

Features

- Micropower consumption
- 2.0V~6.0V power supply
- Chopper stabilized amplifier stage
- Open-drain output
- Switching for both polar of a magnet(Omnipolar)
- Very High Sensitivity Hall Sensor
- Package: 3PinSIP

Applications

- Solid State Switch
- Home appliances, Industrial
- Position Detection
- Proximity Switch
- Smart Meter

General Description

The HX4913 is fabricated from mixed signal CMOS technology. It internally includes an on-chip Hall voltage generator, a voltage regulator for operation with supply voltages of 2.0 to 6.0 V, a sleep/awake logic for low power consumption, temperature compensation circuitry, small-signal amplifier, Hall sensor with dynamic offset cancellation system, Schmitt trigger and an open-drain output.

Either north or south poles of sufficient strength

will turn the sensor output on. The output will be turned off under no magnetic field. While the magnetic flux density (B) is larger than operating point (Bop), the output will be turned on (low), the output is held until B is lower than release point (Brp), and then turned off.

The total power consumption in normal operation is typically 10μW with a 2.7V power source.

Operating temperature range of the HX4913 is from -40°C to 85°C.

Block Diagram

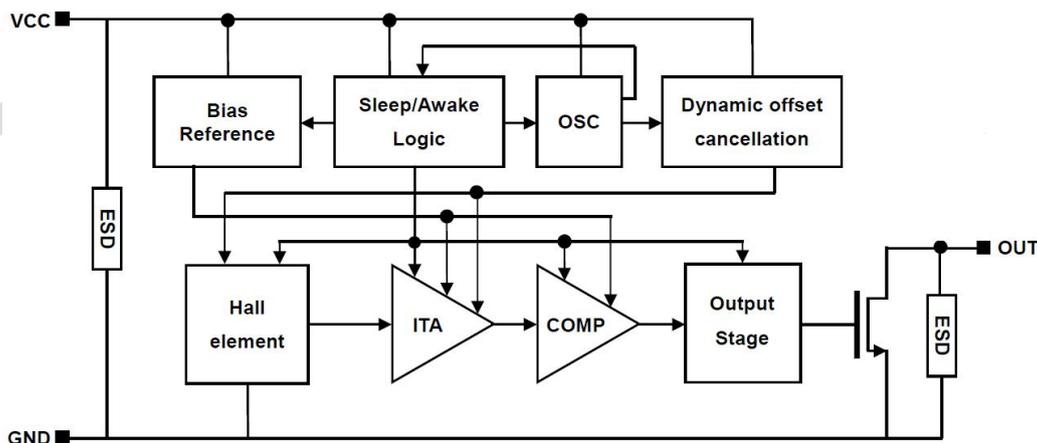


Fig 1

Pin Assignment

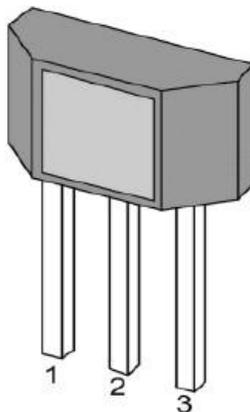


Fig2 3Pin-SIP

Pin Description

SIP Pin Number	Pin Name	Function
1	VCC	Supply Voltage
2	GND	Ground
3	OUT	Open Drain Output

Order Information

Part number	Description
HX4913TR	3Pin SIP package, bulk packaging (1000pcs/bag),RoHS/Pb Free

Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
V _{CC}	Supply Voltage	-0.5~6.0	V
I _{DD}	Supply Current	5	mA
B	Magnetic Flux Density	Unlimited	Gauss
T _J	Operating Junction Temperature Range	-40 to 150	°C
T _S	Storage Temperature	-65 to 150	°C
PD	Power Dissipation	3Pin SIP 550	mW

Note: Stresses greater than those listed under “Absolut Maximum Ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the se or any other conditions beyond those indicated under “Recommended Operating Conditions” is not implied. “Absolute Maximum Ratings” for extended period may affect device reliability.

