

CYD3601 HALL-EFFECT LATCHING IC SWITCHES

The CYD3601 is a bipolar Hall Effect switch with a latched digital output. The built-in dynamic offset cancellation of pre-amplifier stage achieves optimal symmetrical magnetic sensing. This Hall Effect IC is optimal for DC brushless fan applications. The supply voltage range is from 2.5V to 18V.

FEATURES

- 2.5V to 18V power supply
- Built-in dynamic offset cancellation
- Small size, convenient installing
- High balance and low thermal drift magnetic sensing
- **ROHS Compliant**

TYPICAL APPLICATIONS

- Brushless DC motor
- VCD/DVD loader, CD/DVD-ROM
- Contactless switch
- Cover detector
- Speed measurement
- Home applications
- Home safty

Absolute Maximum Rating

Parameter	Symbol	Value	Unit
Supply voltage	V_{CC}	18	V
Magnetic flux density	B	Unlimited	mT
Storage temperature range	T_S	-55 ~ +150	°C
Operating temperature range	T_A	-40 ~ +85	°C

ELECTRICAL CHARACTERISTICS

$T_A=25^{\circ}\text{C}$, $V_{DD}=12\text{V}$

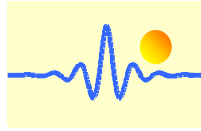
Parameter	Symbol	Test conditions	Type and Value			Unit
			min	typical	max	
Supply voltage	V_{CC}		2.5	-	18	V
Output sink voltage	V_{OL}	$I_{out}=15\text{mA}$	-	0.3	0.5	V
Output Breakdown voltage	V_{BV}		-	22	30	V
Supply current	I_{DD}	Output open@12V	-	6	8	mA

MAGNET CHARACTERISTICS

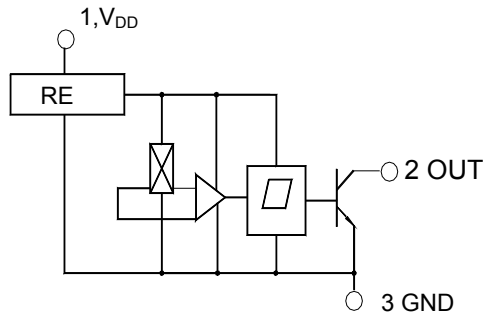
($V_{DD}=12\text{V DC}$, $T_A=+25^{\circ}\text{C}$)

Parameter	Symbol	Type and Value			Unit
		min	typical	max	
Operating point	B_{OP}		3	6	mT
Release point	B_{RP}	-6	-3		mT
Hysteresis	B_H	4	6	10	mT

NOTE: 1mT=10GS

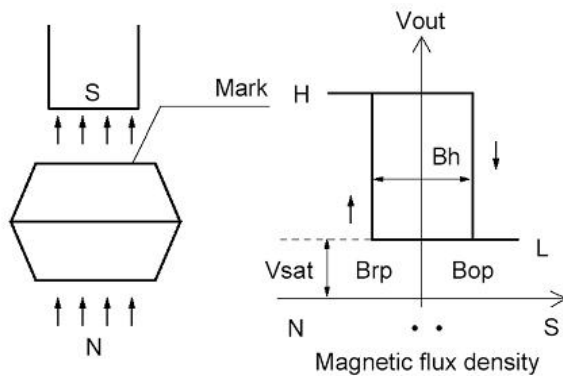


BLOCK DIAGRAM

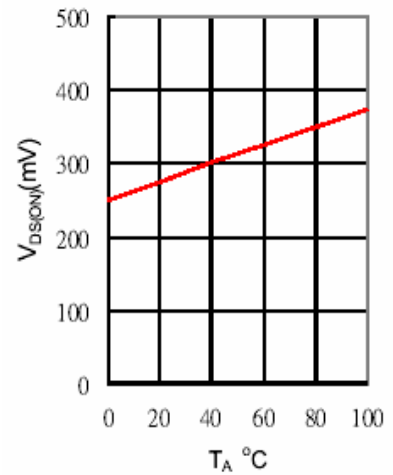


This Hall Effect sensor IC integrates the sensor, Pre-amplifier with dynamic offset cancellation and hysteresis comparator in single chip.

