

MicroPower , Ultra-Sensitive CMOS Hall IC

General Description

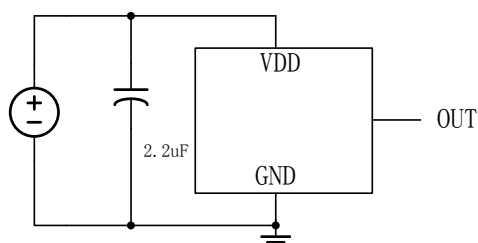
HM4918 is with proprietary Hall effect plate and single CMOS output driver, mainly designed for battery-powered, hand-held equipment (such as Cellular and Cordless Phone, PDA).

When north-pole of sufficient strength on chip or south-pole of sufficient strength under chip, the HM4918 will turn on the OUT output. When south-pole of sufficient strength on chip or north-pole of sufficient strength under chip, the HM4918 will turn on the OUT output.

HM4918 series have above two kinds Hall effect output, please select appropriate model for different application.

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).

Typical Application Circuit



Ordering Information

HM4918①②②

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
- DFN1216-4L
- DF2020-3L
- TO-92S

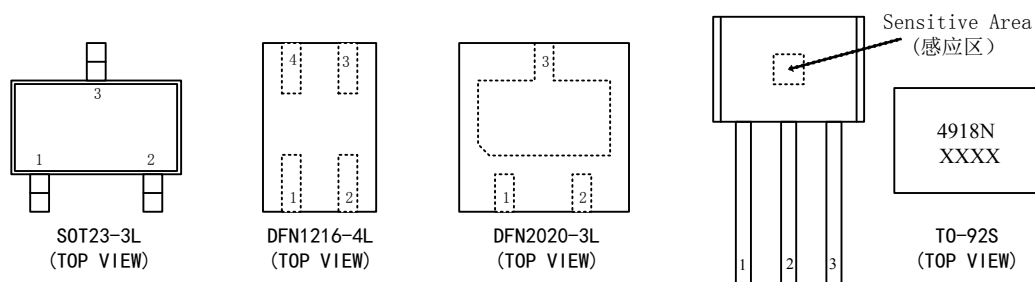
SYMBOL	Description
①	S: South-pole
	N: North-pole
②	M->SOT23-3L
	D->DFN1216-4L
	E->DFN2020-3L
③	Device Orientation: R=Embossed Taped :Standard feed L=Embossed Taped: Reverse feed

■ Marking

Part Number	Package	Marking	Part Number	Package	Marking
HM4918SMR	SOT-23-3L	8SMX	HM4918NMR	SOT23-3L	8NMX
HM4918SDR	DFN1216-4L	8SKX	HM4918NDR	DFN1216-4L	8NDX
HM4918SER	DFN2020-3L	8SNX	HM4918NER	DFN2020-3L	8NEX
HM4918NTR	TO-92S	4918N XXXX			

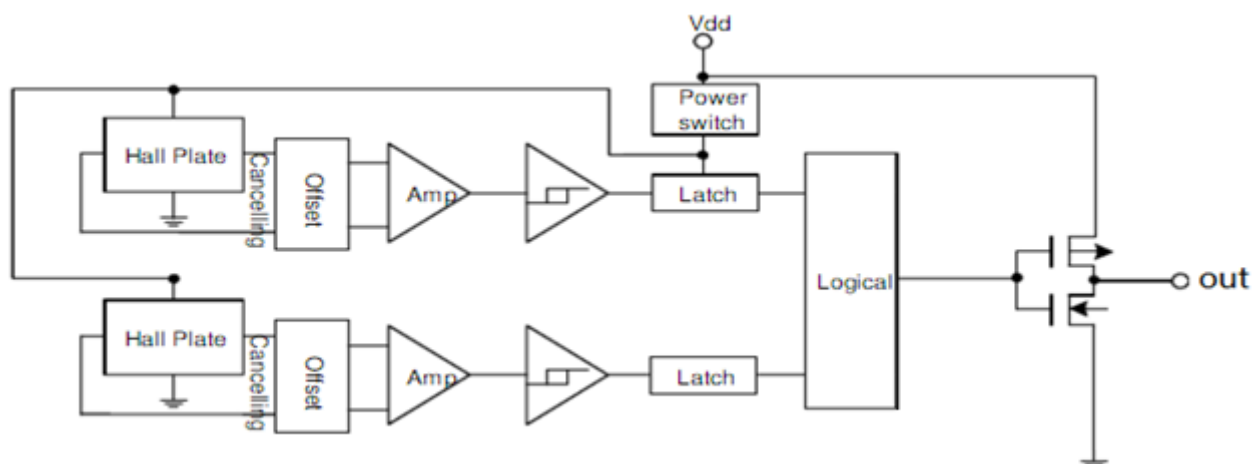
Note: X is production information;

