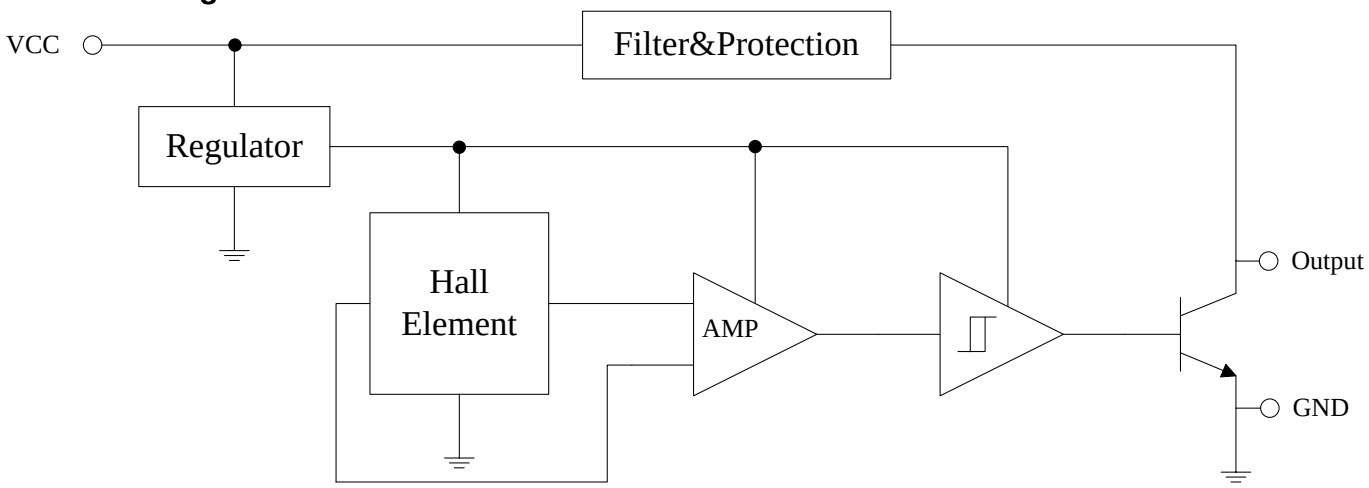


Fig 2, Block Diagram of OCH149

■ Absolute Maximum Ratings

Parameter		Symbol	Rating	Unit
VCC Pin Voltage		V_{CC}	-0.3 to 85	V
Output OFF Voltage, VCE		V_{OUT}	-0.3 to 85	V
Output ON Current(Io) (Continuous Current)		I_{OUT}	25	mA
Power Dissipation	Ta=25°C	P_D	300	mW
Thermal Resistance		T_{ja}	0.34	°C/mW
Lead Temperature (Soldering, 10 Sec.)		T_{LT}	260	℃
Storage Temperature Range		T_S	-55 to +150	℃
Maximum Operating Junction Temperature Range		T_J	-40 to 150	℃

■ DC Electrical Characteristics (Ta=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Operating Voltage	VCC	No use pin is open(Fig.1)	3.8	-	60	V
Supply current	ICC	No use pin is open Vcc:3.8V~60V(Fig.1)	-	3	7	mA
Output Saturation Voltage	V_{SAT}	Vcc=12V,Io=10mA(Fig.1)	-	0.2	0.4	V
Output Leakage Current	I_{OL}	B<B_{RP},V_{OUT}=30V	-	-	5	uA
Maximum Switching Frequency	F_{SW}		-	-	200	KHz
Output Rise Time	Tr	RL=2.2K		150		ns
Output Fall Time	Tf	RL=2.2K		65		ns

■ Magnetic Characteristics(1mT=10GS)

OCH149	Ta=25°C			
Parameter	**Min.**	**Typ.**	**Max.**	**Unit**
B_{OP}	+5	50	-	GS
B_{RP}	-	-50	-5	GS
B_{HYS}	-	100	150	GS

