

This Anachip version datasheet is replaced with Diodes Inc. datasheet AH182/AH183



AH182/AH183

Low power Hall Effect Switch

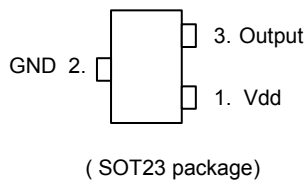
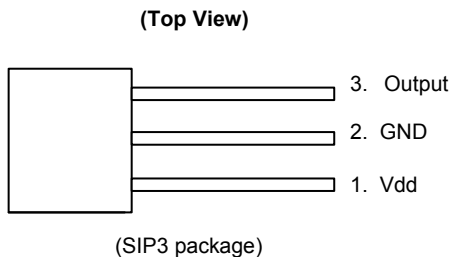
■ Features

- 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
- SIP3/SOT23 package

■ Applications

- Cover detector
- Speed measurement
- Home safety

■ Pin Assignments



■ General Description

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

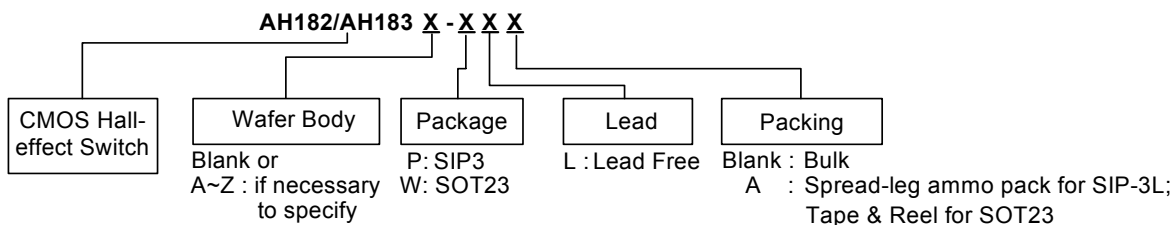
The south pole of sufficient strength will turn the output on in SIP3 but the north pole of sufficient strength will turn the output on in SOT23 package. The output will be turned off under no magnetic field.

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

■ 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

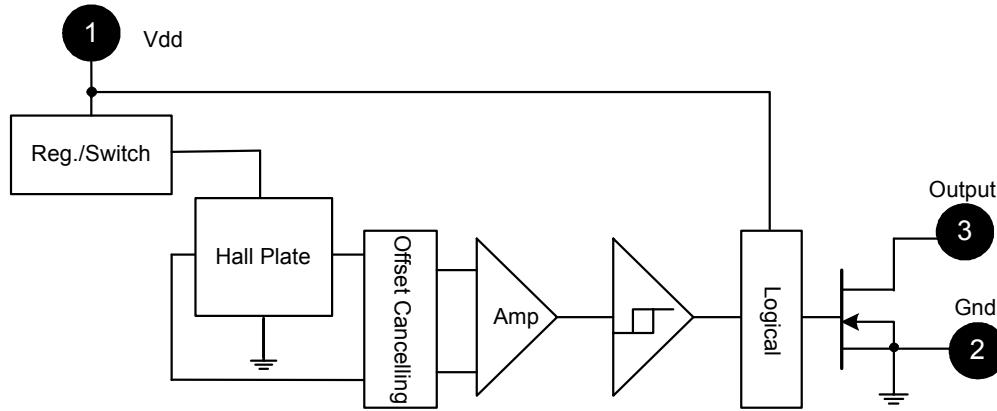




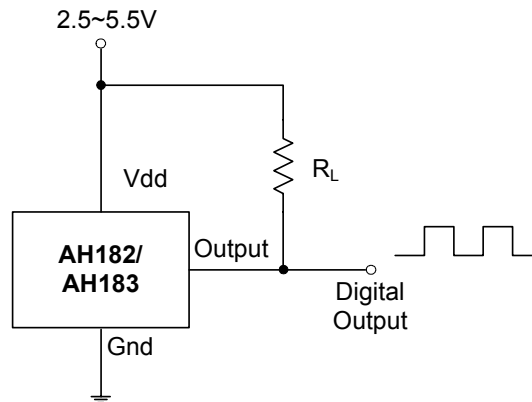
AH182/AH183

Low power Hall Effect Switch

■ Block Diagram



■ Typical Circuit



■ Absolute Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Values	Unit	
Supply Voltage	Vdd	7	V	
Magnetic Flux Density	B	Unlimited		
Operating Temperature Range	Ta	-40 to +85	°C	
Storage Temperature Range	Ts	-65 to +150	°C	
Package Power Dissipation	PD	SIP3	550	mW
		SOT23-3	230	mW
Maximum Junction Temp	Tjc	150	°C	
Output current	Io	10	mA	

