THE DATASHEET OF

AH182-WG-7

Features

- Micropower operation
- 2.5V to 5.5V battery operation
- Offset Canceling Technology
- Superior temperature stability
- Extremely Low Switch-Point Drift
- Insensitive to Physical Stress
- -40°C to 85°C operating temperature
- Lead Free packages: SIP-3L and SC59 (Commonly known as SOT23 in Asia)
- SIP-3L and SC59: Available in “Green” Molding Compound (No Br, Sb)
- Lead Free Finish / RoHS Compliant (Note 1)

General Description

AH182/AH183 is a three-terminal Hall effect sensor device with an output driver, mainly designed for battery–operation, hand-held equipment (such as cellular and cordless phones, and PDA’s) The total operation power is down to 15uW in the 2.75V supply.

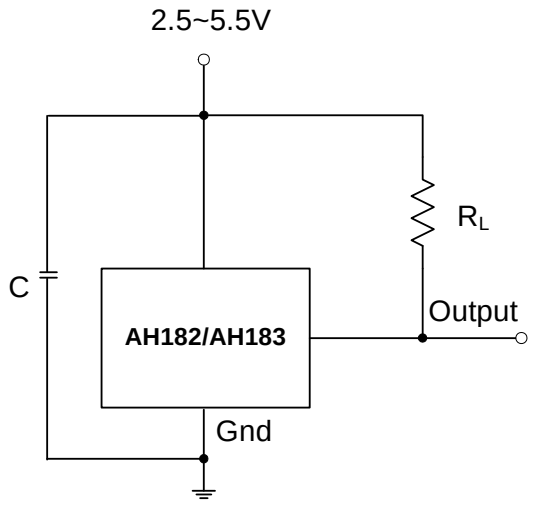
The south pole of sufficient strength will turn the output on in SIP-3L but the north pole of sufficient strength will turn the output on in SC59 package. The output will be turned off under no magnetic field.

While the magnetic flux density **(B)** is larger than operation point **(Bop)**, the output will be turned on (low), the output is held until **B** is lower than the release point **(Brp),** then turned off. The difference between AH182 and AH183 is that the former consumes less power than that of the latter in the Hall sensor operation.

Applications

- Cover detector
- Speed measurement
- Home safety

Typical Circuit *



* C is for power stabilization and to strengthen the noise immunity, the recommended capacitance is 10nF~100nF.
R_L is the pull-up resistor, the recommended resistance is 10Kohm~100Kohm.

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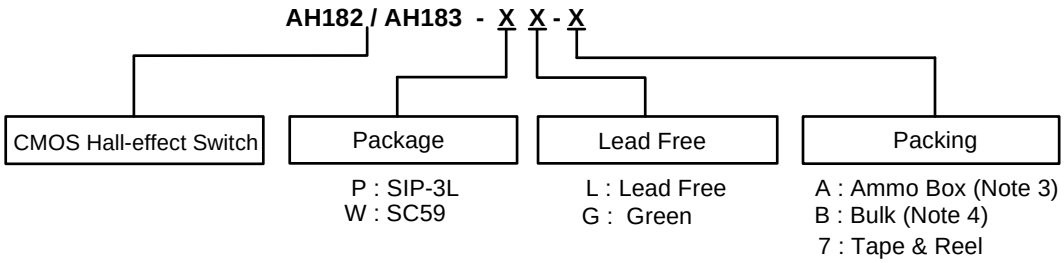
Ordering Information



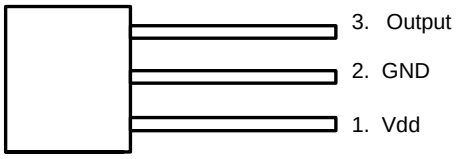
Device	Package Code	Packaging (Note 2)	Bulk		7" Tape and Reel		Ammo Box	
			Quantity	Part Number Suffix	Quantity	Part Number Suffix	Quantity	Part Number Suffix
AH182/AH183-PL-A	P	SIP-3L	NA	NA	NA	NA	4000/Box	-A
AH182/AH183-PL-B	P	SIP-3L	1000	-B	NA	NA	NA	NA
AH182/AH183-PG-A	P	SIP-3L	NA	NA	NA	NA	4000/Box	-A
AH182/AH183-PG-B	P	SIP-3L	1000	-B	NA	NA	NA	NA
AH182/AH183-WL-7	W	SC59	NA	NA	3000/Tape & Reel	-7	NA	NA
AH182/AH183-WG-7	W	SC59	NA	NA	3000/Tape & Reel	-7	NA	NA

