



PA270

Two-Coil Fan Driver

Data Sheet Rev. 1.0

1. General

Descriptions

PA270 is an output driver for two-coil BLDC fan or motor and a Hall sensor is integrated in. Beside the magnetic sensor, the device includes an amplifier that amplifies the Hall voltage, a Schmitt trigger to provide switching hysteresis, two complementary open-drain drivers. It also includes an over-temp protector and chopper modulator which enhances the magnetic performance.

Placing the device in a variable magnetic field, if the magnetic flux density is larger than Bop, pin OUT1 will be turned on (low) and pin OUT2 will be turned off (high). This output state is held until the magnetic flux density reverses and falls below Brp, then causes OUT1 to be turned off (high) and OUT2 to be turned on (low).

Features

- On Chip Hall Sensor
- 3.0~18V Supply Voltage
- 1.5mA Operating Current
- Embedded Clamp Diodes at Outputs
- Ambient Temp Range:-40C~85C
- Embedded Over-Temp Protector

Typical Applications

- BLDC Fan
- BLDC Motor
- Revolution Counting
- Speed Measurement

Package

- TSOT23-6L

Pin Description

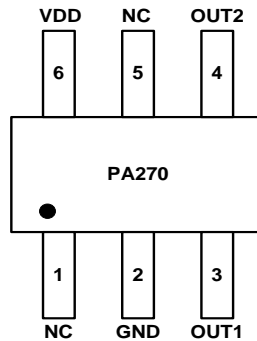


Figure 1 TSOT23-6L package

Table 1: Pin Description

No	Pin	Description
1	NC	floating
2	GND	Ground
3	OUT1	Output 1
4	OUT2	Output 2
5	NC	floating
6	VDD	Power Supply

