

AH1898 High Sensitivity Programmable Micropower Omnipolar Hall Effect Switches

The AH1898 is a sensitivity selectable micropower Omnipolar Hall-effect switch ICs specifically designed for battery powered consumer such as portable battery powered Cell phones and tablets PCs with space constraints.

Although designed for multiple applications, the AH1898 has been optimized to operate over the supply range of 1.6V to 3.6V and uses a micropower sleep function to give an average power consumption of 7.7uW typical at 1.8V.

Based on chopper stabilized architecture and a ESD rating of 8kV on the supply and output pins, the AH1898 provides a reliable and robust solution over the whole operating range.

To help achieve the smallest solution, the AH1898 has internal push-pull output structure and provides a simple sensitivity selection pin with no additional components required. It is available in the miniature low profile U-WLB0808-4 (CSP 0.81mm x 0.81mm) packages.



The Diodes Advantage

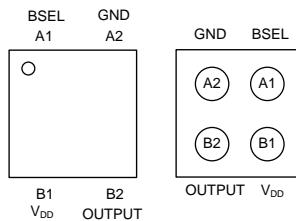
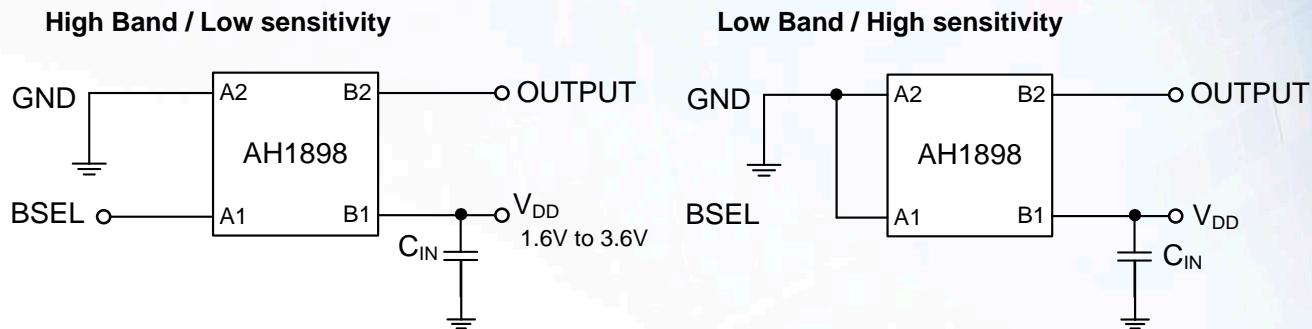
The AH1898 provides a ultra small, simple and flexible contactless switch solution for multiple applications.

- **Programmable Omnipolar Hall switch with a push-pull output**
 - Two programmable switch points provides simplicity and flexibility
 - Tight tolerance magnetic bands for a typical operate point of 35G or 60G
 - Operates with either a North or South pole
 - No external pull-up required – Minimal external component
- **Designed for portable consumer and industrial equipment**
 - Supply voltage designed for battery applications (1.6V to 3.6V)
 - Micropower operation with an average supply current of 4.3uA at 1.8V
- **High performance and reliability**
 - High sensitivity with tight operating window (less magnetic spread)
 - Chopper stabilized design to provide minimal switch point drift and superior temperature stability over temperature range of -40°C to 85°C
 - High ESD rating (Human Body Model) of 8kV on supply and output pins and 6kV on logic BSEL pin
- **Miniature solution in low profile packages**
 - Ultra small CSP package 0.81mm x 0.81mm x 0.51mm

Applications

- Cell phone flip, slide and cover
- Tablets, e-readers & ultrabook covers
- Holster and docking stations
- Handheld consoles
- Camcorders and cameras
- Contact-less switches for space constraint applications

Typical Applications Circuit



Top View

Bottom View

Pin Number	Pin Name	Function
A1	BSEL	Band Select Pin to select operating and release gauss points
A2	GND	Ground Pin
B1	V _{DD}	Power Supply Input
B2	OUTPUT	Output Pin

Electrical Characteristics

Part Number	Output	Type	Prog.	Operating Voltage (V)	Average Supply Current (uA)	Chopper Stabilized	Max. Operating Point (Bop) (Gauss)	Min Release Point (Brp) (Gauss)	Temp Range (°C)	Package Outlines
AH1898-CA4-7	Single	Push-Pull	Yes	1.6 to 3.6	4.3	Yes	LB: ±55 HB: ±80	LB: ±12 HB: ±35	-40 to 85	U-WLB0808-4

Ordering Information

Device	Packaging ⁽¹⁾	Part mark ID	Reel size	Tape width	Quantity
AH1898-CA4-7	U-WLB0808-4	B8	7"	8mm	3000

(1) "Green" mold compound with Lead Free Finish/RoHS Compliant packages.

EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. No purposely added lead. Halogen and Antimony free. Please visit our website at http://www.diodes.com/products/lead_free.html.

Product Portfolio – Omnipolar Hall Effect Switches

Part Number	Output	Type	Operating Voltage (V)	Average Supply Current (uA)	Max Operating Point (Bop) (Gauss)	Min Release Point (Brp) (Gauss)	Typical Hysteresis (Gauss)	Temp Range (°C)	Package Outlines
AH180N	Single	Open Drain	2.5 to 5.5V	8	±50	±10	10	-40 to 85	SC59 SOT553 TSOT23
AH180	Single	Open Drain	2.5 to 5.5V	8	±60	±10	15	-40 to 85	DFN2020-3 DFN2020-6 SC59, SIP-3
AH1801	Single	Open Drain	2.5 to 5.5V	8	±60	±10	10	-40 to 85	DFN2020-3 DFN2020-6 SC59
AH1802	Single	Open Drain	2.5 to 5.5V	8	±40	±10	8	-40 to 85	DFN2020-3 DFN2020-6 SC59
AH1803	Single	Open Drain	2.4 to 5.5V	8	±40	±10	10	-40 to 85	DFN2020-6 SC59
AH1822	Single	Open Drain	2.4 to 5.5V	8	±55	±10	8	-40 to 85	DFN1015-6 DFN3020-6
AH1804	Single	Push /Pull	2.5 to 3.6V	12	±60	±15	8	-40 to 85	DFN1216-4 SC59
AH1806	Single	Open Drain	2.5 to 3.6V	8	±45	±10	10	-40 to 85	SC59 ⁽¹⁾ SOT553
AH1807	Single	Open Drain	2.5 to 5.5V	8	±115	±40	10	-40 to 85	SC59 ⁽¹⁾ SOT553, SIP3
AH1808	Single	Open Drain	2.5 to 3.6V	8	±60	±10	10	-40 to 85	SC59 ⁽¹⁾ SOT553
AH1809	Single	Open Drain	2.5 to 5.5V	8	±185	±80	10	-40 to 85	SC59 ⁽¹⁾ SOT553, SIP3
AH1883	Single	Push /Pull	1.65 to 3.3V	7	±55	±6	8	-40 to 85	SOT553 U-DFN2020-3
AH1884	Dual	Push /Pull	1.65 to 3.3V	7	±55	±15	8	-40 to 85	SOT553
AH1885	Dual	Push /Pull	1.65 to 3.3V	7	±59	±15	8	-40 to 85	SOT553
AH1886	Dual	Push /Pull	1.65 to 3.3V	7	±55	±6	8	-40 to 85	SOT553
AH1887	North South	Push /Pull	1.65 to 3.3V	7	±50	±6	15	-40 to 85	SOT553
AH1888	Singl. Stnd	Push /Pull	1.65 to 3.3V	7	±79	±35	8	-40 to 85	DFN2020-3 DFN2020R-3 SOT553
	Single Inv.								
	Dual								
AH1891	Dual	Push /Pull	1.8 to 3.3V	7	+60/-50	±12	15	-40 to 85	U-WLB0808-4 (CSP package)
AH1892	Single, Prog	Push/Pull	1.6 to 3.6V	4.3	LB: ±55 HB: ±80	LB: ±12 HB: ±35	10	-40 to 85	U-WLB0707-4 (CSP package) SOT553
AH1898	Single, Prog	Push/Pull	1.6 to 3.6V	4.3	LB: ±55 HB: ±80	LB: ±12 HB: ±35	10	-40 to 85	U-WLB0808-4 (CSP package)

⁽¹⁾ The SC59 package will be available in early Q2 2013

Further Information:

Omnipolar Portfolio page:
Datasheet: AH1898

http://www.diodes.com/products/catalog/list.php?parent_id=113
<http://www.diodes.com/datasheets/AH1898.pdf>