OH921

HIGH SENSITIVITY CMOS HALL-EFFECT LATCH

Order Information

Package	Temperature Range	Part Number	Marking ID	Packing Type
TO92S-3	-40 to 125°C	OH921-T	920	Bulk
SOT23-3	-40 to 125°C	OH921-S	GS6	Tape & Reel

General Description:

The OH921 is a Hall-effect latch designed in mixed signal CMOS technology. It is quite suitable for use in automotive, industrial and consumer applications. Superior high-temperature performance is made possible through dynamic offset cancellation, which reduces the residual offset voltage normally caused by device over-molding, temperature dependencies, and thermal stress. The device integrates a voltage regulator, Hall-voltage generator, small-signal amplifier, chopper stabilization, schmitt trigger, and is directly drivable by the output.

Features

- Wide Operating Voltage Range from 3.5 to 24V
- Symmetrical Switch Points
- Chopper-stabilized Amplifier Stage
- Superior Temperature Stability
- Compact Size
- Built-in Pull-up Resistor
- ESD Rating: 3500V (Human Body Model)

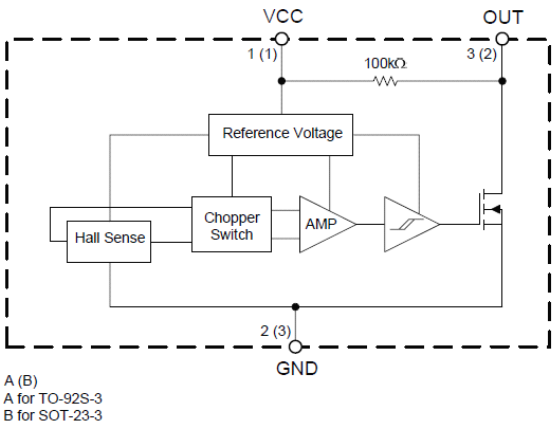
Applications

- Brushless DC Motor Commutation
- Brushless DC Fan
- Solid-state Switch
- Revolution Counting
- Speed Detection
- High Sensitivity and Unconnected Switch

Absolute Maximum Ratings （T_A=25℃）

Supply VoltageV_{CC}.....3.5-28V
Output Current I_O.....25mA
Operating Temperature Range T_A .....-50～150℃
Storage Temperature RangeT_S .....-65～150℃

Functional Block Diagram



A (B)
A for TO-92S-3
B for SOT-23-3

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Electrical Characteristics

Vcc =12V, T_A=25°C, unless otherwise specified

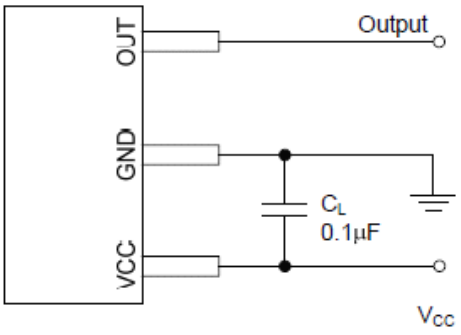
Parameter	Symbol	Conditions	Value			Unit
			Min	Typ	Max	
Supply Voltage	V_{CC}		3.5	12	24	V
Output Saturation Voltage	V_{SAT}	I_{OUT}=20mA, B>B_{OP}	-	185	500	mV
Output Leakage Current	$I_{LEAKAGE}$	V_{CC}=V_{OUT}=24V, B<B_{RP}	-	0.1	10	μA
Supply Current	I_{CC}	V_{CC}=12V	-	3	5	mA
Output Rise Time	t_r	CL=20pF	-	0.4	2	μS
Output Falling Time	t_f		-	0.4	2	μS

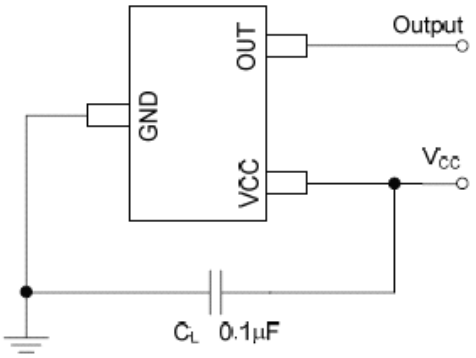
Magnetic Characteristics

Vcc =12V, T_A=25°C, (1mT = 10 Gauss)

Parameter	symbol	Value			Unit
		Min	Typ	Max	
Operate Point	B_{OP}	0.5	2.2	4	mT
Release Point	B_{RP}	-4	-2.2	-0.5	mT
Hysteresis	B_H	-	4.5	-	mT

