

Hall Effect Bipolar Latching Switch CYD9801A

Applications

- DC brushless motors
- VCD/DVD loader, CD/DVD-Rom
- Cover detector
- Speed Measurement
- Home applications
- Home safety etc.

Features

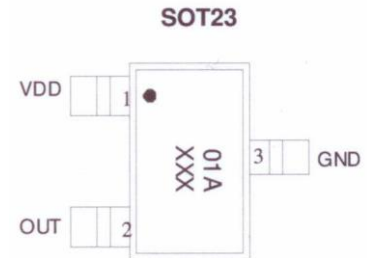
- 2.5V to 18V operation voltage
- Built-in dynamic offset cancellation
- Small size
- High balance and low thermal drift of magnetic sensing

Order Information

- CYD9801A-S/PKD:SOT23

Package Type

P/N: CYD9801A-S



- 1: VDD/DC power supply
2: OUT/output
3: GND/Ground

Specifications

Absolute Maximum Ratings ($T_A=25^\circ\text{C}$)

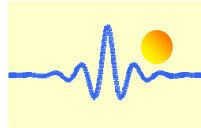
Parameter	Symbol	Conditions	Rating	Unit
Maximum supply voltage	V_{DDMAX}		18	V
Allowable power dissipation	P_D	SOT-23	300	mW
Operating temperature	T_A		-40~+125	$^\circ\text{C}$
Storage temperature	T_S		-50~+150	$^\circ\text{C}$
Maximum output current	I_{OMAX}		25	mA

Electrical Characteristics ($T_A=25^\circ\text{C}$, $V_{DD}=12\text{VDC}$)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Supply voltage	V_{DD}		2.5		18	V
Output sink voltage	$V_{DS(ON)}$	@ $I_{OUT} = 15\text{mA}$		0.3	0.5	V
Output breakdown voltage	V_{BV}		18			V
Supply current	I_{DD}	Output open		6	8	mA

Magnetic Characteristics ($T_A=25^\circ\text{C}$, $V_{DD}=12\text{VDC}$)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Operating point	B_{OP}		-	15	35	G
Release point	B_{RP}		-35	-15	-	G
Hysteresis	B_{HYS}		20	30	60	G



General Specifications

The CYD9801A is designed for magnetic actuating using a bipolar magnetic field. The built-in dynamic offset cancellation of pre-amplifier stage achieves optimal symmetrical magnetic sensing. This Hall Effect IC is suitable for DC brushless fan applications. The supply voltage range is from 2.5V to 18V and the maximum output current is 25mA. This Hall Effect switch IC integrates the sensor, pre-amplifier with dynamic offset cancellation and hysteresis comparator in single chip. The architecture block diagram is shown in Fig. 1.

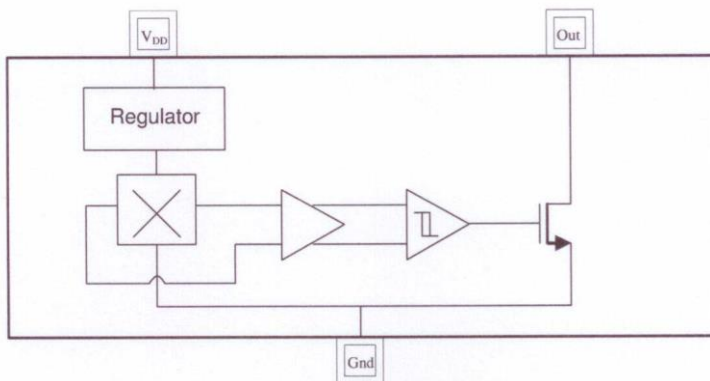
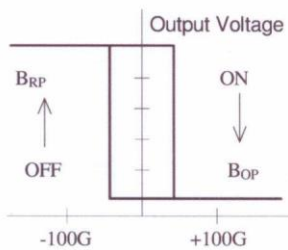
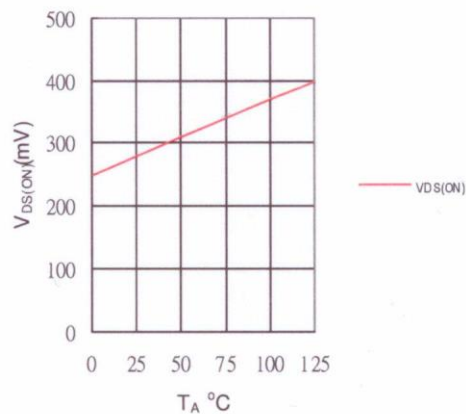