[This Anachip version datasheet is replaced with Diodes Inc. datasheet AH182/AH183](#)



AH182/AH183

Low power Hall Effect Switch

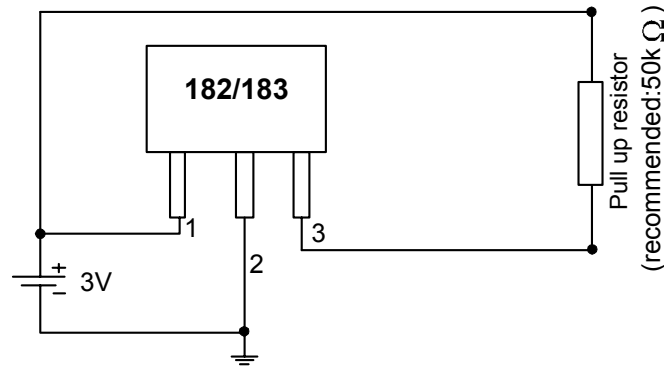
■ Recommended Operating Conditions (Ta = 25°C)

Paramter	Symbol	Conditions	Rating	Unit
Supply Voltage	Vdd	Operating	2.5~5.5	V

■ Electrical Characteristics (Ta = +25°C, Vdd = 3V)

Characteristic	Symbol	Conditions	Min	Typ	Max	Unit
Output On Voltage	Vout	Iout=1mA	-	0.1	0.3	V
Output Leakage Current	Ioff	Vout=5.5V, B < Brp	-	<0.1	1	μA
Supply Current	Idd(en)	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
Awake Time	Tawake		-	50	100	μs
Period	Tperiod	AH182	-	50	100	ms
		AH183	-	200	400	us
Duty Cycle	D.C.	AH182	-	0.1	-	%
		AH183	-	25	-	%

■ Test Circuit



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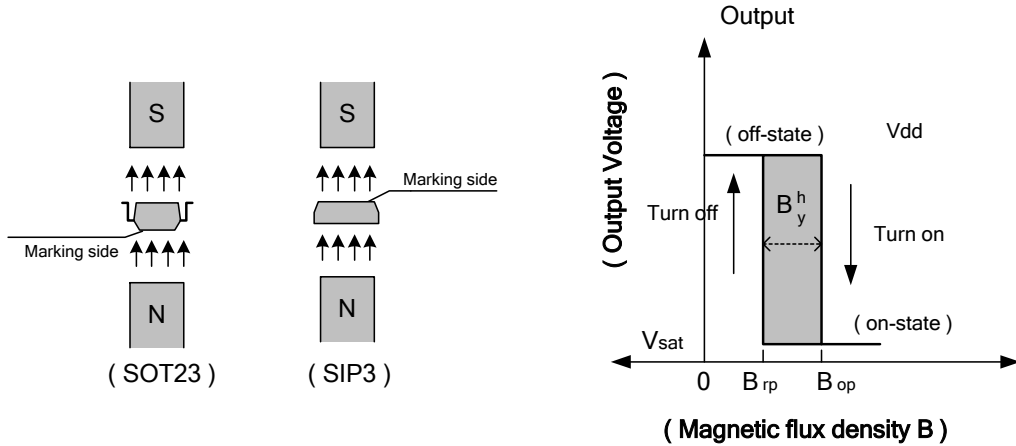
AH182/AH183

Low power Hall Effect Switch

■ Magnetic Characteristics (Ta=+25°C, Vdd=3V)

