

MicroPower , Ultra-Sensitive CMOS Hall IC

General Description

LN4923 is with proprietary Hall effect plate and single CMOS output driver, mainly designed for battery-powered, hand-held equipment (such as Cellular and Cordless Phone, PDA).

When north-pole of sufficient strength on chip or south-pole of sufficient strength under chip, the LN4923 will turn on the OUT output. When south-pole of sufficient strength on chip or north-pole of sufficient strength under chip, the LN4923 will turn on the OUT output.

While the magnetic flux density (B) is larger than operate point BOP, the OUT will be turned on (low), the output is held until B is lower than release point BRP, then turned off (high).

LN4923 series have two kinds Hall effect output, please select appropriate model for different application.

Features

- 1.8V to 4.5V battery operation
- Operation with North or South Pole
- Chopper stabilized
- Superior temperature stability
- Extremely Low Switch-Point Drift
- Insensitive to Physical Stress
- Good RF noise immunity
- ESD HBM bigger than 4kV
- Lead Free Finish/RoHS Compliant

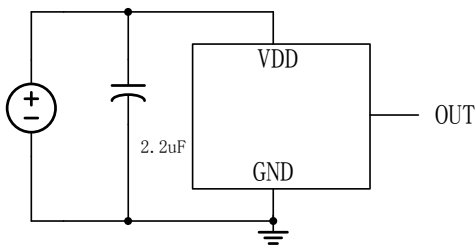
Application

- Mobile phones and Portable electronic devices
- Notebook

Package

- SOT-23-3L
- TO-92S

Typical Application Circuit



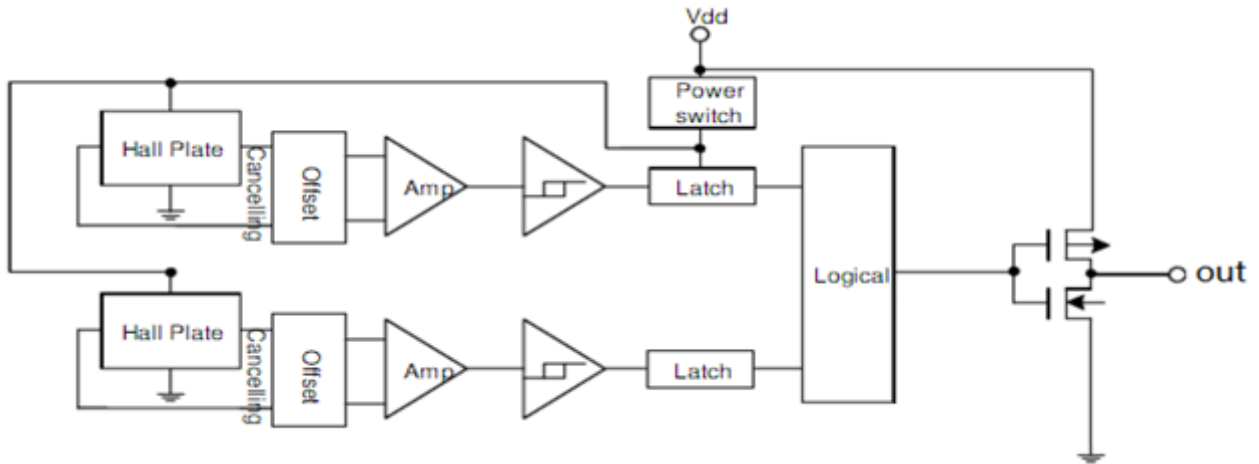
Ordering Information and Marking

Part Number	Package	Marking	Part Number	Package	Marking
LN4923HSCMR-G	SOT-23-3L	23MH	LN4923LSCTR	TO-92S	LN4923 XXXX
LN4923LSCMR-G	SOT-23-3L	23ML			

Pin Configuration

Pin Number				Pin Name	Function Description
SOT-23-3L	TO-92S				
2	3			OUT	Output
1	1			VDD	Power
3	2			GND	Ground

