

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
- SIP-3L/SC59 package
- Lead Free Finish/RoHS Compliant for Lead Free products (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.

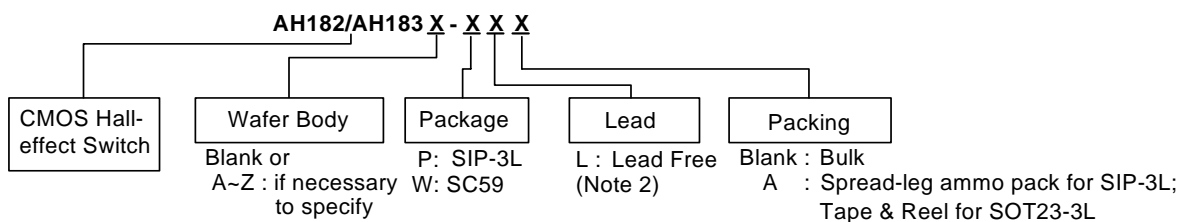
Applications

- Cover detector
- Speed measurement
- Home safety

Pin Descriptions

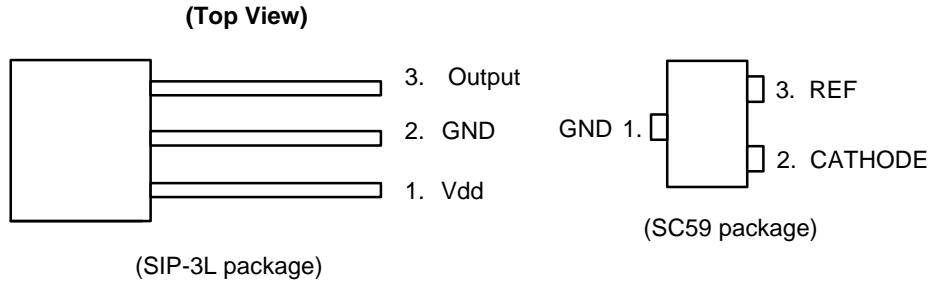
Name	P/I/O	Pin #	Description
Vdd	P/I	1	Power Supply Input
GND	P	2	Ground
Output	O	3	Output Pin

Ordering Information

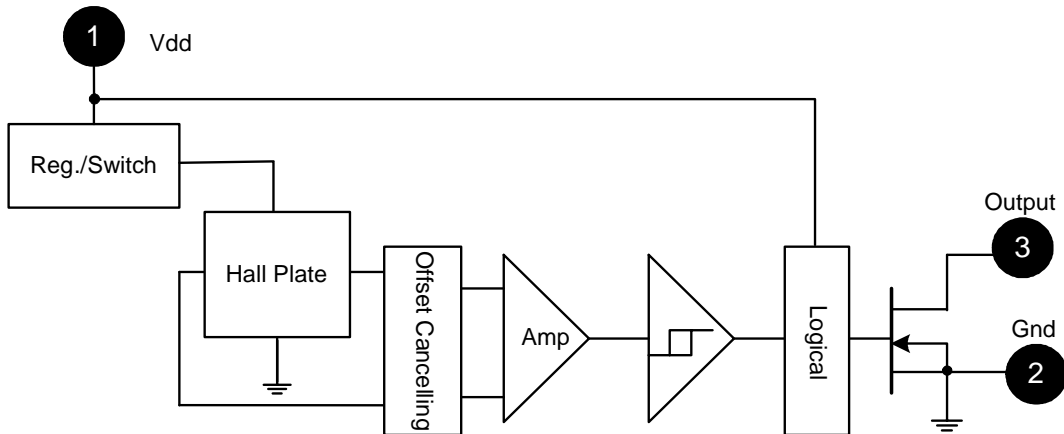


Note: 1. RoHS revision 13.2.2003. Glass and High Temperature Solder Exemptions Applied, see *EU Directive Annex Notes 5 and 7*.
 2. Pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.

