Micro Power, Ultra-Sensitive CMOS Hall IC

General Description

LN4917 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 LN4917 will turn on the NOUT output. When south-pole of sufficient strength on chip or north-pole of sufficient strength under chip, the LN4917 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).

Application

- Mobile phones and Portable electronic devices
- Notebook

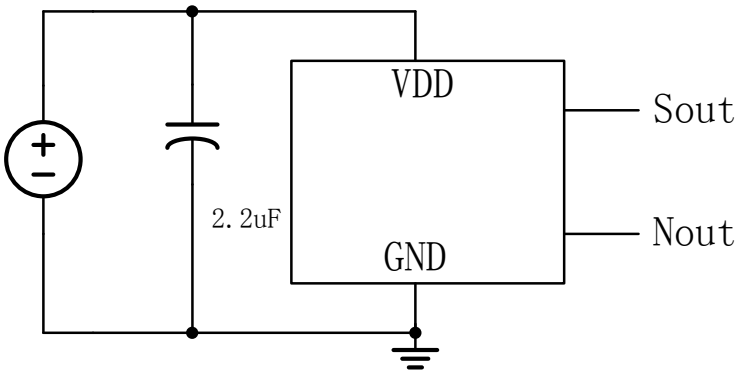
Features

- 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

Package

- SOT23-5L
- SOT-553
- DFN1010-4L
- TO-94

Typical Application Circuit

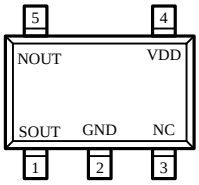


Ordering Information and Marking

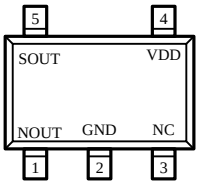
Part Number	Package	Marking	Part Number	Package	Marking
LN4917MR	SOT23-5L	17MX	LN4917DR	DFN1010-4L	17DY
LN4917KR	SOT-553	17KX	LN4917TR	TO-94	17KY

Note: "Y" is defined by production and used for internal quality tracking!

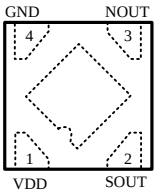
Pin Configuration



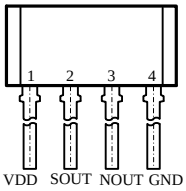
SOT-553L
(TOP VIEW)



SOT23-5L
(TOP VIEW)



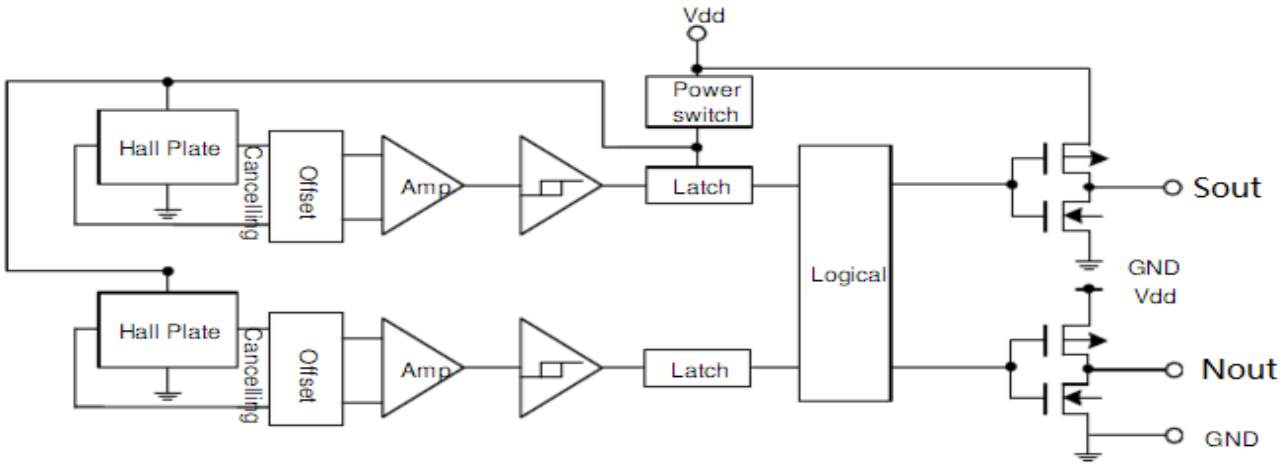
DFN1010-4L
(TOP VIEW)



