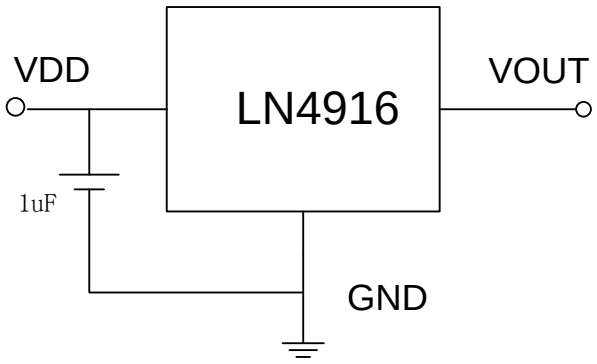
Low Current Consumption, High Sensitivity CMOS Hall IC

■ General Description

LN4916 is with two Hall effect plates and a CMOS output driver, mainly designed for battery–powered, hand-held equipment (such as Cellular and Cordless Phone, PDA). E.g. as an On/Off switch in Cellular Flip-Phones, with battery operating voltages of 2.4V-5.5V.

Either north or south pole of sufficient strength will turn the output on. The output will be turned off under no magnetic field. While the magnetic flux density (B) is larger than operate point (Bop), the output will be turned on (HIGH), the output is held until B is lower than release point (Brp), then turned off.

■ Typical Application Circuit



■ Operating Parameters

Operating temperature range

$T_{MIN} \le T_A \le T_{MAX}$	$-40°C \le T_A \le 85°C$
Operating voltage range	$2.0V \le VDD \le 6.0V$

■ Features

- 2.4V to 5.5V 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 ＞ 4KV in human body mode
- Lead Free Finish/RoHS Compliant

■ Application

- Mobile phones
- Notebook
- Portable electronic devices

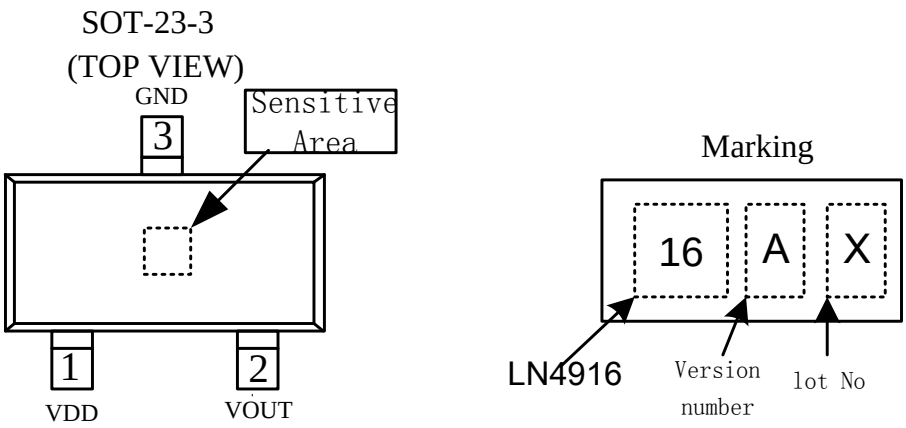
■ Package

- SOT-23-3

■ Ordering Information

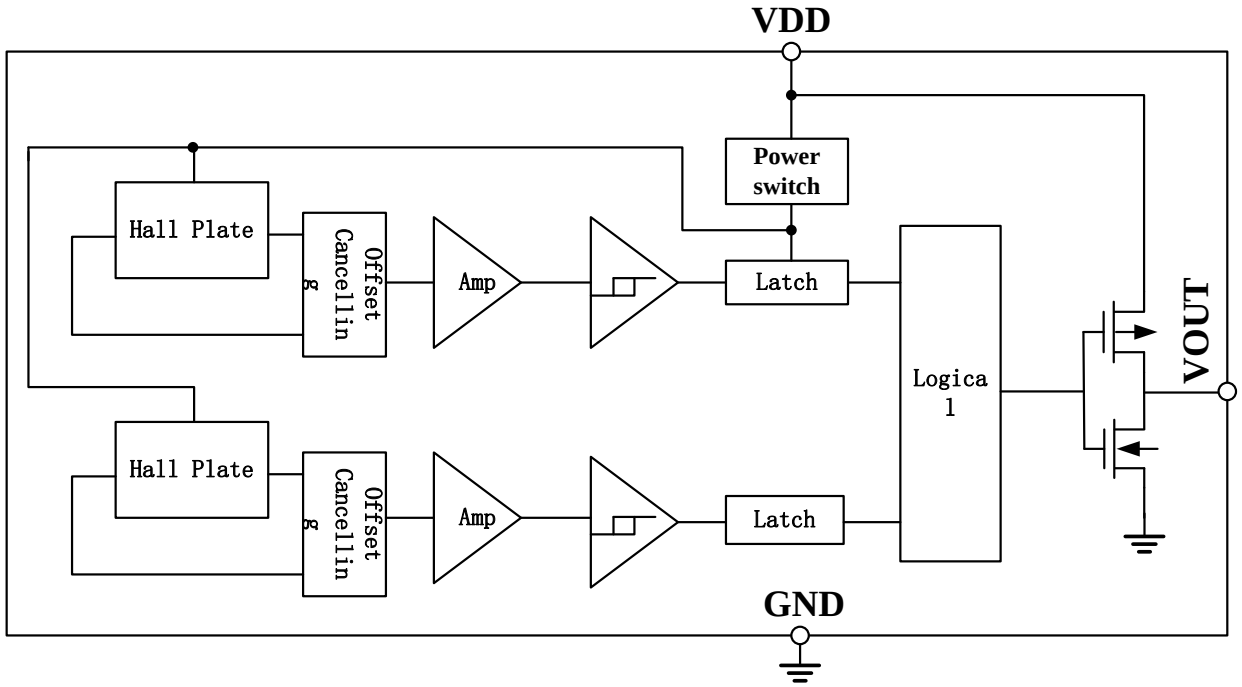
Part Number	Package Code	Package	Lot Number
LN4916MR	M	SOT-23-3	16XY