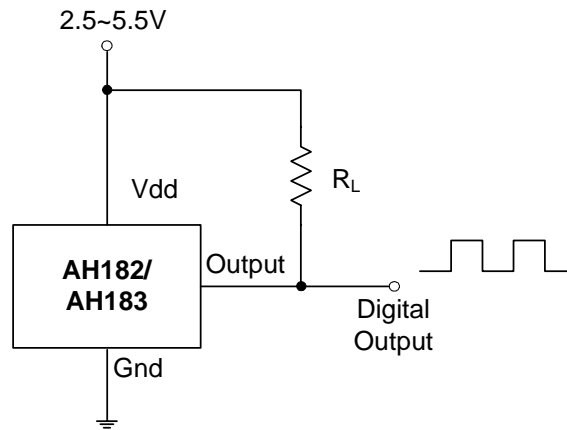
Pin Assignments



Block Diagram



Typical Circuit



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

Characteristics	Symbol	Values	Unit	
Supply Voltage	V_{dd}	7	V	
Magnetic Flux Density	B	Unlimited		
Operating Temperature Range	T_a	-40 to +85	$^\circ\text{C}$	
Storage Temperature Range	T_s	-65 to +150	$^\circ\text{C}$	
Package Power Dissipation	P_D	SIP-3L	550	mW
		SC59	230	mW
Maximum Junction Temp	T_{jc}	150	$^\circ\text{C}$	
Output current	I_o	10	mA	

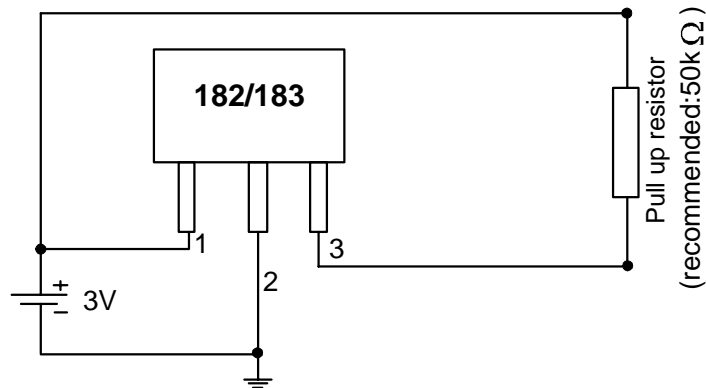
Recommended Operating Conditions ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Conditions	Rating	Unit
Supply Voltage	V_{dd}	Operating	2.5-5.5	V

Electrical Characteristics ($T_a = +25^{\circ}\text{C}$, $V_{dd} = 3\text{V}$)

Characteristic	Symbol	Conditions	Min	Typ	Max	Unit
Output On Voltage	V_{out}	$I_{out} = 1\text{mA}$	-	0.1	0.3	V
Output Leakage Current	I_{off}	$V_{out} = 5.5\text{V}$, $B < B_{rp}$	-	<0.1	1	μA
Supply Current	$I_{dd(en)}$	Chip enable	-	-	2.0	mA
	$I_{dd(dis)}$	Chip disable	-	-	8.0	μA
	$I_{dd(ave)}$	AH182: average supply current	-	5	10	μA
	$I_{dd(ave)}$	AH183: average supply current	-	280	500	μA
Awake Time	T_{awake}		-	50	100	μs
Period	T_{period}	AH182	-	50	100	ms
		AH183	-	200	400	μs
Duty Cycle	D.C.	AH182	-	0.1	-	%
		AH183	-	25	-	%

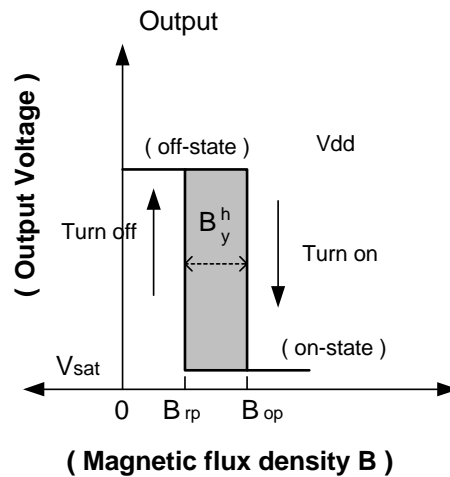
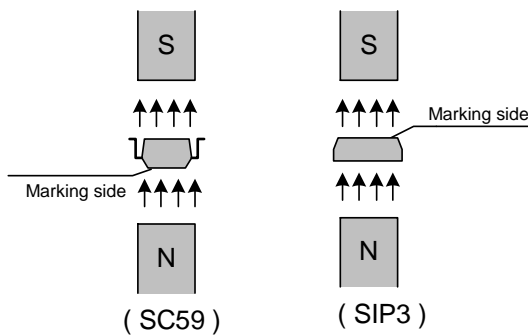
Test Circuit



Magnetic Characteristics ($T_a = +25^\circ\text{C}$, $V_{dd} = 3\text{V}$)

