



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 Q 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 behaviour 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	TE3	AH8115TE3R AH8115TE3VR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products Suffix " V " means Halogen free Package		

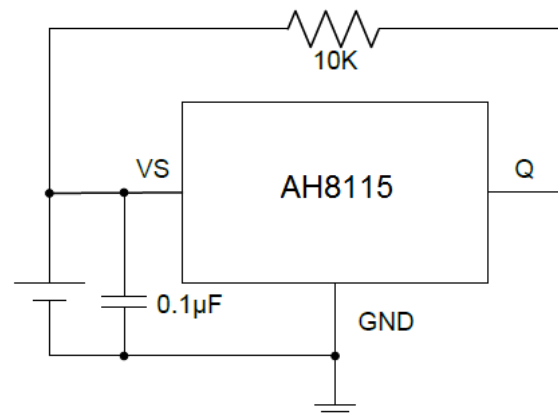
FEATURES

- 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
- $T_{MIN} \leq T_A \leq T_{MAX}$ $-40^{\circ}\text{C} \leq T_A \leq 85^{\circ}\text{C}$
- Operating voltage range $2.0\text{V} \leq V_{DD} \leq 6.0\text{V}$
- Available in TSOT-23 Package

APPLICATION

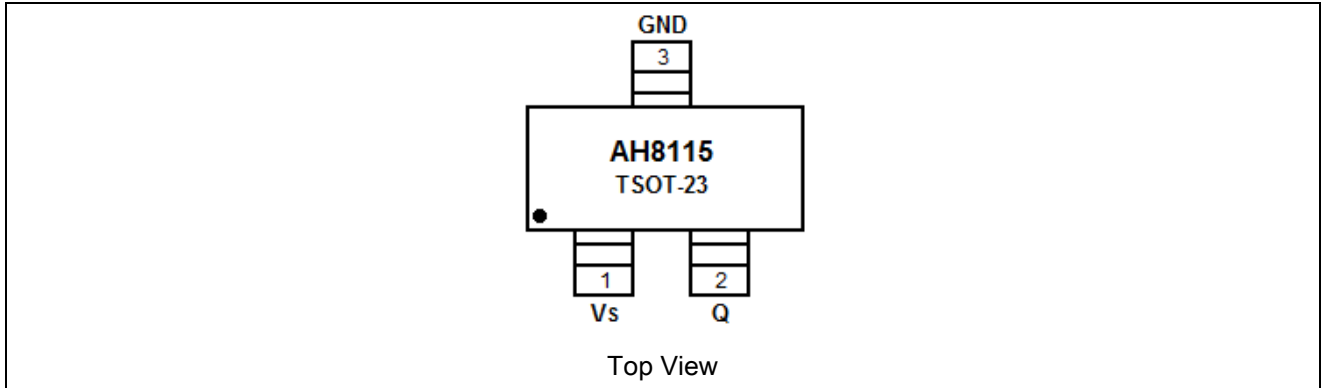
- Mobile phones
- Notebook
- Portable electronic devices

TYPICAL APPLICATION





PIN DESCRIPTION



Pin #	Symbol	Function
1	VS	Supply Voltage
2	Q	Output Pin
3	GND	Ground



ABSOLUTE MAXIMUM RATINGS

V _{DD} , Supply Voltage	2.0V~6.0V
I _s , Operating Current	-1mA~4.5mA
V _Q , Output Voltage	-0.3V~6.0V
I _Q , 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

