



TO-92S



Pin Definition:

1. V_{DD}
2. GND
3. Output

Description

TSH181, Hall-Effect sensor, designed for electronic commutation of brush-less DC motor applications. The device includes an on-chip Hall voltage generator for magnetic sensing, a comparator that amplifies the Hall Voltage, and a Schmitt trigger to provide switching hysteresis for noise rejection, and open collector output. An internal band gap regulator is used to provide temperature compensated supply voltage for internal circuits and allows a wide operating supply range. The device is identical except for magnetic switch points. The device includes on a single silicon chip a voltage regulator, Hall-voltage generator, small-signal amplifier, chopper stabilization, Schmitt trigger, open-collector output to sink up to 25mA. A south pole of sufficient strength will turn the output on. The North Pole is necessary to turn the output off. An on-board regulator permits operation with supply voltages of 3.5V to 20 V.

Features

- Temperature compensation.
- Wide operating voltage range.
- Open-Collector pre-driver.
- Reverse bias protection on power supply pin.
- 100% at 125°C "Hot Test"

Ordering Information

| Part No. | Package | Packing |
|--------------|---------|------------------|
| TSH181CT B0G | TO-92S | 1Kpcs / Bulk Bag |

Note: "G" denote for Halogen Free Product

Application

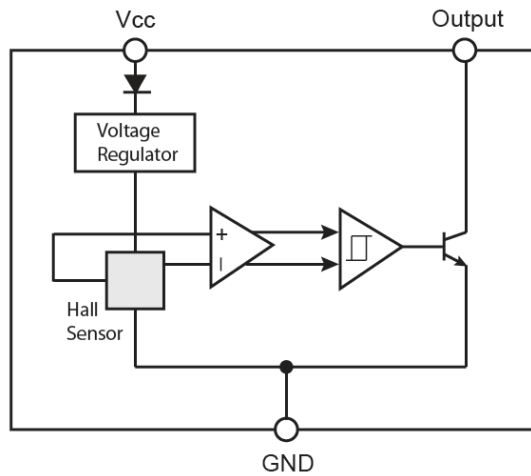
- High temperature Fan motor
- 3 phase BLDC motor application
- Fan motor application
- Speed sensing
- Revolution counting

Absolute Maximum Rating ($T_a = 25^\circ\text{C}$ unless otherwise noted)

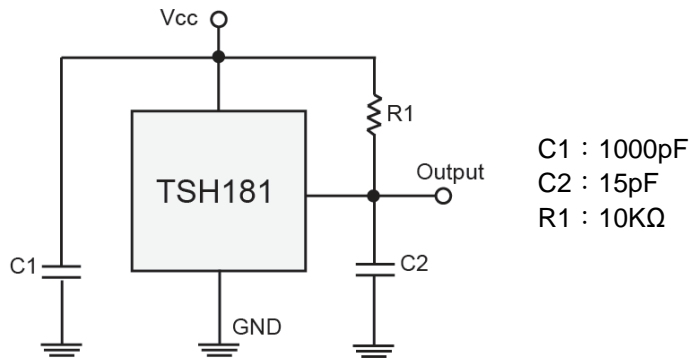
| Characteristics | Limit | Value | Unit |
|--|---------------|-------------|--------------------|
| Supply voltage | V_{CC} | 20 | V |
| Output Voltage | V_{OUT} | 30 | V |
| Reverse voltage | $V_{CC/OUT}$ | -20 | V |
| Magnetic flux density | | Unlimited | Gauss |
| Output current | I_{OUT} | 25 | mA |
| Operating Temperature Range | T_{OPR} | -40 to +125 | $^\circ\text{C}$ |
| Storage temperature range | T_{STG} | -55 to +150 | $^\circ\text{C}$ |
| Maximum Junction Temp | T_J | 150 | $^\circ\text{C}$ |
| Thermal Resistance - Junction to Ambient | θ_{JA} | 206 | $^\circ\text{C/W}$ |
| Thermal Resistance - Junction to Case | θ_{JC} | 148 | $^\circ\text{C/W}$ |
| Package Power Dissipation | P_D | 606 | mW |

Note: Do not apply reverse voltage to V_{CC} and V_{OUT} Pin, It may be caused for Miss function or damaged device.