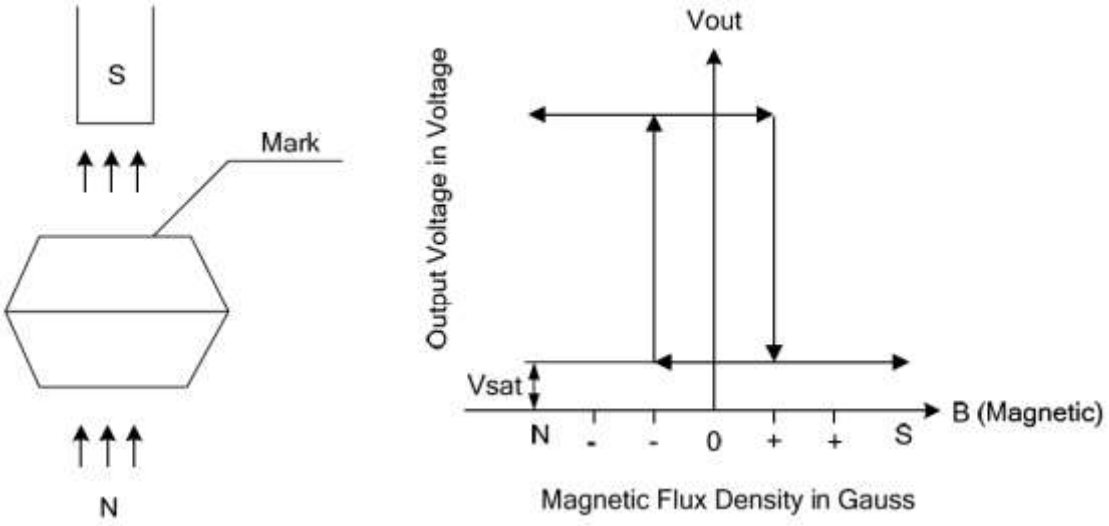
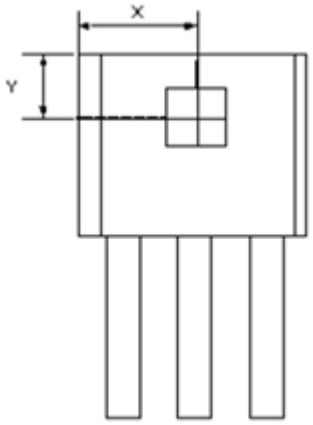


Fig 3, Magnetic Operation Characteristic of OCH149

■ Hall Sensor Location

The Fig4 is hall sensor location, where marks the IC number.



		Unit
X	2.0	mm
Y	1.35	mm

Fig 4, OCH149 Hall Sensor Location

■ Typical Output Waveform:

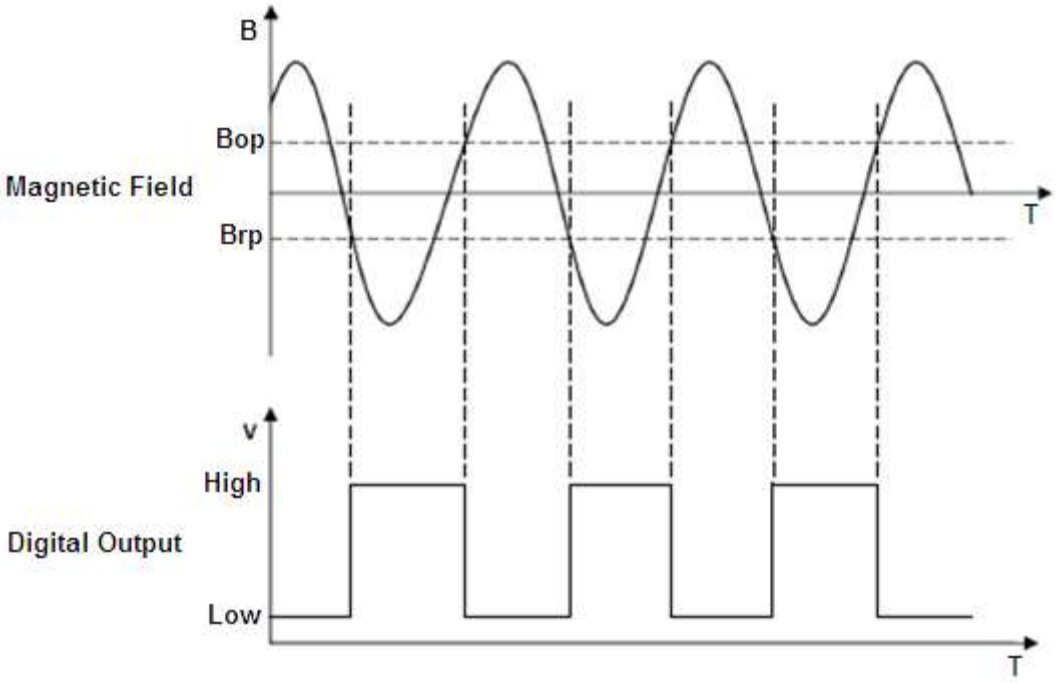
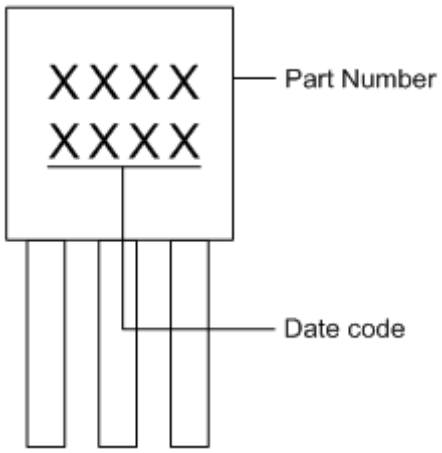