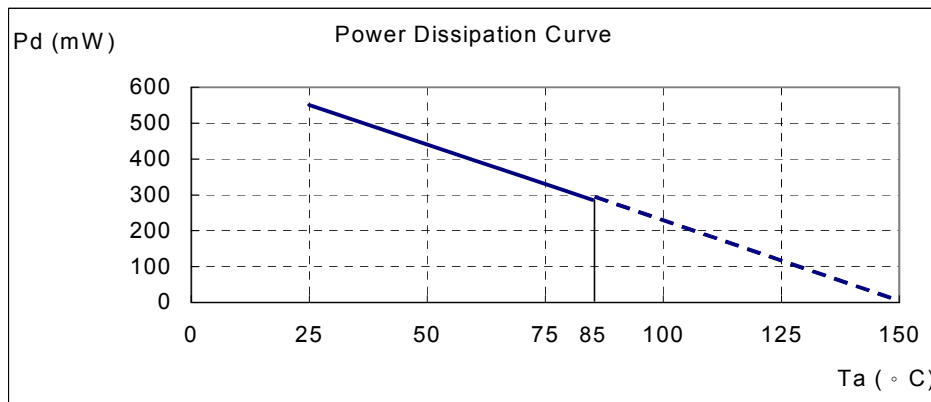
(1mT=10 Gauss)

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



■ Performance Characteristics (SIP3)

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



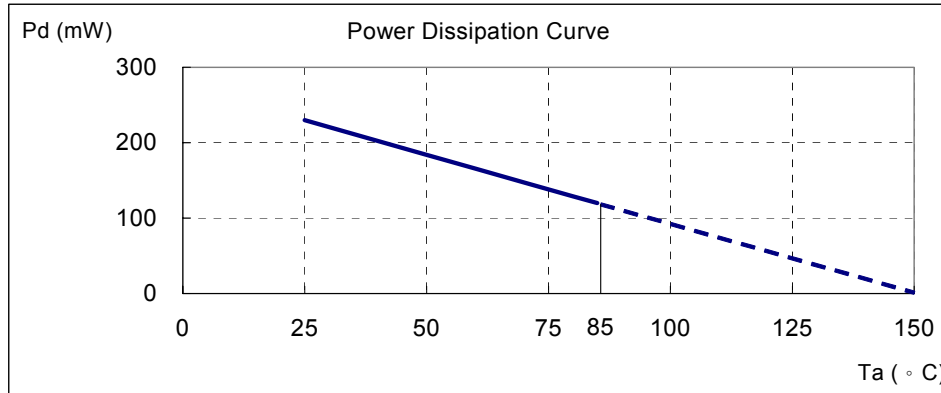


AH182/AH183

Low power Hall Effect Switch

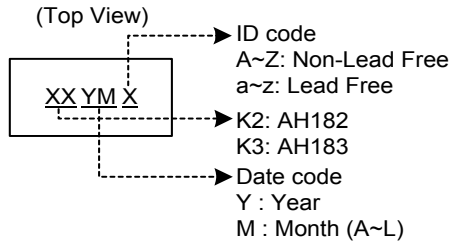
■ Performance Characteristics (Continued) (SOT23-3)

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

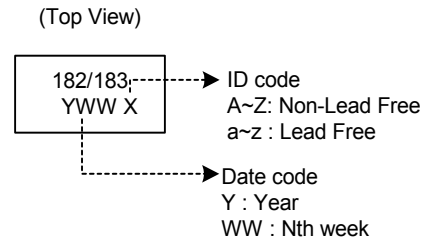


■ Marking Information

(1) SOT23



(2) SIP3



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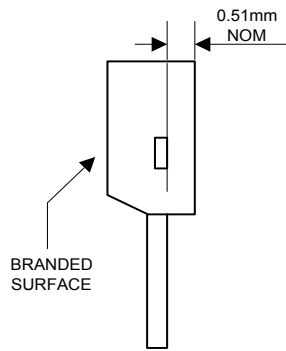


AH182/AH183

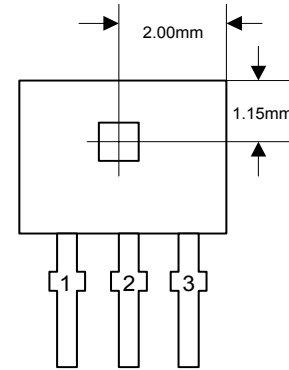
Low power Hall Effect Switch

■ Package Information (unit: mm)

