



## CJH1311

### General Description

CJH1311 is a micropower, ultra sensitive, uni-polar hall effect switch. It is mainly designed for battery-powered, hand held equipment. CJH1311 includes hall sensor, a small-signal amplifier, dynamic offset cancellation and CMOS output. Superior high-temperature performance is made possible through Dynamic Offset Cancellation, which reduces the residual offset voltage normally caused by device package over molding, temperature dependencies, and thermal stresses.

North pole of sufficient strength will turn the output on.

CJH1311 is available in SOT-23-3L packages. The operating temperature is -40°C to 150°C.

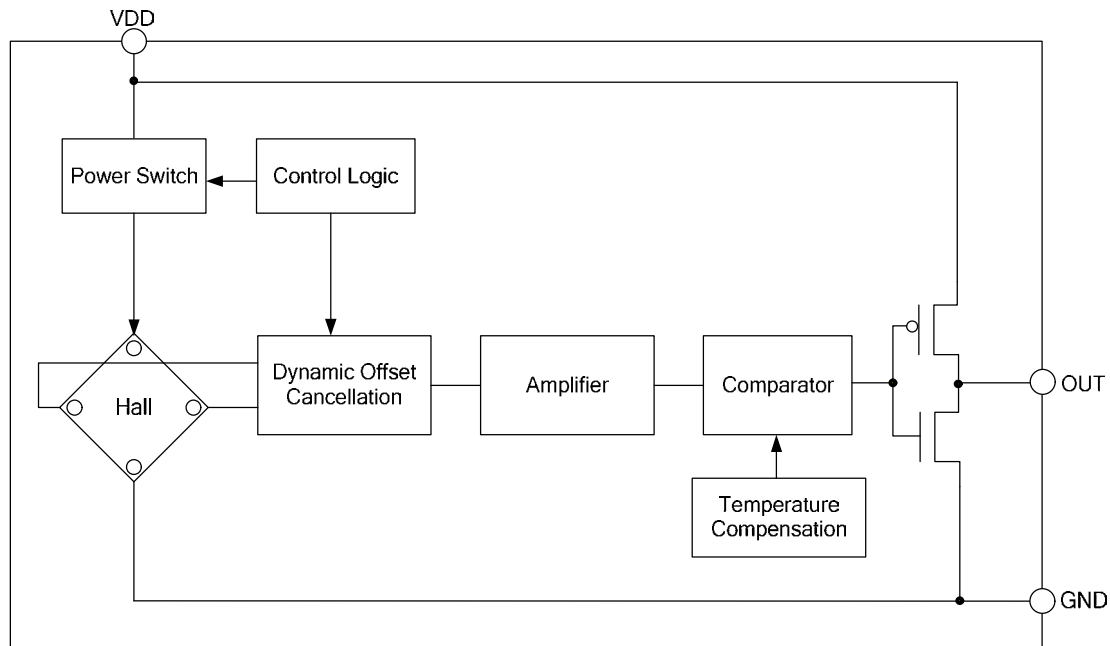
### Features

- ◆ Wide operating voltage, 2~5V
- ◆ Micro power
- ◆ Operating North pole
- ◆ Superior temperature stability
- ◆ Extremely Low Switch-point Drift
- ◆ ESD (HBM) 6000V
- ◆ Small package size

### Application

- ◆ PDA, IPAD
- ◆ Cellular phone

### Function Block Diagram





## Electrical Characteristics

### Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Supply Voltage	$V_{DD}$	-0.3~5.5	V
Magnetic Flux Density	B	unlimited	Gauss
Junction Temperature	$T_A$	-40~150	°C
Storage Temperature	$T_s$	-50~160	°C
ESD(HBM)		6000	V

### Electrical Parameters ( $V_{DD}=5V$ @ 25°C room temperature, unless specified otherwise)

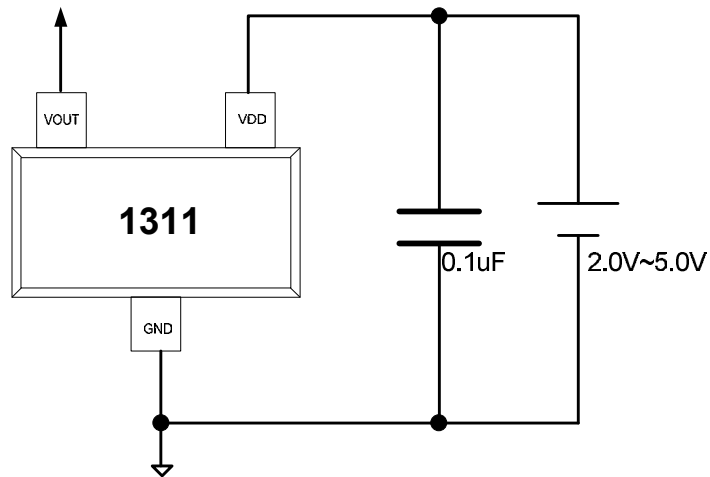
Parameter	Symbol	Condition	Min	Typ.	Max	Unit
Output High Voltage	$V_{OH}$	$I_{OUT}=0.5mA$	$V_{DD}-0.2$	-	-	V
Output Low Voltage	$V_{OL}$	$I_{OUT}=0.5mA$	-	-	0.2	V
Supply Current	$I_{DD(EN)}$		-	2	-	mA
	$I_{DD(dis)}$		-	3	-	uA
Average Current	$I_{DD(average)}$		-	5	-	uA
Awake Time	$T_{awake}$		-	50	100	us
Period	$T_{period}$		-	25	-	ms
Duty Cycle	D.C.		-	0.2%	-	

