PROLIFIC TECHNOLOGY INC.

PT3601A
General purpose Hall-effect Latch

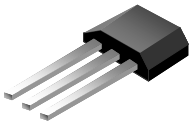
Applications
- DC brushless motor
- Rotation detection
- Cover detector
- Speed Measurement
- Home appliances
- Home safety

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

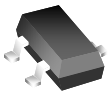
Ordering information
- PT3601A-PA
  Package(PA):UA or LH

P/N: PT3601A-XX

TO92-3L (UA)



SOT23-3L (LH)



Specifications

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Conditions	Rating	Units
Maximum supply voltage	V_{DD}max		18	V
Allowable power dissipation	P_D	TO-92(UA)	550*	mW
		SOT-23(LH)	300*	mW
Operating temperature	Ta		-40~+125	℃
Storage temperature	Ts		-50~+150	℃
Max. output current	I_{OMAX}		25	mA

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

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Electrical Characteristics (T_A=+25°C, V_{DD}=12V)

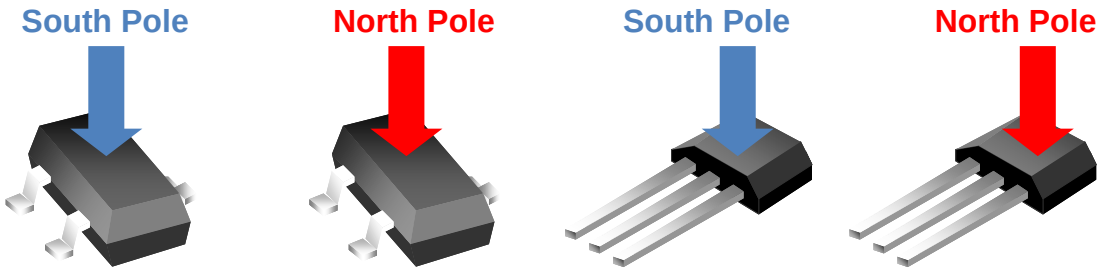
Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Units
Supply Voltage	V_{DD}		2.5		18	V
Output Sink Voltage	$V_{DS(ON)}$	@ I_{OUT} =15mA		0.3	0.5	V
Output Breakdown Voltage	V_{BV}		18			V
Supply Current	I_{DD}	Output open		6	8	mA

Magnetic Characteristics (T_A=+25°C, V_{DD}=12V)

Operate Point	B_{OP}		-	15	35	G
Release Point	B_{RP}		-35	-15	-	G
Hysteresis	B_{HYS}		20	30	60	G

Output Behavior versus Polarity (T_A=-40°C~125°C, V_{DD}=2.5V~18V)

Parameters	Test Conditions(LH)	Output(LH)	Test Conditions(UA)	Output(UA)
South pole	B<Brp	High	B>Bop	Low
North pole	B>Bop	Low	B<Brp	High



SOT-23(LH) Package **TO-92(UA) Package**

General Specifications

The PT3601A 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 optimal for DC brushless fan application. The supply voltage range is from 2.5V to 18V and the maximum output current is 25mA.

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

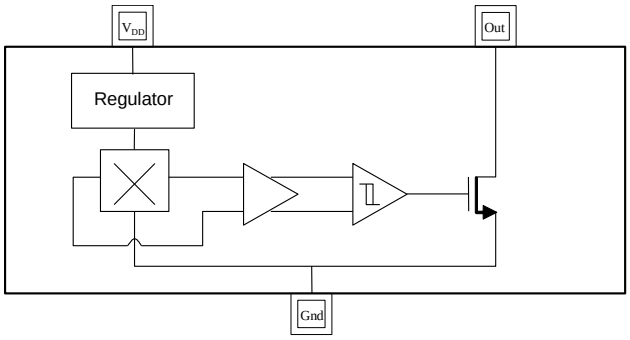
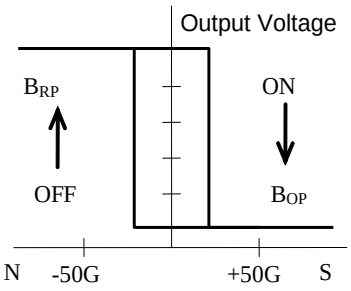
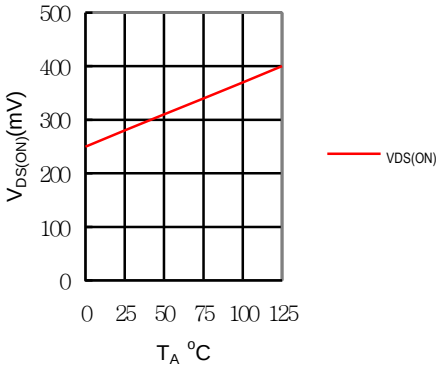