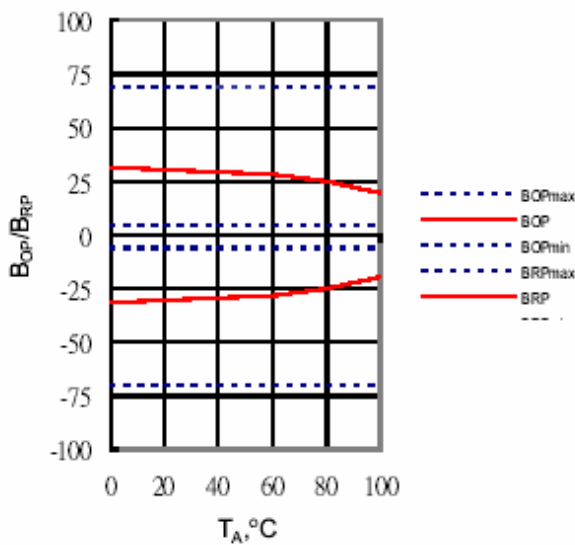
MAGNETIC-ELECTRICAL TRANSFER CHARACTERISTICS



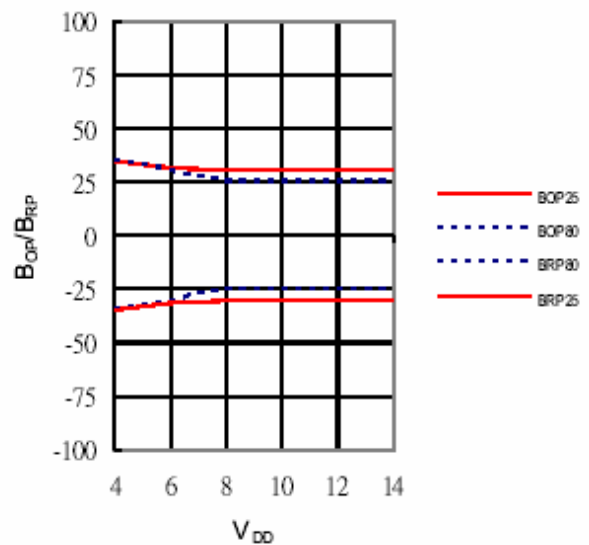
Output voltage versus temperature

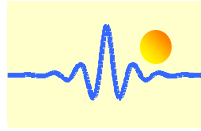


B_{OP}, B_{RP} versus temperature

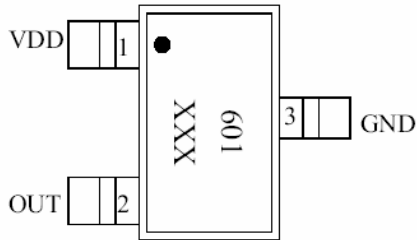


B_{OP}, B_{RP} versus supply voltage





Package Type: SOT-23



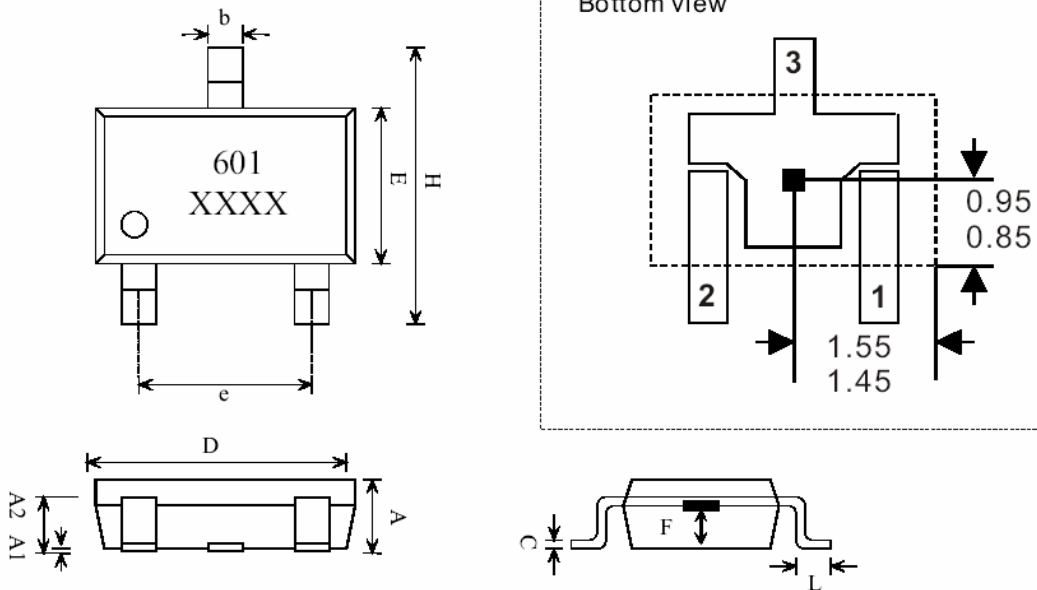
Pin Description

Name	Pin	Description	Type
VDD	1	DC power supply	P
OUT	2	Output pin	O
GND	3	DC ground	P