TO-94
(FRONT VIEW)

Pin Number				Pin Name	Function Description
SOT-553	SOT23-5L	DFN1010-4L	TO-94		
5	1	3	3	NOUT	North Output
2	2	4	4	GND	Ground
3	3	-	-	NC	No Connect
4	4	1	1	VDD	Power
1	5	2	2	SOUT	South Output

Function Block Diagram



Absolute Maximum Ratings

Symbol	Characteristics	Values	Unit
Vdd	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	ESD Protection	4000	V

■ Electrical Characteristics

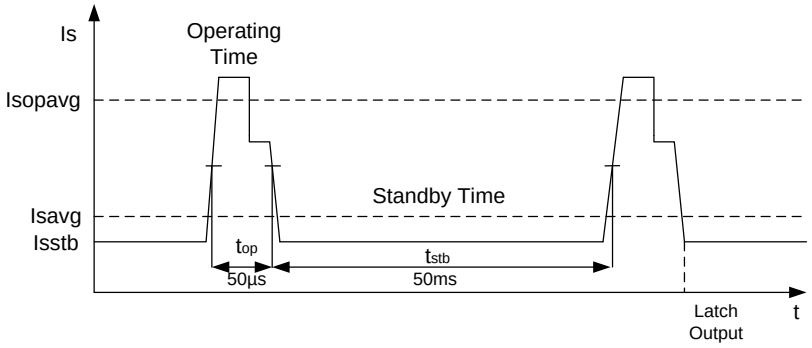
AC/DC Characteristics (T_A=+25℃,V_{DD}=3.0V,Unless otherwise specified)

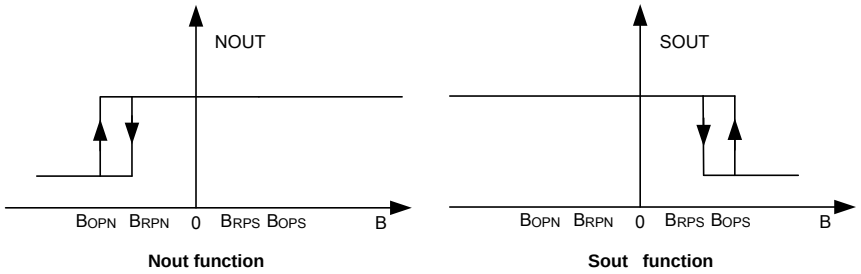
Symbol	Characteristic	Conditions	Min	Typ	Max	Unit
VDD	Supply voltage	-	1.8	-	4.5	V
I_{SAVG}	Averaged supply current	-	3	5	7	uA
I_{SOPAVG}	Averaged current during operating time	-	0.5	0.7	1	mA
I_{SOPT}	Peak current during operating time	-	-	-	2	mA
I_{SSTB}	Supply current during standby time	-	1	-	2	uA
V_{OH}	Output High Voltage	IOUT=-0.5mA	2.7	2.9	-	V
V_{OL}	Output low Voltage	IOUT=0.5mA	-	0.1	0.3	V
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	-	-	75	-	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℃,V_{DD}=3.0V, Unless otherwise specified)

