



Features and Benefits

- 3.8 to 80V supply voltage
- Open Collector Output
- 30mA sinking capability
- High ESD rating
- 3-pin SIP package is available
- Magnetic Sensitivity:
 - Bop =+50Gauss, Brp =-50Gauss (typical)
 - RoHs compliant

Applications

- Brushless DC motor
- Motor and fan control

General Description

The TX1661H Hall-Effect switch, produced with high voltage Bipolar technology. The Hall IC internally includes an on-chip Hall voltage generator, a voltage regulator for operation, with supply voltages of 3.8 to 80V, reverse protection diode, temperature compensation circuitry, small-signal amplifier, Schmitt trigger and an open-collector output.

They are designed to respond to alternating North and South poles. While the magnetic flux density(B) is larger than operate point (Bop), the output will be turned on (Low), the output is held until the magnetic flux density(B) is lower than release point(Brp) then turn off (High).

The integrated circuits are designed to provide predictable performance over the full temperature range of -40 to +150°C.

Pin Description

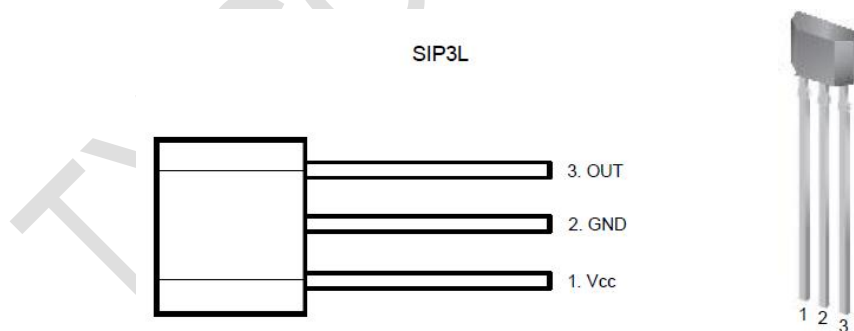


Fig1

Table 1

SIP Pin Number	Pin Name	Function
1	Vcc	Supply Voltage
2	GND	Ground
3	OUT	Open Collect Output



TX1661H

<http://www.txsemi.com>

Latch, High Performance Hall-Effect Sensors

Order Information

Table2

Part number	Description
TX1661HTR	3Pin SIP package, bulk packaging (1000pcs/bag),RoHS/Pb Free

Function Description

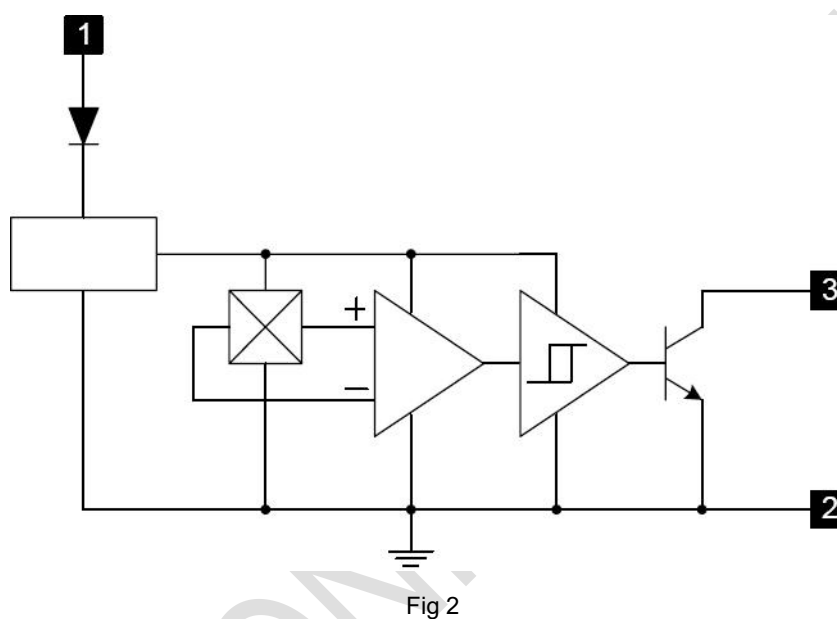


Fig 2

The circuit includes Hall generator, amplifier and Schmitt-Trigger on one chip. The internal reference provides the supply voltage for the components. A magnetic field perpendicular to the chip surface induces a voltage at the Hall probe. This voltage is amplified and switches as a Schmitt-Trigger with open-collector output. A protection diode against reverse power supply is integrated.