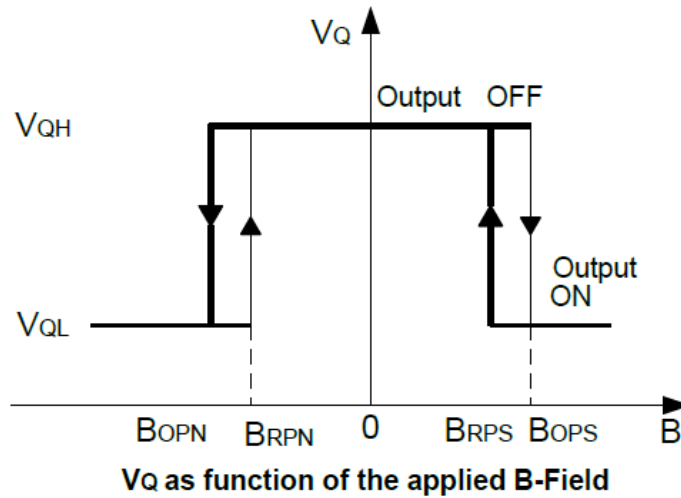
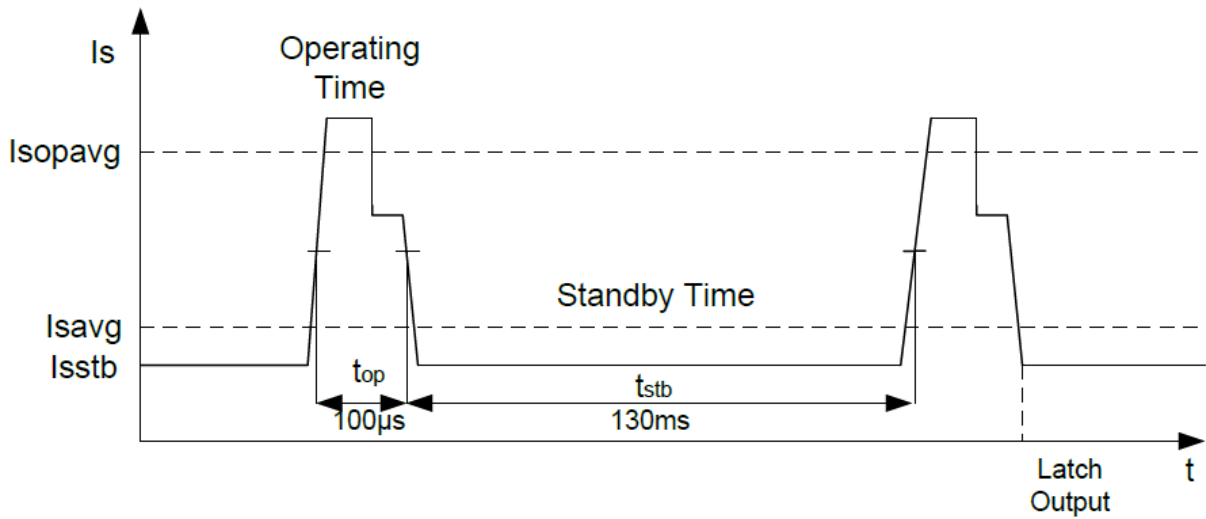
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Supply Voltage	V _{DD}		2.0		5.5	V
Averaged Supply Current	I _{SAVG}		1	3	10	uA
Averaged Current During Operating Time	I _{SOPAVG}		0.5	2.0	3.5	mA
Peak Current During Operating Time	I _{SOPT}				4.5	mA
Supply Current During Standby Time	I _{SSTB}		1	1.9	8	uA
Output Saturation Voltage	V _{QSAT}	I _Q =1mA		0.13	0.4	V
Output on Leakage Current	I _{QLEAK}			0.01	1	uA
Output Rise Time	t _r	R _L =2.7KΩ, C _L =10pF		0.5	1	us
Output Fall Time	t _f	R _L =2.7KΩ, C _L =10pF		0.1	1	us
Operating Time	t _{op}		25	100	160	us
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	us