Notes:
1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied. Please visit our website at http://www.diodes.com/products/lead_free.html
2. Pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf.
3. Ammo Box is for SIP-3L Spread Lead.
4. Bulk is for SIP-3L Straight Lead.

Pin Assignments

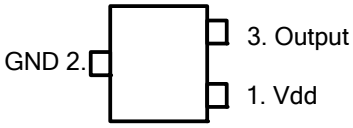
(1) SIP-3L

(Top view)



(2) SC59 (Commonly known as SOT23 in Asia)

(Top view)



Pin Description

Pin Name	P/I/O	Pin #	Description
Vdd	P/I	1	Power Supply Input
GND	P	2	Ground
Output	O	3	Output Pin

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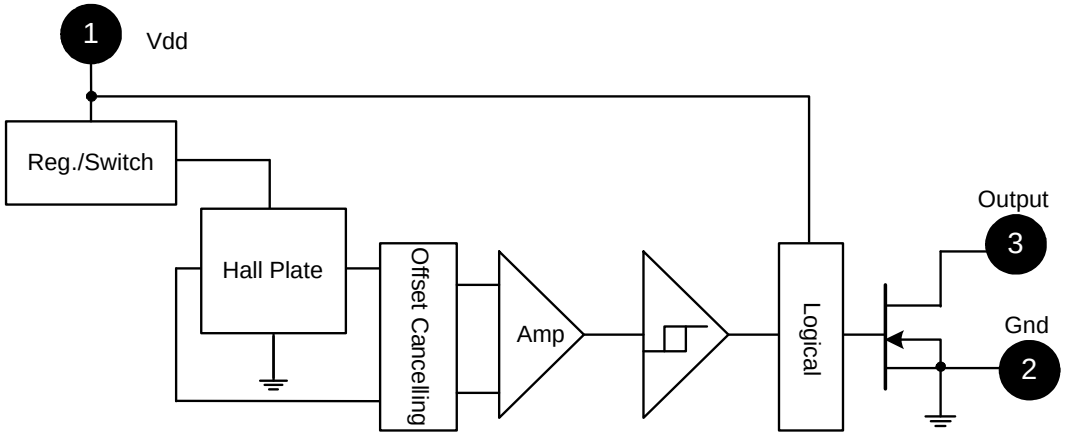
Block Diagram



Absolute Maximum Ratings (T_A = 25°C)

Symbol	Parameter		Rating	Unit
Vdd	Supply Voltage		7	V
B	Magnetic Flux Density		Unlimited	
I_{OUT}	Output current		10	mA
P_D	Power Dissipation	SIP-3L	550	mW
		SC59	230	mW
$T_{J(MAX)}$	Maximum Junction Temperature		150	°C
T_{ST}	Storage Temperature Range		-65 to +150	°C

Recommended Operating Conditions (T_A = 25°C)

Symbol	Parameter	Conditions	Min	Max	Unit
Vdd	Supply Voltage	Operating	2.5	5.5	V
T_A	Operating Ambient Temperature	Operating	-40	85	°C

