

MicroPower , Ultra-Sensitive CMOS Hall IC

■ General Description

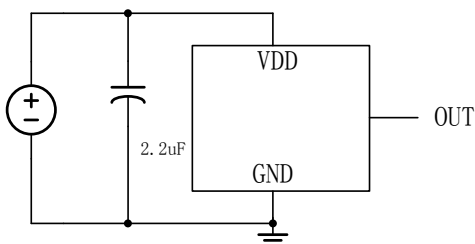
LN4918 is with proprietary Hall effect plate and single CMOS output driver, mainly designed for battery-powered, hand-held equipment (such as Cellular and Cordless Phone, PDA).

When north-pole of sufficient strength on chip or south-pole of sufficient strength under chip, the LN4918 will turn on the OUT output. When south-pole of sufficient strength on chip or north-pole of sufficient strength under chip, the LN4918 will turn on the OUT output.

LN4918 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

LN4918①②②-④

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
④	G: Green epoxy molding compound

■ Features

- 2.5V 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

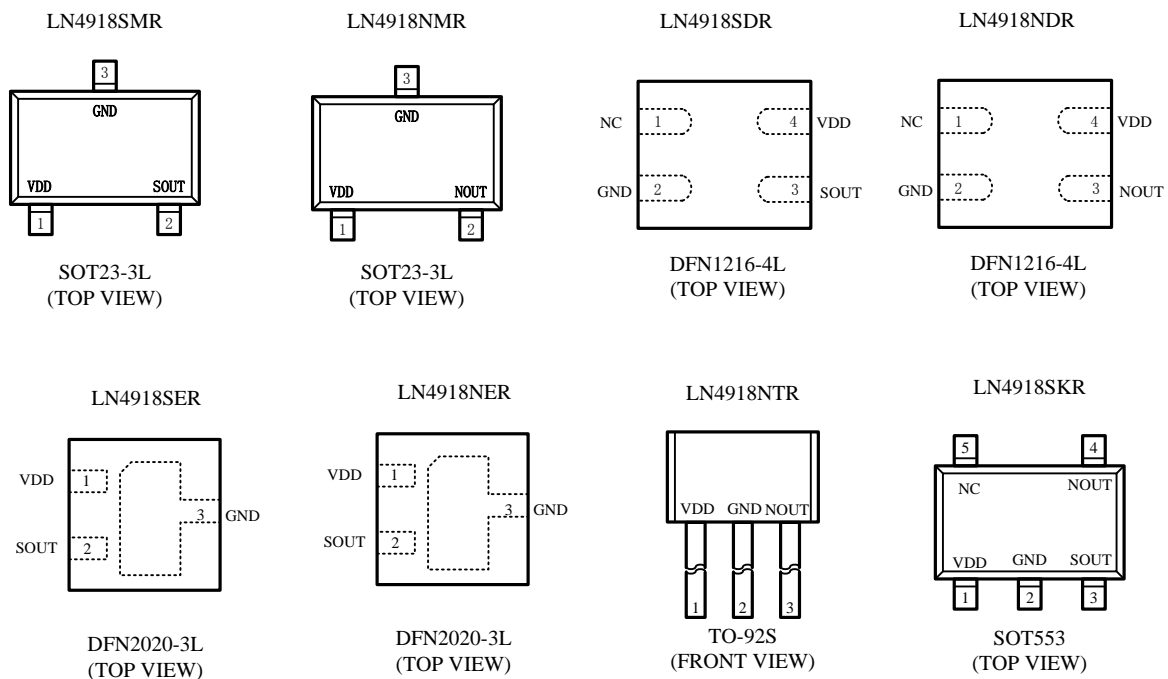
■ Package

- SOT-23-3L
- DFN1216-4L
- DFN2020-3L
- TO-92S

■ Marking

Part Number	Package	Marking	Part Number	Package	Marking
LN4918SMR	SOT-23-3L	8SMX	LN4918NMR	SOT23-3L	8NMX
LN4918SDR	DFN1216-4L	8SDX	LN4918NDR	DFN1216-4L	8NDX
LN4918SER	DFN2020-3L	8SNX	LN4918NER	DFN2020-3L	8NEX
LN4918NTR	TO-92S	LN4918N XXXX	LN4918SKR	SOT553	8SKX