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

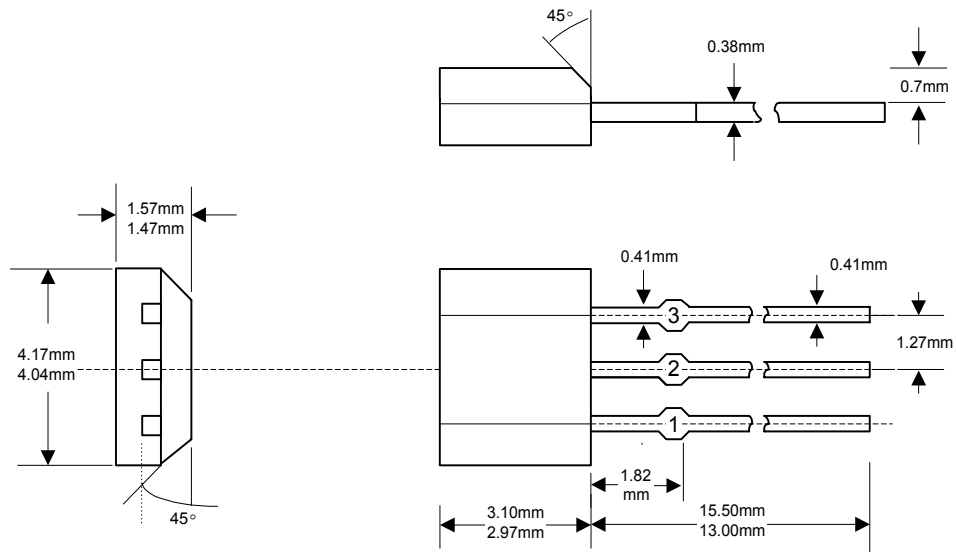


Active Area Depth



Sensor Location

Package Dimension

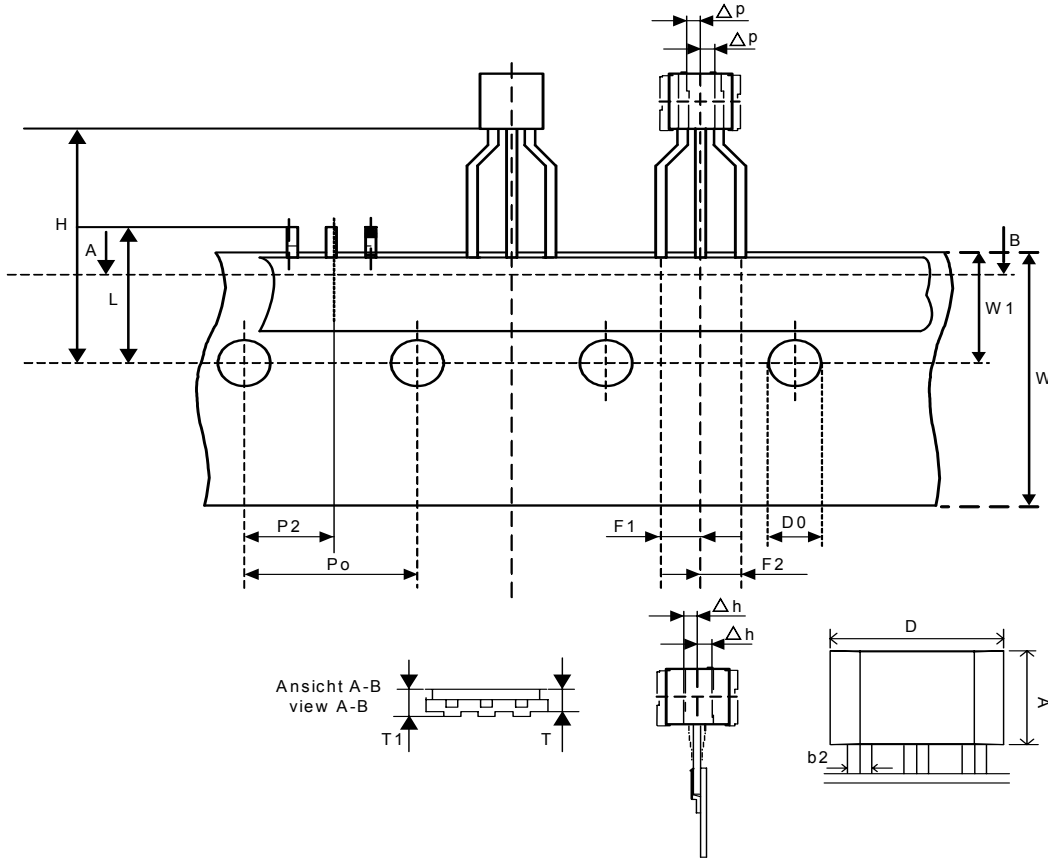




Low power Hall Effect Switch

■ **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

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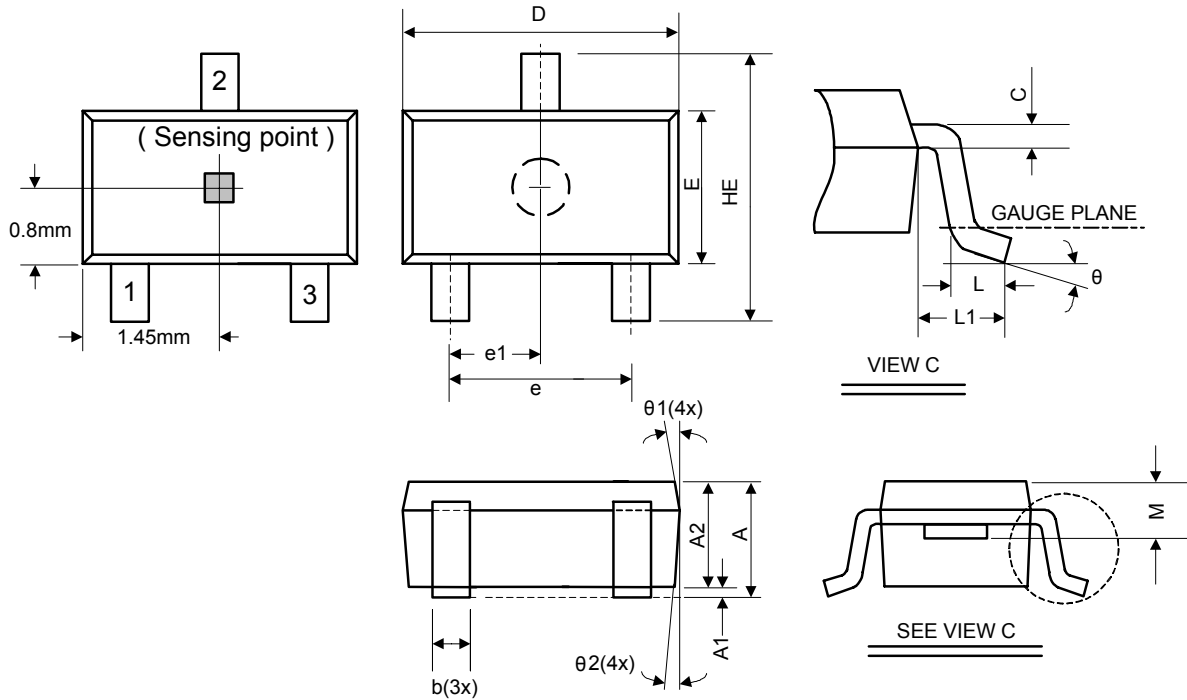


AH182/AH183

Low power Hall Effect Switch

■ Package Information (Continued)

(3) Package Type: SOT23-3L



Symbol	Dimensions In Millimeters			Dimensions In Inches		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	1.05	-	1.35	0.041	-	0.053
A1	0.05	-	0.15	0.002	-	0.006
A2	1.00	1.10	1.20	0.039	0.043	0.047
b	0.25	-	0.50	0.010	-	0.020
C	0.08	-	0.20	0.003	-	0.008
D	2.70	2.90	3.00	0.106	0.114	0.118
E	1.50	1.60	1.70	0.059	0.063	0.067
HE	2.60	2.80	3.00	0.102	0.110	0.118
L	0.30	-	0.60	0.012	-	0.024
L1	0.50	0.60	0.70	0.020	0.024	0.028
M	0.73	0.78	0.83	0.029	0.031	0.033
e	1.80	1.90	2.00	0.071	0.075	0.079
e1	0.85	0.95	1.05	0.033	0.037	0.041
theta	0°	5°	10°	0°	5°	10°
theta1	3°	5°	7°	3°	5°	7°
theta2	6°	8°	10°	6°	8°	10°