■ Function Block Diagram



■ Absolute Maximum Ratings

Symbol	Characteristics	Values	Unit
V _{DD}	Supply voltage	1.65~5	V
I _{DD}	Operating current	-1~4.5	mA
V _{OUT}	Output voltage	-0.3~5	V
I _{OUT}	Output current	-1~2.0	mA
T _S	Storage temperature range	-40~+150	°C
T _J	Maximum junction temperature	150	°C
-	ESD Protection	4000	V

■ Electrical Characteristics

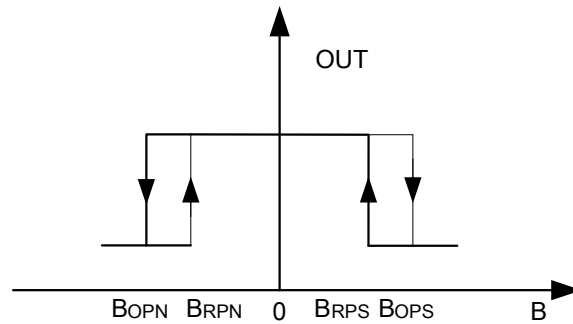
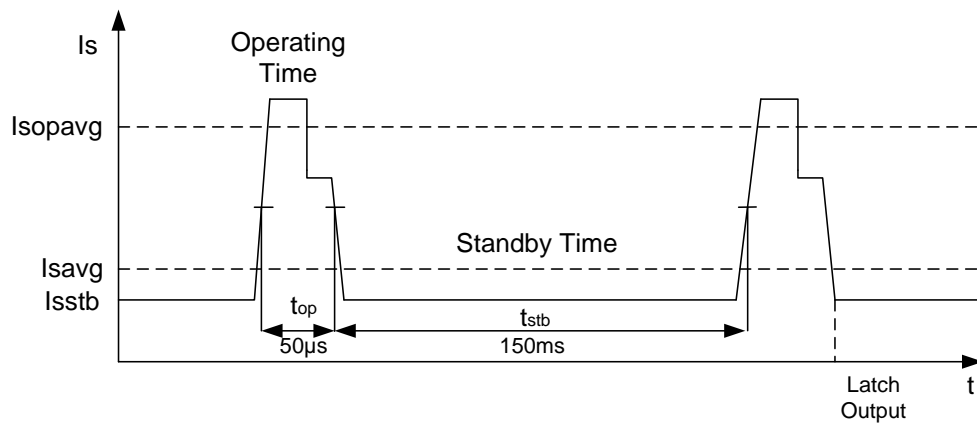
AC/DC Characteristics (T_A=+25°C, V_{DD}=3.0V, Unless otherwise specified)

Symbol	Characteristic	Conditions	Min	Typ	Max	Unit
V _{DD}	Supply voltage	—	1.8	—	4.5	V
I _{SAVG}	Averaged supply current		2	3	5	uA
I _{SOPAVG}	Averaged current during operating time		0.5	0.7	1	mA
I _{SOPT}	Peak current during operating time				2	mA
I _{SSTB}	Supply current during standby time		1		2	uA
V _{OH}	Output High Voltage	I _{OUT} =-0.5mA	2.7	2.9		V
V _{OL}	Output low Voltage	I _{OUT} =0.5mA		0.1	0.3	V
t _r	Output rise time	R _L =2.7KΩ C _L =10pF		0.5	1	us
t _f	Output fall time	R _L =2.7KΩ C _L =10pF		0.1	1	us
t _{op}	Operating time		40	50	60	us
t _{stb}	Standby time		120	150	180	ms
t _{op} /t _{stb}	Duty cycle			0.1		%
t _{stu}	Start-up time of IC			7	13	us