■ Pin Configuration



Pin Number	HM4918 Pin Name							Pin Name	Function Description
	SMR	NMR	SDR	NDR	SER	NER	NTR		
1	VDD	VDD	NC	NC	VDD	VDD	VDD	VDD	Power
2	SOUT	NOUT	GND	GND	SOUT	NOUT	GND	GND	Ground
3	GND	GND	SOUT	NOUT	GND	GND	NOUT	SOUT	South Output
4	-	-	VDD	VDD	-		-	NOUT	North Output
								NC	Floating

■ 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	℃
T _J	Maximum junction temperature	150	℃
-	ESD Protection	4000	V

■ Electrical Characteristics

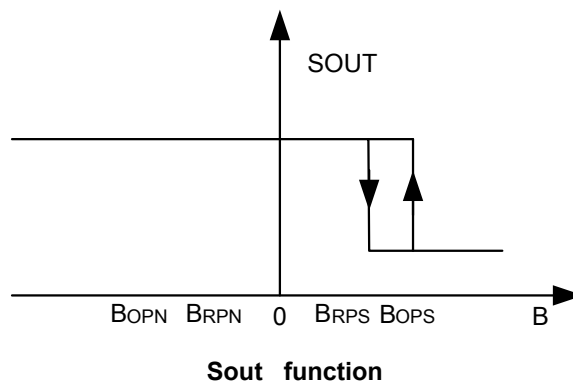
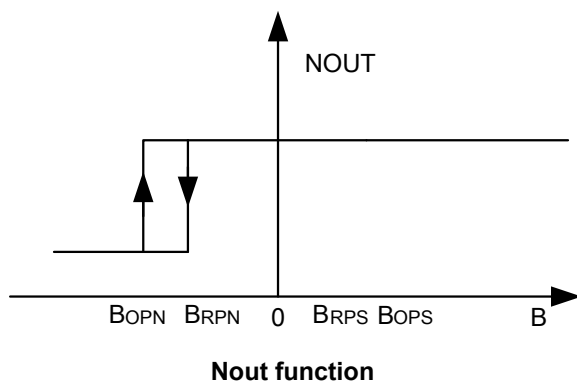
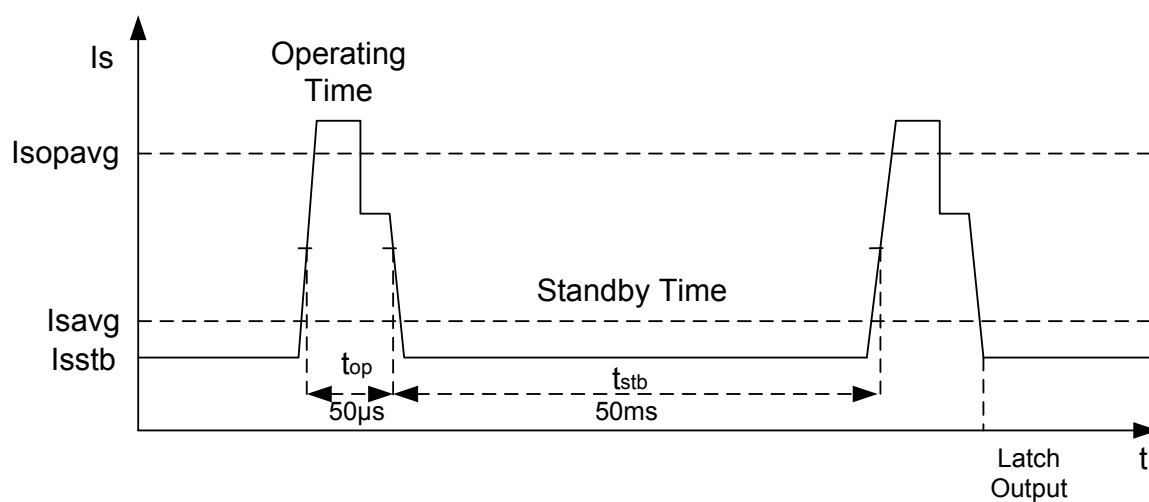
AC/DC Characteristics (T_A=+25℃, V_{DD}=3.0V, Unless otherwise specified)

