

MicroPower , Ultra-Sensitive CMOS Hall IC

General Description

HM4916 is with proprietary Hall effect plate and dual 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 HM4916 will turn on the NOUT output. When south-pole of sufficient strength on chip or north-pole of sufficient strength under chip, the HM4916 will turn on the SOUT output.

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

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

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

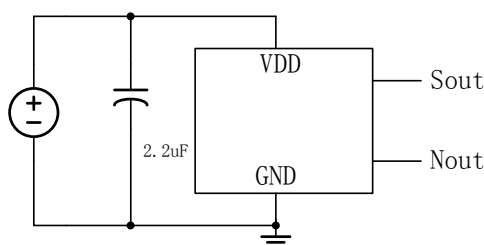
Application

- Mobile phones and Portable electronic devices
- Notebook

Package

- SOT-553
-

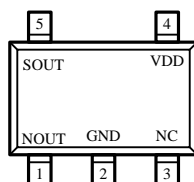
Typical Application Circuit



Ordering Information and Marking

Part Number	Package	Marking	Part Number	Package	Marking
HM4916SR	SOT-553L	16KY			

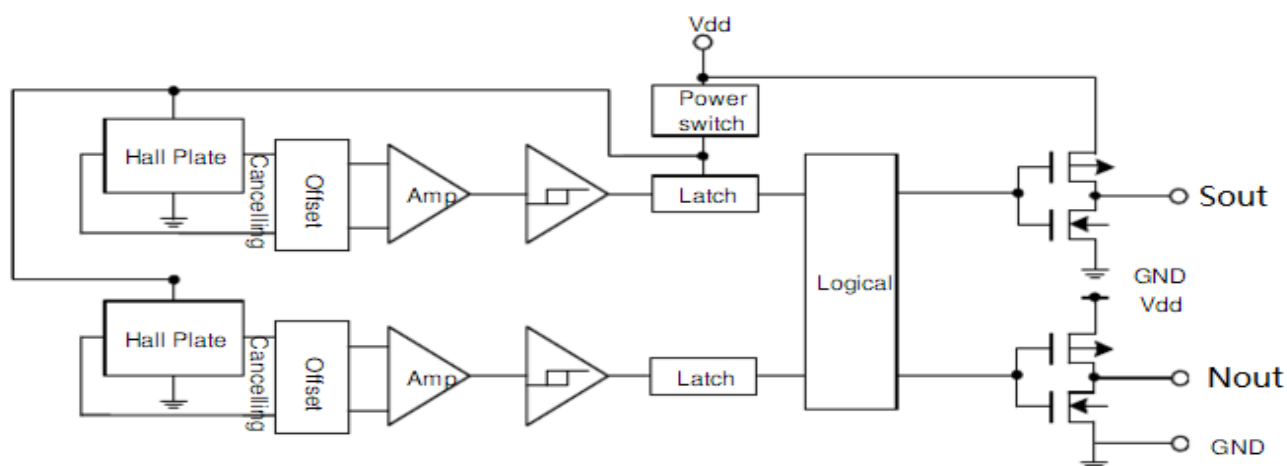
Pin Configuration



SOT-553L
(TOP VIEW)

Pin Number	Pin Name	Function Description
SOT-553		
1	NOUT	North Output
2	GND	Ground
3	NC	No Connect
4	VDD	Power
5	SOUT	South Output

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

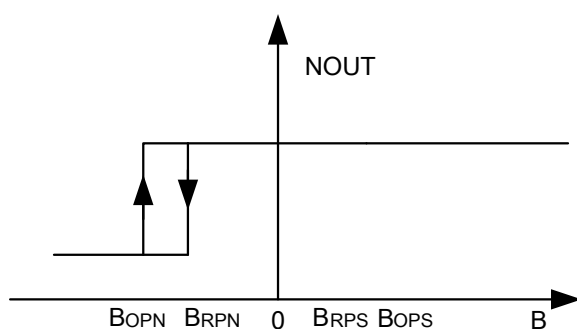
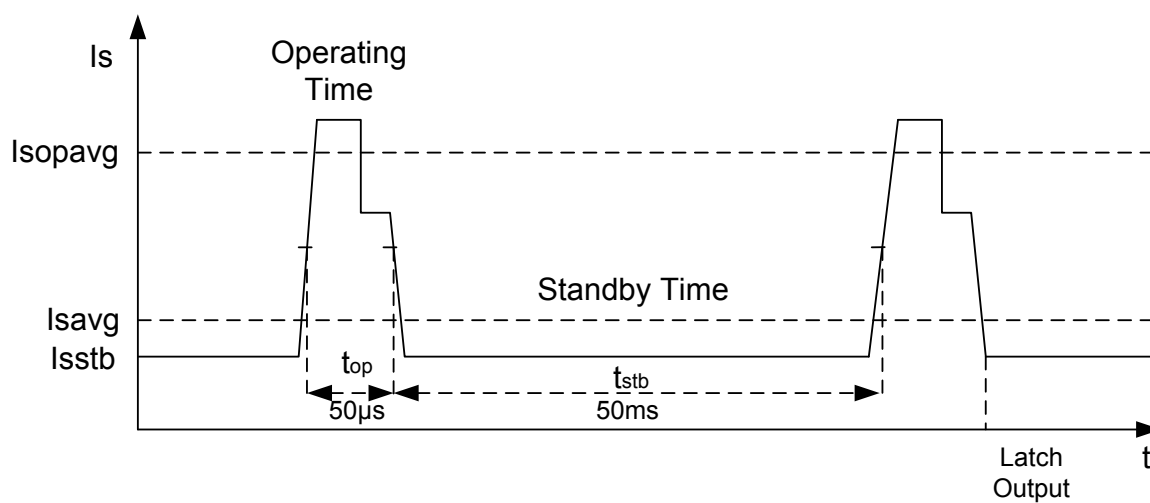
AC/DC Characteristics (T_A=+25°C, V_{DD}=3.0V, Unless otherwise specified)