Block Diagram



Typical Application Circuit



Electrical Specifications (DC Operating Parameters : $T_A=+25^{\circ}\text{C}$, $V_{CC}=12\text{V}$)

| Parameters | Test Conditions | Min | Typ | Max | Units |
|---------------------------|---|-----|-----|-----|-------|
| Supply Voltage | Operating | 3.5 | -- | 20 | V |
| Supply Current | $B < B_{OP}$ | -- | 4 | 8 | mA |
| Output Saturation Voltage | $I_{OUT} = 10\text{mA}$, $B > B_{OP}$ | -- | -- | 700 | mV |
| Output Leakage Current | I_{OFF} $B < B_{RP}$, $V_{OUT} = 12\text{V}$ | -- | -- | 10 | uA |
| Output Rise Time | $R_L = 820\Omega$, $C_L = 20\text{pF}$ | -- | -- | 1.5 | uS |
| Output Fall Time | $R_L = 820\Omega$; $C_L = 20\text{pF}$ | -- | -- | 1.5 | uS |

Magnetic Specifications

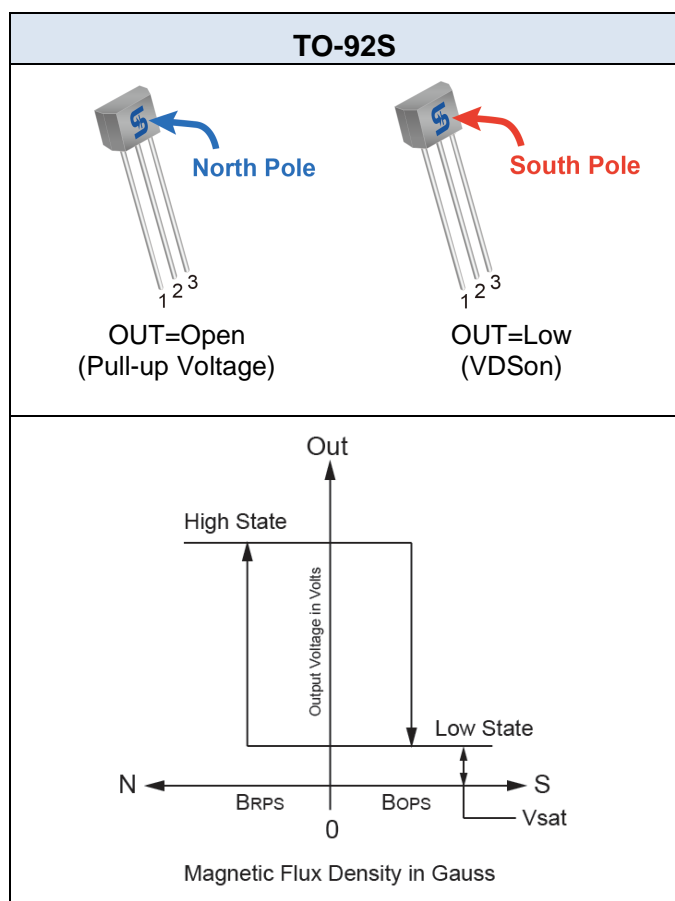
| Parameters | Test Conditions | Min | Typ | Max | Units |
|---------------|-----------------|-----|-----|-----|-------|
| Operate Point | | 5 | -- | 90 | Gauss |
| Release Point | | -90 | -- | -5 | Gauss |
| Hysteresis | | -- | 100 | -- | Gauss |

Note: 1G (Gauss) = 0.1mT (millitesta)

Output Behavior versus Magnetic Pole

DC Operating Parameters: $T_A = -40$ to 125°C , $V_{CC} = 3.5$ to 20V

| Parameter | Test condition | OUT |
|------------|----------------|------|
| North pole | $B > B_{OP}$ | Open |
| South pole | $B < B_{RP}$ | Low |