Symbol	Characteristic	Conditions	Min	Typ	Max	Unit
V _{DD}	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

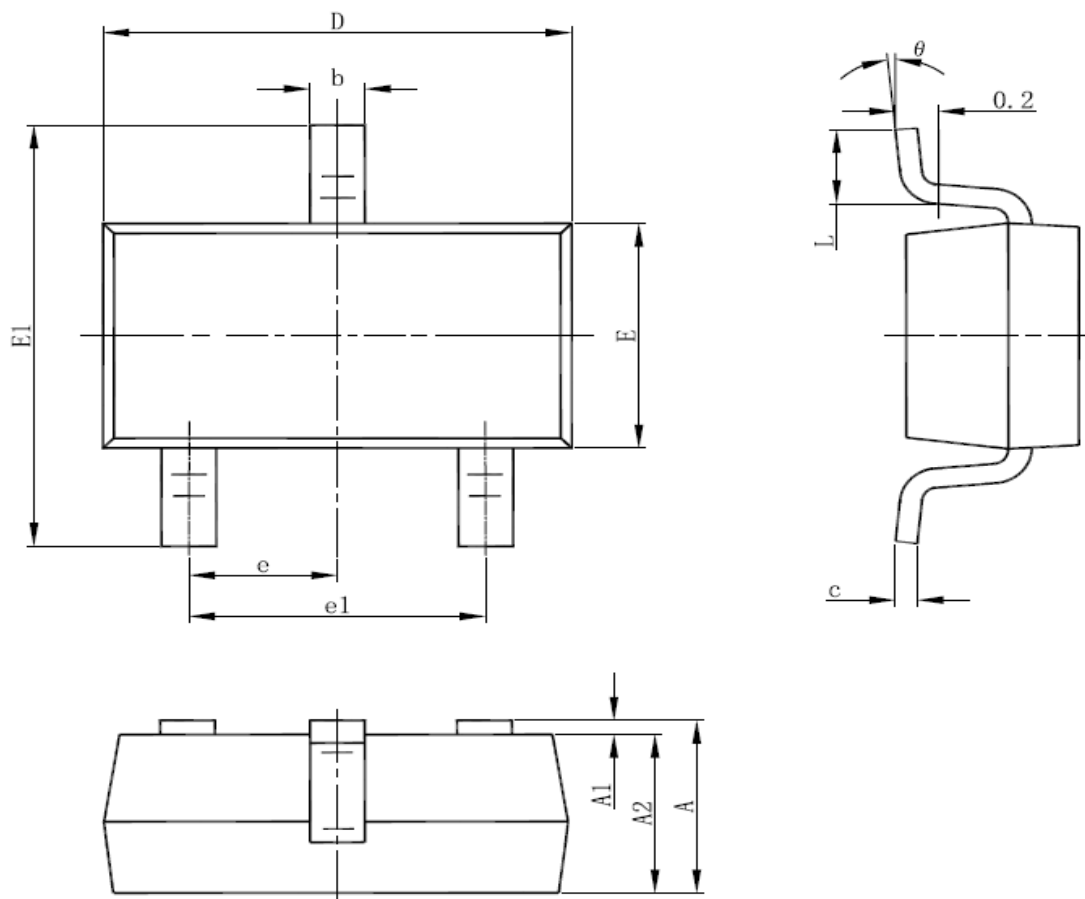
($T_A=+25^{\circ}\text{C}$, $V_{DD}=3.0\text{V}$, Unless otherwise specified)

Symbol	Min	Typ	Max	Unit
BOPS	4	6	9	mT
BRPS	2	4.5	7.5	mT
BOPN	-9	-6	-4	mT
BRPN	-7.5	-4.5	-2	mT