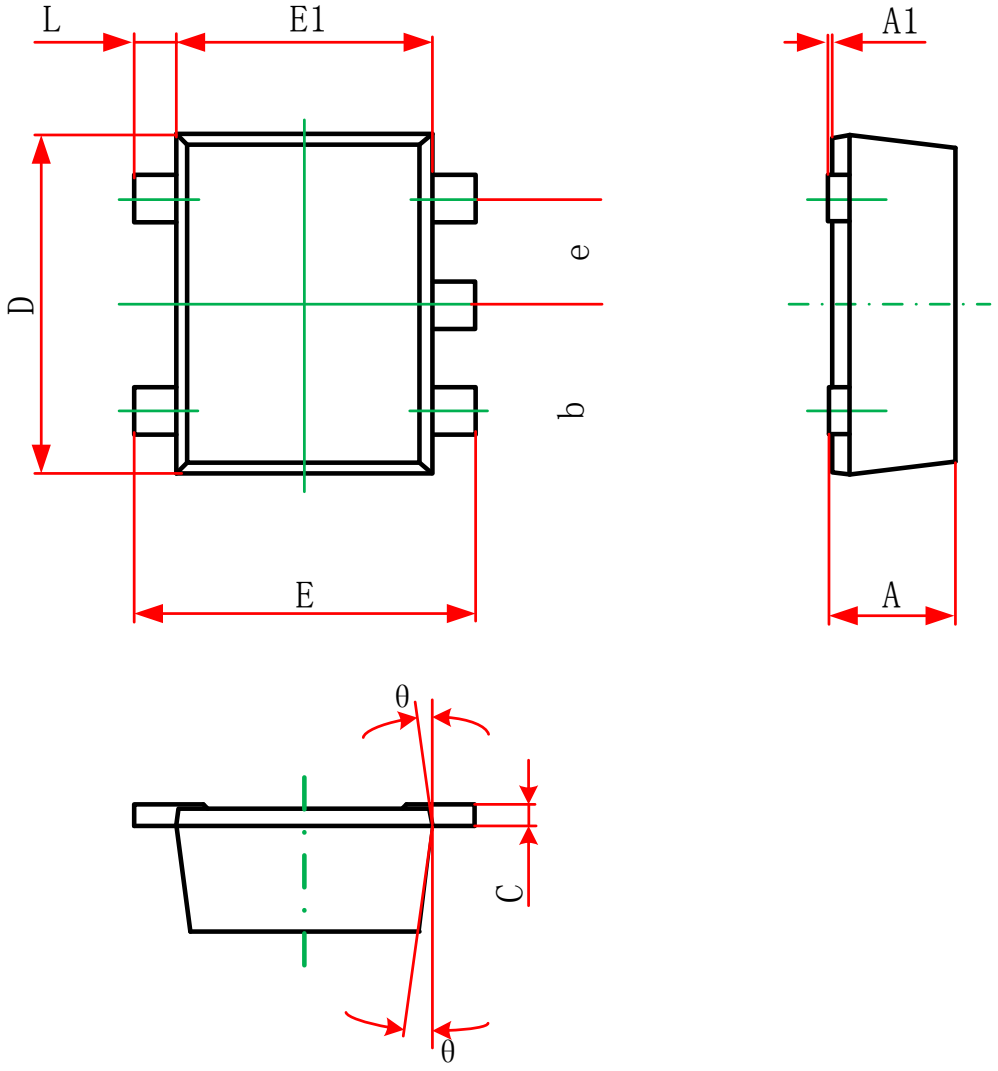
Symbol	Min	Typ	Max	Unit
BOPS	4	6	9	mT
BRPS	2	4.5	7.5	mT
BOPN	-9	-6	-4	mT
BRPN	-7.5	-4.5	-2	mT





