

Features

- Micropower operation
- Operation with North or South Pole
- 1.65 to 3.3V battery operation
- Chopper stabilized
 - Superior temperature stability
 - Extremely Low Switch-Point Drift
 - Insensitive to Physical Stress
- Good RF noise immunity
- -40°C to 85°C operating temperature
- ESD > 4KV in human body mode
- SOT553: Available in "Green" Molding Compound (no Br, Sb)
- Lead Free Finish/RoHS Compliant (Note 1)

General Description

AH1887 is with two Hall effect plates and dual CMOS output driver, mainly designed for battery-powered, hand-held equipment (such as Cellular and Cordless Phone, PDA). The total operation power is down to 15uW in the 1.8V supply. Either north or south pole of sufficient strength will turn the output on. The output will be turned off under no magnetic field.

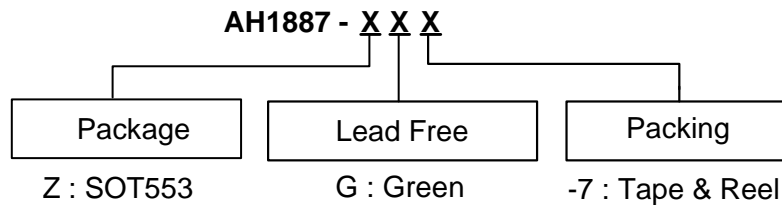
While the magnetic flux density (**B**) is larger than operate point **Bop(s)**, the output1 will be turned on (low), the output is held until **B** is lower than release point **Brp(s)**, then turned off(high).

While the magnetic flux density (**B**) is larger than operate point **Bop(n)**, the output2 will be turned on (low), the output is held until **B** is lower than release point **Brp(n)**, then turned off(high).


Applications

- Cellular phone
- PDA
- Cordless phone

Ordering Information



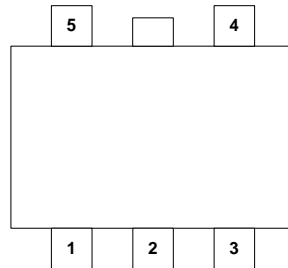
Note: 1. RoHS revision 13.2.2003. Glass and High Temperature Solder Exemptions Applied, see *EU Directive Annex Notes 5 and 7*.

Device	Package Code	Packaging (Note 2)	7" Tape and Reel	
			Quantity	Part Number Suffix
 AH1887-Z	Z	SOT553	3000/Tape & Reel	-7

Note: 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 Assignment

(Top View)