2. Functional Diagram

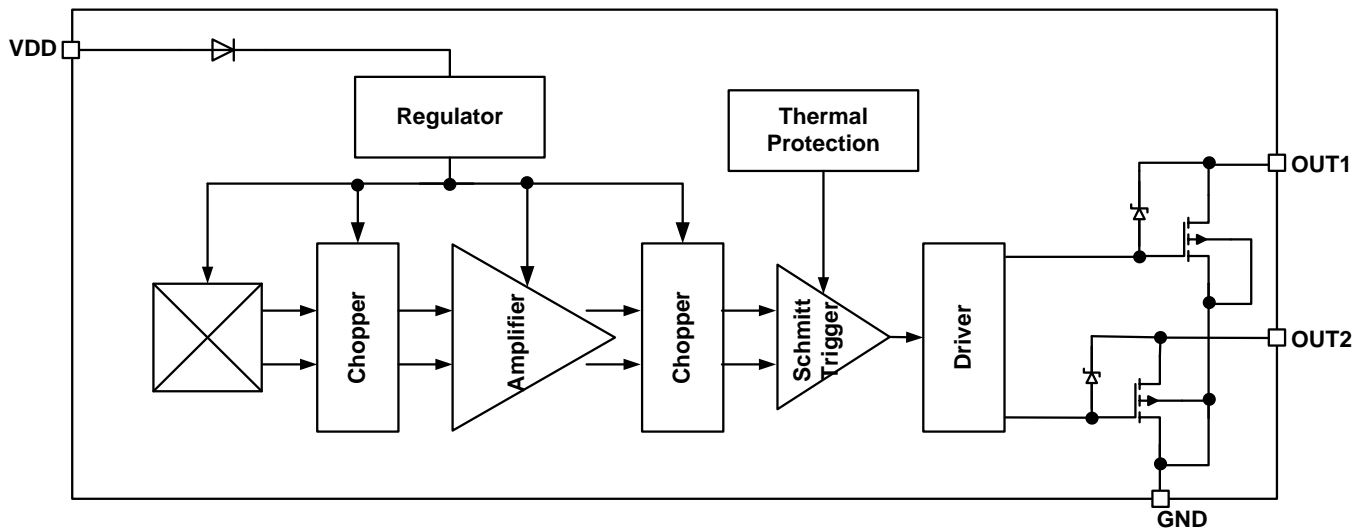


Figure 2: Functional Diagram

3. Transfer Characteristic

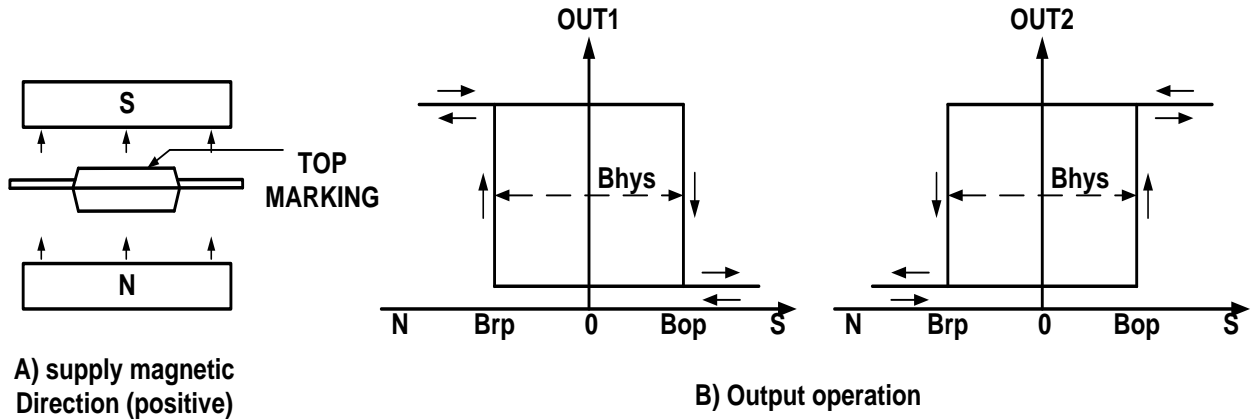


Figure 3: Output of OUT1/OUT2 VS Magnetic Field

4. Absolute Maximum Rating (Note1)

Table2: Absolute maximum rating (Ta=25C)

Symbol	Parameter	Value	Unit
VDD	Supply Voltage	18	V
VDDR	Reversed Supply Voltage	-18	V
B	Magnetic Flux Density	Un-limited	
Io	Output Current (5V,12V)	Continuous	300
		Hold	400
		Peak	600
Ta	Ambient Temp	-40~85	°C
Ts	Storage Temp	-65~150	°C
PD	Power Dissipation	550	mW
TJ	Maximum Junction Temp	150	°C
RJC	Thermal Resistance	227	°C/W

Note 1: Stresses greater than those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. "Absolute Maximum Ratings" for extended period may affect device reliability.

5. Electrical Characteristics

Table 3: Electrical Characteristics (VDD=3.0~18V, Ta=25C unless otherwise specified)

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
VDD	Supply voltage		3.0		18	V
Idd	Operating Current	VDD=18V, OUT1、OUT2 open	-	1.5	3	mA
Vsat	Output saturation voltage	VDD=3.5V, Io=100mA	-	0.2	-	V
		VDD=12V, Io=350mA	-	0.6	0.9	V
Ioff	Output Leakage current	VDD=18V, Vo=18V	-	0.1	10	uA
Tr	Output rise time	RL=820Ohm, CL=20pF	-	3	10	uS
Tf	Output fall time	RL=820Ohm, CL=20pF	-	0.3	1	uS
ΔT	Switch time differential	RL=820Ohm, CL=20pF	-	3	10	uS
TSD	Thermal protect temp		-	150	-	°C

6. Magnetic Characteristic

Table4: Magnetic Characteristic (Ta=25C)

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
Bop	Operating point	Grade A	5		60	Gauss
Brp	Release point		-60		-5	Gauss
Bhys	Hysteresis			60		Gauss
Bop	Operating point	Grade B	5		80	Gauss
Brp	Release point		-80		-5	Gauss
Bhys	Hysteresis			60		Gauss

