DESCRIPTION

The AH8115 is an integrated hall-effect sensor designed specifically to meet the requirements of low-power devices. e.g. as an On/Off switch in cellular flip-phones, with battery operating voltages of 2.0V-5.5V.

Precise magnetic switching points and high temperature stability are achieved through the unique design of the internal circuit. An onboard clock scheme is used to reduce the average operating current of the IC. During the operate phase the IC compares the actual magnetic field detected with the internally compensated switching points. The output Voltage is switched at the end of each operating phase. During the Stand-by phase the output stage is latched and the current consumption of the device reduced to some μA.

The IC switching behavior is omnipolar, it can be switched on with either the north or south pole of a magnet.

AH8115 is higher sensitivity of magnetic induction than AH8113, it can be used in security systems、sensing magnet smaller occasions.

The AH8115 is available in TSOT-23 package.

ORDERING INFORMATION

Package Type	Part Number	
TSOT-23 SPQ: 4,000pcs/Reel	TE3	AH8115TE3R
		AH8115TE3VR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products		

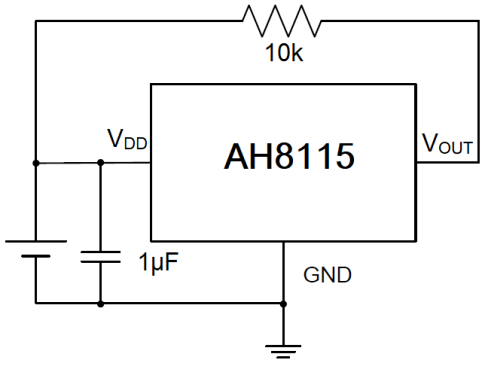
FEATURES

- Micro power design
- 2.0V to 5.5V battery operation
- High sensitivity and high stability of the magnetic switching points
- High resistance to mechanical stress
- Digital output signal
- Switching for both poles of a magnet (omnipolar)
- Not suitable for automotive application
- Operating temperature range
- $T_{MIN} \le T_A \le T_{MAX}$ $-40°C \le T_A \le 85°C$
- Operating voltage range $2.0V \le V_{DD} \le 6.0V$
- Available in TSOT-23 package

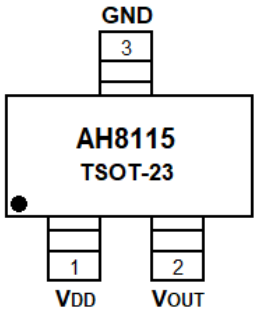
APPLICATION

- Mobile phones
- Notebook
- Portable electronic devices

TYPICAL APPLICATION



PIN DESCRIPTION



Top View

Pin #	Symbol	Function
1	V_{DD}	Supply Voltage
2	V_{OUT}	Output Pin
3	GND	Ground

ABSOLUTE MAXIMUM RATINGS

V_{DD}, Supply Voltage	2.0V~6.0V
I_{DD}, Operating Current	-1mA~4.5mA
V_{OUT}, Output Voltage	-0.3V~6.0V
I_{OUT}, Output Current	-1mA~2.0mA
T_S, Storage Temperature Range	-40°C ~ +150°C
T_J, Maximum Junction Temperature	150°C
ESD Protection	4kV

Stress beyond above listed “Absolute Maximum Ratings” may lead permanent damage to the device. These are stress ratings only and operations of the device at these or any other conditions beyond those indicated in the operational sections of the specifications are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