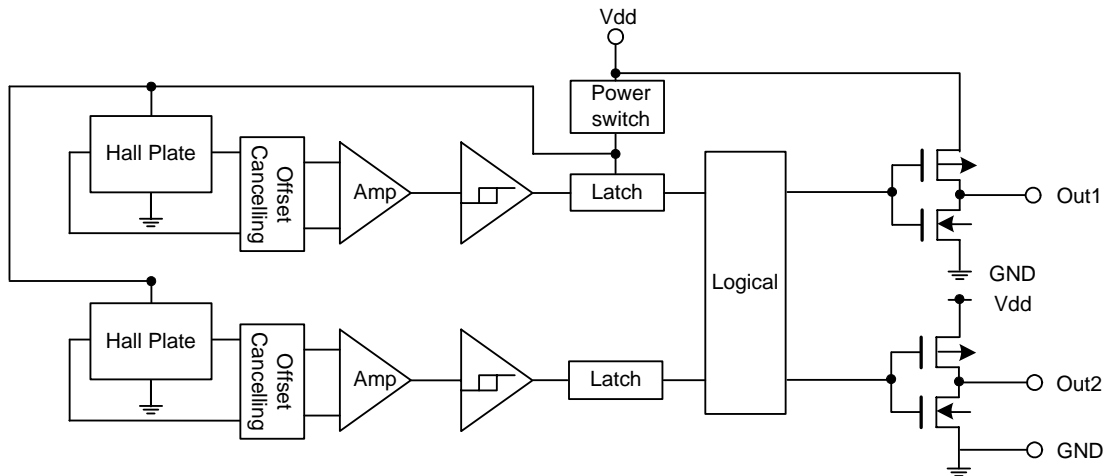
SOT553

Pin Descriptions

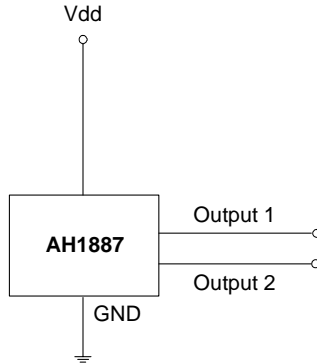
Name	P/I/O	Pin #	Description
Out 2 (Note 3)	O	1	Output Pin (active Low)
GND	P/I	2	Ground
N.C.		3	No Connection
Vdd	P/I	4	Power Supply Voltage
Out 1 (Note 3)	O	5	Output Pin (active Low)

Note: 3. Output1 responds to South pole; Output2 responds to North pole.

Block Diagram



Typical Circuit



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

Symbol	Characteristics	Values	Unit
Vdd	Supply voltage	5	V
B	Magnetic flux density	Unlimited	
T_A	Operating Temperature Range	-40 to +85	$^\circ\text{C}$
T_s	Storage Temperature Range	-65 to +150	$^\circ\text{C}$
PD	Package Power Dissipation	230	mW
T_j	Maximum Junction Temperature	150	$^\circ\text{C}$

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

Symbol	Parameter	Conditions	Rating	Unit
Vdd	Supply Voltage	Operating	1.65~3.3	V

Electrical Characteristics ($T_A = +25^\circ\text{C}$, Vdd = 1.8V; unless otherwise specified)

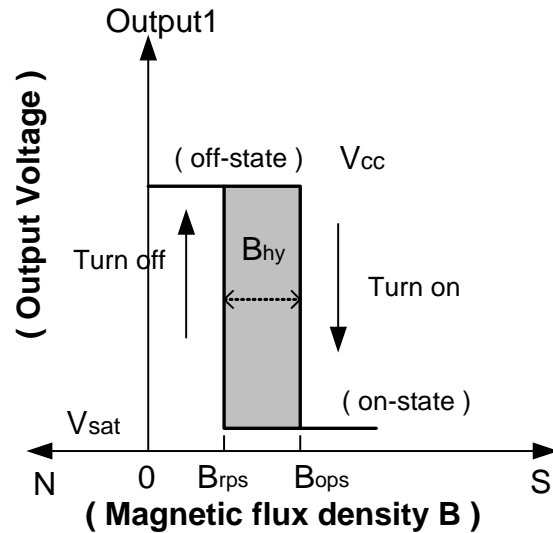
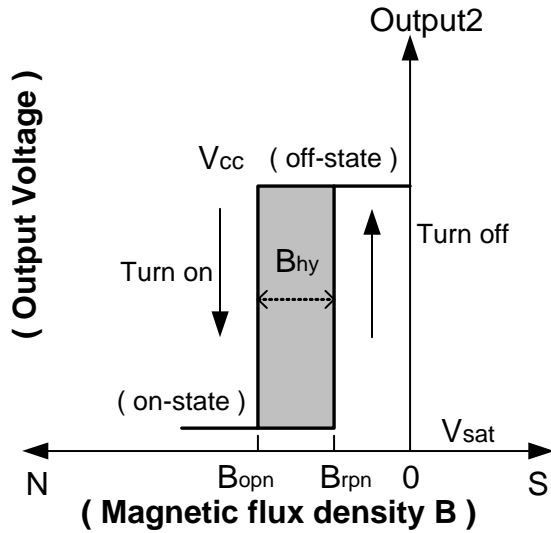
Symbol	Characteristic	Conditions	Min	Typ	Max	Unit
V_{OH}	Output On Voltage (High side)	$I_O = -0.5\text{mA}$	Vdd-0.2	-	-	V
V_{OL}	Output On Voltage (Low side)	$I_O = 0.5\text{mA}$	-	-	0.2	V
I_{off}	Output Leakage Current	Output off	-	<0.1	1	μA
$I_{dd(en)}$	Supply Current	Chip enable	-	2	4	mA
$I_{dd(dis)}$		Chip disable	-	5	8	μA
$I_{dd(avg)}$		average supply current	-	7	12	μA
T_{awake}	Awake Time		-	50	100	μs
T_{period}	Period		-	50	100	ms
D.C.	Duty Cycle		-	0.1	-	%