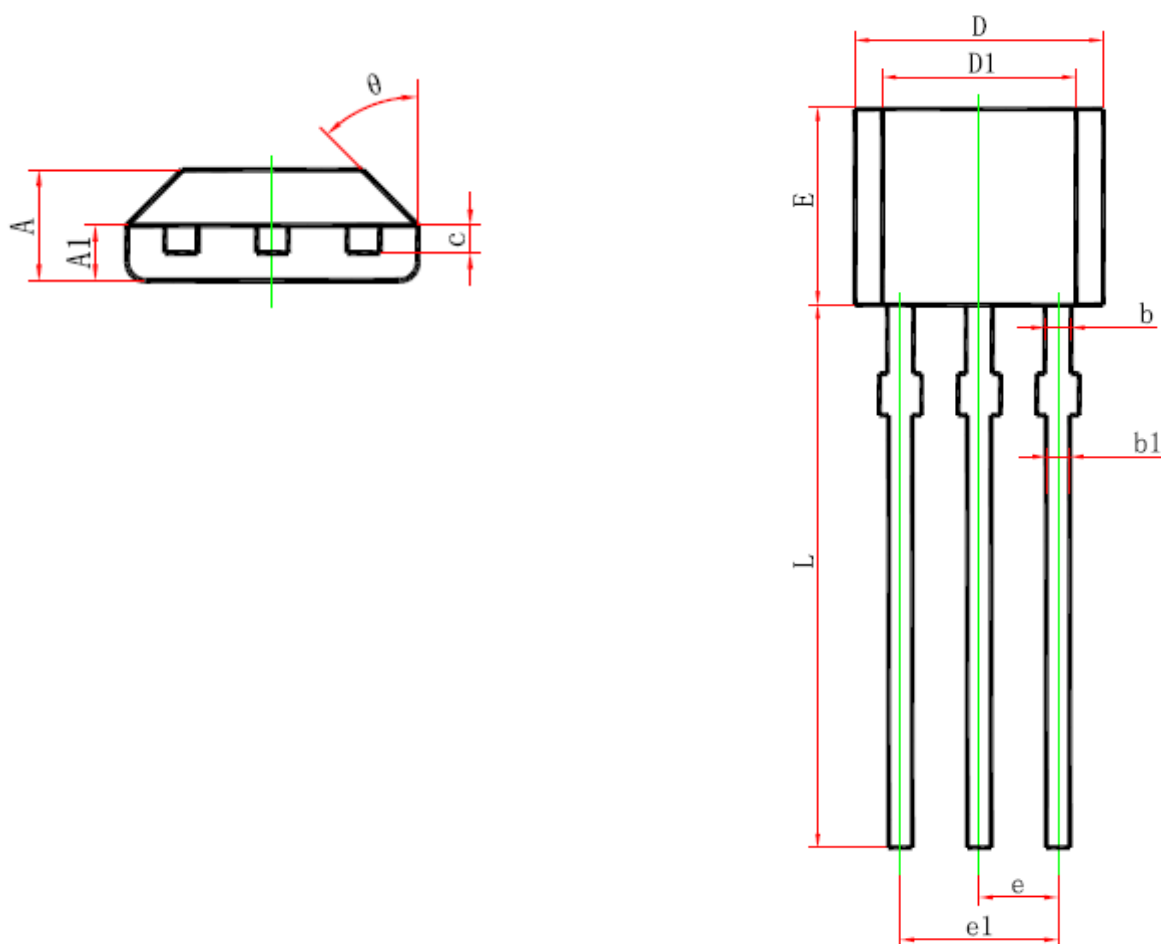
■ Package

● SOT-23-3L



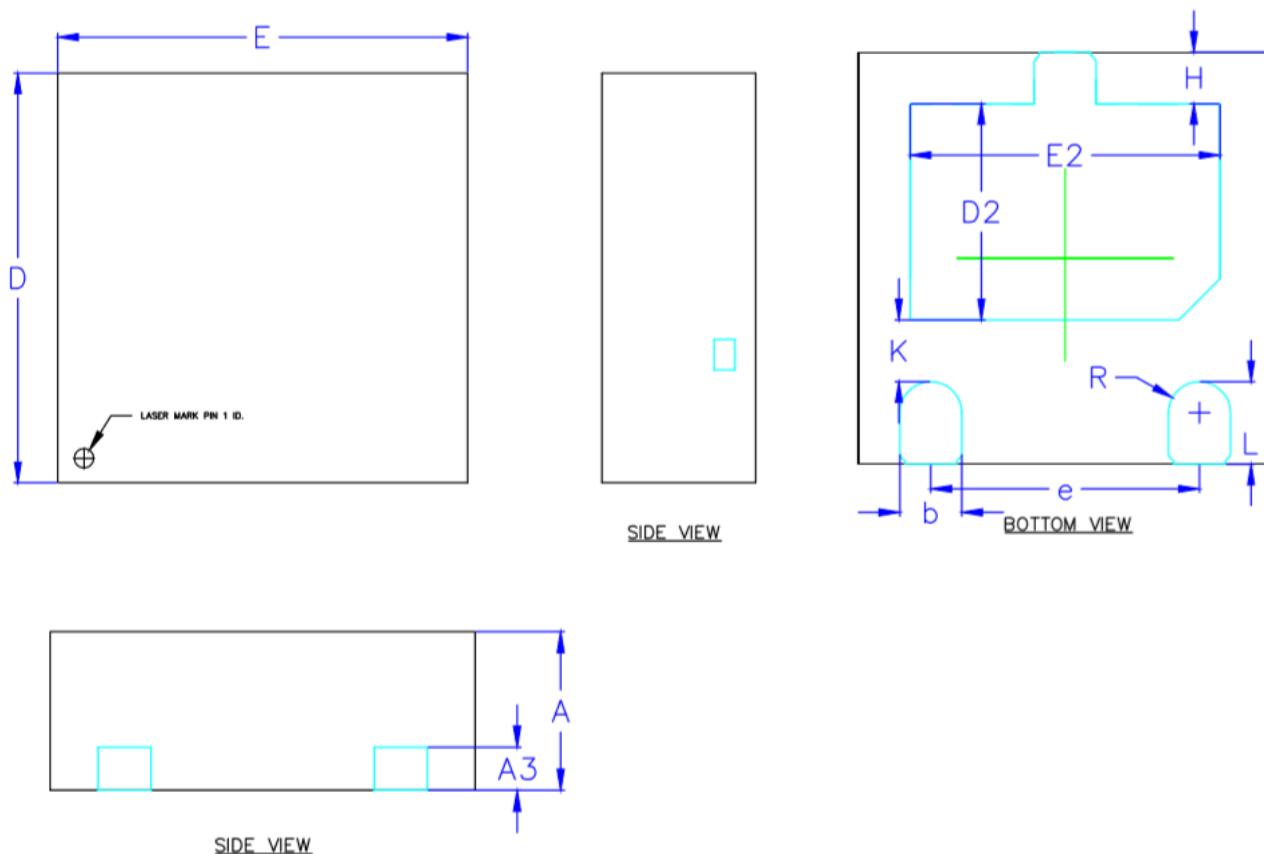
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)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

● TO-92S



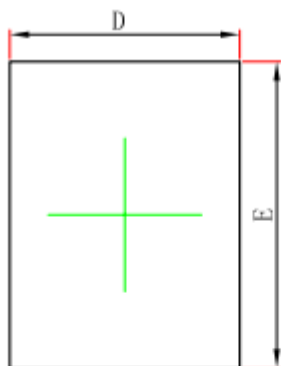
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.420	1.620	0.056	0.064
A1	0.660	0.860	0.026	0.034
b	0.420	0.550	0.017	0.022
b1	0.360	0.480	0.014	0.019
c	0.360	0.510	0.014	0.020
D	3.900	4.100	0.154	0.161
D1	2.970	3.270	0.117	0.129
E	3.050	3.250	0.120	0.128
e	1.270 TYP		0.050 TYP	
e1	2.440	2.640	0.096	0.104
L	15.100	15.500	0.594	0.610
θ	45° TYP		45° TYP	

● DFN2020-3L