### Magnetic Specifications

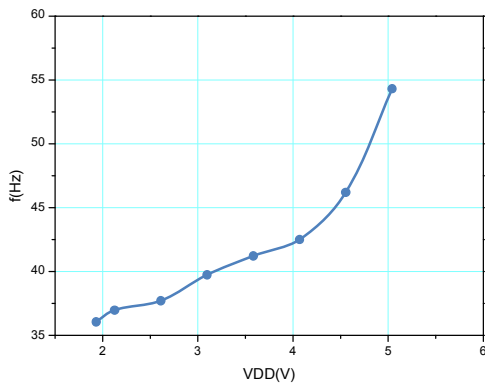
Parameter	Symbol	Min.	Typ.	Max.	Unit
Operate Points	BOPS	15	30	45	G
Release Points	BRPS	5	20	35	G
Hysteresis	BHYS	6	10	14	G

# Typical Characteristics

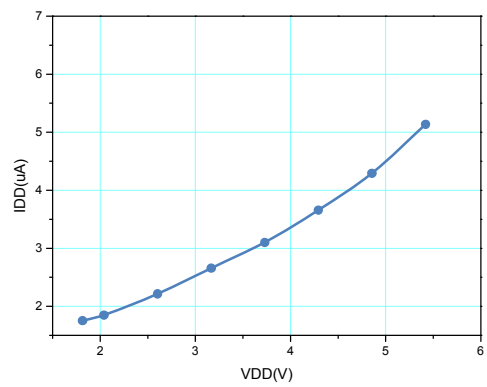
## Typical Application Circuit



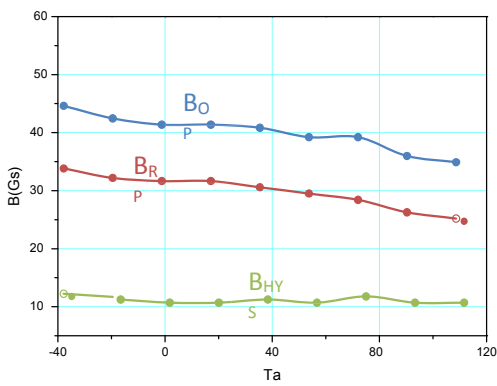
## Waveform



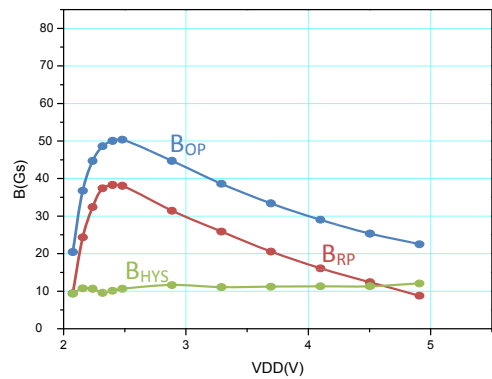
Frequency vs. VDD



Supply current vs. VDD

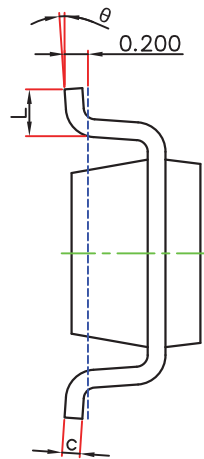
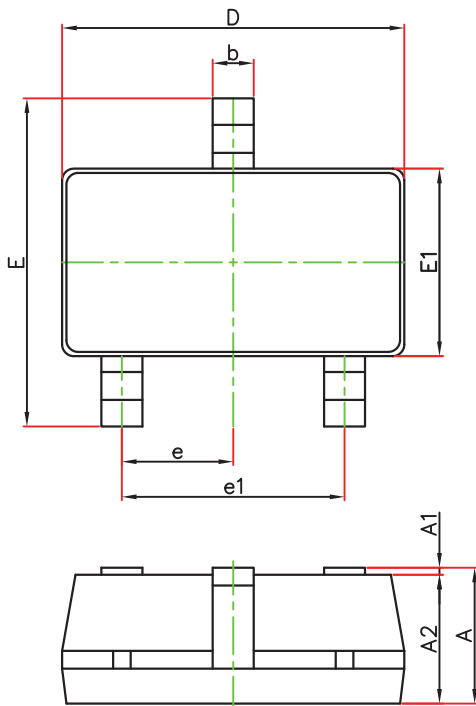


B<sub>OP</sub>&B<sub>RP</sub> vs. T<sub>A</sub>

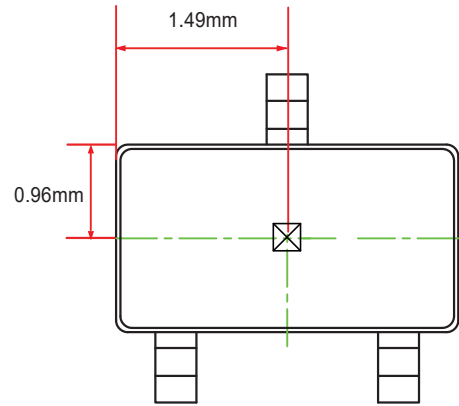


B<sub>OP</sub>&B<sub>RP</sub> vs. VDD

## SOT-23-3L Package Outline Dimensions

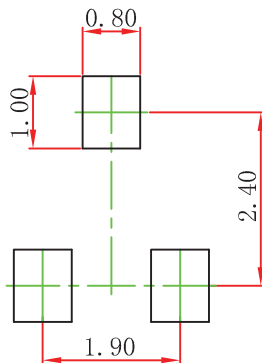


### Hall Location



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
E1	1.500	1.700	0.059	0.067
E	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
$\theta$	0°	8°	0°	8°

## SOT-23-3L Suggested Pad Layout



### Note:

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05\text{mm}$ .
3. The pad layout is for reference purposes only.

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