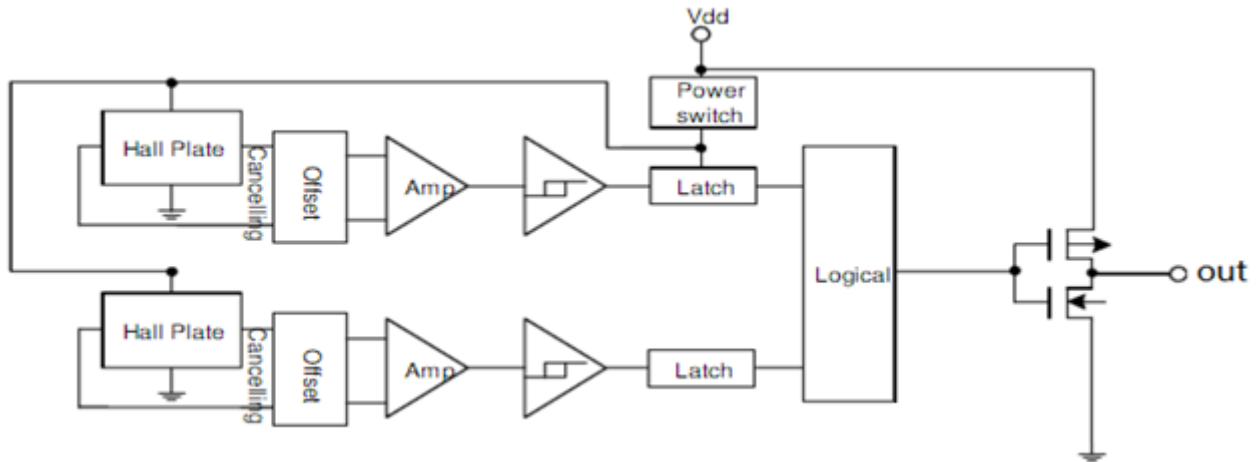
Note: X is production information;

■ Pin Configuration


Pin Number	4918 Pin Name						
	SMR	NMR	SDR	NDR	SER	NER	NTR
1	VDD	VDD	NC	NC	VDD	VDD	VDD
2	SOUT	NOUT	GND	GND	SOUT	NOUT	GND
3	GND	GND	SOUT	NOUT	GND	GND	NOUT
4	-	-	VDD	VDD	-	-	-

Pin Number	Pin Name	Function Description
1	VDD	Power
2	GND	Ground
3	SOUT	South Output
4	NOUT	North Output
5	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	°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)

