

LOW POWER HALL EFFECT SWITCH

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) (Note 1)
- SC59: Available in "Green" Molding Compound (No Br, Sb)
- Lead Free Finish / RoHS Compliant (Note 2)

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.

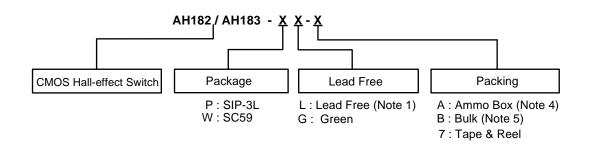
The south pole of sufficient strength will turn the output on in SIP-3L but the north pole of sufficient strength will turn the output on in SC59 package. The output will be turned off under no magnetic field.

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

Ordering Information



				Βι	ılk	7" Tape and	Reel Ammo Box		Box
	Device	Package	Packaging		Part	•	Part	• • • •	Part
		Code	(Note 3)	Quantity	Number Suffix	Quantity	Number Suffix	Quantity	Number Suffix
ଞାନ୍ତ	AH182/AH183-PL-A	Р	SIP-3L	NA	NA	NA	NA	4000/Box	-A
(PD)	AH182/AH183-PL-B	Р	SIP-3L	1000	-B	NA	NA	NA	NA
60	AH182/AH183-WL-7	W	SC59	NA	NA	3000/Tape & Reel	-7	NA	NA
B	AH182/AH183-WG-7	W	SC59	NA	NA	3000/Tape & Reel	-7	NA	NA

1. SIP-3L is available in "Lead Free" product only. Notes:

2. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see *EU Directive 2002/95/EC Annex Notes*. 3. Pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at

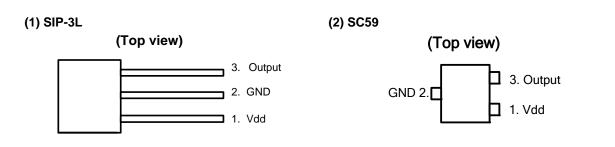
http://www.diodes.com/datasheets/ap02001.pdf. 4. Ammo Box is for SIP-3L Spread Lead.

5. Bulk is for SIP-3L Straight Lead.



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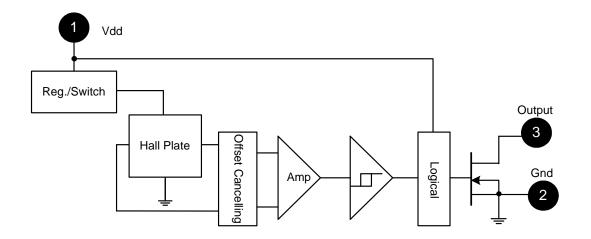
Pin Assignments



Pin Description

Name	P/I/O	Pin #	Description
Vdd	P/I	1	Power Supply Input
GND	Р	2	Ground
Output	0	3	Output Pin

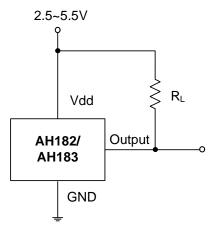
Block Diagram





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Typical Circuit



Absolute Maximum Ratings $(T_A = 25^{\circ}C)$

Symbol	Parameter	Rating	Unit		
Vdd	Supply Voltage		7	V	
В	Magnetic Flux Density	Unlimited			
I _{OUT}	Output current	10			
P _D	Dower Discinction	SIP-3L	550	mW	
' D	Power Dissipation	230	mW		
T _{J(MAX)}	Maximum Junction Temperature	150	°C		
T _{ST}	Storage Temperature Range	-65 to +150	С°		

Recommended Operating Conditions $(T_A = 25^{\circ}C)$

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

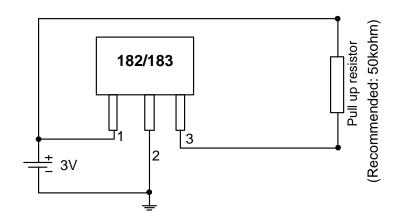


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Electrical Characteristics $(T_A = 25^{\circ}C, Vdd = 3V)$