Recommended Operating Conditions

(TA=25°C unless otherwise noted)

Parameter	Symbol	Min	Max	Unit
Supply Voltage	V _{CC}	2.0	6.0	V
Ambient Temperature	T _a	-40	85	°C

Electrical Characteristics

(V_{CC}=2.7V Ta=25°C, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I _{CC}	Average Supply Current	V _{CC} =2.7V, Output Open	-	4	10	uA
I _{ON}	Supply current (operating mode)	V _{CC} =2.7V	-	1.2	-	mA
I _{ST}	Supply current (stand-by mode)	V _{CC} =2.7V	-	2.5	-	uA
V _{SAT}	Output Saturation Voltage	I _o =2mA, B>B _{op}	-	0.05	-	V
I _{OL}	Output Leakage Current	V _{CC} =4.5V, B<B _{rp}	-	<0.1	1	uA
T _{awake}	Awake Time	V _{CC} =2.7V	-	70	-	us
T _{period}	Period	V _{CC} =2.7V	-	115	-	ms
ESD	Electro-Static Discharge	HBM		4		KV

Magnetic Characteristics

(V_{CC}=2.7V Ta=25°C, unless otherwise specified)

Characteristics	Symbol	Min	Typ	Max	Unit
Operating Point	B _{ops} (south pole to part marking side)	-	+35	+55	Gauss
	B _{opn} (north pole to part marking side)		-35	-55	Gauss
Releasing Point	B _{rps} (south pole to part marking side)	+8	+25	-	Gauss
	B _{rpn} (north pole to part marking side)	-8	-25	-	Gauss
Hysteresis	B _{hys} = B _{opx} -B _{rp_x}	3	10	18	Gauss

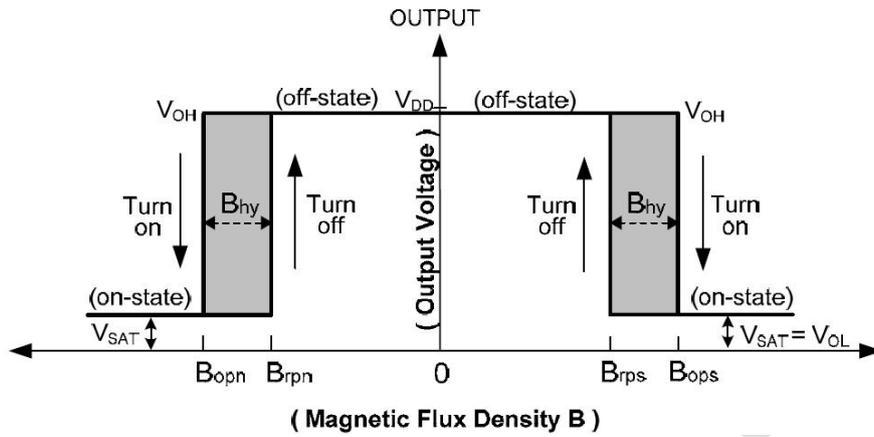


Fig 3

Typical Output Waveform

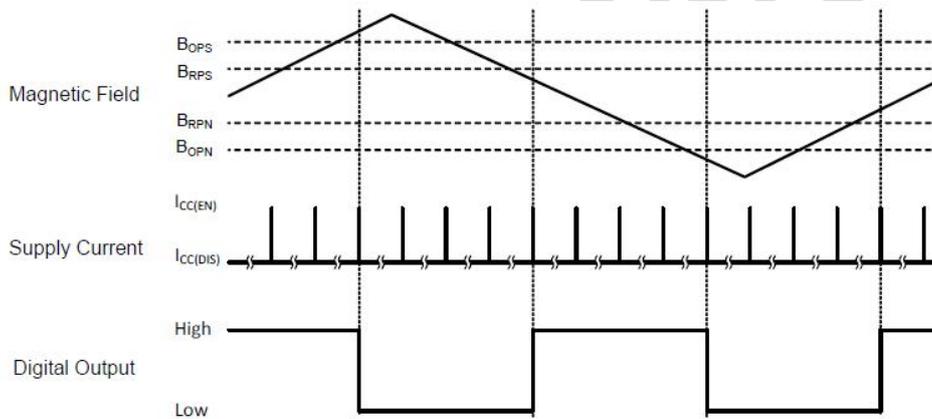
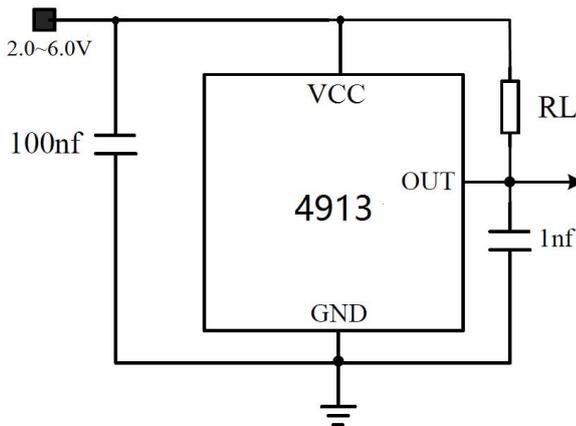