ELECTRICAL CHARACTERISTICS

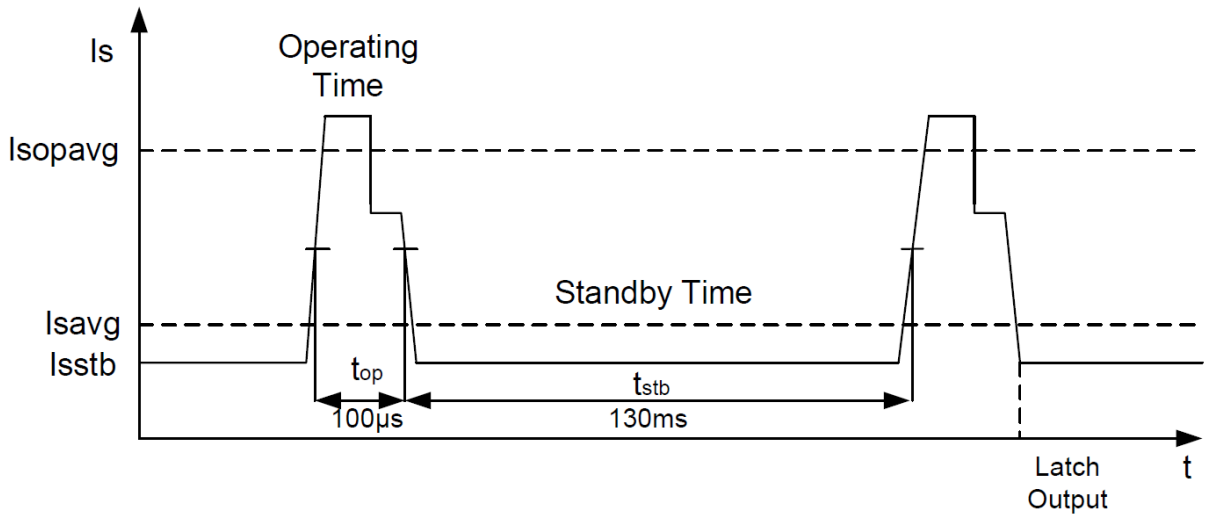
T_A=+25℃,V_{DD}=3.0V, unless otherwise specified

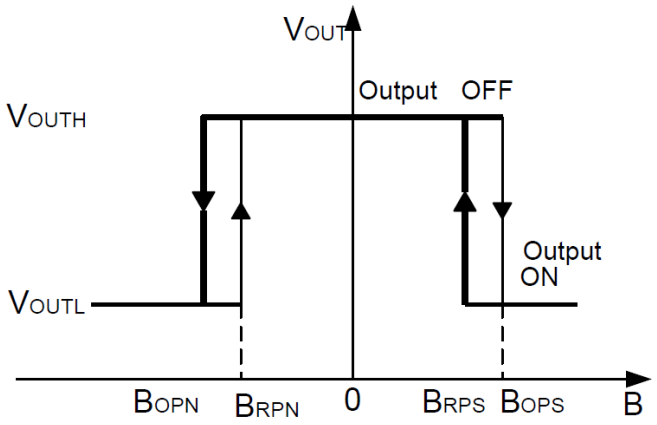
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Supply Voltage	V_{DD}		2.0	-	5.5	V
Averaged Supply Current	I_{SAVG}		1	3	10	μA
Averaged Current During Operating Time	I_{SOPAVG}		0.5	2.0	3.5	mA
Peak Current During Operating Time	I_{SOPT}		-	-	4.5	mA
Supply Current During Standby Time	I_{SSTB}		1	1.9	8	μA
Output Saturation Voltage	V_{QSAT}	I_{OUT}=1mA	-	0.13	0.4	V
Output on Leakage Current	I_{QLEAK}		-	0.01	1	μA
Output Rise Time	t_r	R_L=2.7kΩ, C_L=10pF	-	0.5	1	μs
Output Fall Time	r_f	R_L=2.7kΩ, C_L=10pF	-	0.1	1	μs
Operating Time	t_{op}		25	100	160	μs
Standby Time	t_{stb}		60	140	240	ms
Duty Cycle	t_{op}/t_{stb}		-	0.071	-	%
Start-up Time of IC	t_{stu}		-	12	20	μs