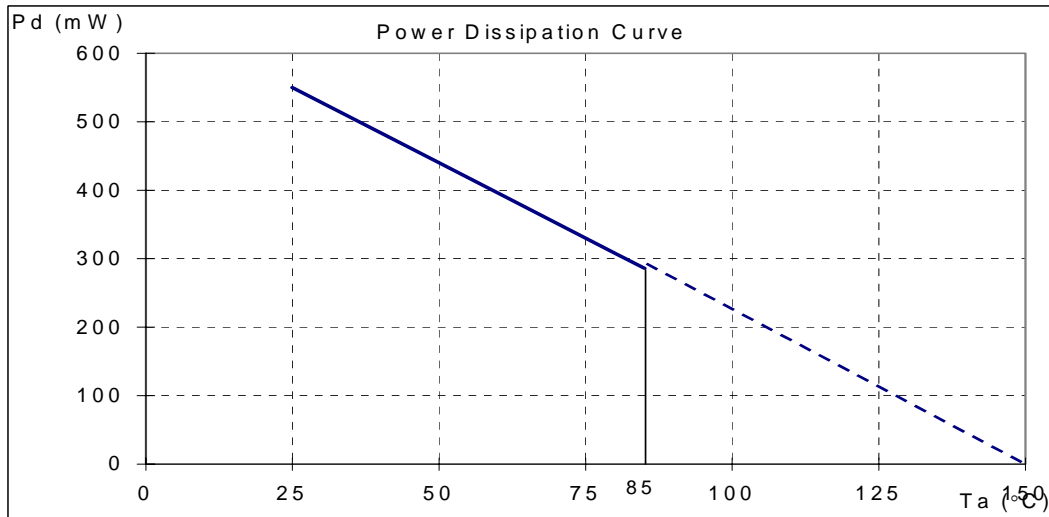
(1mT = 10 Gauss)

Characteristic	Symbol	Min	Typ	Max	Unit
Operation Point	Bop	--	40	60	Gauss
Release Point	Brp	10	30	--	
Hysteresis	Bhy (Bop-Brp)	--	10	--	



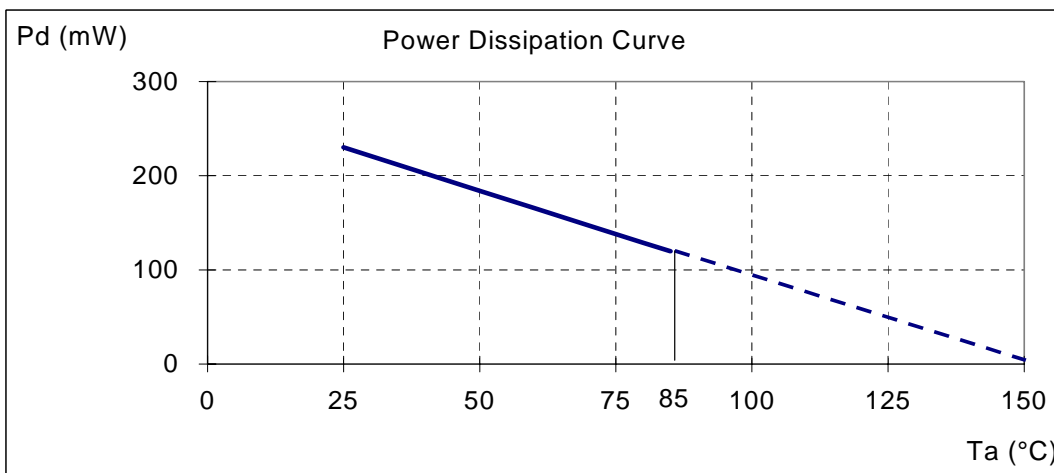
Performance Characteristics (SIP-3L)

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



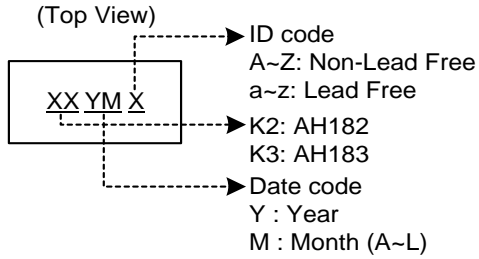
Performance Characteristics (SC59)

Ta (°C)	25	50	60	70	80	85	90	100	110	120	125	130	140	150
Pd (mW)	230	184	166	147	129	120	110	92	74	55	46	37	18	0