Fig. 1 Functional diagram

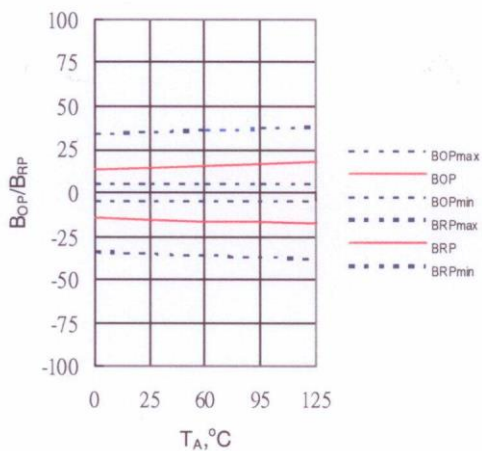
Magnetic Flux Density in



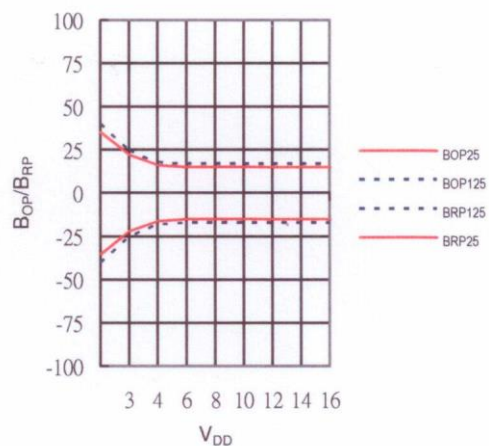
Output sink voltage versus temperature

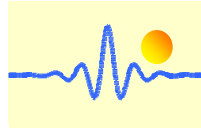


B_{OP}, B_{RP} versus temperature

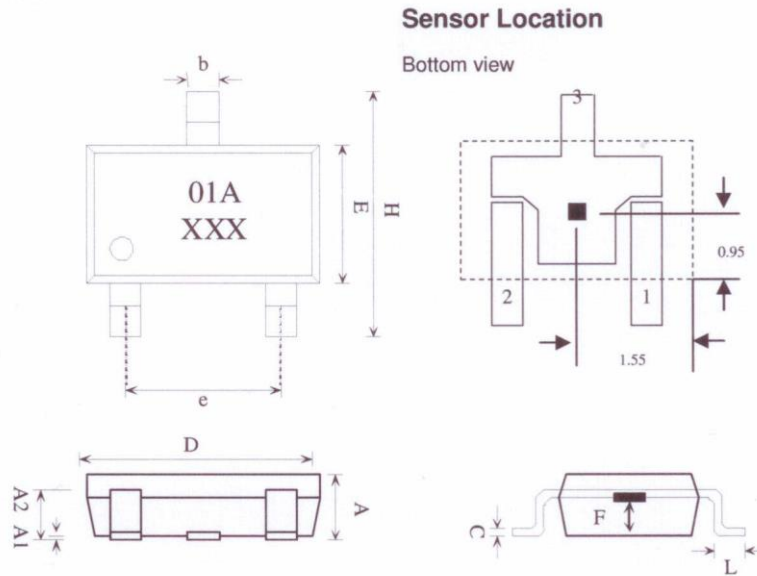


B_{OP}, B_{RP} versus supply voltage

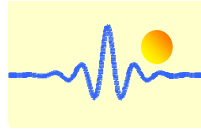




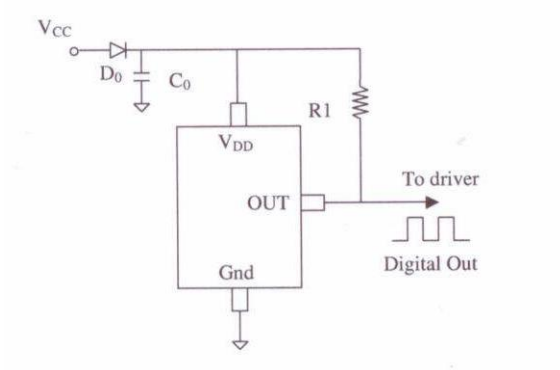
Package Outline



SYMBOLS	DIMENSIONS IN MILLIMETERS(mm)		
	MIN	NOM	MAX
A	1.00	1.10	1.30
A1	0.00	-	0.10
A2	0.70	0.80	0.90
b	0.35	0.40	0.50
C	0.10	0.15	0.25
D	2.70	2.90	3.10
E	1.40	1.80	2.00
F	0.35	0.50	0.65
H	2.60	2.8	3.00
e	1.7	1.9	2.1
L	0.20	-	-



Application Circuit



NOTE:

D0: general diode

C0: decoupling capacitor 1 μ F (recommended)

R1: 1k~10k Ω