Characteristic Performance

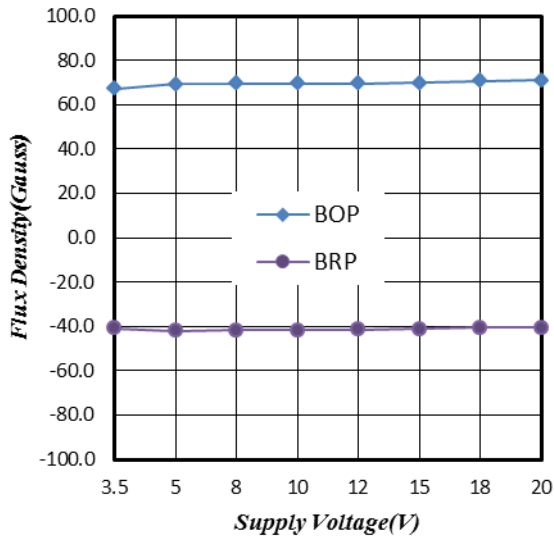


Figure 1. Supply Voltage vs. Flux Density

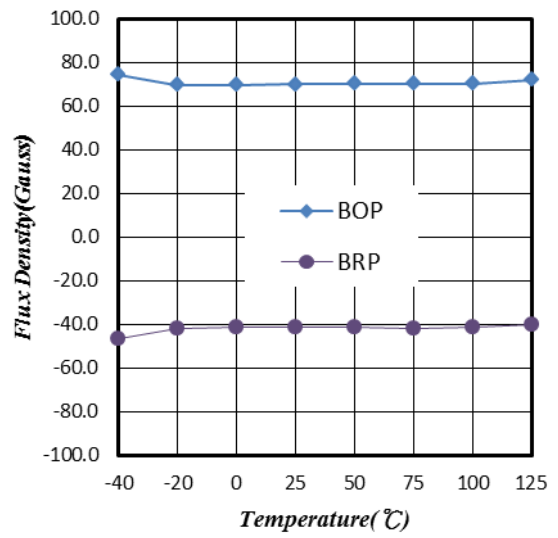


Figure 2. Temperature vs. Flux Density

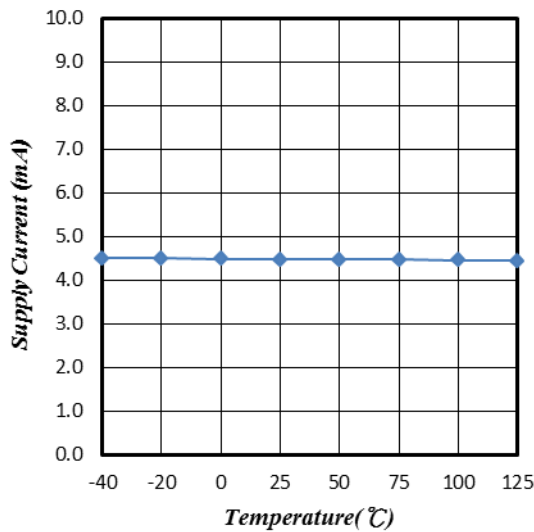


Figure 3. Supply Voltage vs. Output Voltage

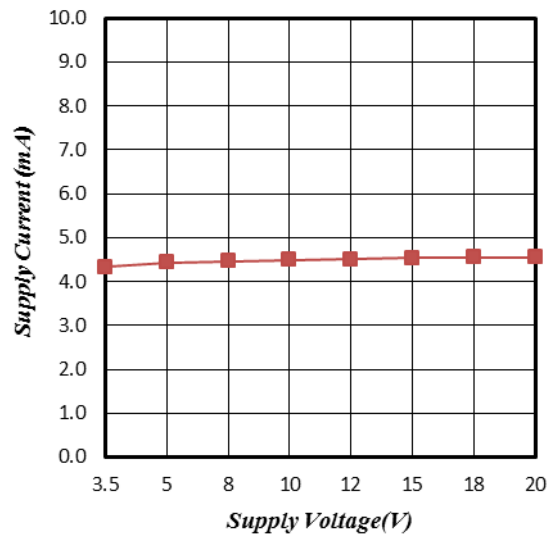


Figure 4. Temperature vs. Output Voltage

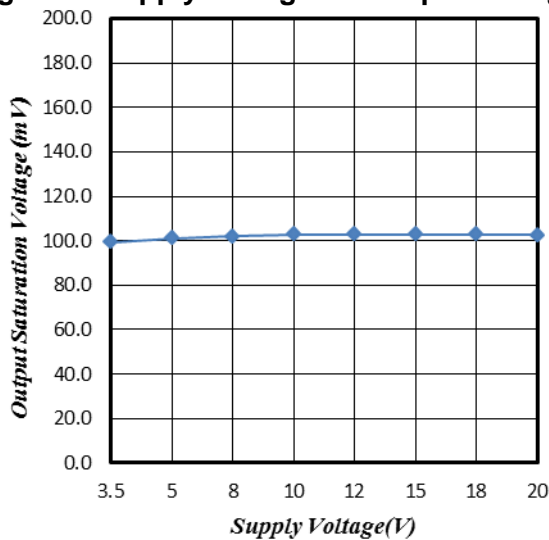


Figure 5. Supply Voltage vs. Leakage Current

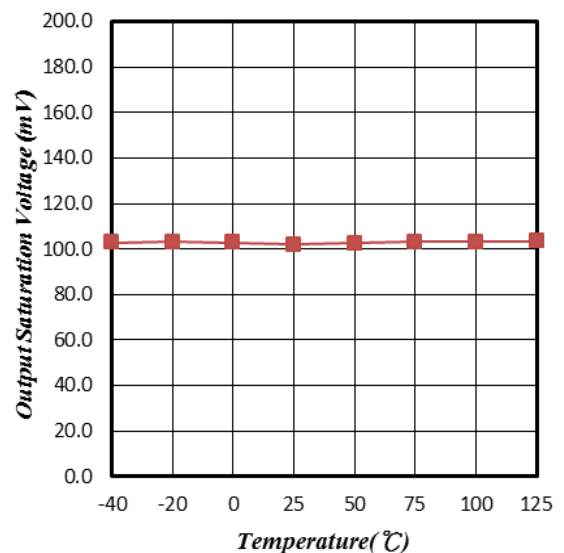


