



# PT3631

## Medium-sensitivity Unipolar Hall Switch

### Applications

- Contactless solution
- Proximity detection
- Position and end-point detection
- Solid state switches

### Features

- 3.8V to 24V wide operation voltage
- High accuracy unipolar switch
- Dynamic offset cancellation
- Open drain output
- Low thermal drift magnetic sensing

### Ordering information

- PT3631-PA-T  
Package(PA): UA or LH or LT  
Temperature(T): A or K

### Specifications

#### Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Conditions	Rating	Unit
Maximum supply voltage	$V_{DDMAX}$		28	V
Allowable power dissipation	$P_D$	TO-92(UA)	550 <sup>*1</sup>	mW
		SOT-23(LH)	300 <sup>*1</sup>	mW
		SOT-89(LT)	500 <sup>*1</sup>	mW
Operating temperature range	$T_A$	Suffix 'A'	-40~+150	°C
		Suffix 'K'	-40~+125	°C
Storage temperature range	$T_S$		-55~+150	°C
Max. output current	$I_{OMAX}$		50	mA

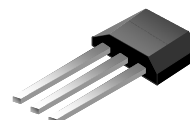
\*1: On 50mm x 50mm x 1.6mm glass epoxy board

◆ All PROLIFIC products described or contained herein do not have specifications that can handle applications require extremely high levels of reliability, such as life-support systems, aircraft control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your PROLIFIC representative nearest you before using any PROLIFIC products described or contained herein in such applications.

◆ PROLIFIC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, the rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all PROLIFIC products described or contained herein.

P/N: PT3631-XX-X

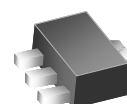
TO92-3L (UA)



SOT23-3L (LH)



SOT89-3L (LT)



**PROLIFIC TECHNOLOGY INC.**

7F, No.48, Sec.3, Nan Kang Rd., Nan Kang, Taipei, 115, Taiwan.

**Electrical Characteristics (T<sub>A</sub>=+25°C, V<sub>DD</sub>=12V)**

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Units
Supply Voltage	V <sub>DD</sub>		3.8		24	V
Output Sink Voltage	V <sub>OL</sub>	@ I <sub>OUT</sub> =20mA		130	280	mV
Output Leakage Current	I <sub>OH</sub>	Output switch off			0.1	uA
Output Clamp Voltage	V <sub>BV</sub>			28	30	V
Supply Current	I <sub>DD</sub>	Output open		4	6	mA

**Magnetic Characteristics (T<sub>A</sub>=+25°C, V<sub>DD</sub>=12V)**

Operate Point	B <sub>OP</sub>		-95	-120	-145	G
Release Point	B <sub>RP</sub>		-50	-70	-90	G
Hysteresis	B <sub>HYS</sub>		40	50	65	G

**Magnetic Characteristics (T<sub>A</sub>=-40°C~150°C, V<sub>DD</sub>=12V)**

Operate Point	B <sub>OP</sub>		-85		-150	G
Release Point	B <sub>RP</sub>		-42		-95	G
Hysteresis	B <sub>HYS</sub>		32		72	G

**General Specifications**

The PT3631 is a medium sensitivity unipolar hall switch sensor. The built-in dynamic offset cancellation and temperature compensation of pre-amplifier stage achieves accuracy magnetic sensing. The wide supply voltage range is from 3.8V to 24V and the maximum output current is 50mA.

This hall-effect sensor IC integrated the hall plate, pre-amplifier with dynamic offset cancellation, hysteresis comparator and protection circuit in single chip. The architecture block diagram is shown in Fig. 1.

