

General Purpose Unipolar Hall Effect Switch CYD3623

Applications

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

Features

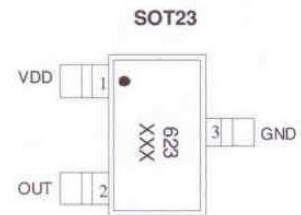
- 2.5V to 18V operation voltage
- Built-in dynamic offset cancellation
- Small size
- High balance and low thermal drift of magnetic sensing

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

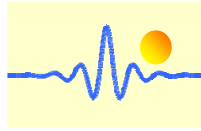
* On 50mm x 50 mm x 1.6mm glass epoxy board

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.

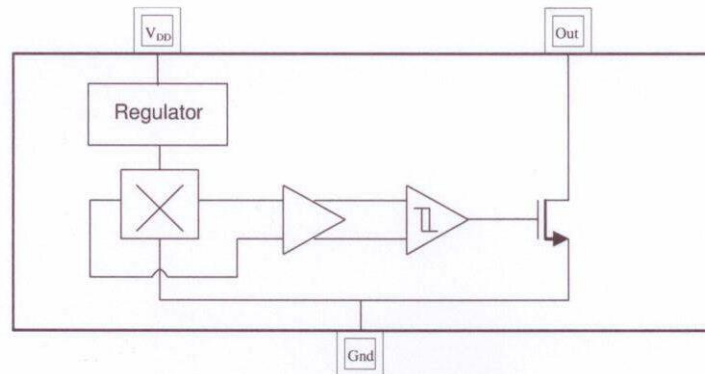
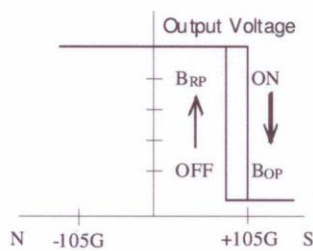
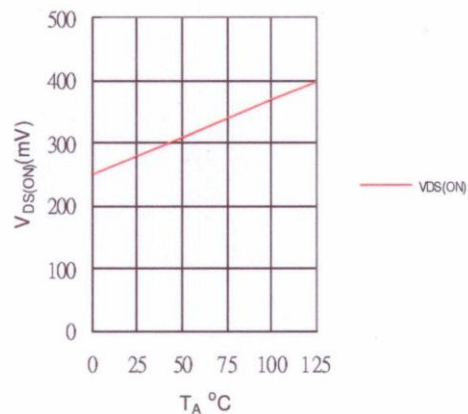


Fig. 1. Functional diagram

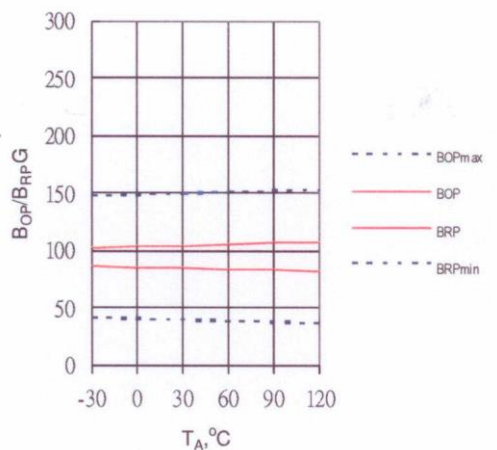
Magnetic Flux Density in Gauss



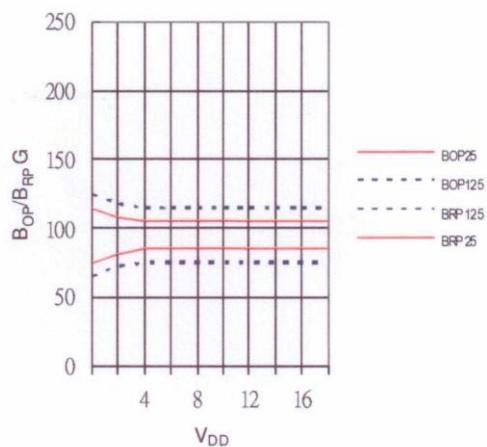
Output sink voltage versus temperature

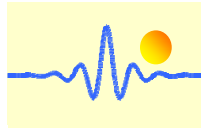


B_{OP} , B_{RP} versus temperature



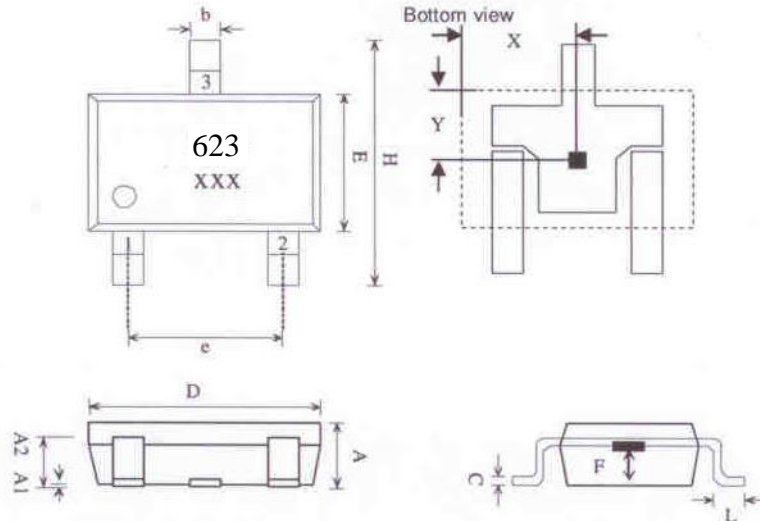
B_{OP} , B_{RP} versus supply voltage





Package Outline
SOT-23(LH)

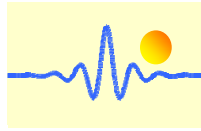
Sensor Location



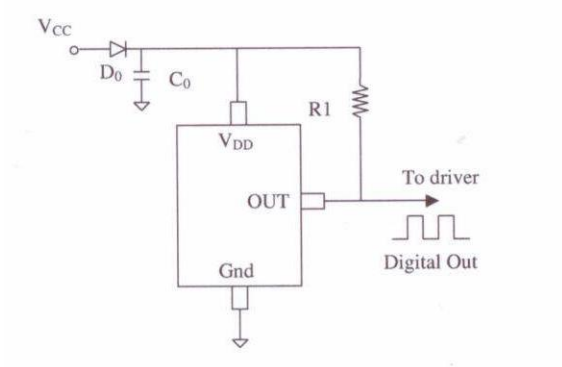
Marking:
Part Number : 623
Date Code : x(Year) xx(Week)

- 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 μ F (recommended)
- R1: 1k~10k Ω (recommended)