■ Pin Configuration



Pin Number SOT-23-3	Pin Name	Function Description
1	VDD	Supply Voltage
2	VOUT	Output Pin
3	GND	Ground

■ Function Block Diagram



■ Absolute Maximum Ratings

Symbol	Characteristics	Values	Unit
Vdd	Supply voltage	2.0-6.0	V
I_{DD}	Operating current	-1-4.5	mA
V_{OUT}	Output voltage	-0.3-6.0	V
I_{OUT}	Output current	-1-2.0	mA
T_S	Storage temperature range	-40～+150	℃
T_J	Maximum junction temperature	150	℃
-	ESD Protection	4000	V

■ Electrical Characteristics

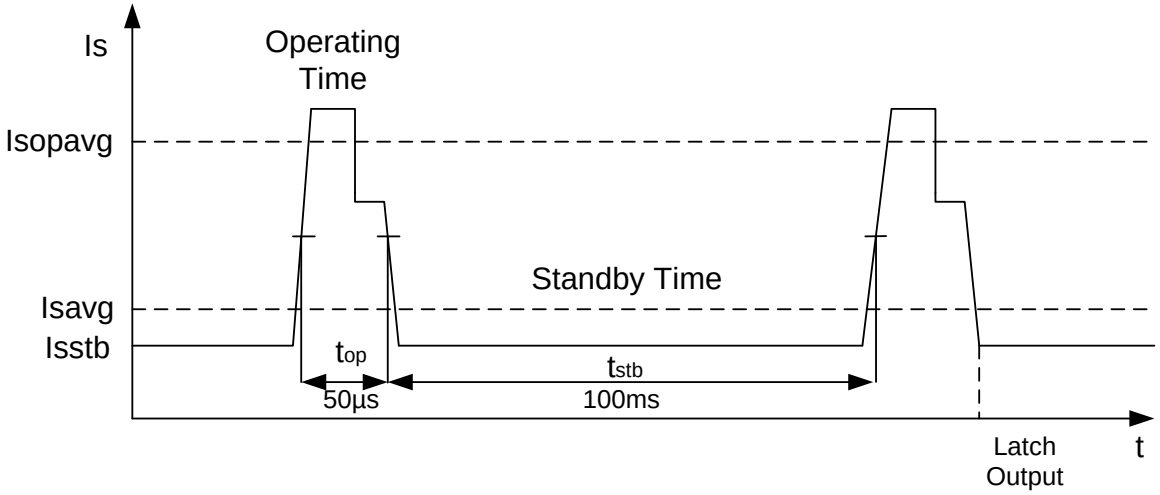
AC/DC Characteristics (T_A=+25℃,V_{DD}=3.0V,Unless otherwise specified)

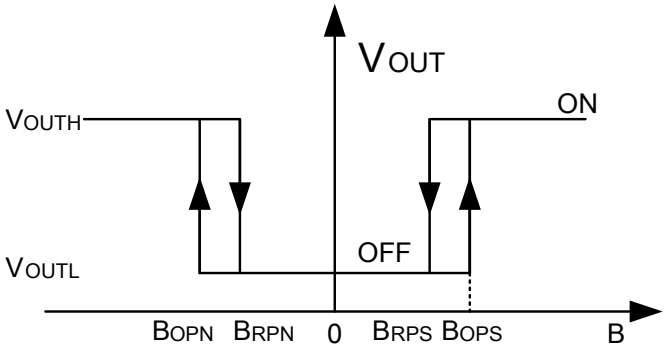
Symbol	Characteristic	Conditions	Min	Typ	Max	Unit
VDD	Supply voltage	—	2.4	—	5.5	V
I_{SAVG}	Averaged supply current		2	3	6	uA
I_{SOPAVG}	Averaged current during operating time		1.0	2.0	3.0	mA
I_{SOPT}	Peak current during operating time				5	mA
I_{SSTB}	Supply current during standby time		1	0.9	2	uA
V_{OH}	Output High Voltage	IOUT=-0.5mA	2.7	2.9		V
V_{OL}	Output low Voltage	IOUT=0.5mA		0.1	0.3	uA
t_r	Output rise time	R_L=2.7KΩ C_L=10pF		0.5	1	us
r_f	Output fall time	R_L=2.7KΩ C_L=10pF		0.1	1	us
t_{op}	Operating time		25	50	80	us
t_{stb}	Standby time		60	100	150	ms
t_{op}/t_{stb}	Duty cycle			0.071		%
t_{stu}	Start-up time of IC			12	20	us