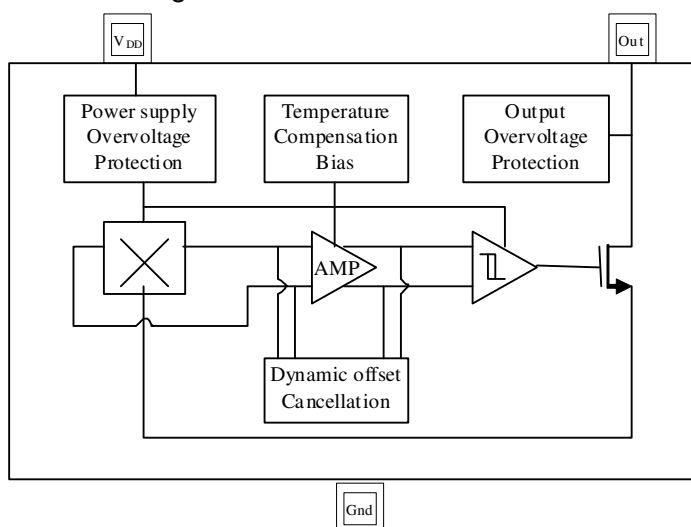
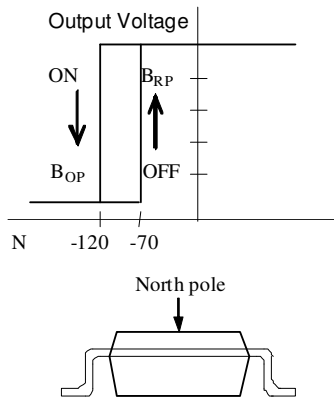
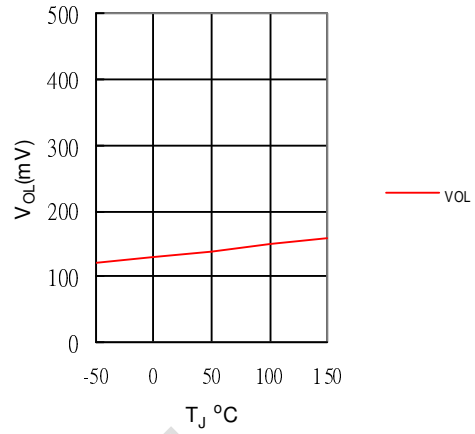
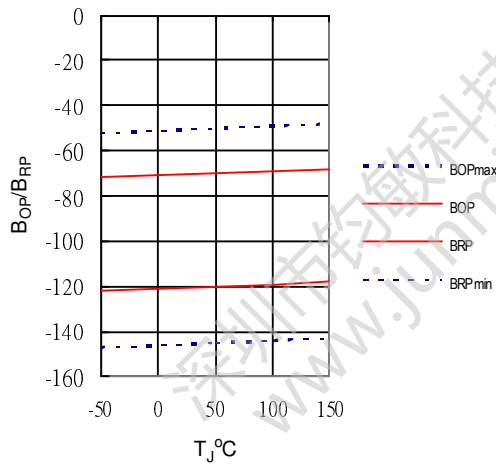
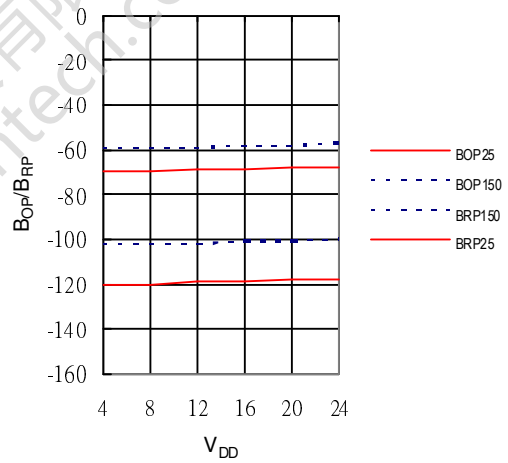


Fig. 1. Functional diagram

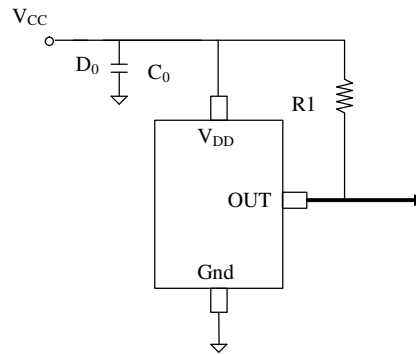
Magnetic Flux Density in G



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


### Application circuits



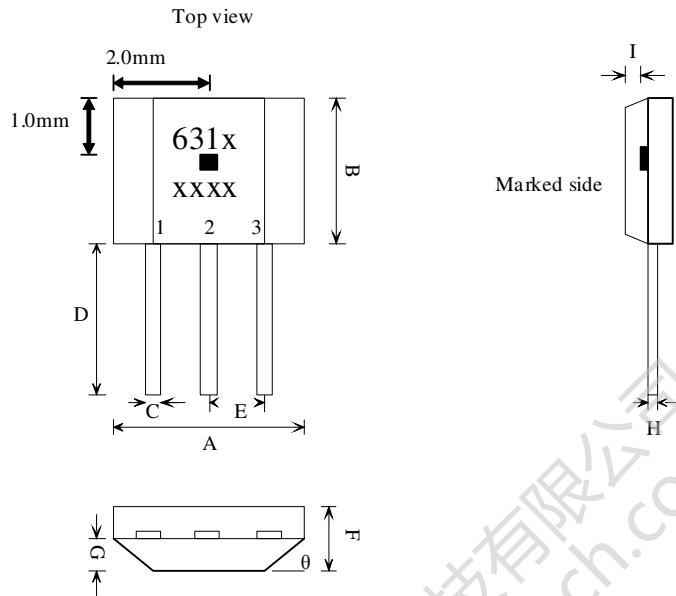
NOTE :