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Absolute Maximum Ratings

Table 3

Symbol	Parameter	Range	Unit
V _{cc}	Power supply voltage	-24~+100	V
I _{ol}	Output terminal current sink	30	mA
V _{out}	Output terminal voltage	90	V
T _a	Operating ambient temperature	-40~+150	°C
T _s	Storage temperature	-50~+150	°C
T _j	Maximum junction temperature	-65~+170	°C
B	Magnetic flux	No Limit	Gauss

Note1: Stresses above those listed here may cause permanent damage to the device. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

Electrical and magnetic Specifications

Table 4 (T_a=25°C, V_{cc}=5V, unless otherwise specified)

Symbol	Parameter	Condition	Min	Typ	Max.	Unit
V _{cc}	Operating voltage	Operating	3.8	-	80	V
I _{cc}	Operating supply current	V _{cc} =5.0 V, B<Brp	-	4	10.0	mA
V _{sat}	Output saturation voltage	I _{out} =25mA, B>BOP	-	150	400	mV
I _{off}	Output Leakage Current	V _{out} =60V, B<BRP	-	0.01	1	uA
T _r	Output Rise Time	R _L =1KΩ, C _L =20pF	-	-	1.5	us
T _f	Output Fall Time	R _L =1KΩ, C _L =20pF	-	-	1.5	us

Magnetic Characteristics

Table 5 (T_a=25°C, V_{cc}=5V, unless otherwise specified)

Symbol	Parameter	Min	Typ	Max	Unit
BOP	Magnetic Operating Point	+10	+50	+100	Gauss
BRP	Magnetic Release Point	-100	-50	-10	Gauss
BHYS	Hysteresis	40	100	120	Gauss