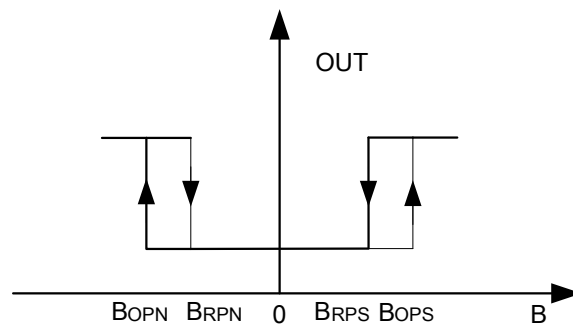
■ Magnetic Characteristics

($T_A=+25^{\circ}\text{C}$, $V_{DD}=3.0\text{V}$, Unless otherwise specified)

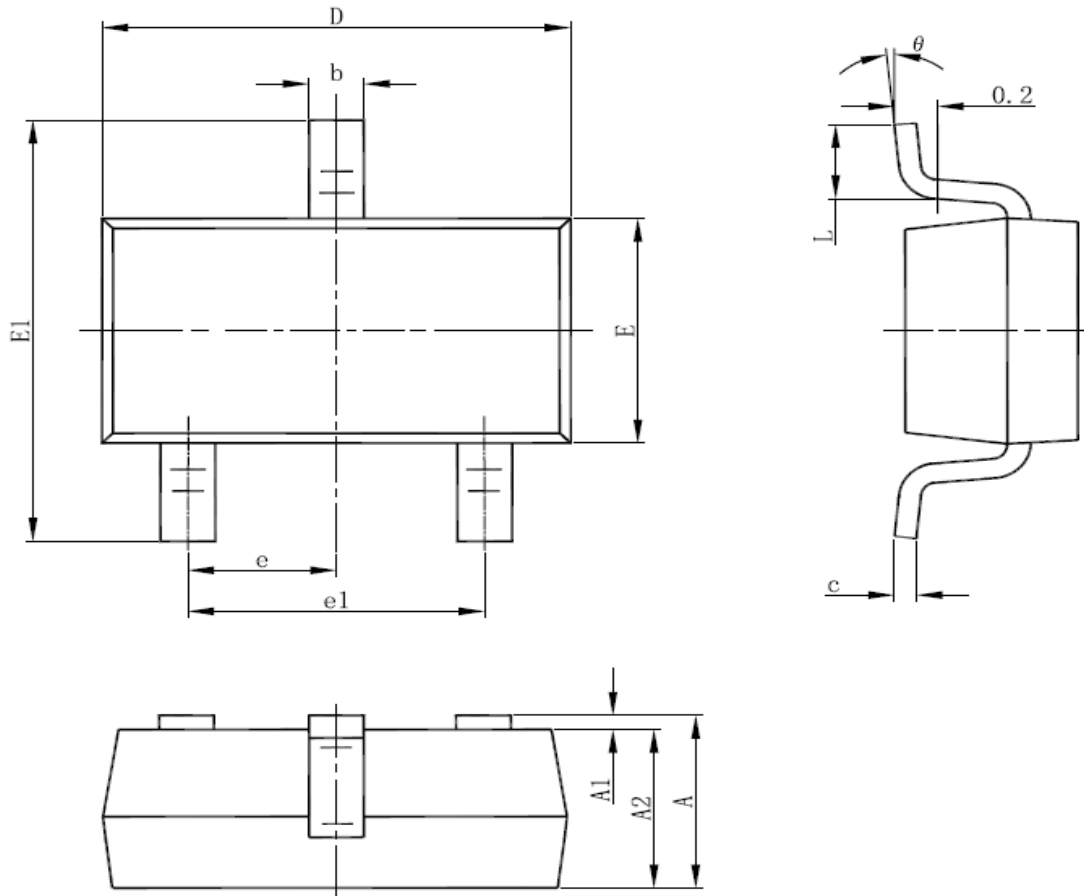
Symbol	Min	Typ	Max	Unit
BOPS	1.5	2.8	5	mT
BRPS	1	1.5	2.5	mT
BOPN	-5	-2.8	-1.5	mT
BRPN	-2.5	-1.5	-1	mT



LN4923LSCMR-G OUT function



LN4923HSCMR-G OUT function

Package
SOT-23-3L


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°