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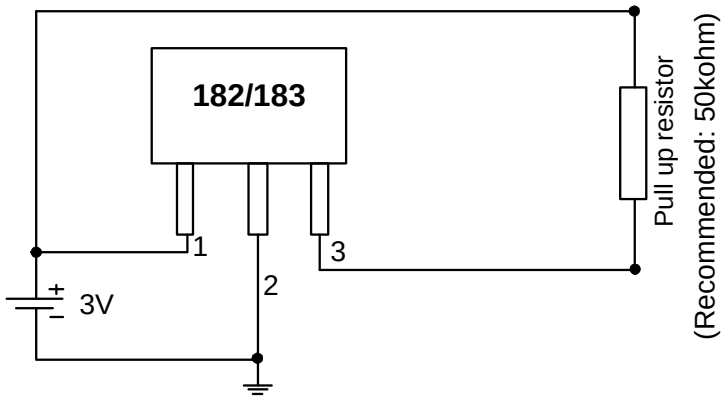
Electrical Characteristics (T_A = 25°C, Vdd = 3V)

Symbol	Characteristic	Conditions	Min	Typ.	Max	Unit
V_{OUT}	Output On Voltage	I_{OUT} = 1mA	-	0.1	0.3	V
I_{off}	Output Leakage Current	V_{OUT} = 5.5V, B < Brp	-	<0.1	1	µA
Idd(en)	Supply Current	Chip enable	-	-	2.0	mA
Idd(dis)		Chip disable	-	-	8.0	uA
Idd(avg)		AH182: average supply current	-	5	10	uA
Idd(avg)		AH183: average supply current	-	280	500	uA
Tawake	Awake Time		-	50	100	µs
Tperiod	Period	AH182	-	50	100	ms
		AH183	-	200	400	us
D.C.	Duty Cycle	AH182	-	0.1	-	%
		AH183	-	25	-	%

Test Circuit



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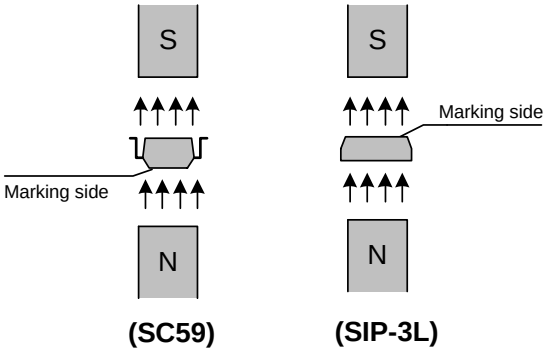
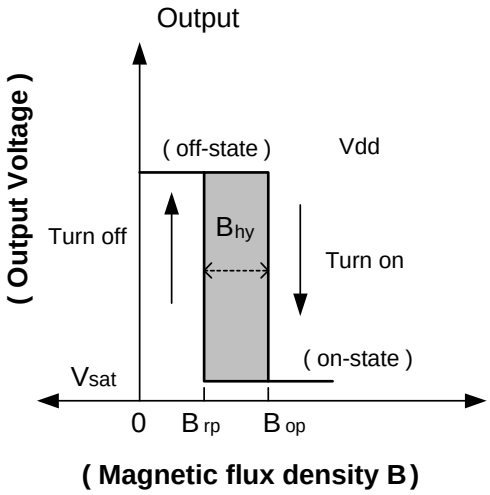
Magnetic Characteristics (T_A = 25°C, Vdd = 3V, Note 5)

(1mT = 10 Gauss)

Symbol	Parameter	Min	Typ.	Max	Unit
Bops(south pole to brand side)	Operation Point	-	40	60	Gauss
Brps(south pole to brand side)	Release Point	10	30	-	
Bhy(|Bopx – Brpx|)	Hysteresis	-	10	-	

Notes: 5. Magnetic characteristics are for design information, which will vary with supply voltage, operating temperature and after soldering.