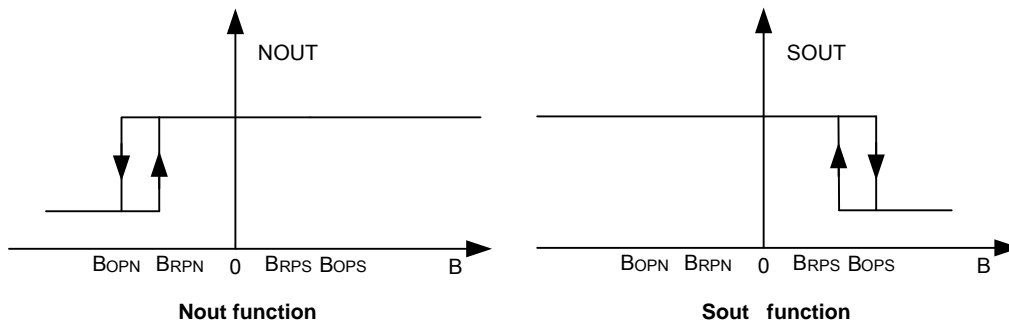
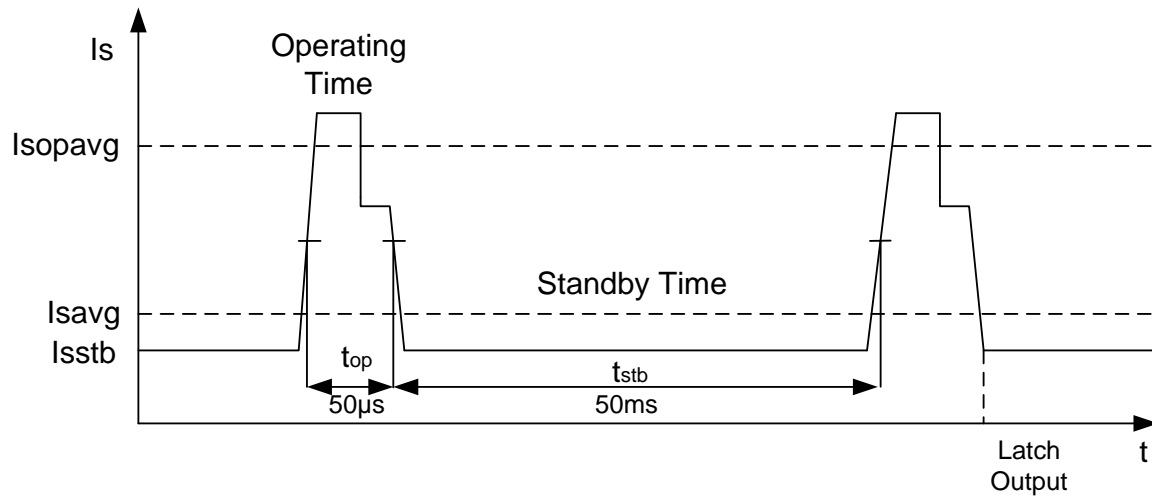
Symbol	Characteristic	Conditions	Min	Typ	Max	Unit
V _{DD}	Supply voltage	—	2.5	—	4.5	V
I _{SAVG}	Averaged supply current		3	5	7	uA
I _{SOPAVG}	Averaged current during operating time		0.5	0.7	1	mA
I _{SOPT}	Peak current during operating time				2	mA
I _{SSTB}	Supply current during standby time		1		2	uA
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
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■ Mangentic Characteristics

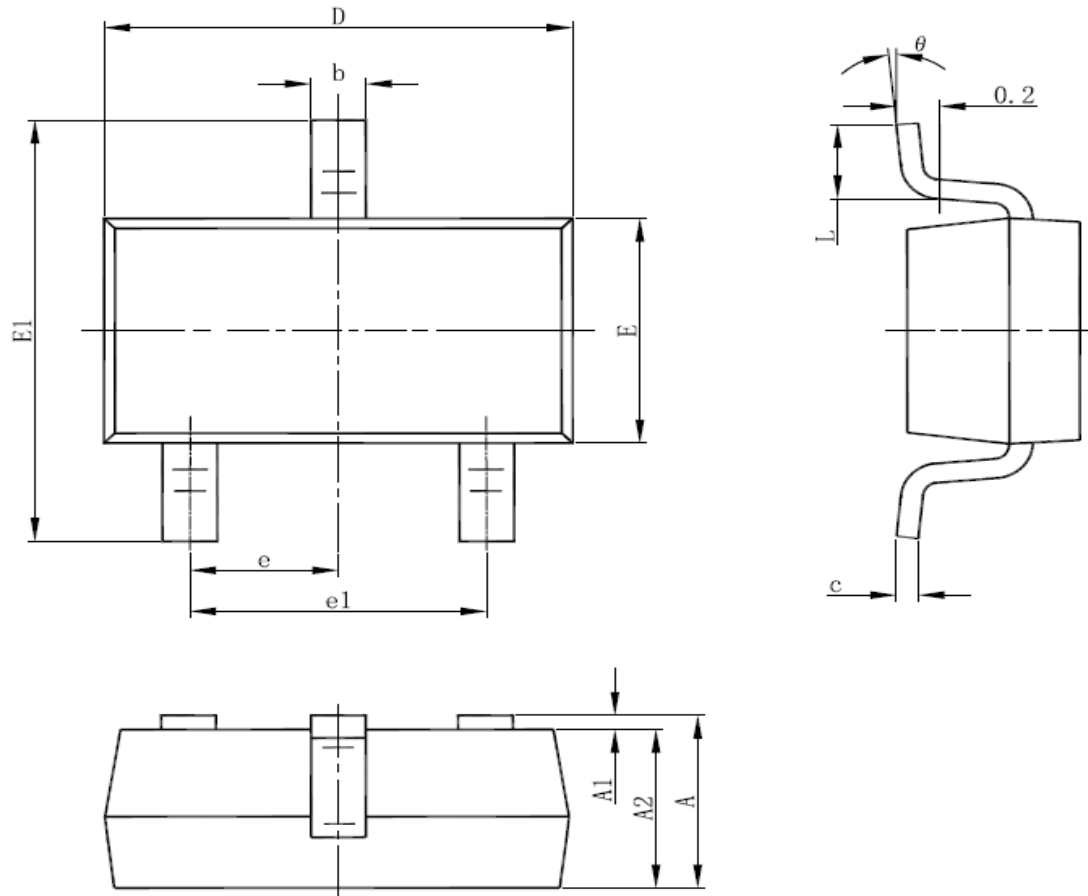
($T_A=+25^{\circ}\text{C}$, $V_{DD}=3.0\text{V}$, Unless otherwise specified)