Magnetic Characteristics (TA = 25°C, Vdd = 1.8V~3.0V)

(1mT=10 Gauss)

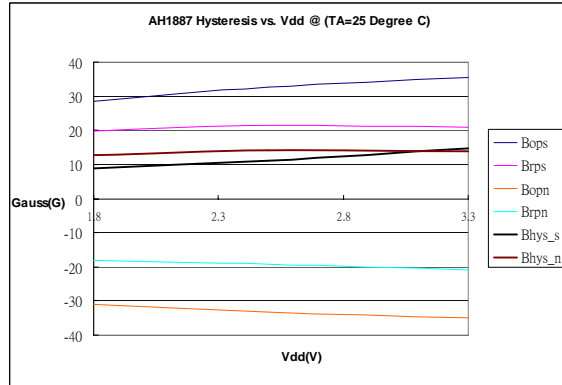
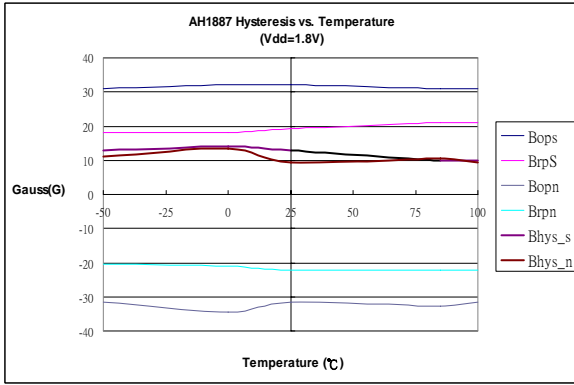
Symbol (Note 4)	Characteristic (Note 5)	Min	Typ	Max	Unit
Bops(south pole to brand side)	Operate Point	-	35	50	Gauss
Bopn(north pole to brand side)		-50	-35	-	
Brps(south pole to brand side)	Release Point	6	20	-	
Brpn(north pole to brand side)		-	-20	-6	
Bhy(Bopx - Brpx)	Hysteresis	3	15	-	

- Notes: 4. Typical data is at Ta = 25°C, Vdd = 3V, and for design information only.
 5. Bops & Brps for Output 1 responds to South pole; Bopn & Brpn for Output 2 responds to North pole.
 6. Operate point and release point will vary with supply voltage and operating temperature.

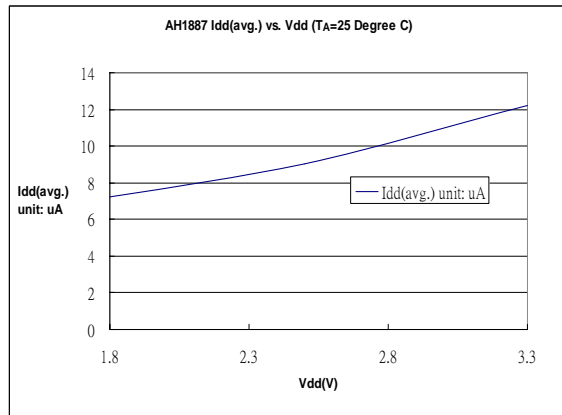
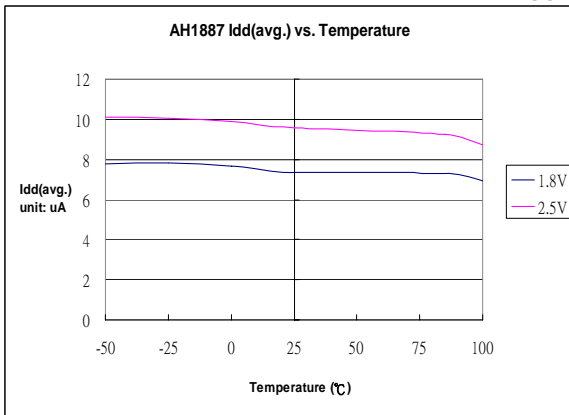