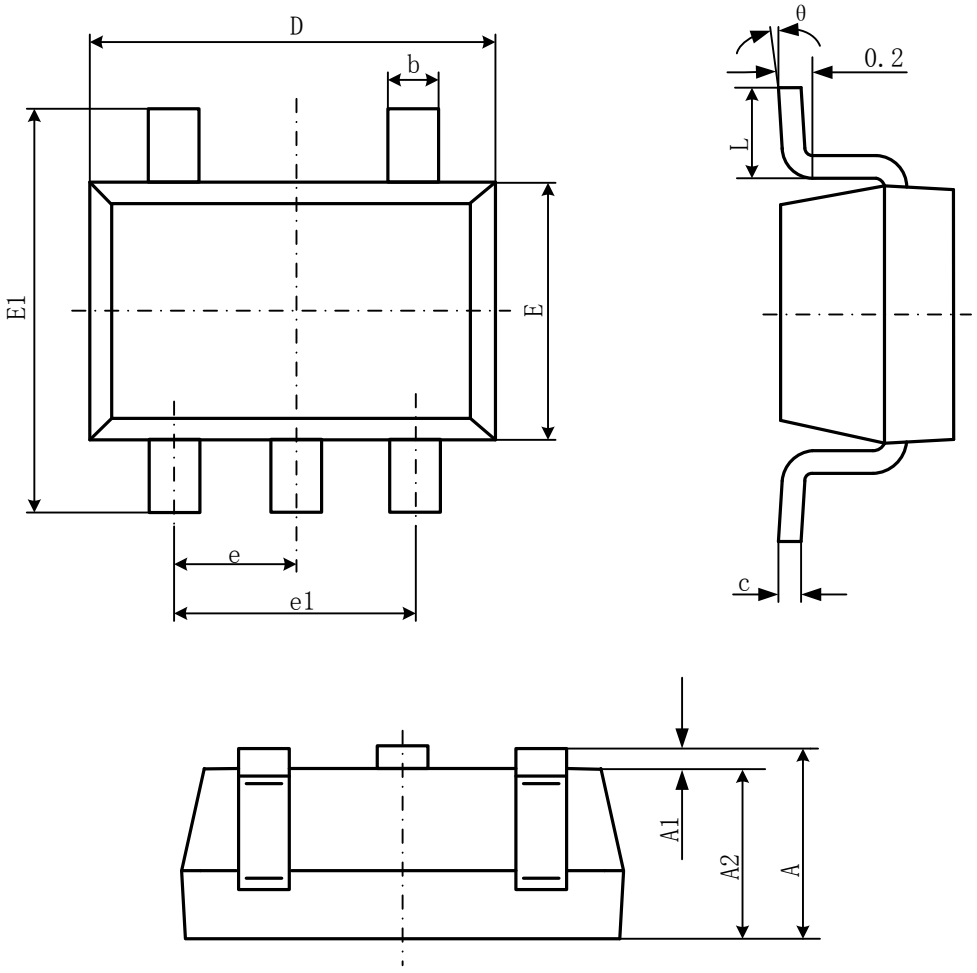
Package

- **SOT-553**



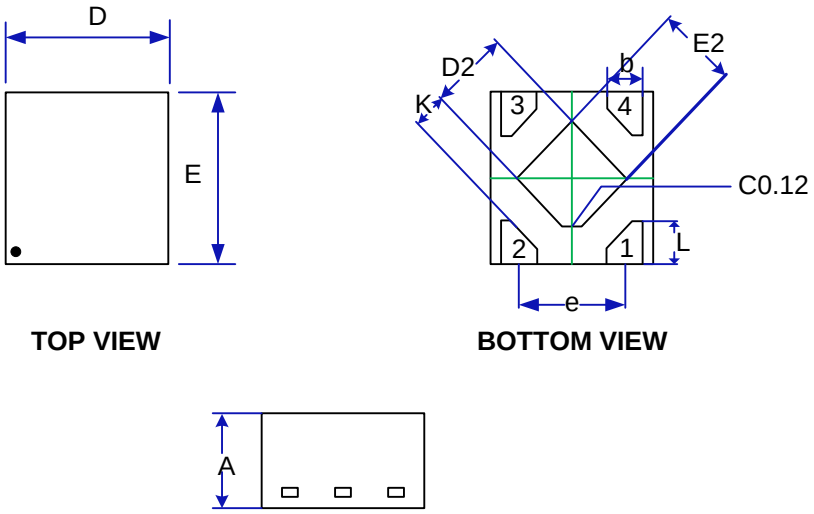
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.525	0.600	0.021	0.024
A1	0.000	0.050	0.000	0.002
e	0.450	0.550	0.018	0.022
c	0.090	0.160	0.004	0.006
D	1.500	1.700	0.059	0.067
b	0.170	0.270	0.007	0.011
E1	1.100	1.300	0.043	0.051
E	1.500	1.700	0.059	0.067
L	0.100	0.300	0.004	0.012
θ	0°REF		0°REF	