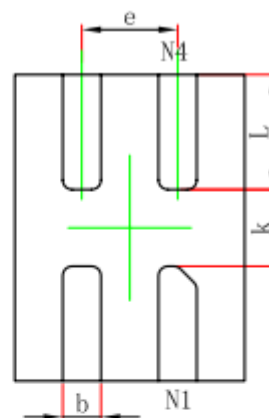


COMMON DIMENSION (MM)			
PKG	DFN2020		
REF.	MIN.	NOM.	MAX
A	0.527	0.552	0.577
A3	0.127 REF		
b	0.25	0.30	0.35
D	1.90	2.00	2.10
E	1.90	2.00	2.10
D2	0.95	1.05	1.15
E2	1.40	1.50	1.60
e	1.20	1.30	1.40
H	0.20	0.25	0.30
K	0.20	0.30	0.40
L	0.35	0.40	0.45
R1	0.13	—	—

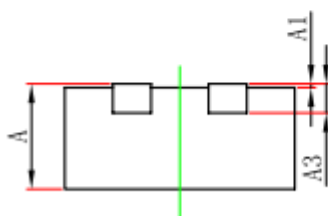
● DFN1216-4L



TOP VIEW



BOTTOM VIEW



SIDE VIEW

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.500	0.600	0.020	0.024
A1	0.000	0.050	0.000	0.002
A3	0.152REF.		0.006REF.	
D	1.150	1.250	0.045	0.049
E	1.550	1.650	0.061	0.065
b	0.150	0.250	0.006	0.010
e	0.500TYP.		0.020TYP.	
L	0.550	0.650	0.022	0.026
k	0.300MIN.		0.012MIN.	