Symbol	Characteristic	Conditions	Min	Typ	Max	Unit
VDD	Supply voltage	—	1.8	—	4.5	V
I _{SAVG}	Averaged supply current		3	5	7	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		40	50	60	ms
t _{op} /t _{stb}	Duty cycle			0.1		%
t _{stu}	Start-up time of IC			7	13	us

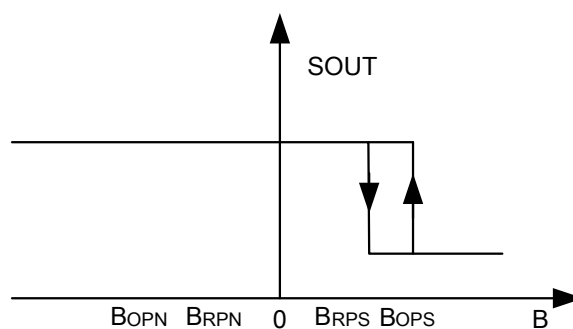
■ Mangentic Characteristics

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

Symbol	Min	Typ	Max	Unit
BOPS	2	3.5	5.5	mT
BRPS	1	1.8	4.0	mT
BOPN	-5.5	-3.5	-2.0	mT
BRPN	-4.0	-2.0	-1	mT



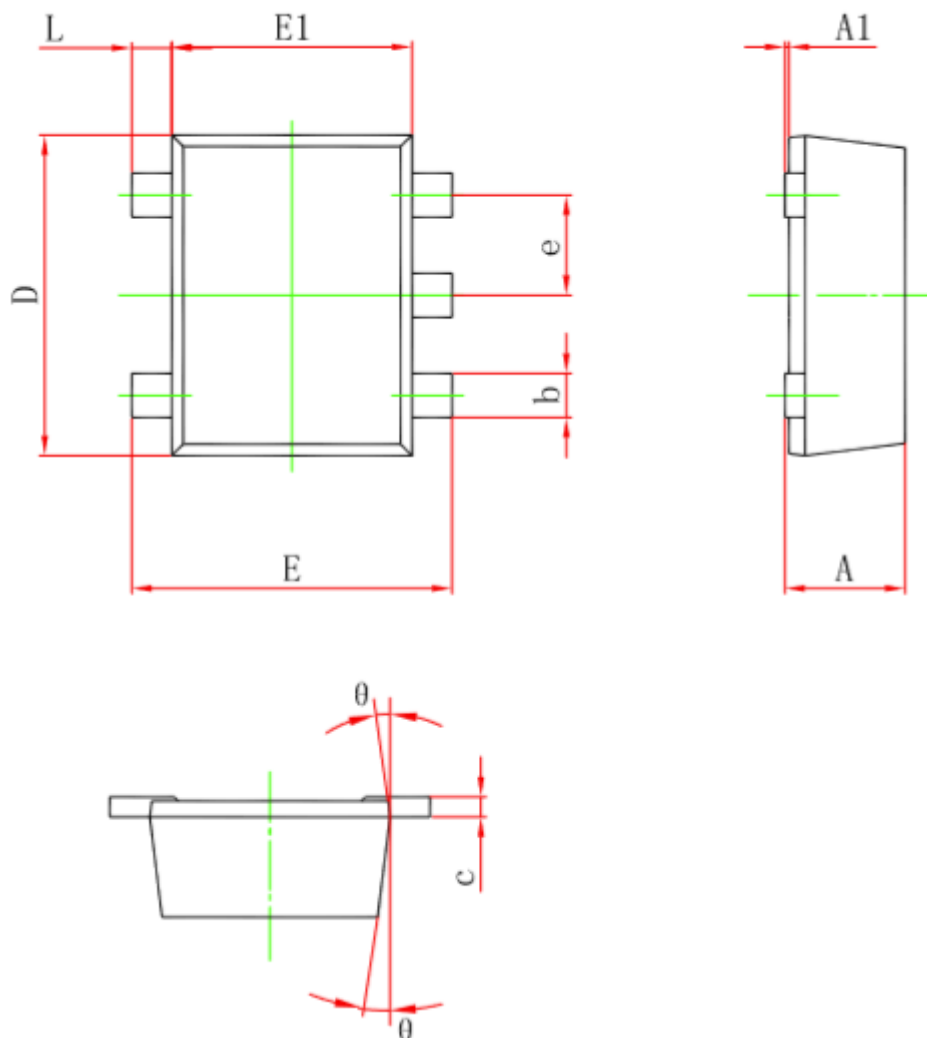
Nout function



Sout function

■ Package

- SOT-553



Symbol	Dimensions In Millimeters		Dimensions in inches	
	Min.	Max.	Min.	Max.
A	0.525	0.600	0.021	0.024
A1	0.000	0.050	0.000	0.002
e	0.450	0.550	0.018	0.022
c	0.090	0.160	0.004	0.006
D	1.500	1.700	0.059	0.067
b	0.170	0.270	0.007	0.011
E1	1.100	1.300	0.043	0.051
E	1.500	1.700	0.059	0.067
L	0.100	0.300	0.004	0.012
θ	7° REF.		7° REF.	