



AH377x/AH378x - New High-Voltage Hall Effect Latch Product Family with Market-Leading Performance

AH377x and AH378x are a new market-leading high-voltage, high-performance Hall Effect Latch family with operating voltages of 3 to 28V over the extended temperature range of -40 to +125°C.

The product range is specifically designed for commutation of brushless DC motors, flow meters, linear encoders and position sensors, in industrial, consumer, home appliance and personal care applications.

Offering 5 high-tolerance sensitivity band options ranging from a typical 25 to 140 Gauss, and options of open-drain or internal pull-up outputs, the new product family can be used in multiple applications.

To enhance system reliability, the family is specified over the whole operating range of 3 to 28V and -40 to +125°C. Featuring V_{DD} and output Zener clamps, current limit, and an ESD rating of 6kV.

Open-drain output for pull-up flexibility or internal pull-up for higher levels of integration.

All the products are available in industry standard SOT23 and SIP-3, and selected products in SC59.



The Diodes' Advantage

AH377x and AH378x provide a reliable and high-performance Hall-effect latch for home appliances and industrial applications.

High Performance Hall Effect Latch Range

- 5 sensitivity options with high tolerance, tight operating window (less magnetic spread) and low temperature coefficients for switch points
- Magnetic characteristics specified over the whole operating range
- Fast "power on" of 10 μ s typical and response time of 3.75 μ s typical with wide bandwidth

Product Flexibility

- Designed for a wide range of applications: 3 to 28V and -40 to +125°C
- Open-drain output for pull-up flexibility or internal pull-up for higher levels of integration (reduced component count)
- Industry standard SOT23, SC59 and SIP-3 package options with SC59 providing inverse operating magnetic polarity option

Stability, Reliability and Robustness

- Chopper stabilized design to provide minimal switch point drift
- Superior temperature and supply line stability
- Input and output clamps with Output Current Limit
- 32V reverse voltage protection
- High ESD (HBM) rating of 6kV

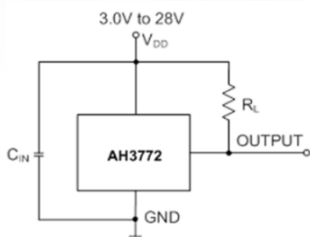
Applications

- Home and Industrial Appliances
- DC Motors/Pumps
- Flow Meters
- RPM Detection
- Angular and linear encoder and position sensors

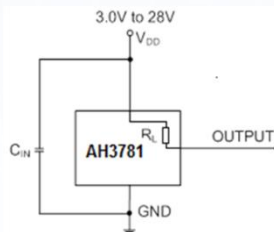


Typical Applications Circuit

Open Drain



Internal Pull Up



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)	Ave Supply (mA)	Chopper Stabilized	Reverse Protection	Current Limit	ESD (kV)	Bop (Gauss)	Brp (Gauss)	Temp Range (°C)	Package
AH3772	Open Drain	3 to 28	3	Yes	Yes	Yes	6	25	-25	-40 to +125	SC59, SOT23, SIP-3
AH3774	Open Drain	3 to 28	3	Yes	Yes	Yes	6	40	-40	-40 to +125	SC59, SOT23, SIP-3
AH3775	Open Drain	3 to 28	3	Yes	Yes	Yes	6	70	-70	-40 to +125	SC59, SOT23, SIP-3
AH3776	Open Drain	3 to 28	3	Yes	Yes	Yes	6	110	-110	-40 to +125	SOT23, SIP-3
AH3777	Open Drain	3 to 28	3	Yes	Yes	Yes	6	140	-140	-40 to +125	SOT23, SIP-3
AH3781	Int. Pull-up	3 to 28	3	Yes	No	Yes	6	25	-25	-40 to +125	SOT23, SIP-3
AH3782	Int. Pull-up	3 to 28	3	Yes	No	Yes	6	40	-40	-40 to +125	SC59, SOT23, SIP-3