Figure 6. Power Dissipation vs. Temperature

Characteristic Performance

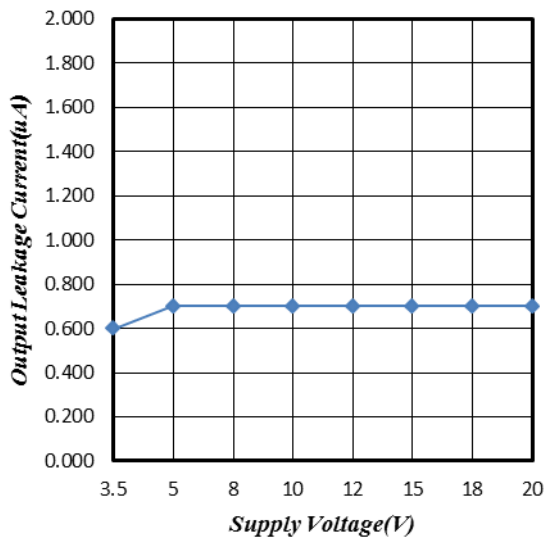


Figure 7. Temperature vs. Supply Current

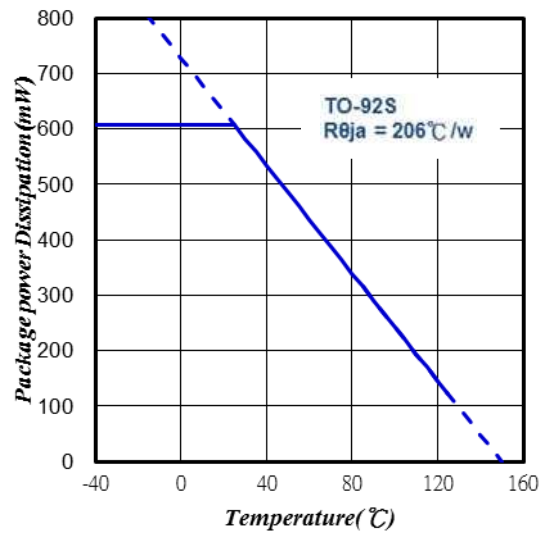


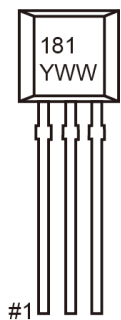
Figure 8. Temperature vs. Power Dissipation

TO-92S Mechanical Drawing



Unit: Millimeters

Marking Diagram



181 = Device Code
Y = Year Code
WW = Week Code (01~52)

Notice

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:

moschip.ru

moschip.ru_4

moschip.ru_6

moschip.ru_9