Fig. 1. Functional diagram

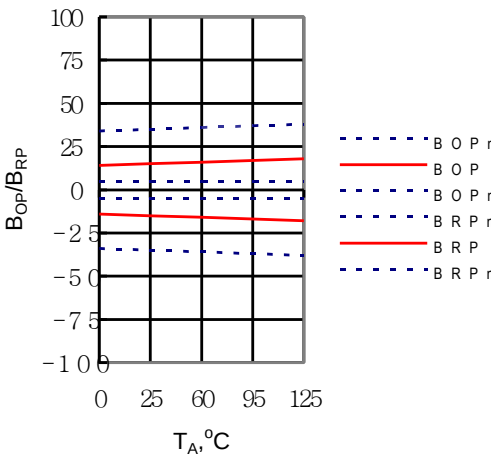
Magnetic Flux Density in



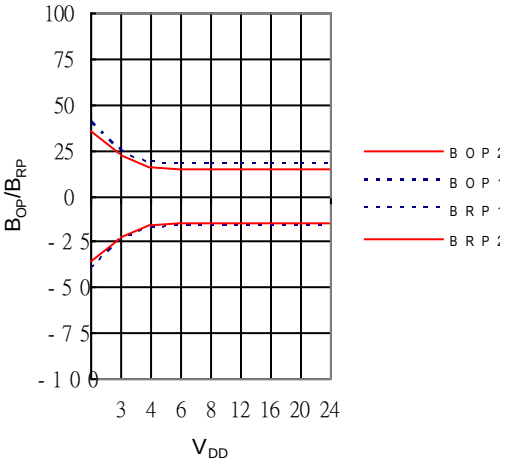
Output sink voltage versus temperature



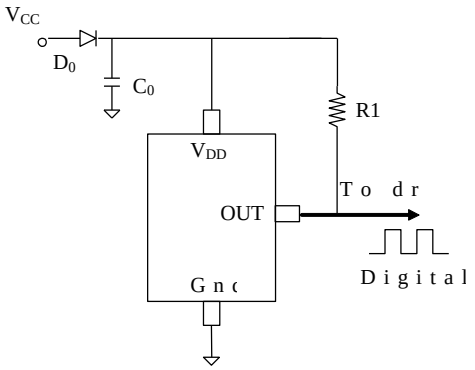
B_{OP}, B_{RP} versus temperature



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



12V Application circuits



NOTE :

D0: general diode

C0: decoupling capacitor 1uF(recommended)

R1: 10Kohm (recommended)

Power Dissipation Calculation:

The power dissipation is calculated as follows:

$P_D = V_{DD} \times I_{DD}$

For example:

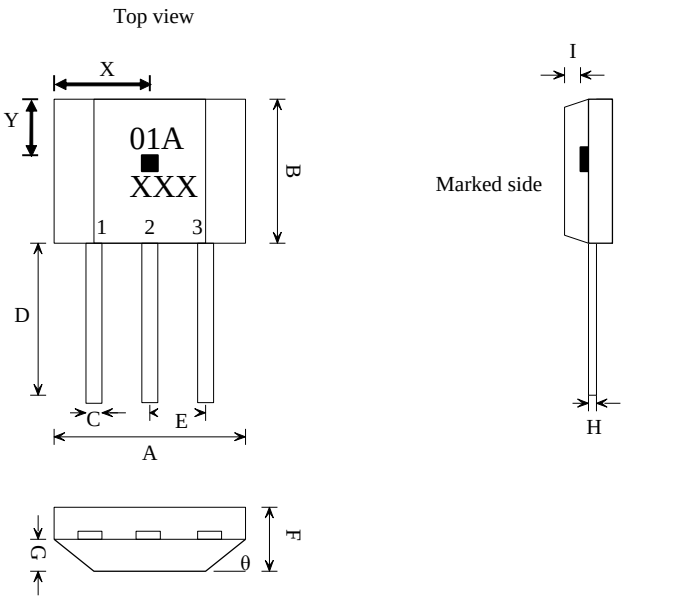
When V_{DD}=12V ; I_{DD}=6mA

PD=12V x 6mA = 72mW

This is the approximate amount of power dissipated in the IC.

Package Outline

TO-92(UA)



Marking:
Part Number : 01A
Date Code : X(Year) XX(Week)

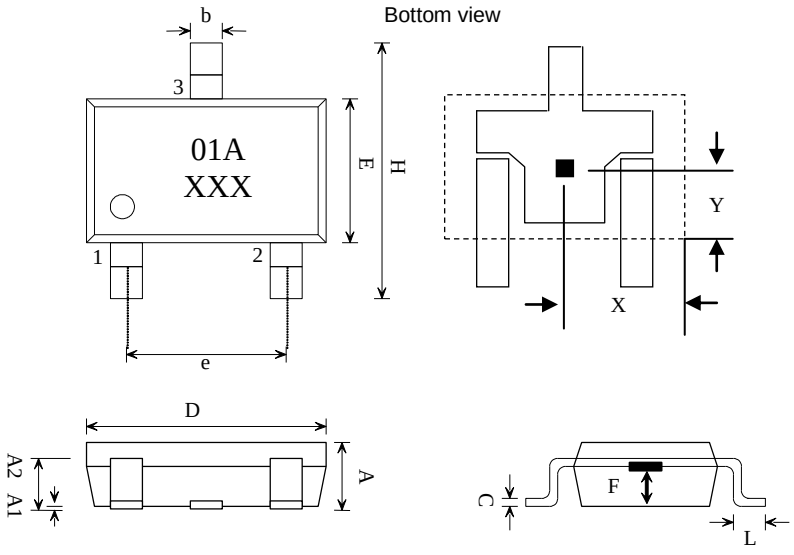
1. VDD/DC power supply
2. GND/DC ground
3. OUT/output pin

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	14.40	14.60	14.80
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°	
Sensor Location			
X	1.90	2.00	2.10
Y	0.90	1.00	1.10

Package Outline

SOT-23(LH)

Sensor Location



Marking:
Part Number : 01A
Date Code : X(Year) XX(Week)

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

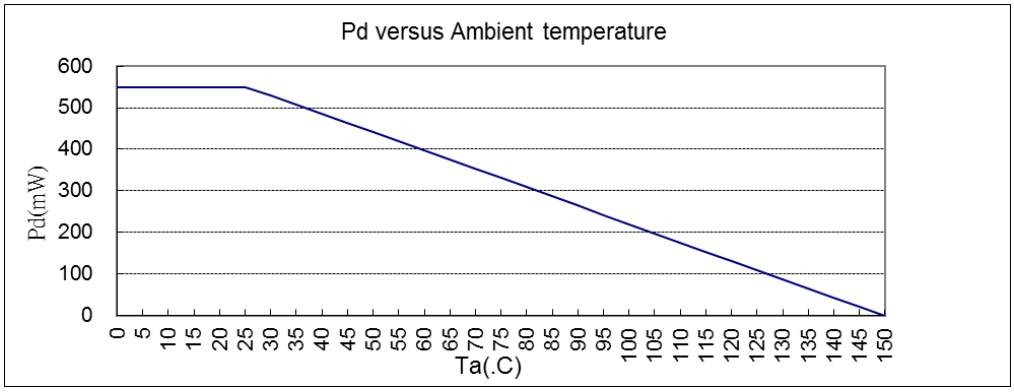
SYMBOLS	DIMENSIONS IN MILLIMETERS(mm)		
	MIN	NOM	MAX
A	1.00	1.10	1.30
A1	0.00	-	0.10
A2	0.70	0.80	0.90
b	0.35	0.40	0.50
C	0.10	0.15	0.25
D	2.70	2.90	3.10
E	1.40	1.80	2.00
H	2.60	2.8	3.00
e	1.7	1.9	2.1
L	0.20	-	-
Sensor Location			
X	1.35	1.45	1.55
Y	0.85	0.95	1.05
F	0.35	0.50	0.65

