



AH9246, AH9250 & AH9251 – Ultra-High to Medium-Sensitivity Micropower, Omnipolar Hall Effect Switches

AH9246, AH9250 and AH9251 are ultra-high to medium sensitivity, micropower, omnipolar, hall-effect switch ICs, designed for portable and battery-powered consumer equipment, home appliances and industrial applications.

Based on a single hall plate and chopper-stabilized architecture, AH9246, AH9250 and AH9251 provide reliable solutions over the whole operating range.

This family of hall-effect switches is optimized to operate over the supply range of 2.5V to 5.5V, and incorporates a micropower sleep function to give an average supply current of only 8 μ A.

AH9246, AH9250 and AH9251 have push-pull output structures, therefore an external pull up resistor is not required.

They are available in industry standard SC59 and TO92S packages.



The Diodes' Advantage

AH9246, AH9250 and AH9251 provide a highly integrated yet small, simple and flexible contactless switch solution options for multiple applications.

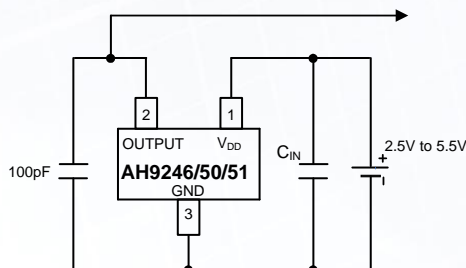
- **Omnipolar Family with Operating Switch Point Options and Internal Pull-up**
 - Operates with either a North or South pole
 - Ultra-high/ to medium-sensitivity with typical operate points: 18G(AH9246), 40G(AH9250) or 60G(AH9251)
 - No external pull-up required – Minimal external components
- **Designed for Portable and Battery Powered Equipment**
 - Supply voltage designed for battery applications (2.5V to 5.5V)
 - Micropower operation with an average supply current of 8 μ A at 3V
- **High Performance and Reliability**
 - Tight magnetic operating window (less magnetic threshold spread)
 - Chopper stabilized design to provide minimal switch-point drift and superior temperature stability
 - Operating temperature range -40°C to +85°C
 - High ESD rating of 6kV (AH9246) and 5kV (AH9250 and AH9251)
- **Industry Standard Packages**
 - Industry standard SC59 and TO92S

Applications

- Consumer, home appliances and industrial contactless switches



Typical Applications Circuit



Note: C_{IN} is for power stabilization and to strengthen the noise immunity, the recommended capacitance is 10nF to 100nF.

Electrical Characteristics

Part Number	Output	Type	Operating Voltage (V)	Average Supply Current (μ A)	Chopper Stabilized	Operating Point (Bop) (Gauss)	Release Point (Brp) (Gauss)	Temp Range ($^{\circ}$ C)	Package
AH9246-P-B	Single	Push Pull	2.5 to 5.5	8	Yes	\pm 18	\pm 12	-40 to 85	TO92S
AH9246-W-7									SC59
AH9250-P-B	Single	Push Pull	2.5 to 5.5	8	Yes	\pm 40	\pm 30	-40 to 85	TO92S
AH9250-W-7									SC59
AH9251-P-B	Single	Push Pull	2.5 to 5.5	8	Yes	\pm 60	\pm 50	-40 to 85	TO92S
AH9251-W-7									SC59

Ordering Information

Device	Packaging	Part Mark ID	Reel Size	Quantity
AH9246-P-B	TO92S	9246	-	1,000
AH9246-W-7	SC59	H8	7"	3,000
AH9250-P-B	TO92S	9250	-	1,000
AH9250-W-7	SC59	HS	7"	3,000
AH9251-P-B	TO92S	9251	-	1,000
AH9251-W-7	SC59	HT	7"	3,000



