

#### **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**

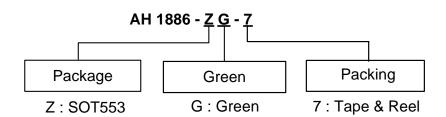
AH1886 is with two Hall effect plates and dual CMOS output driver, mainly designed for battery–powered, hand-held equipment (such as Cellular and Cordless Phone, PDA). The total operation power is down to 15uW in the 1.8V supply. Either north or south pole of sufficient strength will turn the output1 on. The output1 will be turned off under no magnetic field.

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

# **Applications**

- Cellular phone
- PDA
- Cordless phone

## **Ordering Information**

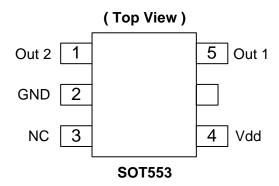


	Device	Package	Packaging	7" Tape and Reel				
	Device	Code	(Note 2)	Quantity	Part Number Suffix			
Pb,	AH1886-ZG-7	Z	SOT553	3000/Tape & Reel	-7			

Notes: 1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see EU Directive 2002/95/EC Annex Notes.
2. Pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <a href="http://www.diodes.com/datasheets/ap02001.pdf">http://www.diodes.com/datasheets/ap02001.pdf</a>.



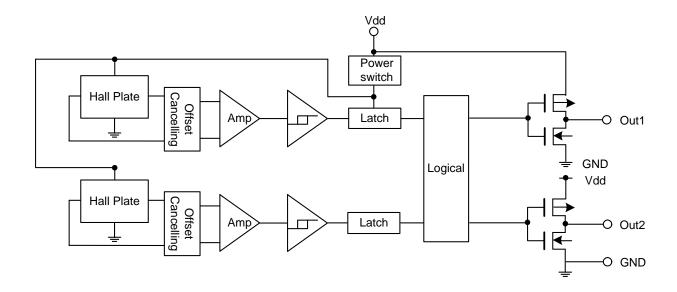
# **Pin Assignment**



# **Pin Descriptions**

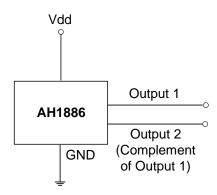
Pin Name	P/I/O	Pin#	Description
Out 2	0	1	Output Pin (Complement of Out 1)
GND	P/I	2	Ground
NC		3	No Connection
Vdd	P/I	4	Power Supply Voltage
Out 1	0	5	Output Pin (active Low)

# **Block Diagram**





# **Typical Circuit**



# Absolute Maximum Ratings (at TA = 25°C)

Symbol	Characteristics	Values	Unit		
Vdd	Supply voltage	5	V		
В	Magnetic flux density	Unlimited			
TA	Operating Temperature Range	-40 to +85	°C		
Ts	Storage Temperature Range	-65 to +150	°C		
PD	Package Power Dissipation	230	mW		
T <sub>J</sub>	Maximum Junction Temperature	150	°C		

# **Recommended Operating Conditions** (TA = 25°C)

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



#### **Electrical Characteristics** (TA = +25°C, Vdd = 1.8V; unless otherwise specified)

Symbol	Characteristic	Conditions	Min	Тур.	Max	Unit
V <sub>OH</sub>	Output On Voltage (High side)	$I_0 = -0.5 \text{mA}$	Vdd-0.2	-	-	V
V <sub>OL</sub>	Output On Voltage (Low side)	$I_0 = 0.5 \text{mA}$	-	-	0.2	V
loff	Output Leakage Current	Output off	-	<0.1	1	μA
Idd(en)		Chip enable	-	2	4	mA
Idd(dis)	Supply Current	Chip disable	-	5	8	uA
Idd(avg)		average supply current	-	7	12	uA
Tawake	Awake Time		-	50	100	μs
Tperiod	Period		-	50	100	ms
D.C.	Duty Cycle		-	0.1	-	%