Thermal Resistance

TO92-3L

Parameter	Symbol	Conditions	Rating	Units
Allowable power dissipation	P_d		550*1	mW
Junction to ambient thermal resistance	θ_{JA}		227	℃/W
Junction to case thermal resistance	θ_{JC}		90	℃/W
Maximum junction temperature	T_J		150	℃

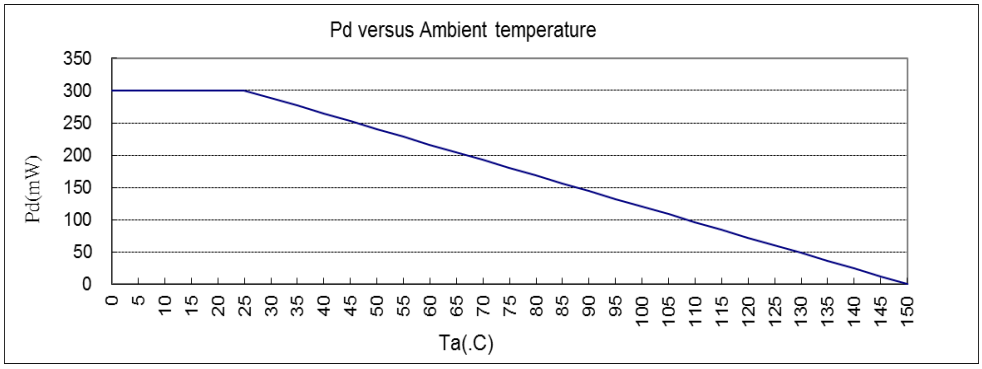
*1: Reduced by 4.4mW for each increase in Ta of 1°C over 25°C When mounted on 50mm x 50mm x 1.6mm glass epoxy board



SOT-23

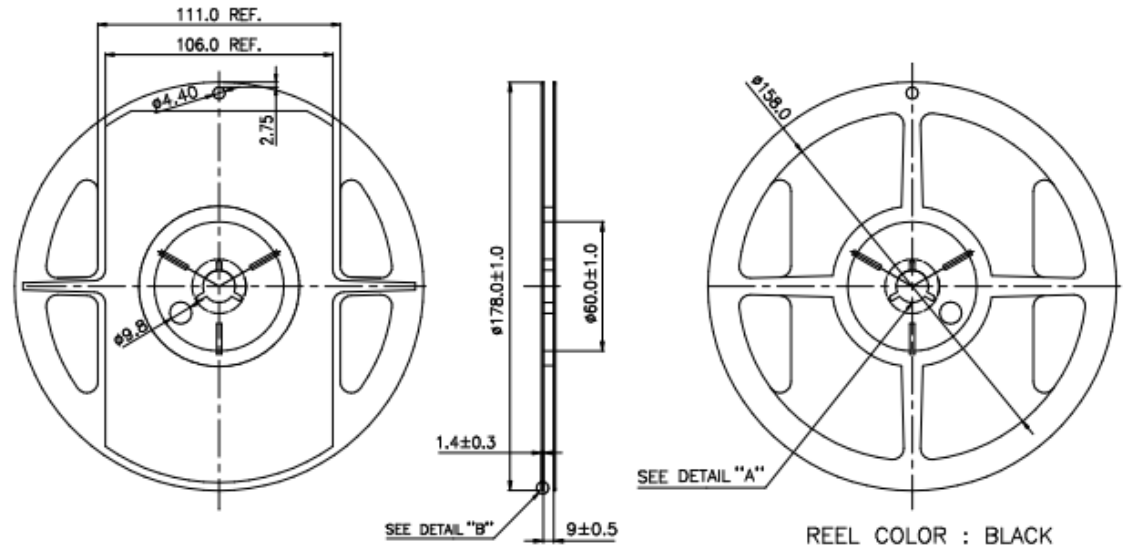
Parameter	Symbol	Conditions	Rating	Units
Allowable power dissipation	P_d		300*1	mW
Junction to ambient thermal resistance	θ_{JA}		280	℃/W
Junction to case thermal resistance	θ_{JC}		110	℃/W
Maximum junction temperature	T_J		150	℃

