



WSH520

## Low voltage Single Coil Hall Effect IC with Complementary Output Drivers

### Features:

- Operate from 1.8V to 4.5V supply voltage.
- On-chip Hall sensor.
- Internal thermal compensation circuit enable operation in a wide range temperature without loss of sensitivity.
- Output sinking capability up to 200mA for driving large load.
- Available in rugged low profile SOT-25 packages.

### General Description:

WSH520 is designed to integrate Hall sensor with complementary output drivers on the same chip, it is suitable for single coil DC brushless motors. It includes a temperature compensated circuit, a differential amplifier, a Hysteresis controller, complementary bi-direction drivers for sinking and driving large current load. WSH520 are rated for operation over temperature range from  $-20^{\circ}\text{C}$  to  $75^{\circ}\text{C}$  and voltage ranges from 1.8V to 4.5V.

### Pin Descriptions: (SOT-25)

Name	P/I/O	Pin#	Description
Vcc	P	1	Positive Power Supply
Vss	P	2	Ground
DO	O	3	Output Pin #2
DOB	O	4	Output Pin #1

### Absolute Maximum Rating (at Ta=25° C)

Supply Voltage	Vcc	-----	5V
Magnetic flux density	B	-----	Unlimited
Output ON Current (continuous)	Ic	-----	220mA
Operating Temperature Range	Ta	-----	( $-20^{\circ}\text{C}$ to $+75^{\circ}\text{C}$ )
Storage Temperature Range	Ts	-----	( $-65^{\circ}\text{C}$ to $+150^{\circ}\text{C}$ )
Package Power Dissipation	Pd	-----	350mw for SOT-25

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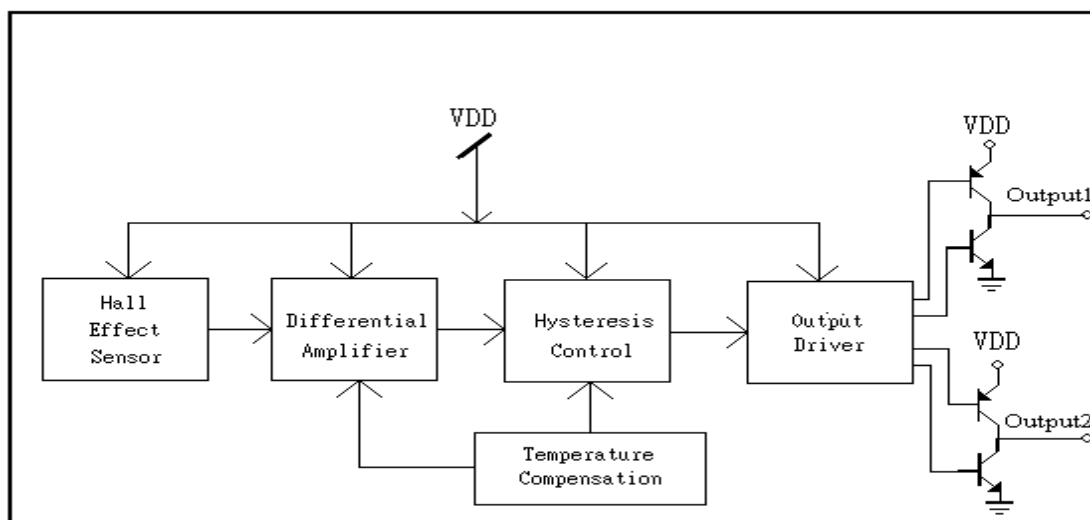


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### Electrical Characteristics: (T=+25°C, Vcc=1.8V to 4.5V)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Units
Supply Voltage	Vcc	—	1.8	—	4.5	V
Output Saturation Voltage	Vout(sat) Vdrive+Vsink	Vcc=3V, Io=150mA	—	0.6	1.0	V
Output Leakage Current	Ileakage	Vcc=3V, B < Brp	—	<0.1	10	uA
Supply Current	Isupply	Vcc=3V, Io=150mA	—	10	20	mA

### Function Block:



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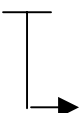


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## Magnetic Characteristics:

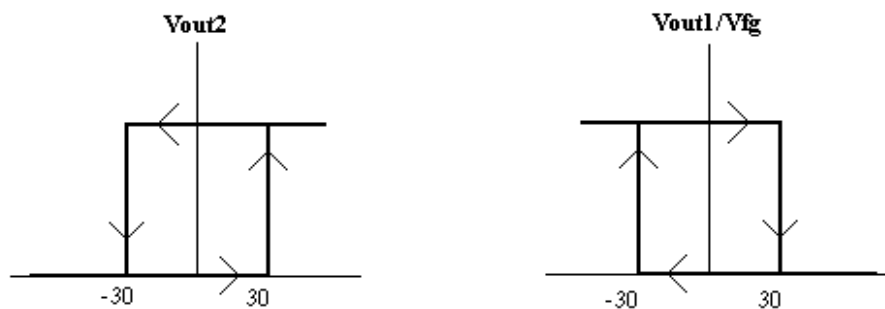
Characteristics	Symbol	Quantity	Ta= -20°C to +80°C			Unit
			Min	Typ.	Max	
Operate Point	Bop	Grade A		35	70	Gauss
		Grade B		50	100	
Release Point	Brp	Grade A	-70	-35		Gauss
		Grade B	-100	-50		
Hysteresis Window	Bop-Brp			70	150	Gauss

## Ordering Information:

<p>SOT-25: WSH520-XPDI□</p> 	<p>Elec. Grade</p> <p><b>SOT-25:</b></p> <p>1: A Grade (70 Gauss)</p> <p>2: B Grade (100 Gauss)</p>
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## Test Circuit:

WSH520 Complementary Output1/Vfg vs. Output2



Magnetic Flux Density in Gauss

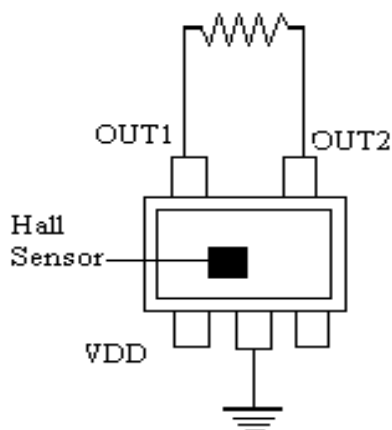
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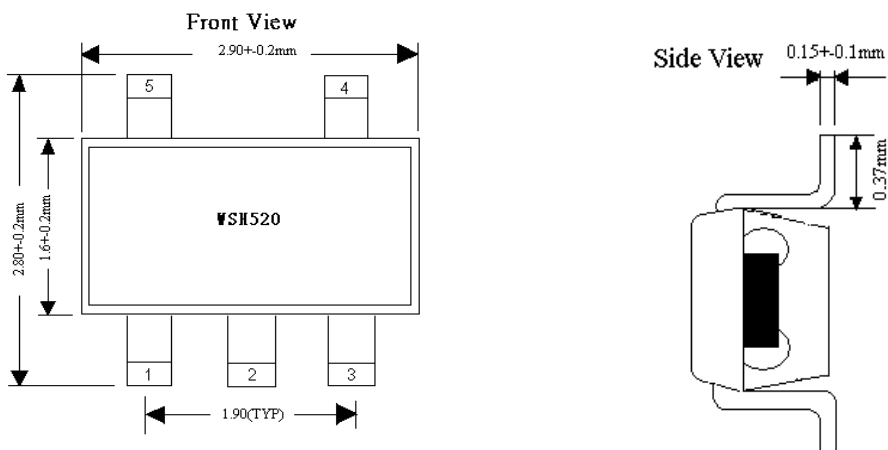
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## 1. SOT-25:



## Package Information:

### 1. SOT-25

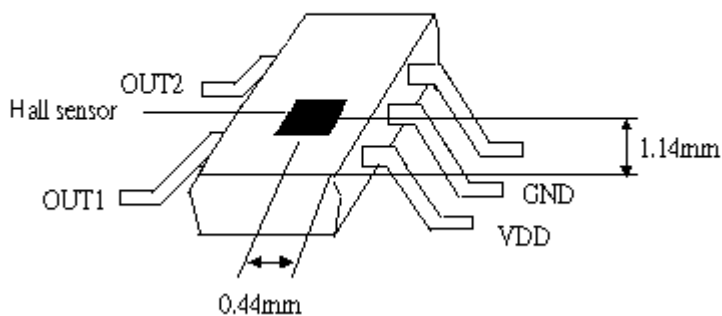
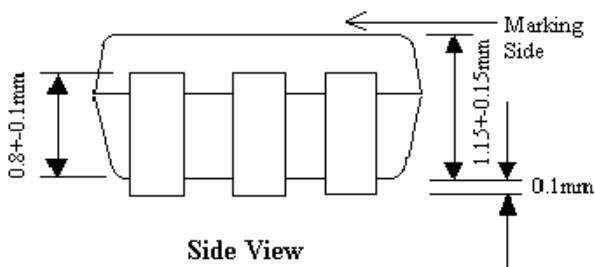