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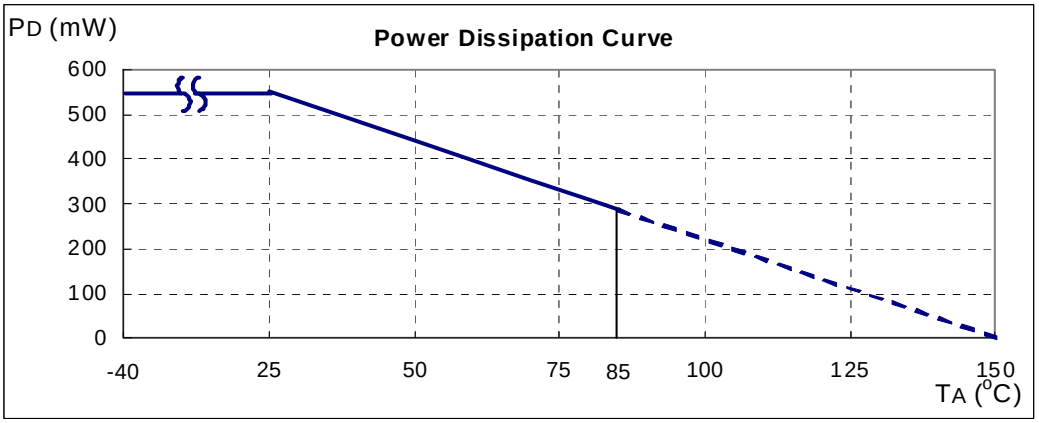
Performance Characteristics

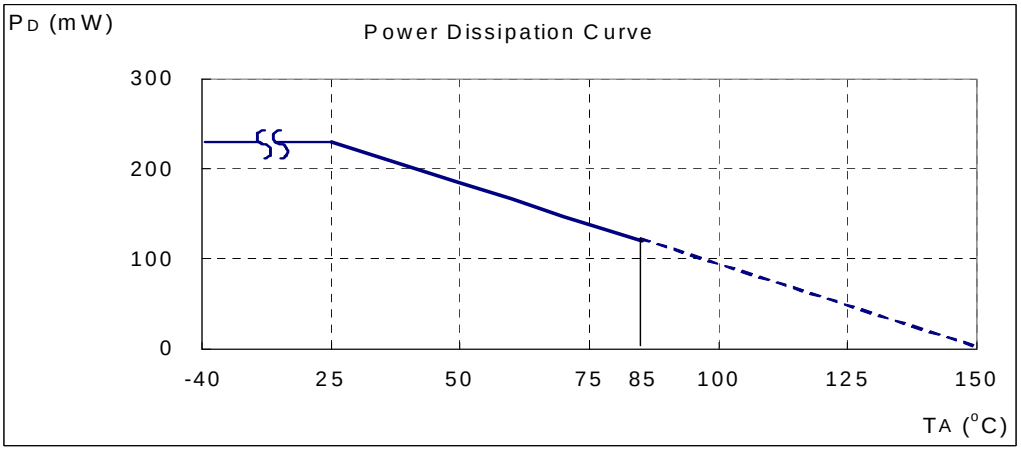
(1) SIP-3L

T_A (°C)	25	50	60	70	80	85	90	95	100
P_D (mW)	550	440	396	352	308	286	264	242	220
T_A (°C)	105	110	115	120	125	130	135	140	150
P_D (mW)	198	176	154	132	110	88	66	44	0



(2) SC59 (Commonly known as SOT23 in Asia)

T_A (°C)	25	50	60	70	80	85	90	100	110	120	130	140	150
P_D (mW)	230	184	166	147	129	120	110	92	74	55	37	18	0



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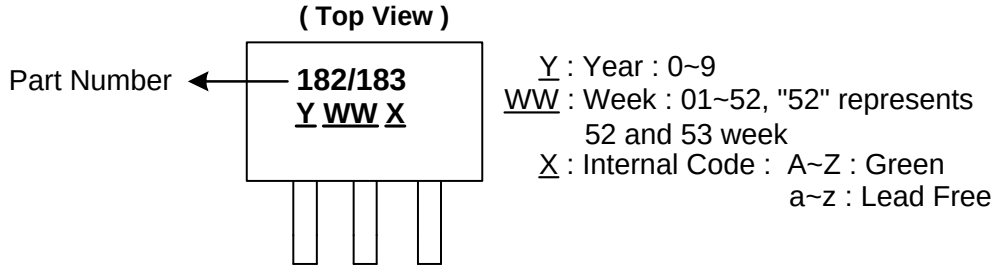
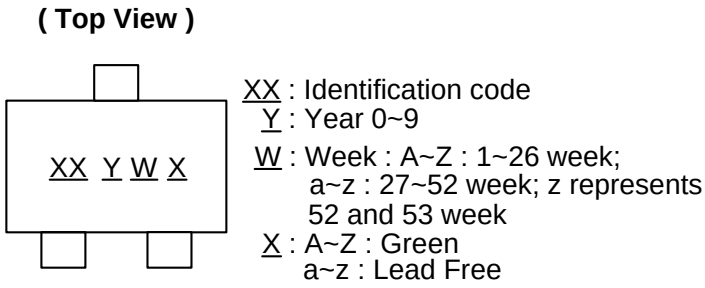
Marking Information