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

Test Circuit

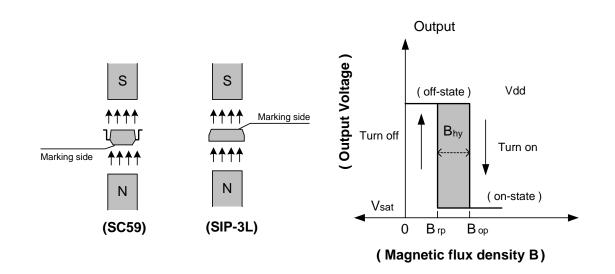




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Magnetic Characteristics $(T_A = 25^{\circ}C, Vdd = 3V)$

				(1m]	Γ = 10 Gauss)
Symbol	Characteristic	Min	Тур.	Max	Unit
Bops(south pole to brand side)	Operation Point	-	40	60	
Brps(south pole to brand side)	Release Point	10	30	-	Gauss
Bhy(Bopx – Brpx)	Hysteresis	-	10	-	•••••



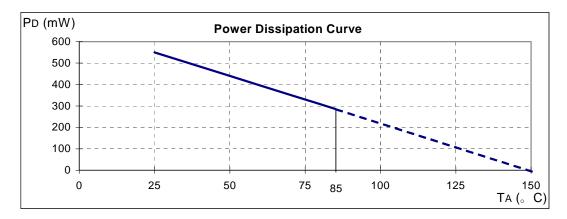


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Performance Characteristics

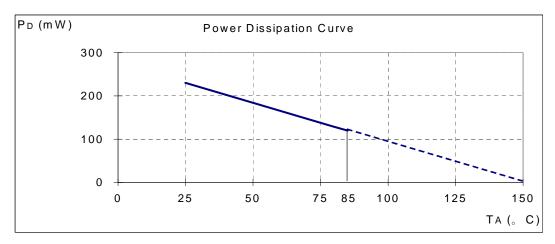
(1) SIP-3L

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



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

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

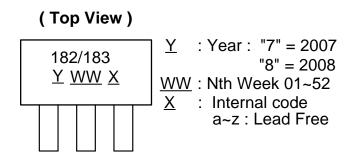




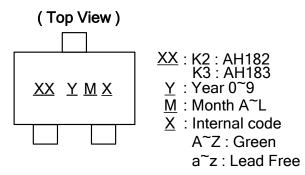
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Marking Information

(1) SIP-3L



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



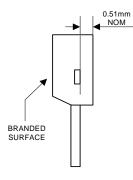
Part Number	Package	Identification Code
AH182	SC59	K2
AH183	SC59	K3



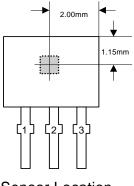
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Package Information (All Dimensions in mm)

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

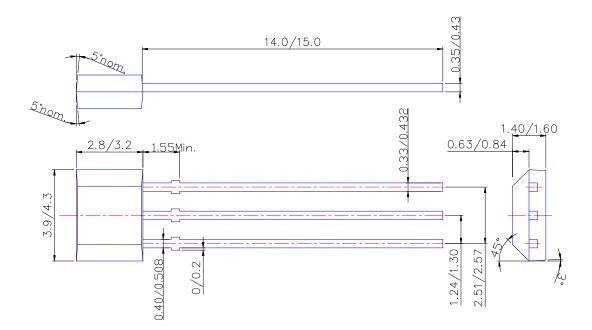






Sensor Location

Package Dimension

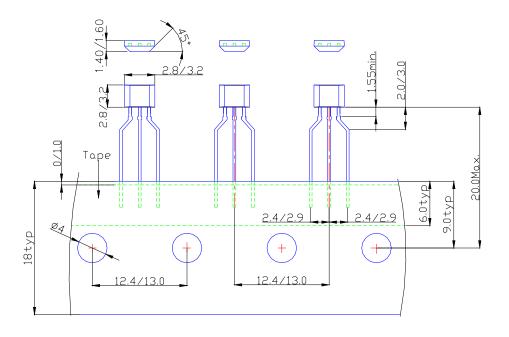




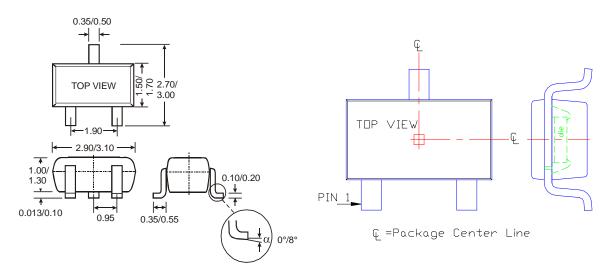
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Package Information (Continued)

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



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





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