■ Mangentic Characteristics

(T_A=+25℃,V_{DD}=2.7V, Unless otherwise specified)

Symbol	Min	Typ	Max	Unit
BOPS	1.8	3.5	5	mT
BOPN	-5	-3.0	-1	mT
BRPS	1	2.7	4.2	mT
BRPN	-4.2	-2.3	-1	mT
BHYS	0.2	0.8	1.6	mT

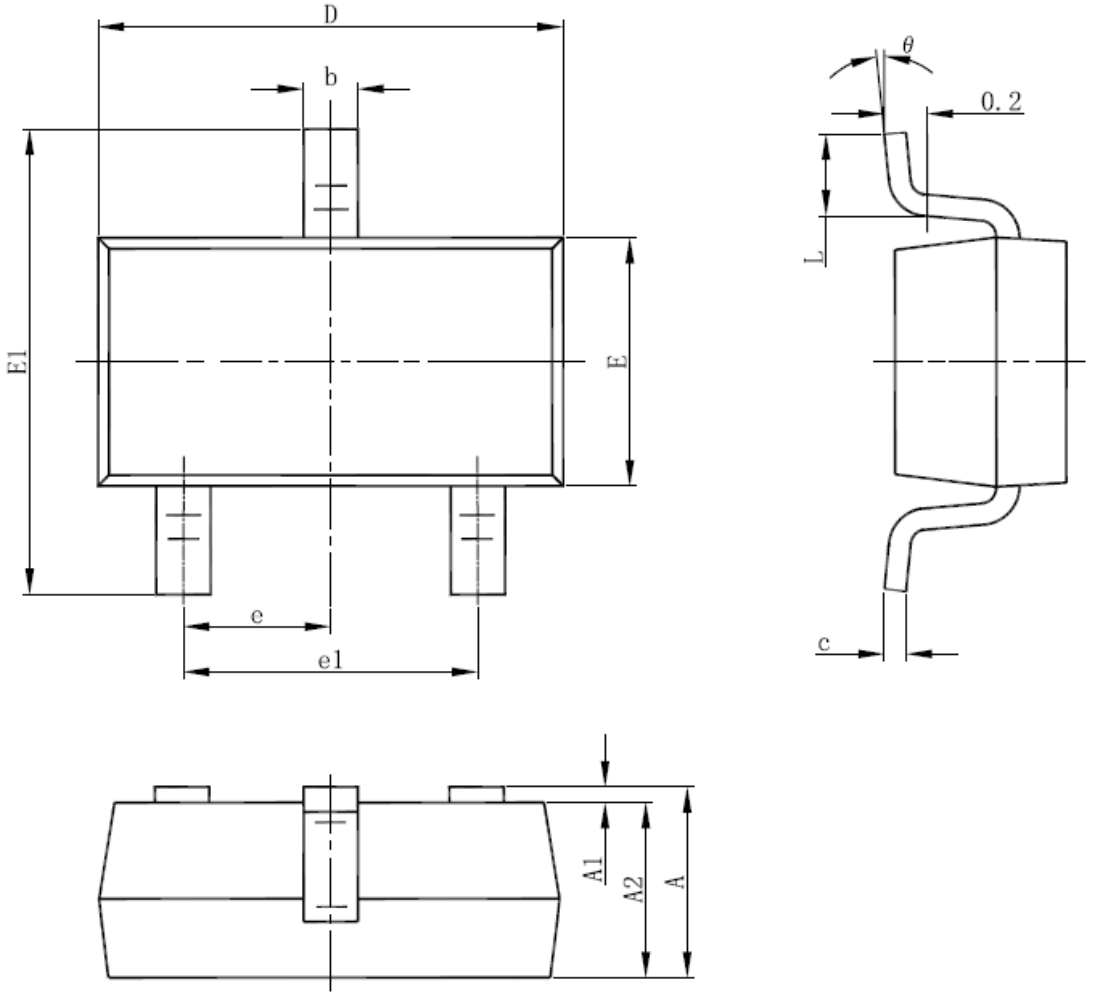




VOUT as function of the applied B-Field

■ Package

- **SOT-23-3**



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°