

## General Purpose Unipolar Hall Effect Switch CYD3623

### Applications

- VCD/DVD loader
- Cover detector
- Speed Measurement
- Home applications
- Home safety etc.

### Features

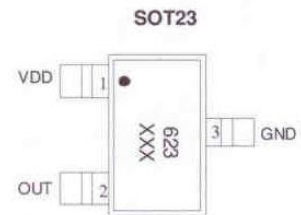
- 2.5V to 18V operation voltage
- Built-in dynamic offset cancellation
- Small size
- High balance and low thermal drift of magnetic sensing

### Order Information

- CYD3623-S  
Package: SOT23

### Package Type

P/N: CYD3623-S



1. VDD/DC power supply
2. Out/output pin
3. GND/DC 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	$T_S$		-55~+150	$^\circ\text{C}$
Maximum Junction Temperature	$T_{jmax}$		150	$^\circ\text{C}$
Maximum output current	$I_{OMAX}$		25	mA

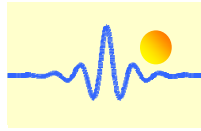
\* On 50mm x 50 mm x 1.6mm glass epoxy board

#### 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	$V_{DS(ON)}$	@ $I_{OUT} = 20\text{mA}$		0.3	0.5	V
Output breakdown voltage	$V_{BV}$			22	30	V
Supply current	$I_{DD}$	Output open		6	10	mA

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

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Operating point	$B_{OP}$		100	105	110	G
Release point	$B_{RP}$		70	85	100	G
Hysteresis	$B_{HYS}$		10	20	30	G



## General Specifications

The CYD3623 is designed for magnetic actuating using a unipolar magnetic field. The built-in dynamic offset cancellation of pre-amplifier stage achieves optimal symmetrical magnetic sensing. The supply voltage range is from 2.5V to 18V and the maximum output current is 25mA. This Hall Effect switch IC integrates a sensor plate, a pre-amplifier with dynamic offset cancellation and hysteresis comparator in single chip. The architecture block diagram is shown in Fig. 1.

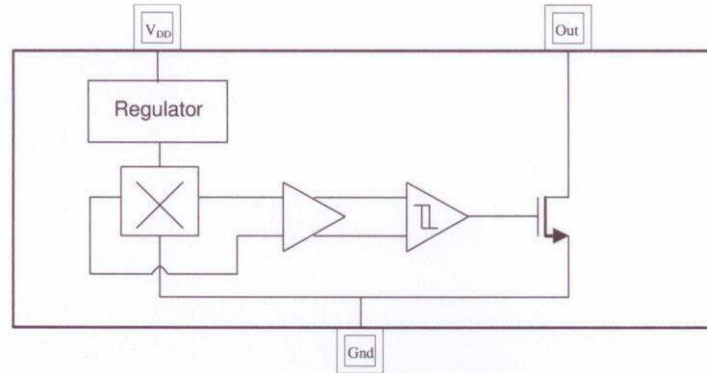
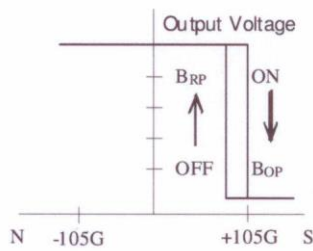
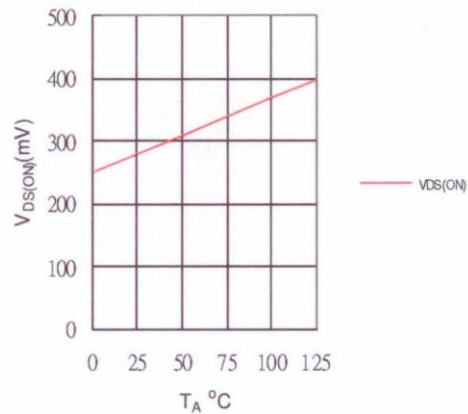