7. Typical Application

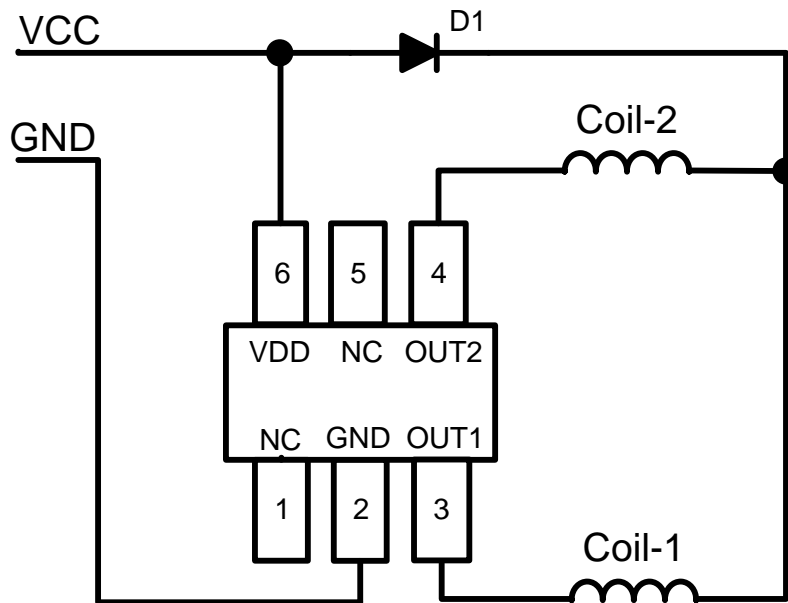


Figure 4: Typical Application Circuit

8. Package Information (Unit: mm)

Package size

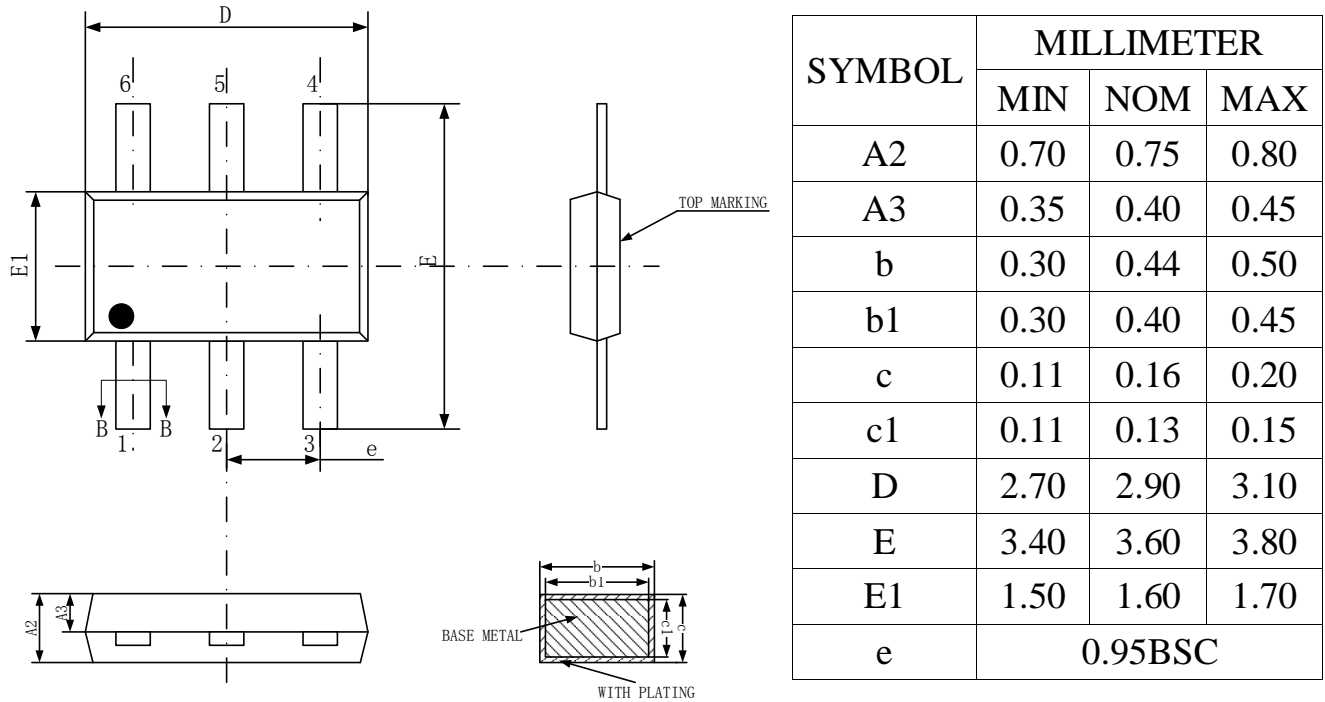


Figure 5: TSOT23-6L package information

Sensor Location

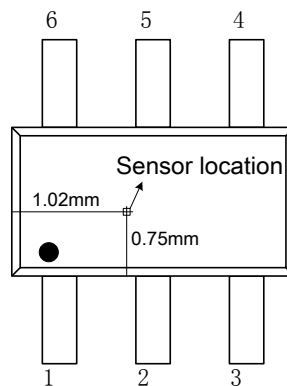