(1) SIP-3L



(2) SC59 (Commonly known as SOT23 in Asia)



Part Number	Package	Identification Code
AH182	SC59	K2
AH183	SC59	K3

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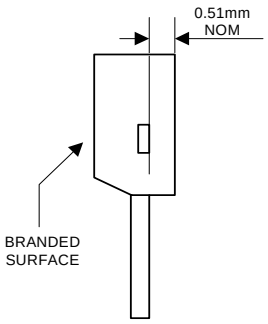
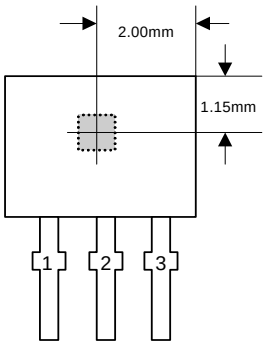
Package Information (All Dimensions in mm)

(1) Package Type: SIP-3L for Bulk only

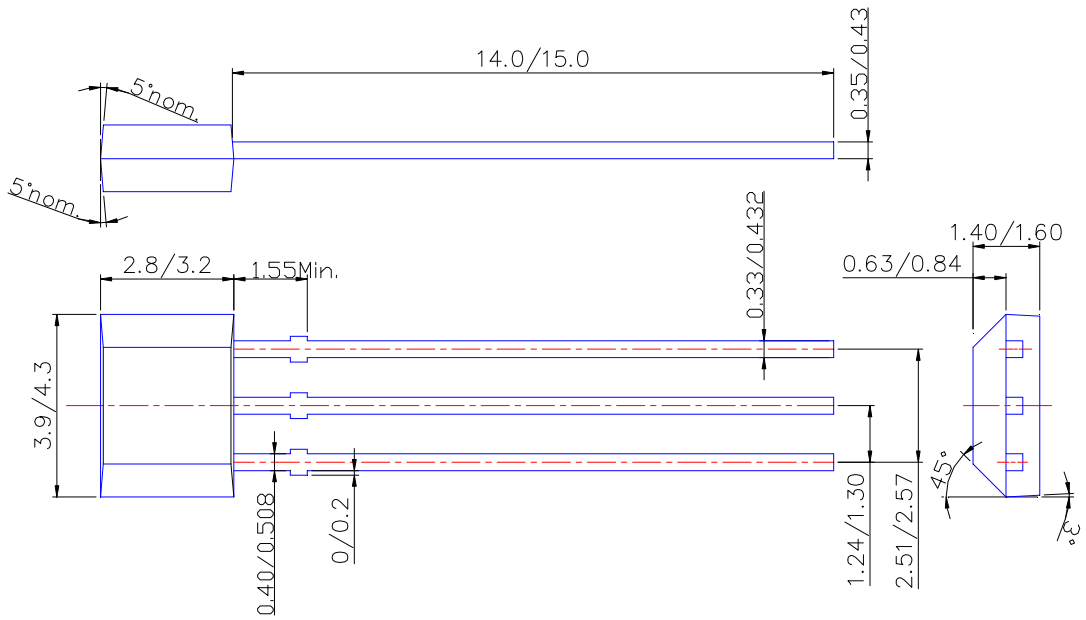