MANGENTIC CHARACTERISTICS

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

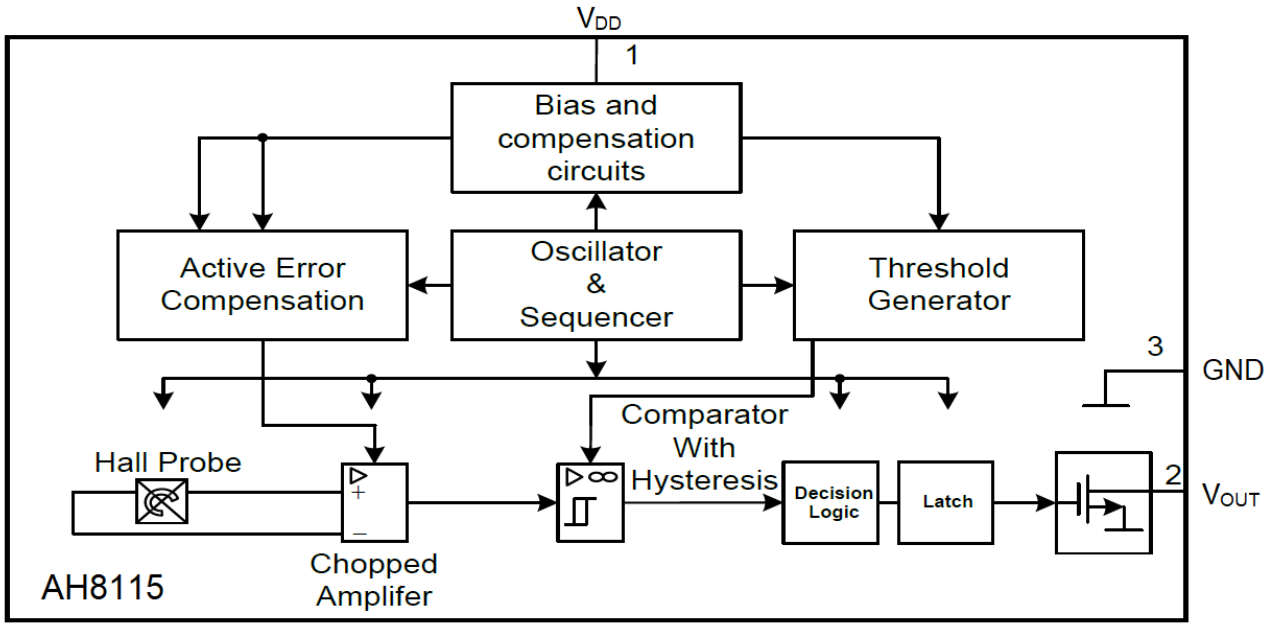
Symbol	Min.	Typ.	Max.	Unit
B_{OPS}	1	1.5	2	mT
B_{OPN}	-2	-1.5	-1	mT
B_{RPS}	0.8	1.1	1.5	mT
B_{RPN}	-1.8	-1.1	-0.8	mT
B_{HYS}	0.1	0.4	0.7	mT





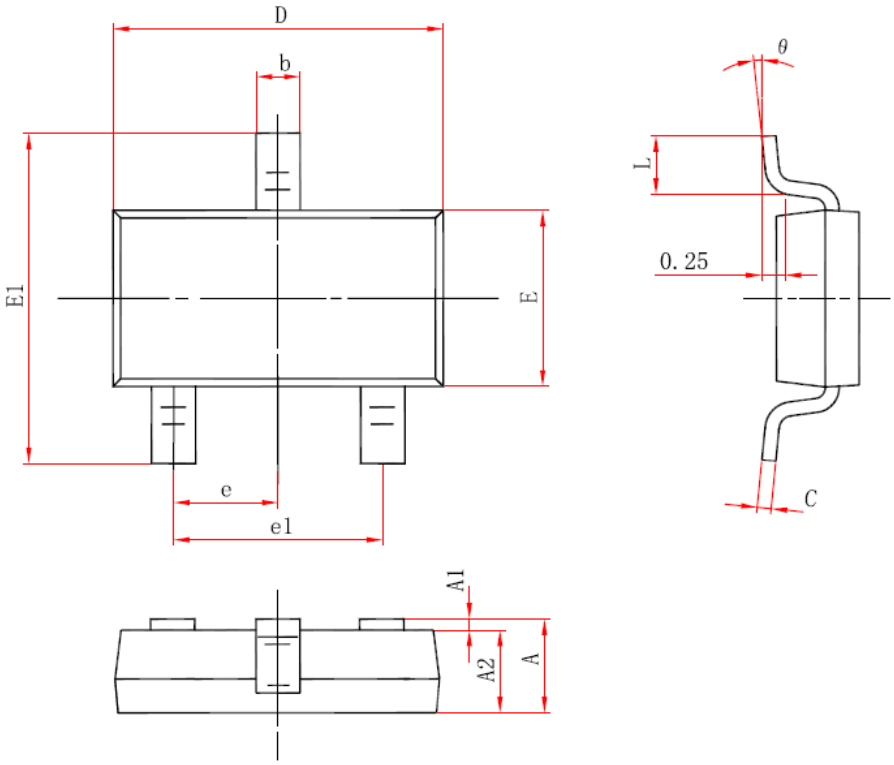
V_{OUT} as function of the applied B-Field

BLOCK DIAGRAM



PACKAGE INFORMATION

Dimension in TSOT-23 (Unit: mm)



Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b	0.350	0.500	0.014	0.020
c	0.080	0.200	0.003	0.008
D	2.820	3.020	0.111	0.119
E	1.600	1.700	0.063	0.067
E1	2.650	2.950	0.104	0.116
e	0.95 BSC		0.037 BSC	
e1	1.90 BSC		0.075 BSC	
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

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