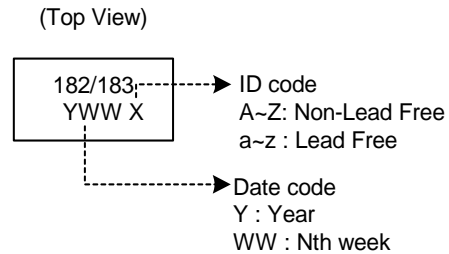


Marking Information

(1) SC59

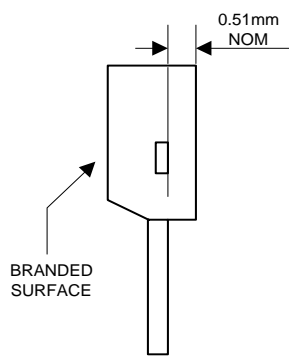


(2) SIP-3L

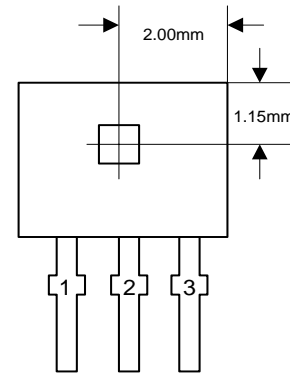


Package Information

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

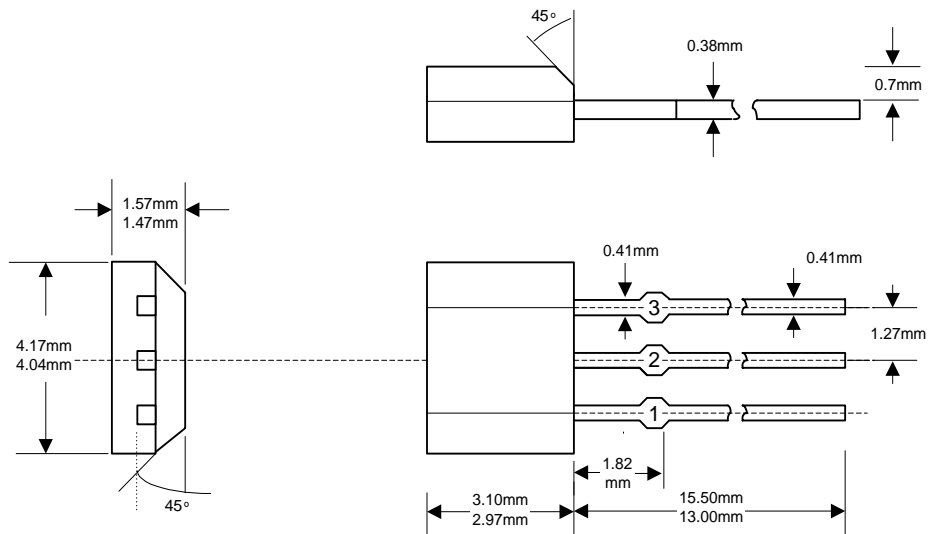


Active Area Depth



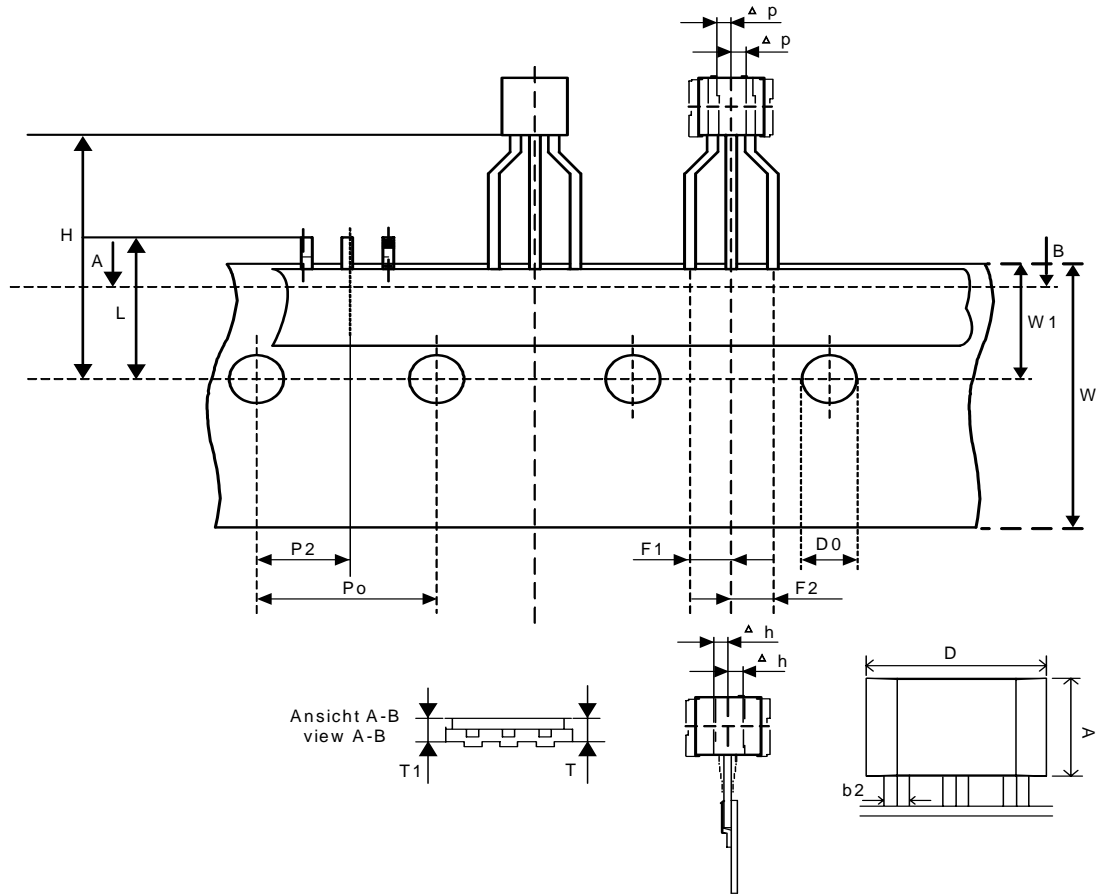
Sensor Location

Package Dimension



Package Information (Continued)

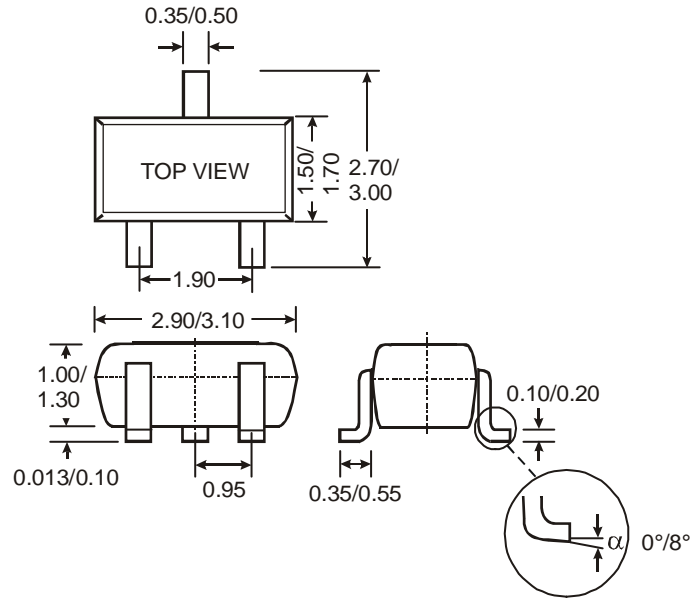
(2) Package Type: Spread leg SIP-3L for Ammo-Pack only



Symbol	Dimensions in Millimeters			Dimensions in Inches		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	2.80	3.00	3.20	0.110	0.118	0.125
D	3.90	4.10	4.30	0.153	0.161	0.169
b2	0.33	0.38	0.42	0.012	0.014	0.016
D0	3.80	4.00	4.20	0.149	0.157	0.165
F1	2.35	2.55	2.75	0.092	0.100	0.108
F2	2.45	2.55	2.85	0.096	0.100	0.112
H	-	-	20	-	-	0.787
Δh	-	-	1	-	-	0.039
L	-	-	11	-	-	0.433
P0	12.2	12.7	13.2	0.480	0.5	0.519
P2	5.95	6.35	6.75	0.234	0.25	0.265
Δp	-	-	1	-	-	0.039
T	-	-	0.55	-	-	0.021
T1	-	-	1.42	-	-	0.055
W	17.5	18.0	18.5	0.688	0.708	0.728
W1	5.5	6.0	6.5	0.216	0.236	0.255

Package Information (Continued)

(3) Package Type: SC59



IMPORTANT NOTICE

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. Diodes Incorporated does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others. The user of products in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on our website, harmless against all damages.

LIFE SUPPORT

Diodes Incorporated products are not authorized for use as critical components in life support devices or systems without the expressed written approval of the President of Diodes Incorporated.