Active Area Depth



Sensor Location

Package Dimension



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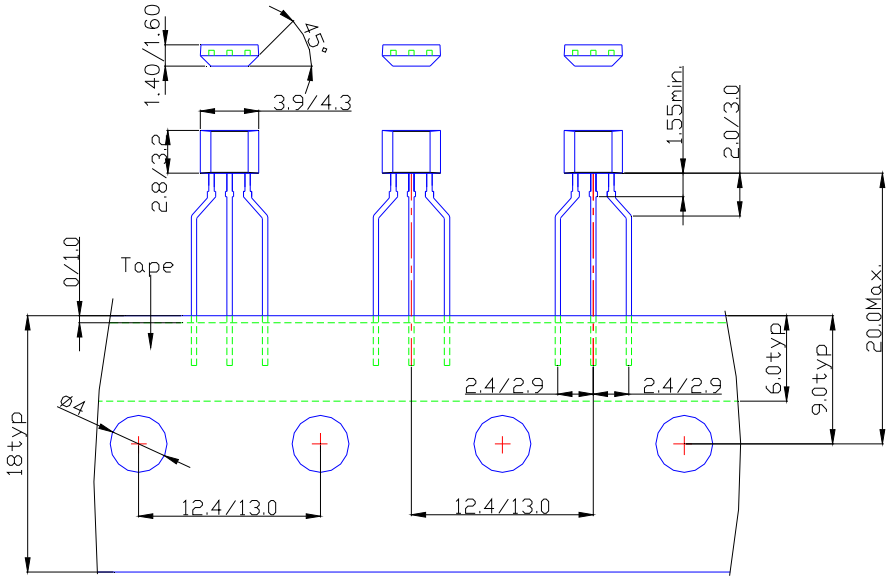
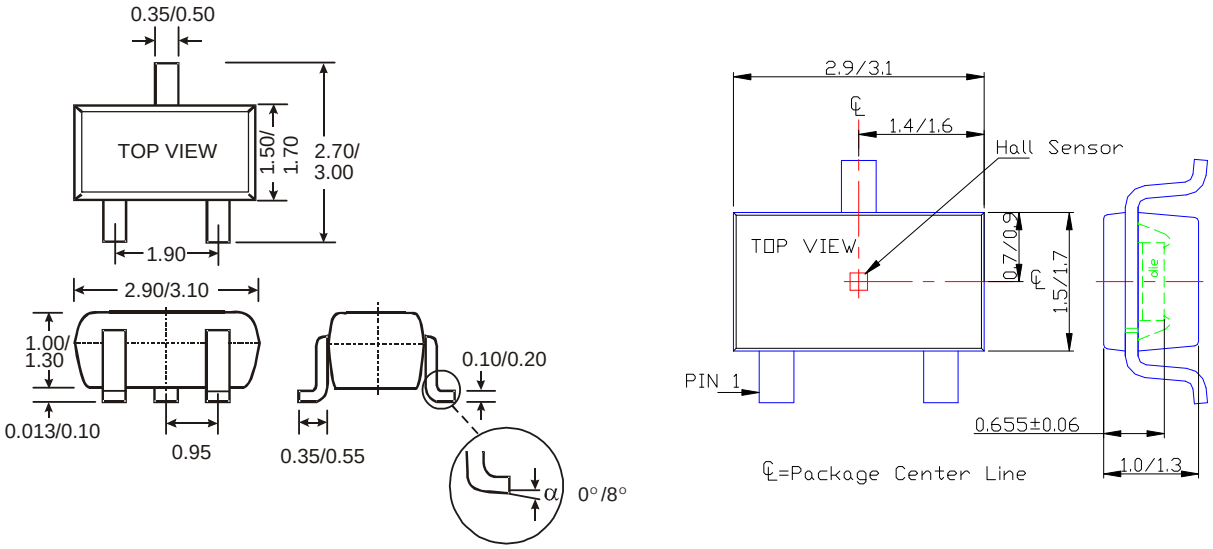
Package Information (Continued)

(2) Package Type: SIP-3L for Ammo Pack-only



(3) Package Type: SC59 (commonly known as SOT23 in Asia)



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