Diodes, Inc.'s New Product Announcement, December 5, 2007

Micropower Omnipolar Hall Effect Sensor Switches for the Portable Consumer Electronics Market

Designed for Battery-powered Contactless Switch Applications: The AH188x series targets the increasing demand for portable contactless switch applications, such as clam shell style cell phones, notebook PCs, and PDAs.

Benefits:

The devices use a unique scheme of two Hall plates to detect Magnetic Polarity.

- The Omnipolar nature allows both plates to respond effortlessly to the presence of a magnetic field of either North or South pole.
- This eliminates the need to orient the magnet's polarity during manufacturing.

AH188X Series Overview:

AH188X Series consists of the parts listed below (provided with data sheet links):

- **AH1883** http://www.diodes.com/datasheets/AH1883.pdf
- **AH1884** http://www.diodes.com/datasheets/AH1884.pdf
- **AH1885** http://www.diodes.com/datasheets/AH1885.pdf
- **AH1886** http://www.diodes.com/datasheets/AH1886.pdf
- **AH1887** http://www.diodes.com/datasheets/AH1887.pdf

The AH188x series offers both dual and single outputs addressing the broad requirement of today's sophisticated portable devices.

- **AH1883** -- offers a single output well suited for notebook cover switch applications.
- **AH1884 (Released in June), AH1885** and **AH1886** -- offer dual outputs with a wide selection of magnetic operating (Bop) and release (Brp) points in support of clam shell style cell phones.
- **AH1887** -- offers dual polarity specific outputs, active high or active low for use in slide style cell phones or 3G phones with trip points for multiple screens and keypads.

The AH188x devices operate from 1.65V to 3.3V making them ideal for single cell battery applications.

Availability:

- **Samples: NOW Available!**
- **Production Quantity Lead Time:** 8 - 10 weeks
- **Data Sheet Available *NOW* at: www.diodes.com**

Other Available Omnipolar Hall Switches:

- AH180 – Single Output – Metering or Cover switch for White Goods
  - **New** AH180-FJG-7 in **DFN2020-3** package Now available
- AH1801 – Single Inverted Output – On without magnet – Off with magnet
  - **New** AH1801-FJG-7 in **DFN2020-3** package Now available
- AH1802 – Single Output Ultra Sensitivity – Track Ball or Cover Switch
- AH1803 – Single Output Higher Sensitivity – Position sensing

Key Features:

Supply Voltage Range: 1.65V to 3.3V for AH188X Series:

- Suitable for use in mobile or handheld devices powered by a wide range of batteries from the 1-cell lithium-ion type to the 2-cell alkaline/zinc type
- Meets Industrial Temperature Range: -40°C to +85°C

Chopper Stabilized:

- Higher Reliability – improved stability through the use of dynamic offset cancellation, which reduces the residual offset voltage normally caused by physical stress to the device or from temperature dependencies and thermal stress.

Micro power operation:

- Internal oscillator maintains a 0.1% duty cycle for on-time using the unique innovative clocking scheme that reduces power consumption and extends battery life.

Magnetic sensitivity:

- Custom Sensitivity is available for Operating point (Bop), Release point (Brp) and Hysteresis (Bhy).

Competition:

AH1883	ROHM BU52011HFV	Pin-for-pin
AH1884/5/6	ROHM BU52014HFV	Pin-for-pin Reference with more Sensitivity
AH1887	ROHM BU52014HFV	Pin-for-pin
AH180-FJ	Allegro A3212EEL	Pin-for-pin
AH1801-FJ	Allegro A3211EEL	Pin-for-pin

Package Options:

- **AH188X-ZG-7** SOT-553 – RoHs Compliant with Green Compound

Ordering Information:

AH188X - X X X

Package	Lead Free	Packing
Z : SOT553	G : Green	-7 : Taping

Competitive Comparison Matrix

Part Number	Product Type	Operating Voltage (V)	TYP Average Supply Current (µA)	Operating Temperature (°C)	Operating Point Bop (Gauss)	Release Point (Gauss)	Package Outline
AH1883	CMOS Output Omnipolar	1.65 to 3.3	7	-40 ~ 85	Bops <55 Bopn >-55	Brps>6 Brpn<-6	*SOT553
BU52011 HFV Rohm	CMOS Output Omnipolar	1.65 to 3.3	5	-40 ~ 85	Bops <50 Bopn >-50	Brps>6 Brpn<-6	HVSOF5

*Note: HVSOF5 and SOT553 are pin to pin compatible.