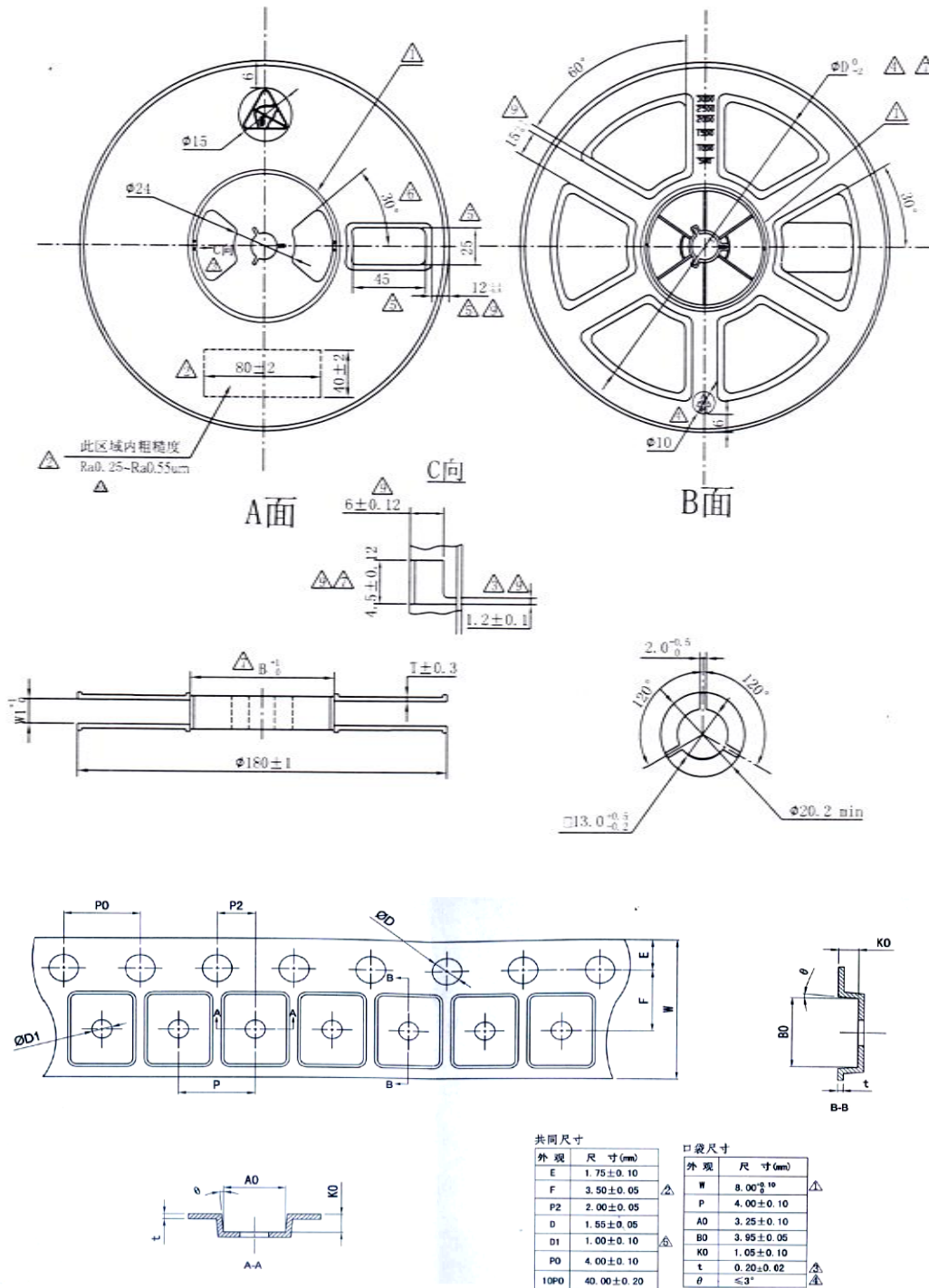
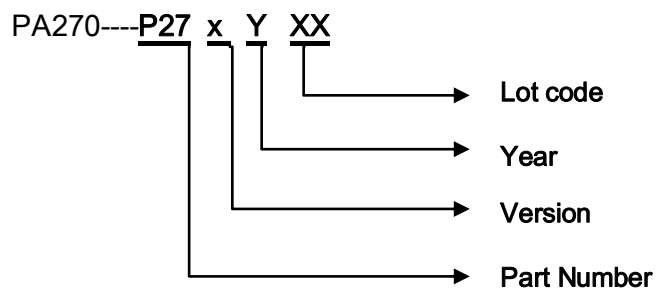


Figure 6: Hall sensor location

9. Packing Specification (Tapping Reel)



10. Order Information



P/N	Package	PCS/REEL	Marking
PA270	TSOT-23-6L	3500	P27xYXX

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