Fig 4

Application Circuits



Note: R_L recommend 100K Ω

Fig 5

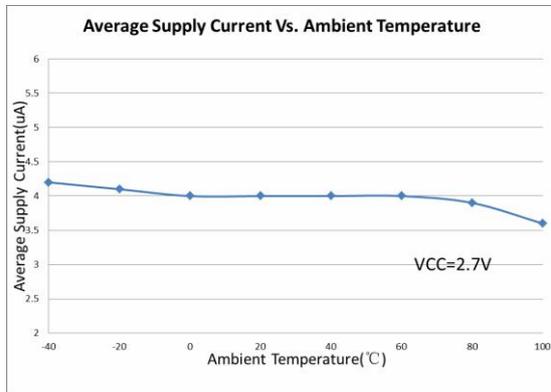
Typical Performance Characteristics


Fig6

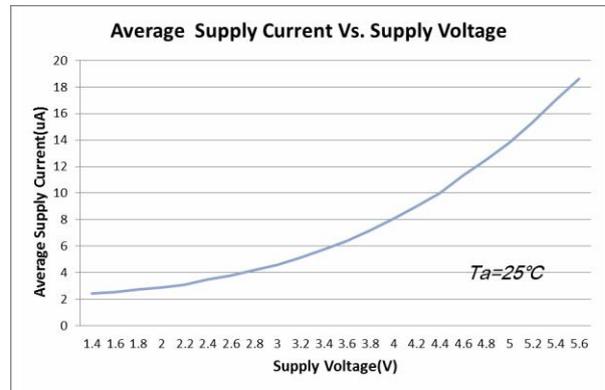
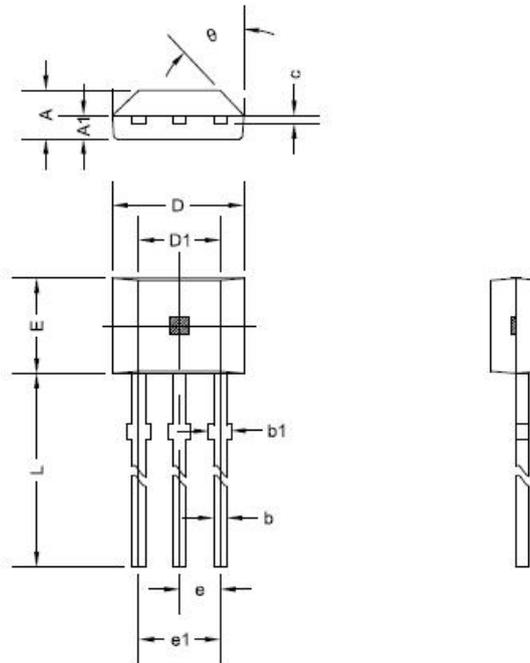


Fig7

Package Information

PACKAGE DESIGNATOR(3pin SIP)



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min	Max	Min	Max
A	1.420	1.620	0.056	0.064
A1	0.660	0.860	0.026	0.034
b	0.350	0.480	0.014	0.019
b1	0.400	0.550	0.016	0.022
C	0.360	0.510	0.014	0.020
D	3.900	4.200	0.154	0.165
D1	2.970	3.270	0.117	0.129
E	2.870	3.124	0.113	0.123
e	1.270 TYP.		0.050 TYP.	
e1	2.440	2.640	0.096	0.104
L	13.600	15.500	0.535	0.610
θ	45° TYP.		45° TYP.	

TX CONFIDENCE

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