ESD Protection

Human Body Model (HBM) tests according to: AEC-Q100-002

Table 6

Symbol	Parameter	Min	Max	Unit
Vesd	ESD-Protection	-5	+5	KV

Latch-up Protection

Latch-up tests according to: AEC-Q100-004

Table 7

Symbol	Parameter	Test Temperature	Values
LU	Latch-up	125°C	Class II



Test Circuit

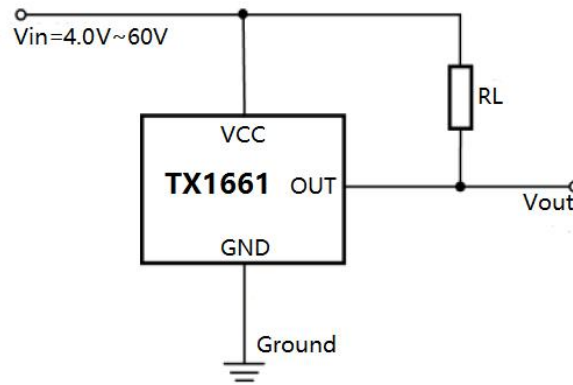


Fig 3

Note2: RL recommend 1K Ω to 10K Ω

Typical Output Waveform

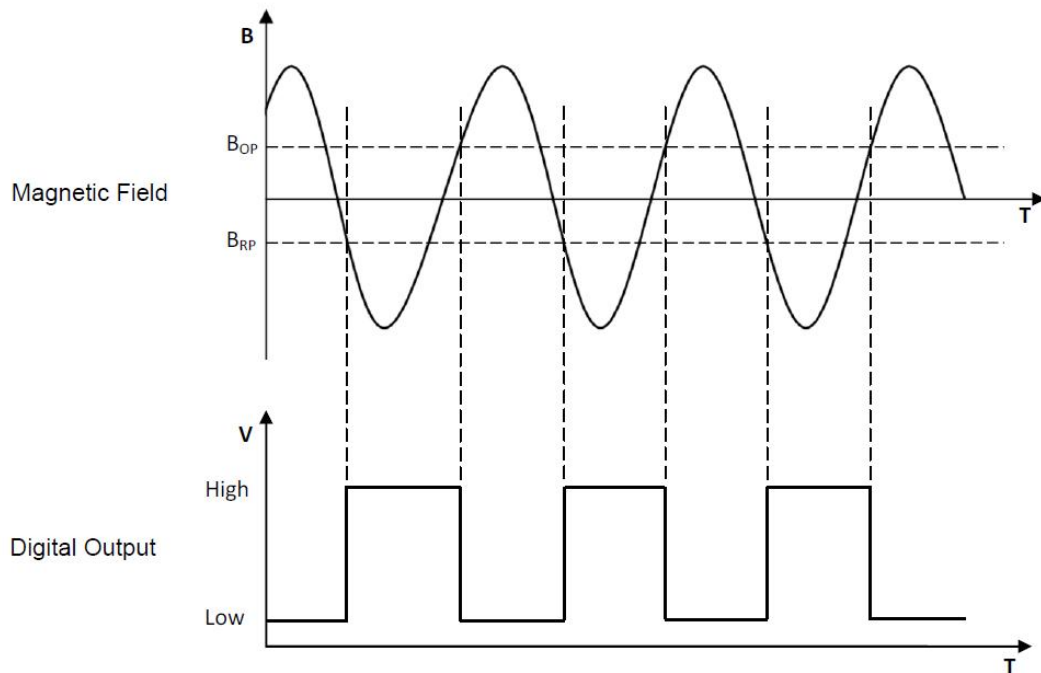


Fig 4



PACKAGE DESIGNATOR(SIP_3L)

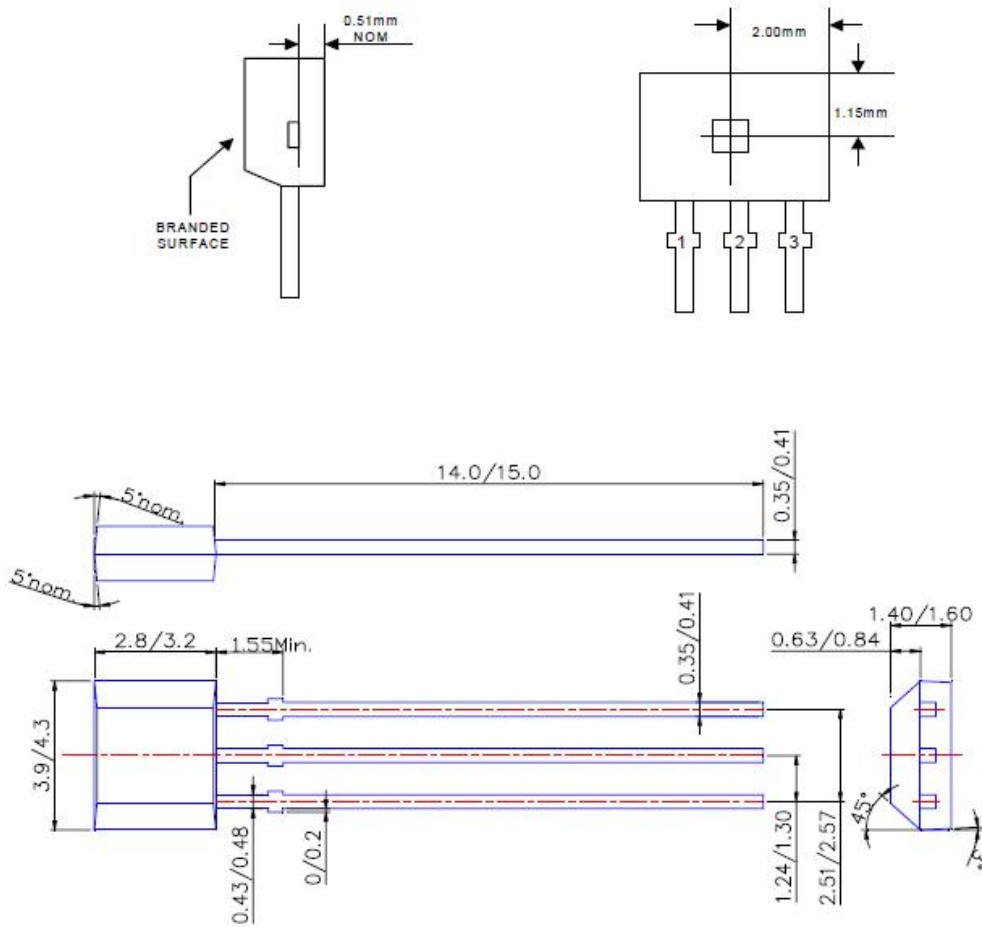


Fig 5

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