



WSH420

Single Coil Hall Effect IC with Thermal Lock Protection and Auto-Restart

Features:

- Operate from 2.4V to 15V supply voltage.
- On-chip Hall sensor.
- Internal bandgap regulator allows temperature compensated operations and a wide operating voltage range.
- Output sinking capability up to 450mA for driving large load.
- Lower current change rate reduces the peak output voltages during switching.
- Available in rugged low profile SIP-4L packages.
- Built-in protection resistance for reverse power supply fault.
- Built-in **thermal lock protection** and **auto-restart** function.

General Description:

WSH420 is designed to integrate Hall sensor with two push-pull output drivers and frequency generator together on the same chip, it is suitable for single coil DC brushless motors. It includes a temperature compensated voltage regulator, a differential amplifier, a Hysteresis controller, complementary bi-direction drivers for sinking and driving large current load. An on-chip protection resistor is implemented to prevent reverse power fault. And built-in **thermal lock protection** and **auto-restart** function will automatically shutdown power at 120°C to prevent the coils be damaged during high temperature and auto-restart at 115°C. It can replace the function of lock protection and auto-restart at low cost.

WSH420 are rated for operation over temperature range from -20° C to 85° C and voltage ranges from 2.4V to 15V.

Pin Descriptions: (SIP-4L)

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

Winson reserves the right to make changes to improve reliability or manufacturability.



WSH420

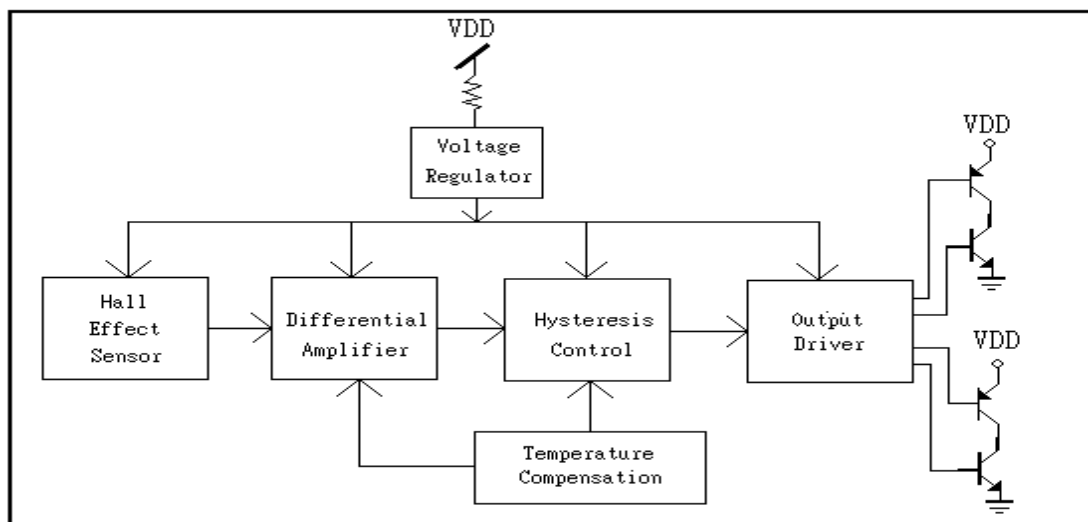
Absolute Maximum Rating (at Ta=25° C)

Supply Voltage	Vcc	-----	15V
Magnetic flux density	B	-----	Unlimited
Reverse Protection Voltage	Vr	-----	15V
Output Lock Current	Ic	-----	450mA
Operating Temperature Range	Ta	-----	(-20°C to +85°C)
Storage Temperature Range	Ts	-----	(-65°C to +150°C)
Package Power Dissipation	Pd	-----	500mw for SIP-4L

Electrical Characteristics: (T=+25°C, Vcc=2.4V to 15V)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Units
Supply Voltage	Vcc	—	2.4	—	15	V
Output Saturation Voltage	Vout(sat) Vdrive+Vsink	Vcc=12V, Io=200mA	—	0.6	1.0	V
Output Leakage Current	Ileakage	Vcc=12V, B < Brp	—	<0.1	10	uA
Supply Current	Isupply	Vcc=12V, Io=200mA FG “ON”	—	22	30	mA

Function Block:



Winson reserves the right to make changes to improve reliability or manufacturability.



WSH420

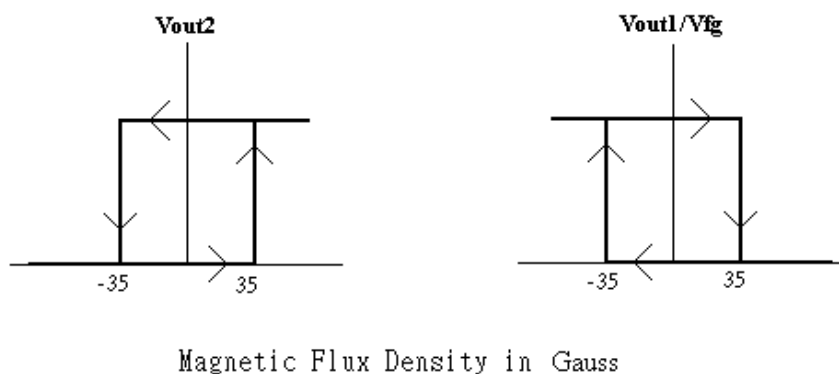
Magnetic Characteristics:

Characteristics	Symbol	Quantity	Ta= -20°C to +90°C			Unit
			Min	Typ.	Max	
Operate Point	Bop	A		35	50	Gauss
		Grade B		50	70	
		C			120	
Release Point	Brp	A	-50	-35		Gauss
		Grade B	-70	-50		
		C	-120			
Hysteresis Window	Bop-Brp			40	80	Gauss

Ordering Information:

<p>SIP -4L: WSH420-XPAN <input type="checkbox"/></p> <p style="margin-left: 100px;">└─ Elec. Grade</p>	<p>Elec. Grade</p> <p>SIP-4L:</p> <p>1: A Grade (50 Gauss)</p> <p>2: B Grade (70 Gauss)</p> <p>3: C Grade (120 Gauss)</p>
---	---

WSH420 Complementary Output1/Vfg vs.Output2

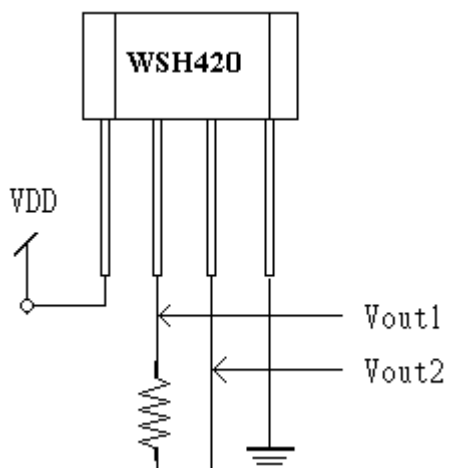


Winson reserves the right to make changes to improve reliability or manufacturability.



WSH420

Testing Circuit



Winson reserves the right to make changes to improve reliability or manufacturability.

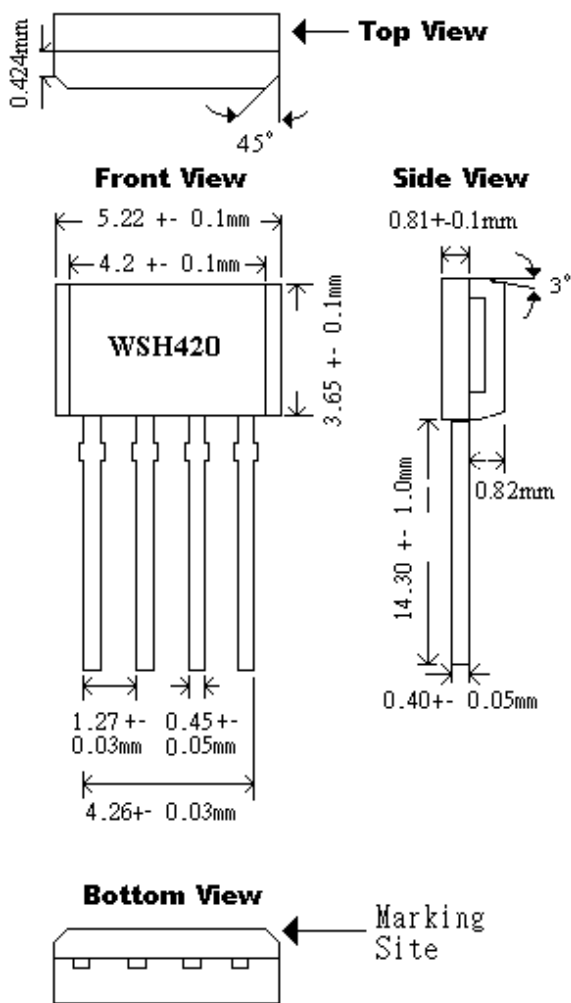


WSH420

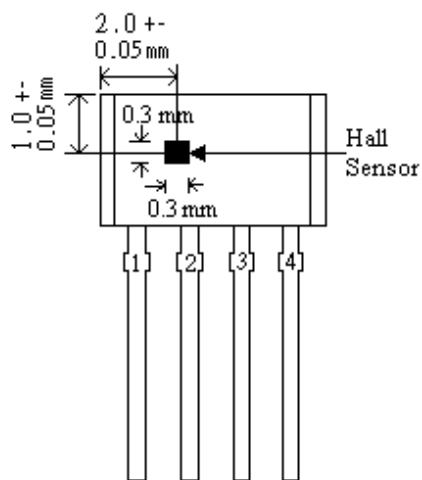
Package Information:

1. SIP-4L

Package Dimension



Hall Sensor Location



Winson reserves the right to make changes to improve reliability or manufacturability.



WSH420

Application Circuit:

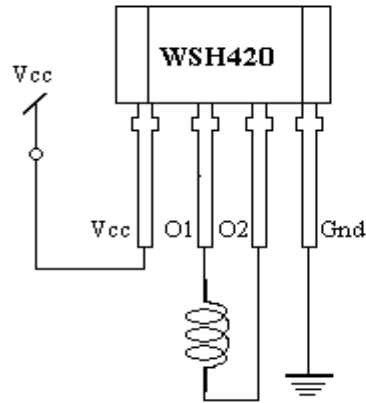


Figure 1.

Winson reserves the right to make changes to improve reliability or manufacturability.