- **SOT23-5L**



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°

- **DFN1010-4L**



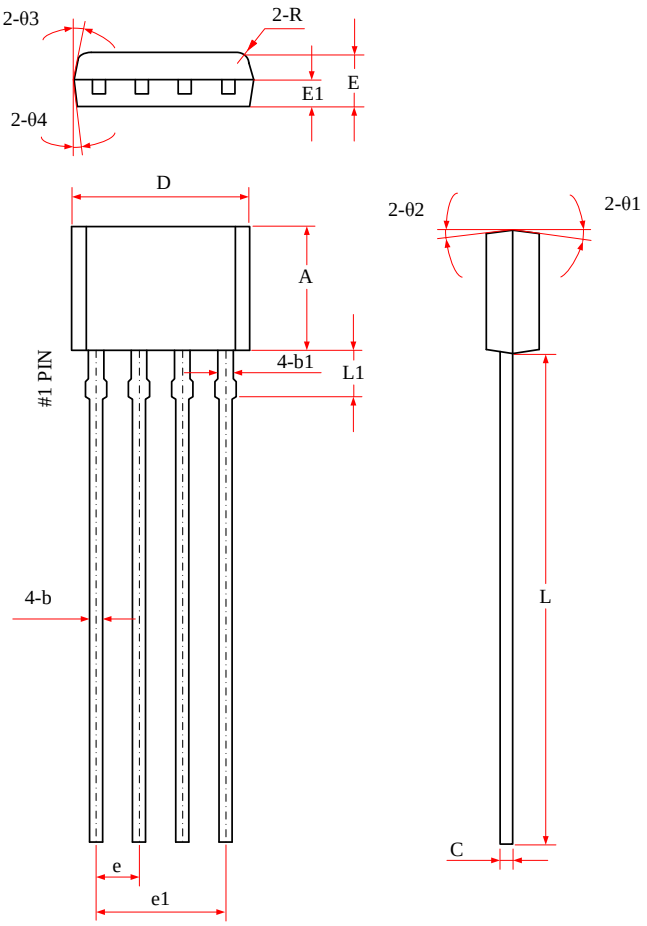
TOP VIEW

BOTTOM VIEW

SIDE VIEW

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.34	0.40	0.013	0.016
b	0.17	0.27	0.007	0.011
D	0.95	1.05	0.037	0.041
E	0.95	1.05	0.037	0.041
D2	0.43	0.53	0.017	0.021
E2	0.43	0.53	0.017	0.021
L	0.20	0.30	0.008	0.012
e	0.60	0.70	0.024	0.028
K	0.15	-	0.006	

- **TO-94**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.55	3.75	0.140	0.148
b	0.35	0.56	0.014	0.022
b1	0.46		0.018	
c	0.36	0.51	0.014	0.020
D	5.12	5.32	0.202	0.209
E	1.46	1.66	0.057	0.065
E1	0.76		0.030	
e	1.27		0.050	
e1	3.81		0.150	
L	13.5	15.5	0.53	0.610
L1	1.42		0.056	
R	0.3		0.012	
θ 1	6°		6°	
θ 2	4°		4°	
θ 3	11°		11°	
θ 4	6°		6°	