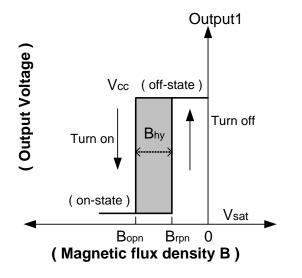
#### **Magnetic Characteristics** (TA = 25°C, Vdd = 1.8V~3.0V) (Note 3)

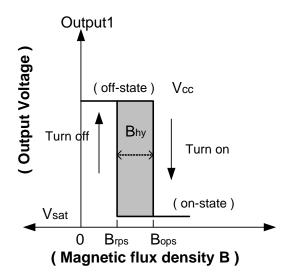
(1mT=10 Gauss)

Symbol	Characteristic (Note 4)	Min	Тур.	Max	Unit
Bops(south pole to brand side)	Operate Point	ı	37	55	
Bopn(north pole to brand side)	Operate Point	-55	-37	-	Gauss
Brps(south pole to brand side)	Dalagaa Daint	6	29	-	
Brpn(north pole to brand side)	Release Point	-	-29	-6	• • • • • • • • • • • • • • • • • • • •
Bhy( Bopx - Brpx )	Hysteresis	3	8	-	

Notes:

Typical data is at Ta = 25°C, Vdd = 3V, and for design information only.
 Operate point and release point will vary with supply voltage and operating temperature.

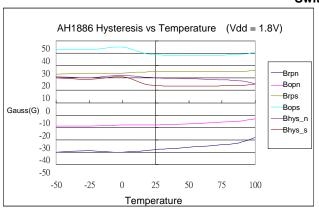


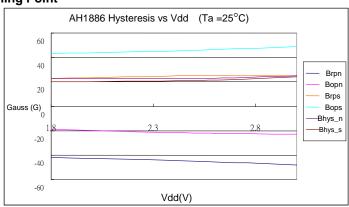




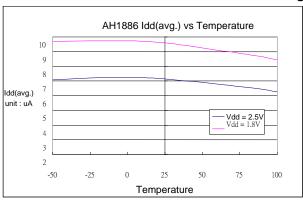
# **Typical Operating Characteristics**

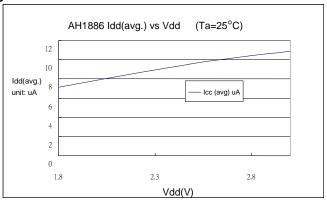
### **Switching Point**





### **Supply Current**

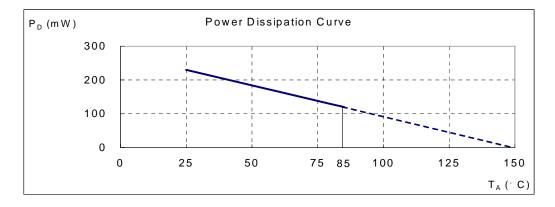






## **Performance Characteristics**

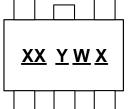
Ī	T <sub>A</sub> (°C)	25	50	60	70	80	85	90	100	110	120	130	140	150
ſ	P <sub>D</sub> (mW)	230	184	166	147	129	120	110	92	74	55	37	18	0



# **Marking Information**

(1) SOT553





 $\frac{XX}{Y}: Identification Code \\ \underline{Y}: Year: 0~9$ 

<u>W</u>: Week: A~Z: 1~26 week; a~z: 27~52 week; z represents 52 and 53 week

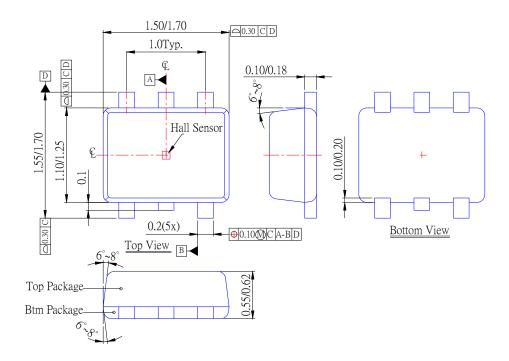
X : A~Z : Green

Part Number	Package	Identification Code		
AH1886	SOT553	KT		



# Package Information (All Dimensions in mm)

#### (1) Package Type: SOT553



#### 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.