

Micro-power PT3661G-BC Hi-Sensitivity Hall-effect Switch

Applications

- · Cover detector
- · Battery-operated
- Hand Held Equipment

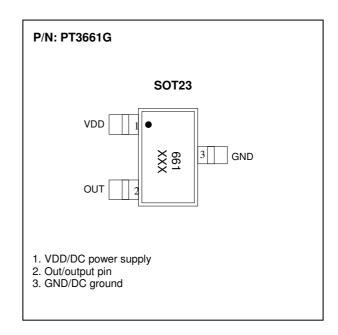
Features

- Micro-power(5~7uW(typ):Vcc=3.0V)
- 2.4V to 3.5V operation range
- · Built-in dynamic offset cancellation
- · Small size
- · High balance and low thermal drift magnetic sensing
- Micro power Operation
- ESD protected to 5KV(HBM)

Order information

• PT3661G /PKG:SOT23

Package Type



Specifications

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Conditions	Rating	Units
Maximum supply voltage	V _{DD} max		7	V
Allowable power dissipation	Pd	SOT23	300*	mW
Operating temperature	Ta		-40~+85	$^{\circ}\!\mathbb{C}$
Storage temperature	Ts		-55~+150	$^{\circ}\!\mathbb{C}$
Max. output current	I _{OMAX}		5	mA

^{*:} On 50mm x 50mm x 1.6mm glass epoxy board

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PROLIFIC TECHNOLOGY INC.

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



General Specifications

The PT3661G is designed for battery-operated, hand-held equipment such as cellular and cordless phone, PDA and pagers application. The built-in dynamic offset cancellation of pre-amplifier stage achieves optimal symmetrical magnetic sensing. The supply voltage range is from 2.4V to 3.5V and the max output current is 5mA.

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

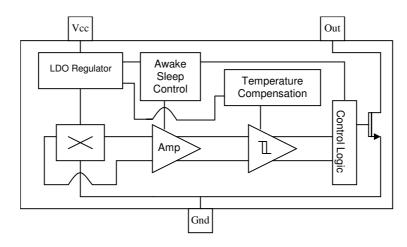


Fig 1. Function Diagram

The micro power operation is achieved by the awake/sleep timing control as shown Fig2. The chip will be automatic at awake mode for 45uS and is at sleep mode (shutdown) for the remainder of the period (90mS). At awake mode, the sensor of chip will be enable and normal operation. The sensor will be disabled to save the power and the output is latched in the previous state during sleep mode.

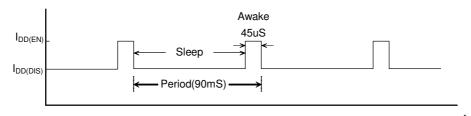


Fig 2. Awake/Sleep timing

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Electrical Characteristics (T_A=+25°C, V_{DD}=3.0V)

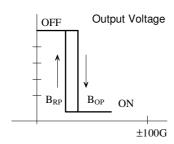
Characteristic	Symbol	Test Condition	Min.	Тур.	Max.	Units
Supply Voltage	V_{DD}	Operating	2.4	-	3.5	٧
Output Sink Voltage	V _{DS(ON)}	$I_{OUT}=1$ mA, $V_{DD}=3.0$ V	-	0.1	0.25	٧
Supply Current	I _{AWK}	Awake, V _{DD} =3.0V	-	3	5	mA
	I _{SLP}	Sleep, V _{DD} =3.0V	-	2	4	μΑ
	I _{AVG}	V _{DD} =3.0V	-	5	9	μΑ
Awake Time	T _{AWK}	Operating	-	45	90	μS
Period	T _P	Operating	-	90	180	mS
Duty Cycle			-	0.05	-	%

Magnetic Characteristics (T_A=+25°C, V_{DD}=3.0V)

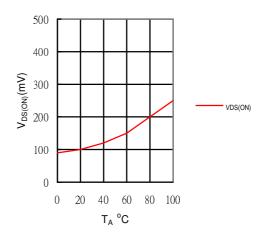
Characteristic	Symbol	Test Condition	Min.	Тур.	Max.	Units
Operate Point	B _{OP}	South operate point	15		47	G
Release Point	B _{RP}	South release point	8		42	G
Operate Point	B _{ON}	North operate point	-31		-60	G
Release Point	B _{RN}	North release point	-24		-55	G
Hysteresis	B _{HYS}	B _{OPX} - B _{RPX}	5		12	G



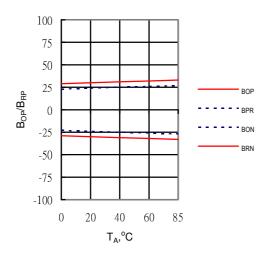
Magnetic Flux Density in Gauss



Output sink voltage versus temperature

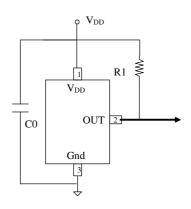


 $B_{OP},\,B_{RP}$ versus temperature





Application circuits



NOTE:

C0: 0.1uF decoupling capacitor R1: >470Kohm is recommended

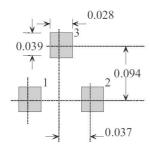
Ordering information

Part NO.	Marking NO.	Package	Temperature
PT3661G-BC	661	SOT-23	-40~85C Extended

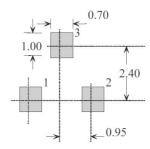
*BC: BON -31G ~ -60G

Solder-Pad Layout

Dimensions in Inches



Dimensions in millimeters

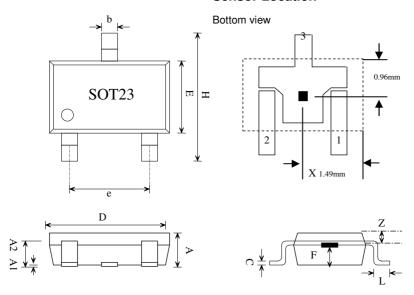


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Package Outline

Sensor Location



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		
С	0.10	0.15	0.25		
D	2.70	2.90	3.10		
Е	1.40	1.80	2.00		
F	0.35	0.50	0.65		
Н	2.60	2.8	3.00		
e	1.7	1.9	2.1		
L	0.20	-	-		
SENSOR LOCATION					
X	-	0.96	-		
Y	-	1.49	-		
Z	-	0.50	-		

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