Product Portfolio – Omnipolar Hall Effect Switches

Part	Output	Output Type	Operating Voltage	Average Supply Current	Operating Point Bop			Release Point Brp			Temp Range	Package
					(V)	(µA)	(Gauss)			(Gauss)		
			Min	Typ			Max	Min	Typ	Max		
AH1802	Single	Open Drain	2.5 to 5.5	8	20 -40	28 -28	40 -20	10 -	20 -20	-10	-40 to +85	DFN2015H4, DFN2020-3, DFN2020-6, SC59
AH1803	Single	Open Drain	2.5 to 5.5	8	20 -40	28 -28	40 -20	10 -	20 -20	-10	-40 to +85	DFN2020-6, SC59
AH1806	Single	Open Drain	2.5 to 5.5	8	15 -45	30 -30	45 -15	10 -40	20 -20	40 -10	-40 to +85	SIP-3, SC59 SOT553
AH1808	Single	Open Drain	2.5 to 5.5	8	20 -60	40 -40	60 -20	10 -50	30 -30	50 -10	-40 to +85	SIP-3, SC59, SOT553
AH1807	Single	Open Drain	2.5 to 5.5	8	50 -115	80 -80	115 -50	40 -100	65 -65	100 -45	-40 to +125	SC59, SOT553, SIP-3
AH1809	Single	Open Drain	2.5 to 5.5	8	90 -185	130 -130	185 -90	80 -170	115 -115	170 -80	-40 to +125	SC59, SOT553, SIP-3
AH1815	Single	Open Drain	2.5 to 5.5	8	255 -540	395 -395	540 -255	230 -490	355 -355	490 -230	-40 to +125	SC59, SOT553, SIP-3
AH9246	Single	Push-Pull	2.5 to 5.5	8	9 -27	18 -18	27 -9	4 -22	12 -12	22 -4	-40 to +85	TO92S, SC59
AH9250	Single	Push-Pull	2.5 to 5.5	8	30 -50	40 -40	50 -30	20 -40	30 -30	40 -20	-40 to +85	TO92S, SC59
AH9251	Single	Push-Pull	2.5 to 5.5	8	40 -80	60 -60	80 -40	30 -70	50 -50	70 -30	-40 to +85	TO92S, SC59
AH1883 (2)	Single	Push-Pull	1.65 to 3.3	7	- -55	37 -37	55 -	6 -	29 -29	- -6	-40 to +85	SOT553, U-DFN2020-3
AH1884	Dual, Compl	Push-Pull	1.65 to 3.3	7	- -55	37 -37	55 -	15 -	29 -29	- -15	-40 to +85	SOT553
AH1885	Dual, Compl	Push-Pull	1.65 to 3.3	7	18 -59	37 -37	59 -18	15 -	29 -29	- -15	-40 to +85	SOT553
AH1886	Dual, Compl	Push-Pull	1.65 to 3.3	7	- -55	37 -37	55 -	6 -	29 -29	- -15	-40 to +85	SOT553
AH1888	Dual, Compl	Push-Pull	1.65 to 3.3	7	- -79	61 -61	79 -	35 -	53 -53	- -6	-40 to +85	SOT553, DFN2020-3
AH1812	Single	Push-Pull	1.6 to 3.6	4.3	16 -40	30 -30	40 -16	11 -35	20 -20	35 -11	-40 to +85	X1-DFN1216-4
AH1892	Single Prog.	Push-Pull	1.6 to 3.6	4.3	LB: 18	35	55	12	25	45	-40 to +85	SOT553, X1-WLB0707-4
LB: -55					-35	-18	-45	-25	-12			
AH1898					HB: 43	60	80	35	50	70		X1-WLB0808-4
					HB: -80	-60	-43	-70	-50	-35		
AH1893	Single	Push-Pull	1.6 to 3.6	4.3	14 -42	30 -30	42 -14	9 -35	20 -20	35 -9	-40 to +85	SOT553, X1-DFN1216-4
AH1895	Single	Push-Pull	1.6 to 3.6	4.3	40 -80	60 -60	80 -40	35 -65	50 -50	65 -35	-40 to +85	SOT553, X1-DFN1216-4
AH1897	Single	Push-Pull	1.6 to 3.6	4.3	16 -40	30 -30	40 -16	11 -35	20 -20	35 -11	-40 to +85	X1-DFN1216-4
AH1902	Single	Push-Pull	1.6 to 3.6	4.3	23 -48	33 -33	48 -23	9 -35	23 -23	35 -9	-40 to +85	SOT553, X1-DFN1216-4 X2-DFN2015-6
AH1903	Single, Prog. Uni/Omni	Push-Pull	1.6 to 3.6	4.3	23	33	48	12	23	35	-40 to +85	X1-DFN1216-4
LB: -47					-33	-23	-35	-23	-12			
					23	33	47	12	23	-12		
AH1894	Single Prog.	Push-Pull	1.6 to 3.6	4.3	LB: 18	35	55	12	25	45	-40 to +85	SOT553, X1-DFN1216-4
LB: -55					-35	-18	-45	-25	-12			
					HB: 43	60	80	35	50	70		
					HB: -80	-60	-43	-70	-50	-35		

(2) For new projects, use AH1902 instead of AH1883

Further Information:

Omnipolar Portfolio page: http://www.diodes.com/catalog/Omnipolar_Hall_Effect_Switches_87
 Datasheet: AH9246 http://www.diodes.com/datasheets/AH_9246.pdf
 AH9250 http://www.diodes.com/datasheets/AH_9250.pdf
 AH9251 http://www.diodes.com/datasheets/AH_9251.pdf