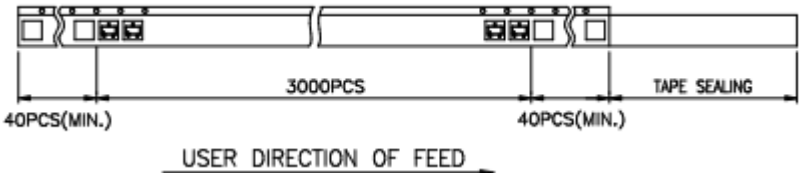
*1: Reduced by 3.6mW for each increase in Ta of 1°C over 25°C When mounted on 50mm x 50mm x 1.6mm glass epoxy board



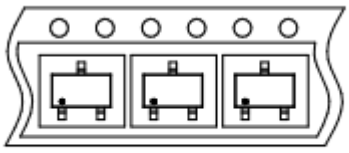
Packing dimension

SOT-23



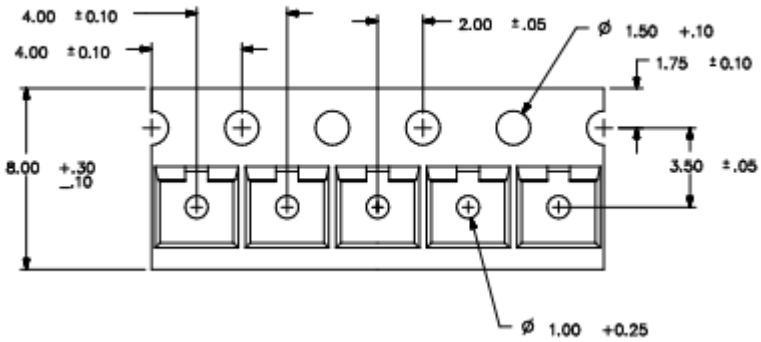


USER DIRECTION OF FEED



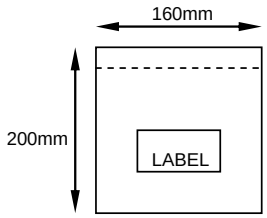
SOT-23

3000 EA/PER REEL 4 REEL/BOX

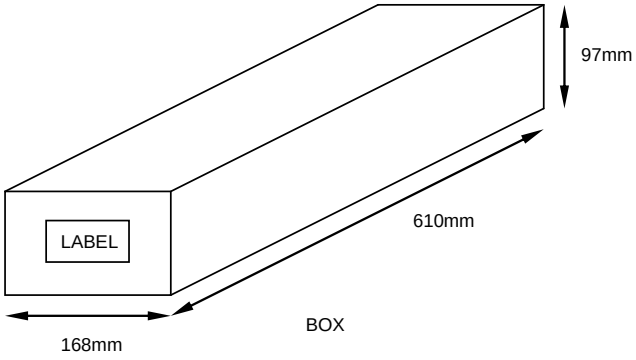


TO-92(UA) packing specification

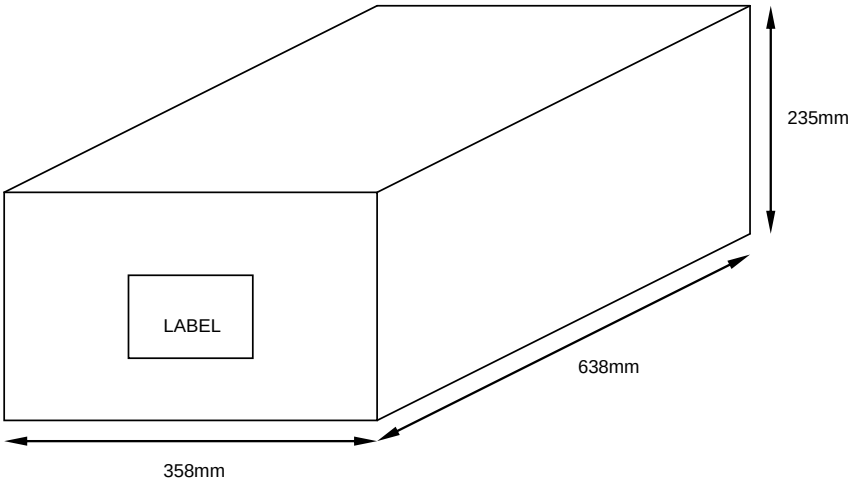
1. Dimension:



BAG



BOX



CARTON

2. Quantity:

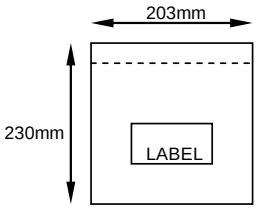
1BAG=1000EA

1BOX=20BAGS

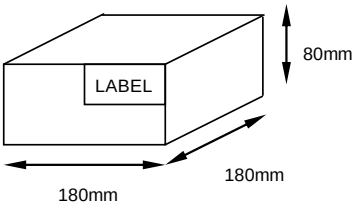
1CARTON=4BOXES

SOT-23(LH) packing specification

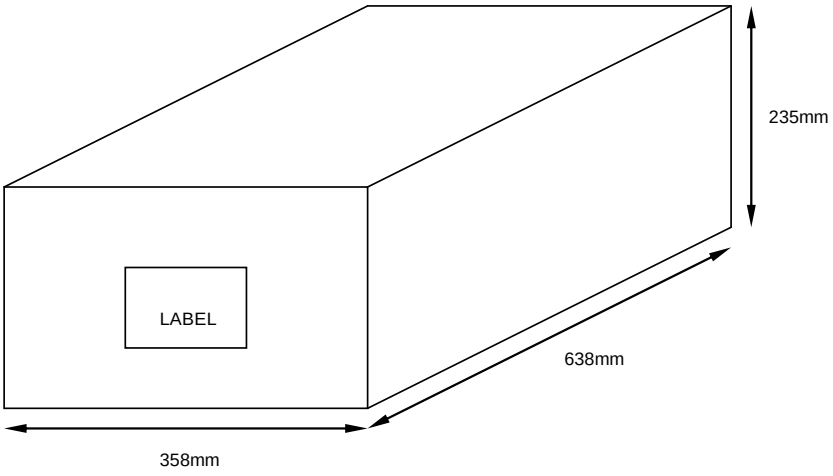
1. Dimension:



BAG



BOX



CARTON

2. Quantity:

1REEL=3000EA

1BOX=5 REELS

1CARTON=14BOXES

Order information

Part Number	Temperature Range	Package Type	Package Qty	Quantity Per Box	Prolific Type Code
PT3601A-UA	-40°C~+125°C	TO92-3L	1000pcs/Bulk	20000/Box	PT3601J1OAG7P1
PT3601A-LH	-40°C~+125°C	SOT23-3L	3000pcs/reel	15000/Box	PT3601J1SAG8P1