Typical Application：





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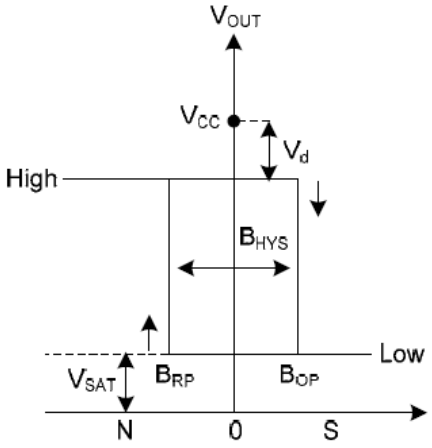
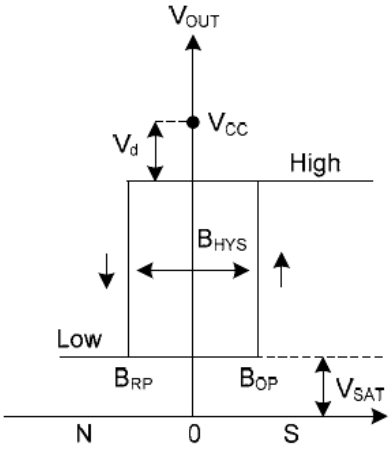


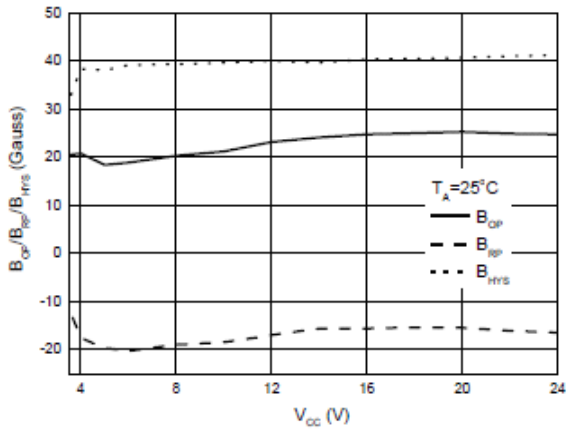
For TO-92S-3



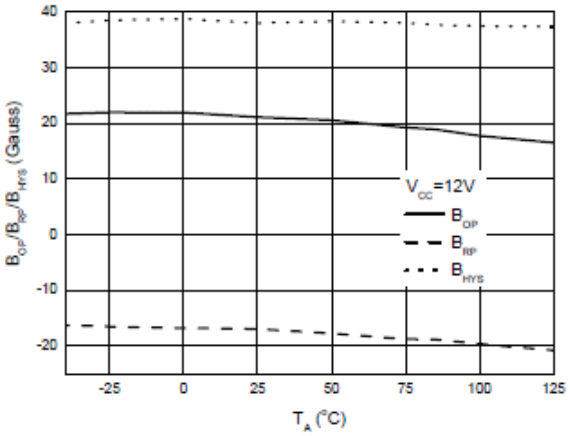
For SOT-23-3

Package Type	Parameter	Test condition	Output
TO-92S-3	South Pole	B＞BOP	Low
	North Pole	B＜BRP	High
SOT-23-3	South Pole	B＞BOP	High
	North Pole	B＜BRP	Low