C0: decoupling capacitor 0.1uF(recommended)

R1: 1K~10Kohm (recommended)

深圳市钧敏科技有限公司  
www.junmintech.com

**Package Outline**  
**TO-92(UA)**



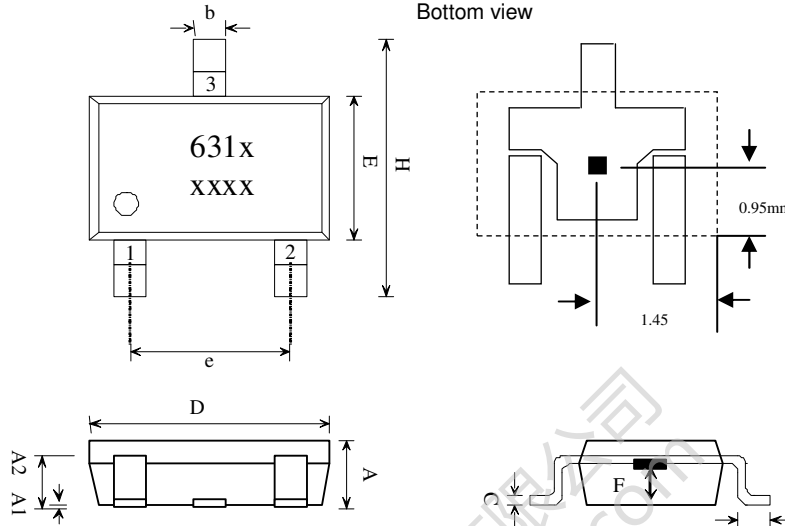
Marking:  
 Part Number : 631    Temperature code : x  
 Date Code : xx(Year) xx(Week)

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

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°	

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

**Sensor Location**



**Marking:**

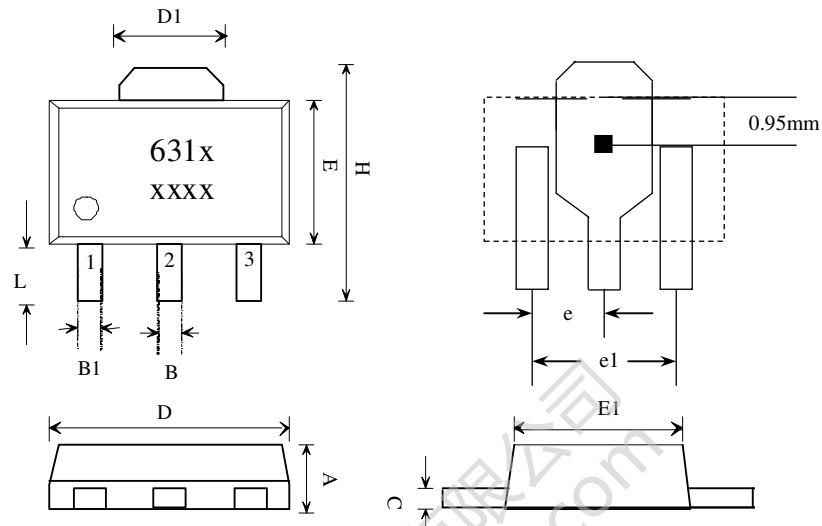
Part Number : 631 Temperature code : x  
Date Code : xx(Year) xx(Week)

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	-	-

**Package Outline**  
**SOT-89(LT)**

**Sensor Location**



Marking:  
 Part Number : 631    Temperature code : x  
 Date Code : xx(Year) xx(Week)

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

SYMBOLS	DIMENSIONS IN MILLIMETERS(mm)		
	MIN	NOM	MAX
A	1.40	1.50	1.60
B	0.44	0.50	0.56
B1	0.36	0.42	0.48
C	0.35	0.40	0.44
D	4.40	4.50	4.60
D1	1.52	1.67	1.83
E	2.30	2.45	2.60
E1	2.13	2.21	2.29
e	-	1.50	-
e1	-	3.00	-
H	3.94	4.10	4.25
L	0.89	1.05	1.20