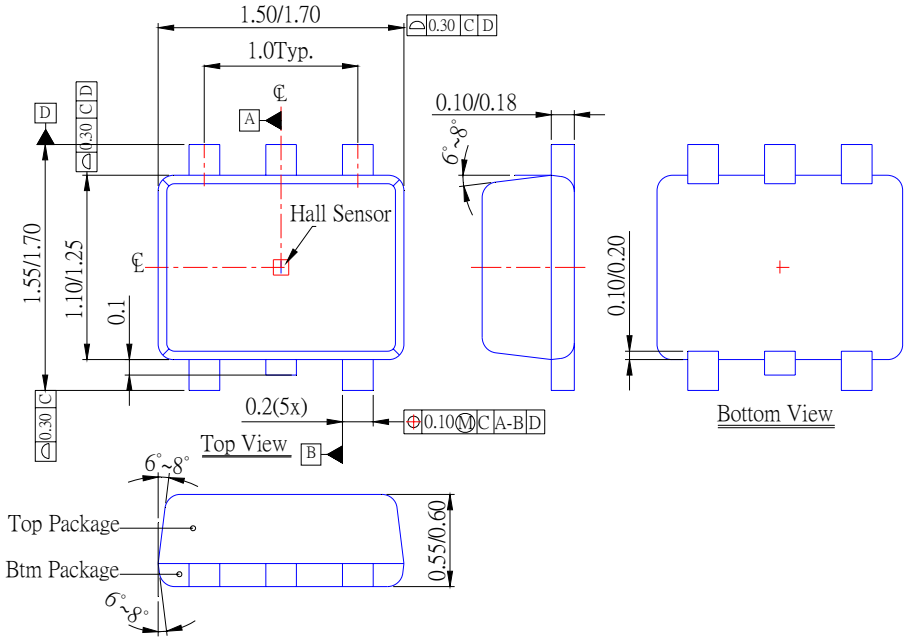
Part Number	Product Type	Operating Voltage (V)	TYP Average Supply Current (µA)	Operating Temperature (°C)	Operating Point Bop (Gauss)	Release Point (Gauss)	Package Outline
AH1884	Dual-Output Complementary Omnipolar	1.65 to 3.3	7	-40 ~ 85	Bops <55 Bopn >-55	Brps>15 Brpn<-15	*SOT553
AH1885	Dual-Output Complementary Omnipolar	1.65 to 3.3	7	-40 ~ 85	18<Bops <59 -18>Bopn >-59	Brps>15 Brpn<-15	*SOT553
AH1886	Dual-Output Complementary Omnipolar	1.65 to 3.3	7	-40 ~ 85	Bops <55 Bopn >-55	Brps>6 Brpn<-6	*SOT553
AH1887	Dual-Output Output 1 for S pole, output 2 for N pole Omnipolar	1.65 to 3.3	7	-40 ~ 85	Bops <50 Bopn >-50	Brps>6 Brpn<-6	*SOT553
BU52014 HFV Rohm	Dual-Output Output 1 for S pole, output 2 for N pole Omnipolar	1.65 to 3.3	5	-40 ~ 85	Bops <50 Bopn >-50	Brps>6 Brpn<-6	HVSOF5

*Note: HVSOF5 and SOT553 are pin to pin compatible.

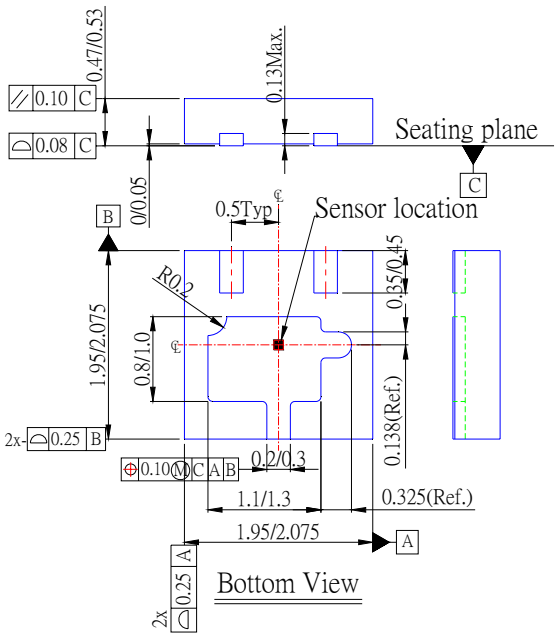
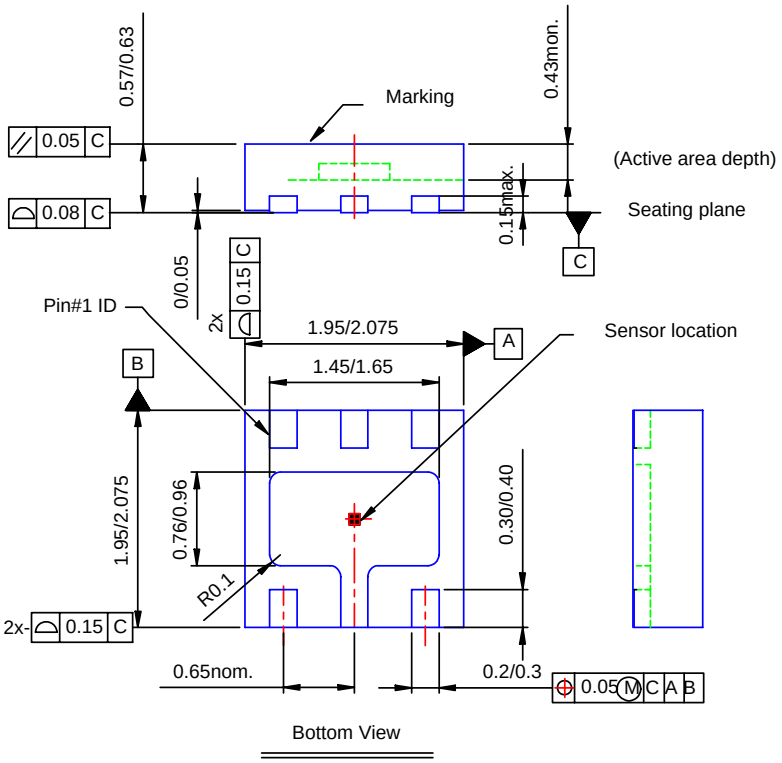
Package Outline Dimensions (mm):

Package Type:

(1) SOT-553



(2) DFN2020-3 (For AH180-FJ and AH1801-FJ)



(3) DFN2020-6 (For AH180-SN and AH1801-SN)