Fig 5,Typical Output Waveform

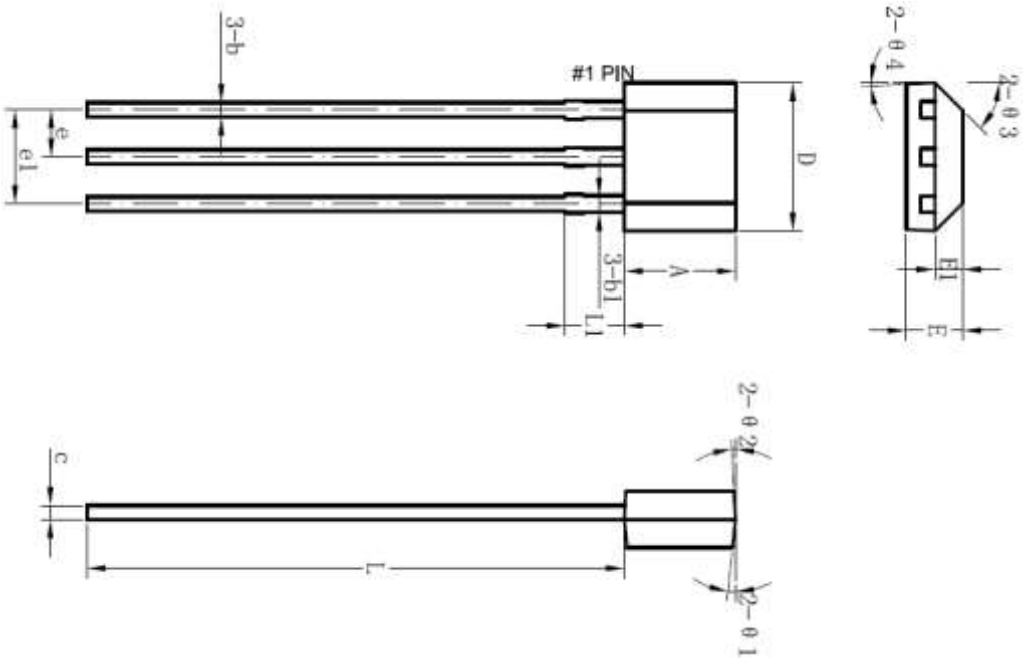
■ Ordering Information

Part Number	Package Type	Packing Qty	Bop (Gauss)	Brp (Gauss)	Temperature	Eco Plan	Lead
OCH149MF	SIP-3L	Bulk 1000pcs/bag	50	-50	-40～150℃	RoHS	Cu

■ Marking Information



■ Package Information



Symbol	Dimensions In Millimeters			Dimensions In Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.90	3.00	3.10	0.11	0.12	0.12
b	0.35	0.39	0.56	0.01	0.02	0.02
b1		0.44			0.02	
c	0.36	0.38	0.51	0.01	0.01	0.02
D	3.9	4.1	4.2	0.15	0.16	0.16
E	1.42	1.52	1.62	0.06	0.06	0.06
E1		0.75			0.03	
e		1.27			0.05	
e1		2.54			0.10	
L	13.50	14.50	15.50	0.53	0.57	0.61
L1		1.60			0.06	
Θ1		6°			0.24°	
Θ2		3°			0.12°	
Θ3		45°			1.77°	
Θ4		3°			0.12°	

■ Packing Information

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

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