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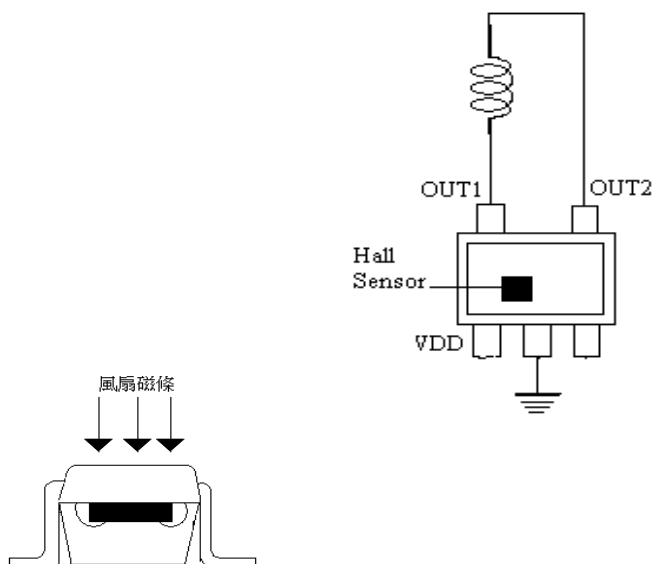


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## Application Circuit:

### 1-1. SOT-25



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Figure 1.

## 1-2. SOT-25

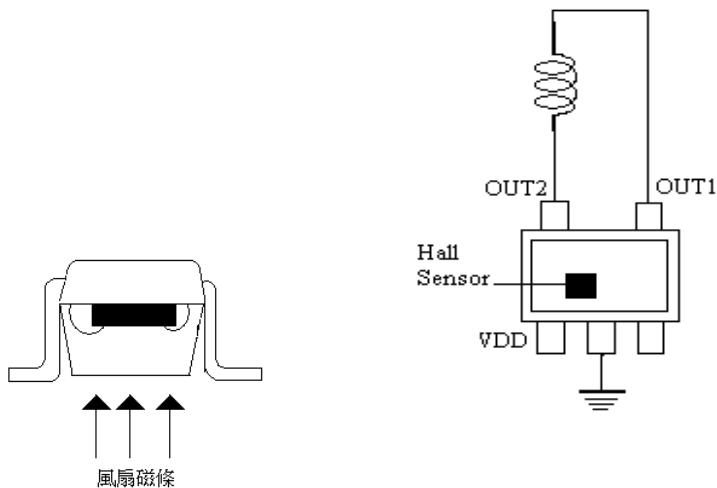
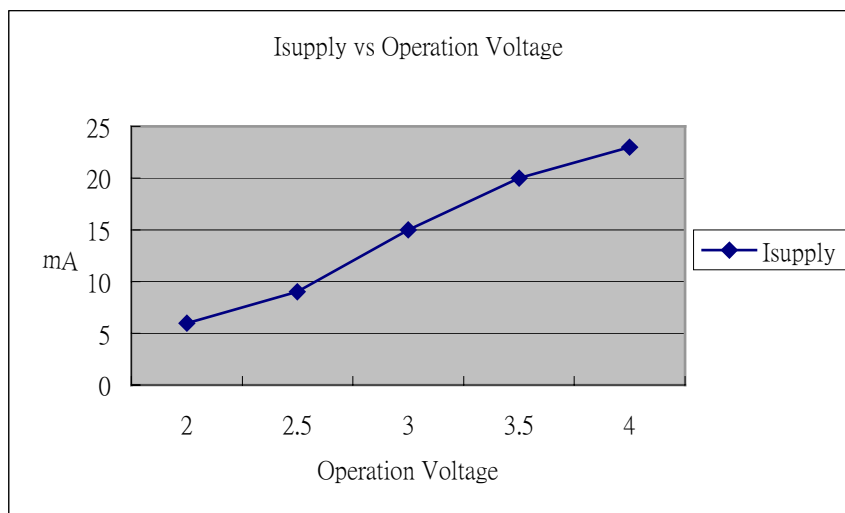


Figure 2.

## IV-Curve



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