Fig. 1. Functional diagram

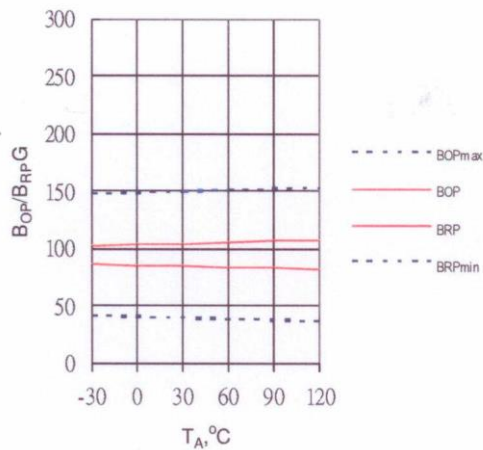
Magnetic Flux Density in Gauss



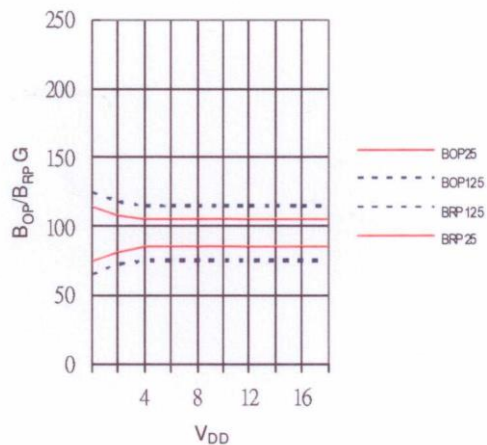
Output sink voltage versus temperature

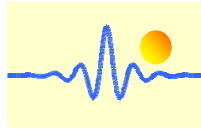


B<sub>OP</sub>, B<sub>RP</sub> versus temperature



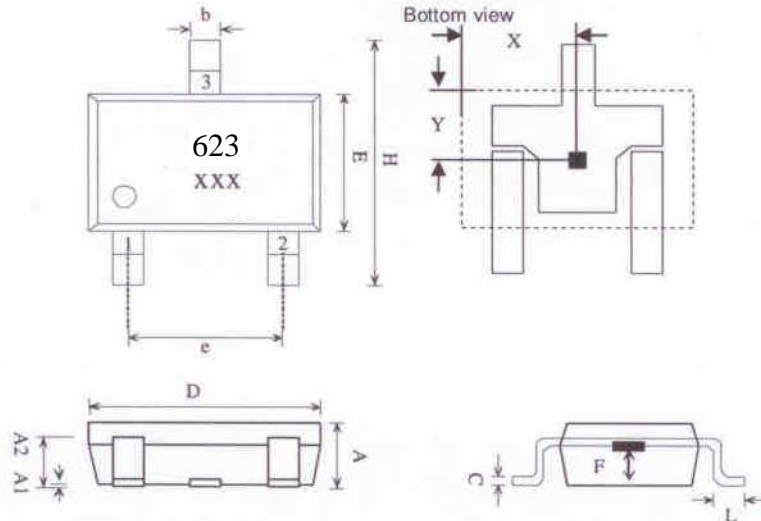
B<sub>OP</sub>, B<sub>RP</sub> versus supply voltage





**Package Outline**  
**SOT-23(LH)**

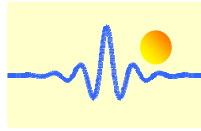
**Sensor Location**



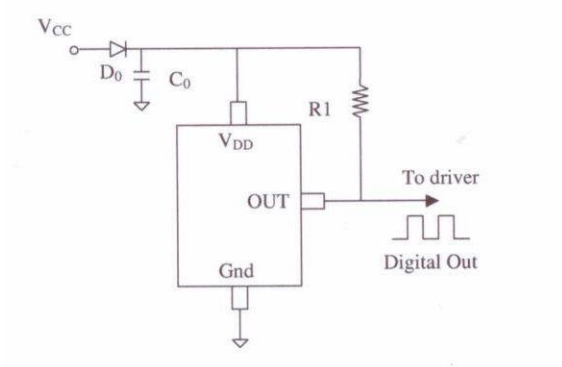
Marking:  
Part Number : 623  
Date Code : x(Year) xx(Week)

- 1. VDD/DC power supply
- 2. OUT/output pin
- 3. GND/DC ground

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	-	-
Sensor Location			
X	1.3	1.45	1.6
Y	0.7	0.85	1.0



## Application Circuit



### NOTE:

- D0: general diode
- C0: decoupling capacitor 1 $\mu$ F (recommended)
- R1: 1k~10k  $\Omega$  (recommended)