Typical Operating Characteristics

Switching Point

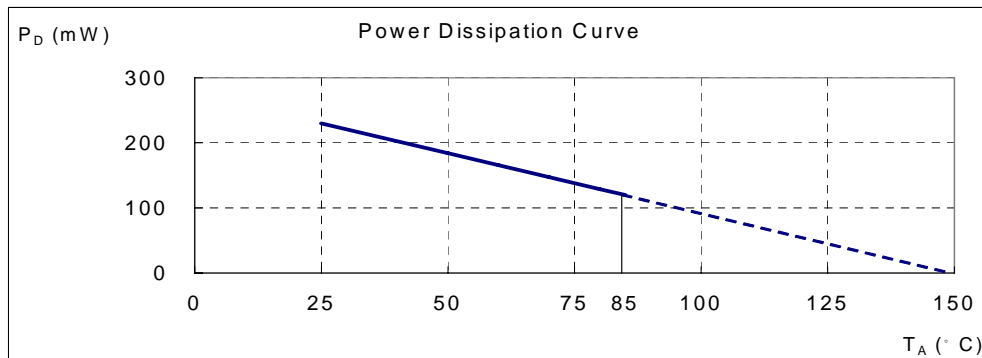


Supply Current



Performance Characteristics

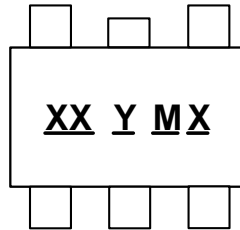
T _A (°C)	25	50	60	70	80	85	90	100	110	120	130	140	150
P _D (mW)	230	184	166	147	129	120	110	92	74	55	37	18	0



Marking Information

(1) SOT553

(Top View)

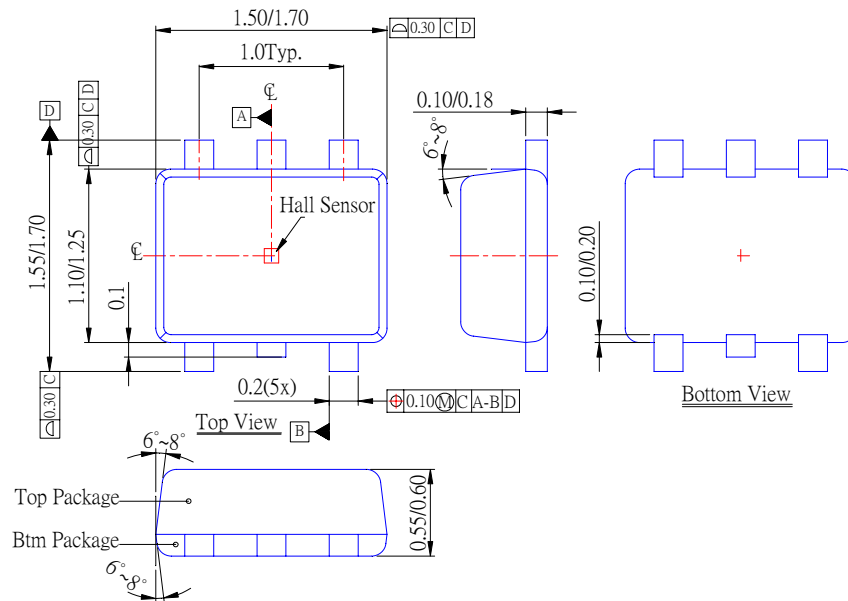


XX : KU: AH1887
Y : Year 0~9
M : Month A~L
X : Internal code
 A~Z: Green

Part Number	Package	Identification Code
AH1887	SOT553	KU

Package Information (All Dimensions in mm)

(1) Package Type: SOT553



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