Typical Performance Characteristics



BOP/BRP/BHYS vs. VCC



BOP/BRP/BHYS vs. TA

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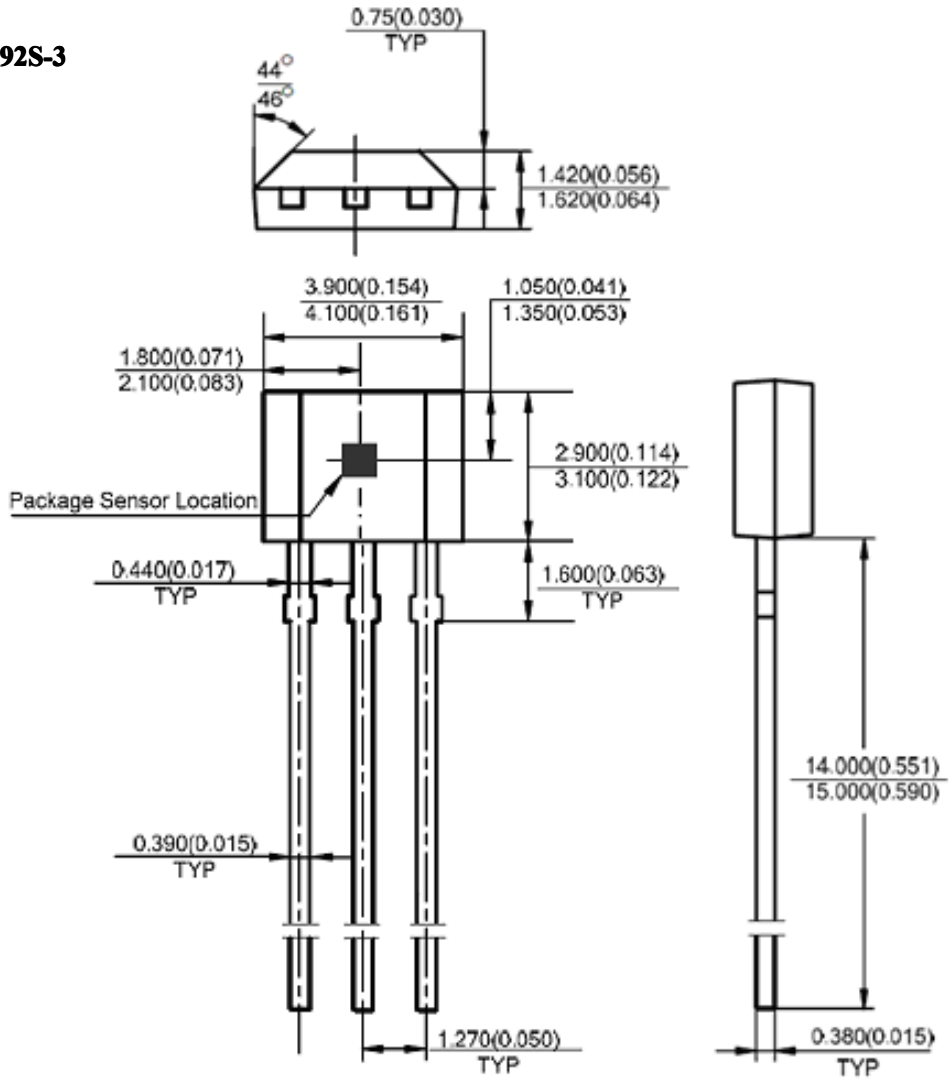
Mechanical Dimension unit:mm(inch)

TO-92S-3



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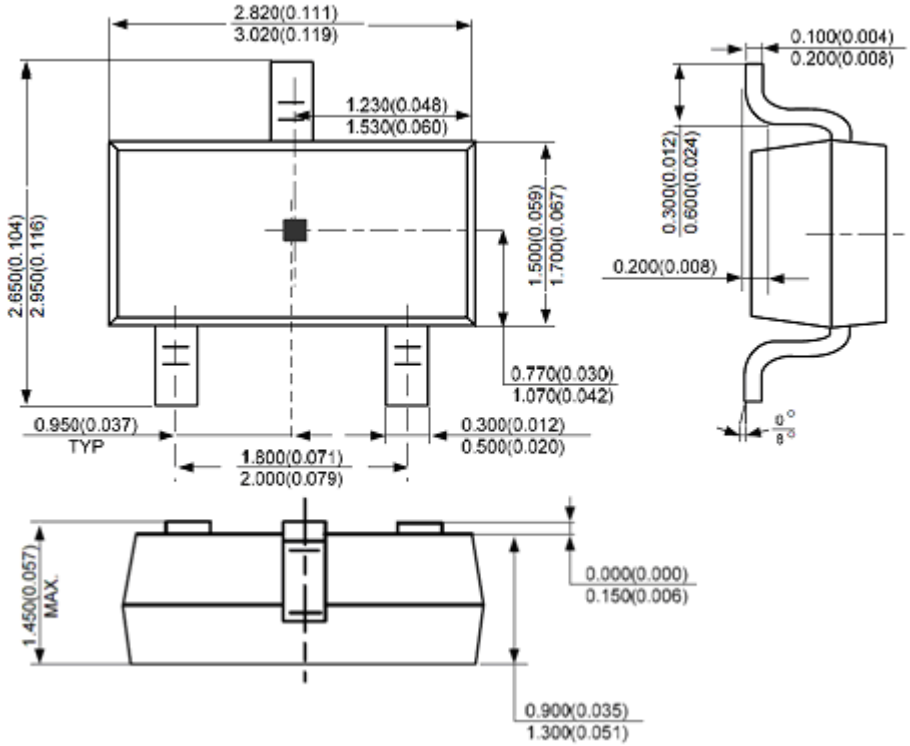

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