MANGNETIC CHARACTERISTICS

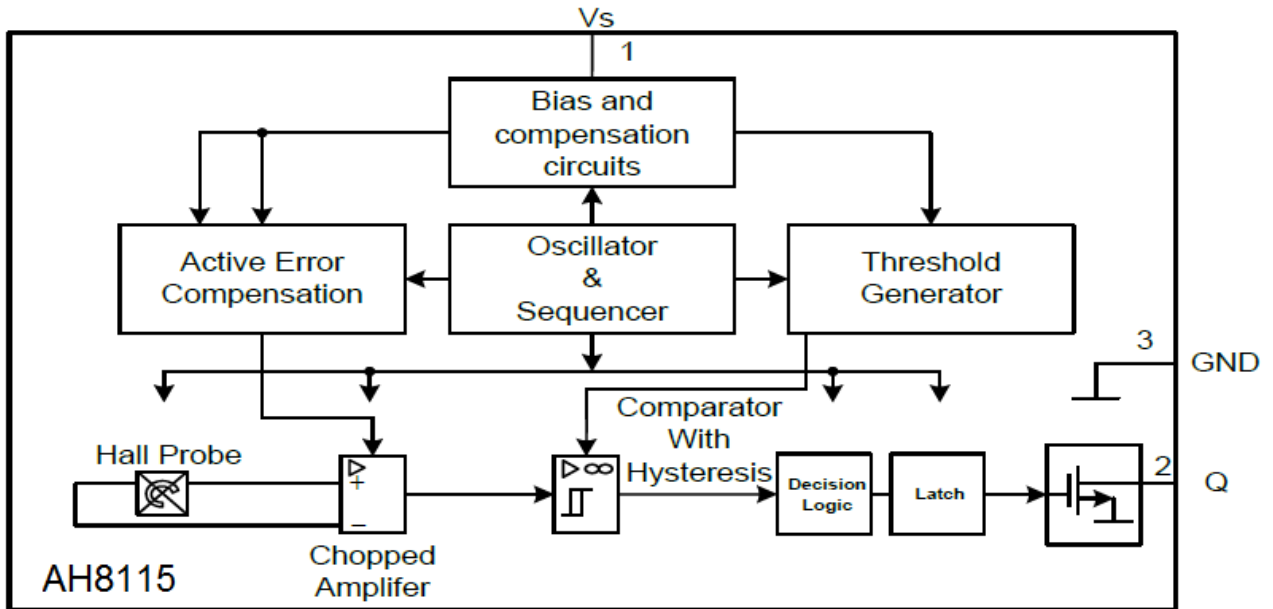
T_A=+25°C, V_{DD}=2.7V, Unless otherwise specified

Symbol	Min.	Typ.	Max.	Unit
BOPS	1	1.5	2	mT
BOPN	-2	-1.5	-1	mT
BRPS	0.8	1.1	1.5	mT
BRPN	-1.8	-1.1	-0.8	mT
BHYS	0.1	0.4	0.7	mT





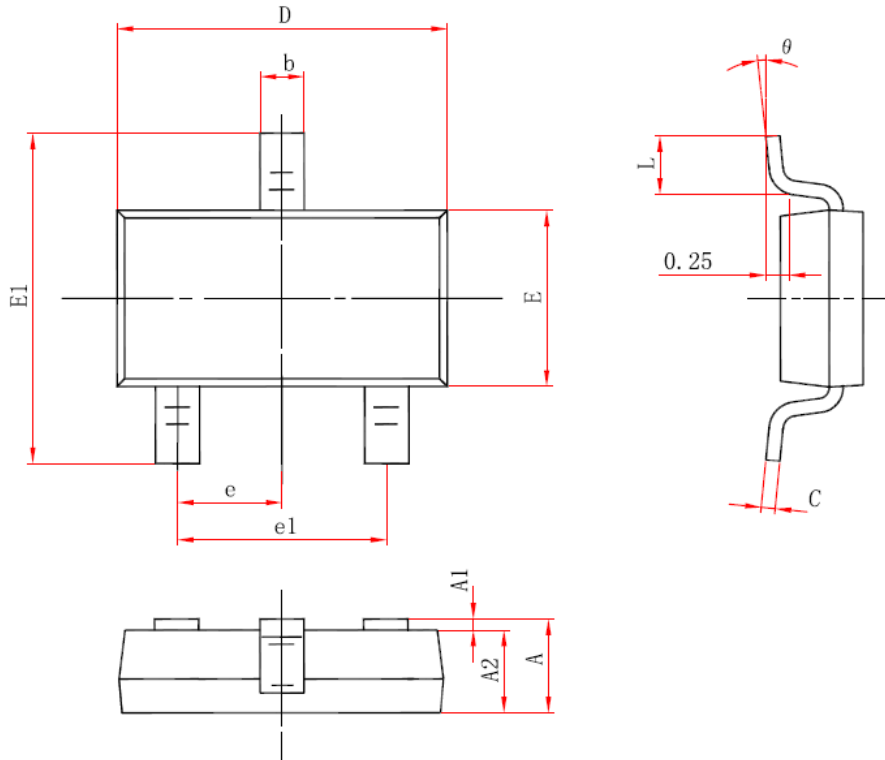
BLOCK DIAGRAM





PACKAGE INFORMATION

Dimension in TSOT-23 (Unit: mm)



Symbol	Min	Max
A	0.700	0.900
A1	0.000	0.100
A2	0.700	0.800
b	0.350	0.500
c	0.080	0.200
D	2.820	3.020
E	1.600	1.700
E1	2.650	2.950
e	0.95 (BSC)	
e1	1.90 (BSC)	
L	0.300	0.600
θ	0°	8°



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