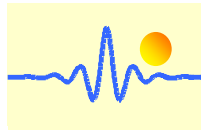
XXX: Date code

Sensor Location

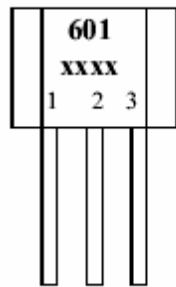
Bottom view



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	1.60	1.80
F	0.55	0.60	0.65
H	2.60	2.8	3.00
e	1.7	1.9	2.1
L	0.20	-	-



Package Type: TO-92 3Pin



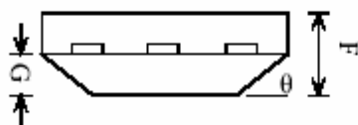
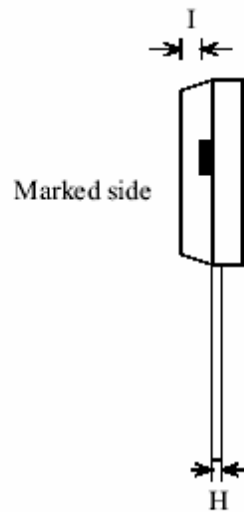
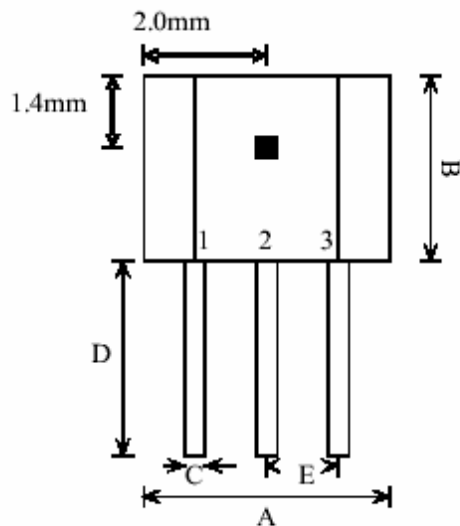
XXXX: Date code

Pin Description

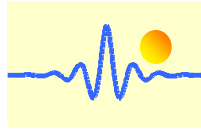
Name	Pin	Description	Type
VDD	1	DC power supply	P
GND	2	DC ground	P
OUT	3	Output pin	O

VDD GND OUT

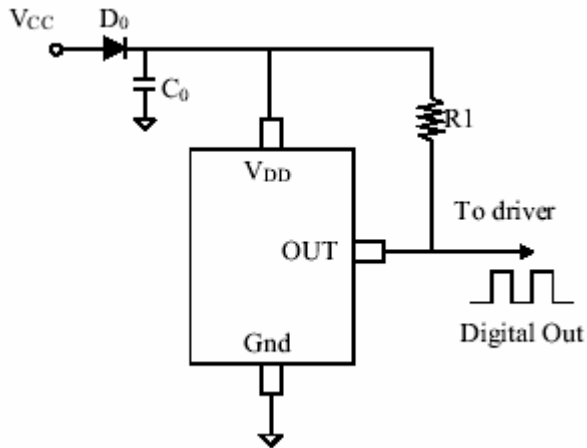
Top view



SYMBOLS	DIMENSIONS IN MILLIMETERS(mm)		
	MIN	NOM	MAX
A	3.80	4.00	4.20
B	2.90	3.10	3.30
C	0.38	0.45	0.52
D	15.10	15.30	15.50
E	1.24	1.27	1.30
F	1.45	1.50	1.55
G	0.68	0.73	0.78
H	0.36	0.43	0.50
I	0.41	0.43	0.45
θ		45°	



Application circuit



NOTE:

D0: general diode

C0: decoupling capacitor 1 μ F (recommended)

R1: 1k ~ 10k Ω (recommended)

Ordering Information

Package	Ordering no.	Mark	Packing	Temperature range
SOT-23	CYD3601S	601	3000units/reel	-40°C ~ +85°C
TO-92	CYD3601T	601	500-1000units/pack	-40°C ~ +85°C