Ordering Information

Device	Packaging (Notes 1 & 2)	Part Marking	Bulk	Ammo Box	7" Tape and Reel	
			Quantity	Ammo Box	Tape Width	Quantity
AH3772-P-A	SIP-3 (Ammo)	3772	-	4,000	-	-
AH3772-P-B	SIP-3 (Bulk)	3772	1,000	-	-	-
AH3772-SA-7	SOT23	WV	-	-	8mm	3,000
AH3772-W-7	SC59	YV	-	-	8mm	3,000
AH3774-P-A	SIP-3 (Ammo)	3774	-	4,000	-	-
AH3774-P-B	SIP-3 (Bulk)	3774	1,000	-	-	-
AH3774-SA-7	SOT23	WW	-	-	8mm	3,000
AH3774-W-7	SC59	YW	-	-	8mm	3,000
AH3775-P-A	SIP-3 (Ammo)	3775	-	4,000	-	-
AH3775-P-B	SIP-3 (Bulk)	3775	1,000	-	-	-
AH3775-SA-7	SOT23	ZE	-	-	8mm	3,000
AH3775-W-7	SC59	YZ	-	-	8mm	3,000
AH3776-P-A	SIP-3 (Ammo)	3776	-	4,000	-	-
AH3776-P-B	SIP-3 (Bulk)	3776	1,000	-	-	-
AH3776-SA-7	SOT23	ZF	-	-	8mm	3,000
AH3777-P-A	SIP-3 (Ammo)	3777	-	4,000	-	-
AH3777-P-B	SIP-3 (Bulk)	3777	1,000	-	-	-
AH3777-SA-7	SOT23	ZG	-	-	8mm	3,000
AH3781-P-A	SIP-3 (Ammo)	3781	-	4,000	-	-
AH3781-P-B	SIP-3 (Bulk)	3781	1,000	-	-	-
AH3781-SA-7	SOT23	WX	-	-	8mm	3,000
AH3782-P-A	SIP-3 (Ammo)	3782	-	4,000	-	-
AH3782-P-B	SIP-3 (Bulk)	3782	1,000	-	-	-
AH3782-SA-7	SOT23	WY	-	-	8mm	3,000
AH3782-W-7	SC59	YY	-	-	8mm	3,000



Hall Effect Latch Portfolio

Part	Output Type	Operating Voltage	Average Supply Current	Output Current Capability	Additional Protection Features	Operating Point Bop (Bop: +ve)			Release Point Brp (Brp: -ve)			Operating Ambient Temperature	Package Outlines
						(Gauss)			(Gauss)				
		(V)	(mA)	(mA)		Min	Typ	Max	Min	Typ	Max	°C	
AH173	Int Pull-up R	3 to 20	3.5	25	RBD	5	-	80	-80	-	-5	-40 to +125	SC59, SIP-3L
AH175	Open Collector	3.5 to 20	3.5	25	RBD	-	-	-	-	-	-	-40 to +150	SC59, SIP-3L
AH373	Int Pull-up R	2.2 to 20	2	25	-	5	30	60	-60	-30	-5	-40 to +125	SC59, SOT23, SIP-3L
AH375	Open Drain	2.2 to 20	2	25	-	5	30	60	-60	-30	-5	-40 to +125	SC59, SIP-3L
AH920	Open Collector	3.5 to 20	3	25	-	5	22	40	-40	-22	-5	-40 to +125	SOT23, TO92S
AH920	Int Pull-up R	3.5 to 24	3	25	-	5	22	40	-40	-22	-5	-40 to +125	SOT23, TO92S
AH3761	Open Drain	3 to 28	4	50	RBD, IPCLMP, OPCLMP	5	30	60	-60	-30	-5	-40 to +125	SC59, SIP-3L
AH3772	Open Drain	3.0 to 28	3	30	RBD, IPCLMP, OPCLMP, OCL	10	25	40	-40	-25	-10	-40 to +125	SC59, SOT23, SIP-3L
AH3774	Open Drain	3.0 to 28	3	30	RBD, IPCLMP, OPCLMP, OCL	20	40	60	-60	-40	-20	-40 to +125	SC59, SOT23, SIP-3L
AH3775	Open Drain	3.0 to 28	3	30	RBD, IPCLMP, OPCLMP, OCL	50	70	90	-90	-70	-50	-40 to +125	SC59, SOT23, SIP-3L
AH3776	Open Drain	3.0 to 28	3	30	RBD, IPCLMP, OPCLMP, OCL	80	110	140	-140	-110	-80	-40 to +125	SOT23, SIP-3L
AH3777	Open Drain	3.0 to 28	3	30	RBD, IPCLMP, OPCLMP, OCL	110	140	170	-170	-140	-110	-40 to +125	SOT23, SIP-3L
AH3781	Int Pull-up R	3.0 to 28	3	30	RBD, IPCLMP, OPCLMP, OCL	10	25	40	-40	-25	-10	-40 to +125	SOT23, SIP-3L
AH3782	Int Pull-up R	3.0 to 28	3	30	IPCLMP, OPCLMP, CL	20	40	60	-60	-40	-20	-40 to +125	SC59, SOT23, SIP3-L

RVB: Reverse Voltage Blocking Diode
 OCL: Output Current Limit
 IPCLMP: Input supply clamp
 OPCLMP: Output pin clamp

Further Information:

Hall Sensor Portfolio Page
 Hall Effect Latch Portfolio Page:
 Datasheets:

- AH3772 Datasheet: <https://www.diodes.com/assets/Datasheets/AH3772.pdf>
- AH3774 Datasheet: <https://www.diodes.com/assets/Datasheets/AH3774.pdf>
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- AH3782 Datasheet: <https://www.diodes.com/assets/Datasheets/AH3782.pdf>

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