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



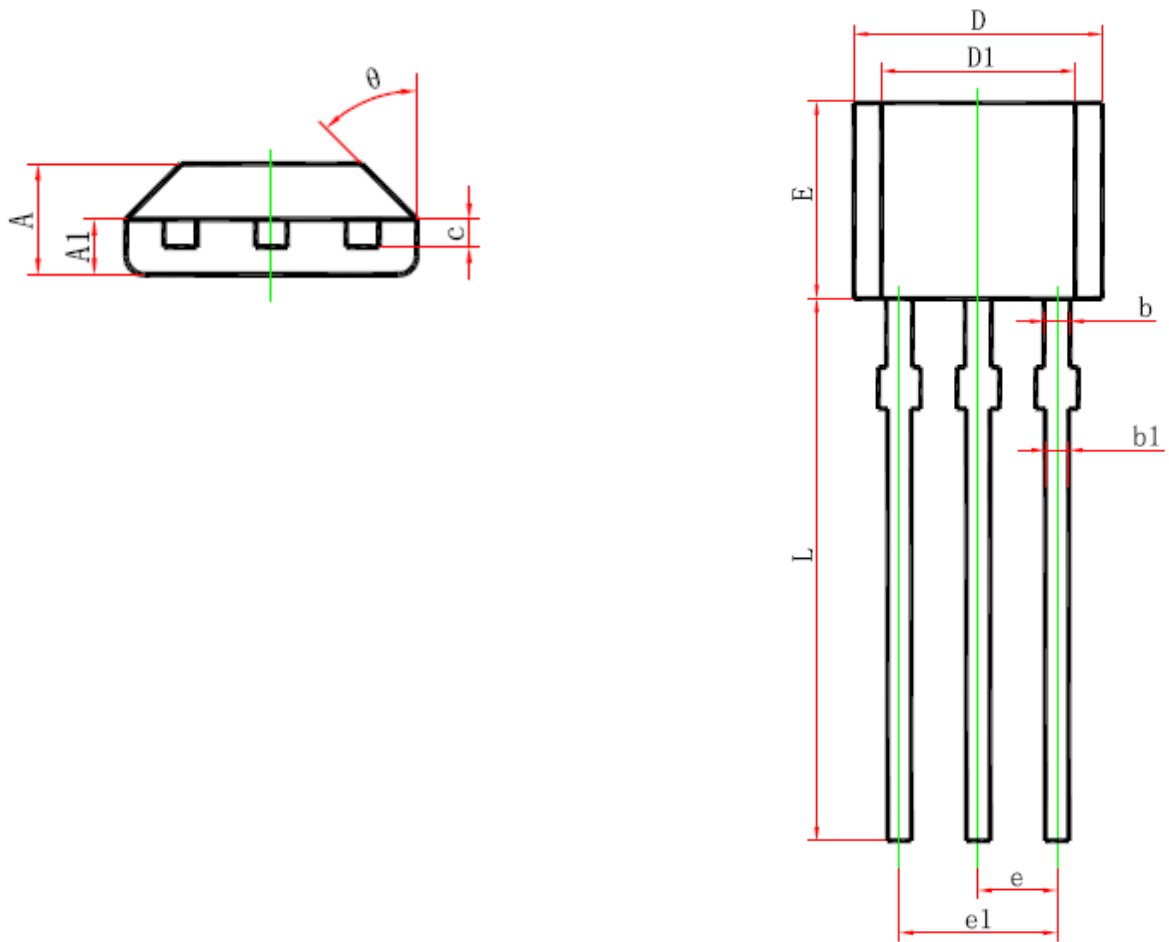
Package

- SOT-23-3L



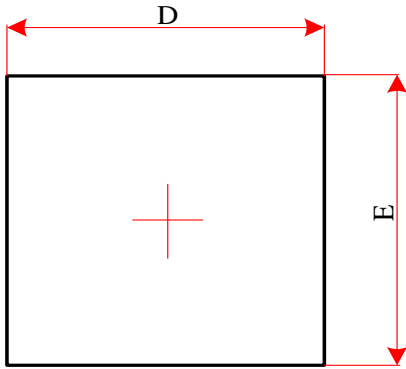
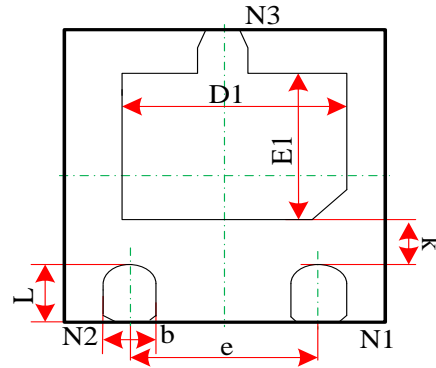
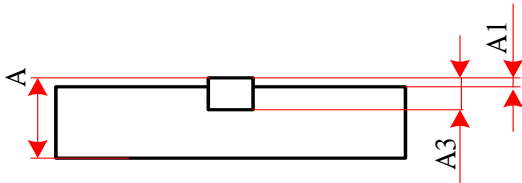
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)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



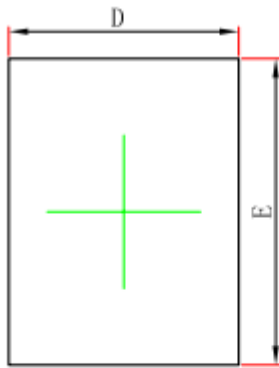
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.420	1.620	0.056	0.064
A1	0.660	0.860	0.026	0.034
b	0.420	0.550	0.017	0.022
b1	0.360	0.480	0.014	0.019
c	0.360	0.510	0.014	0.020
D	3.900	4.100	0.154	0.161
D1	2.970	3.270	0.117	0.129
E	3.050	3.250	0.120	0.128
e	1.270 TYP		0.050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

● DFN2020-3L

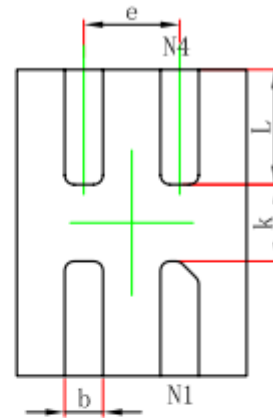

Top View

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	0.152 REF.		0.006 REF.	
D	1.924	2.076	0.076	0.082
E	1.924	2.076	0.076	0.082
D1	1.400	1.600	0.055	0.063
E1	0.950	1.150	0.037	0.045
k	0.220 MIN.		0.009 MIN.	
b	0.250	0.350	0.010	0.014
e	1.30(BSC)		0.050(BSC)	
L	0.330	0.430	0.013	0.017

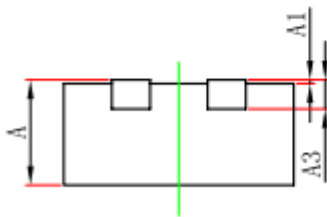
● DFN1216-4L



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.	