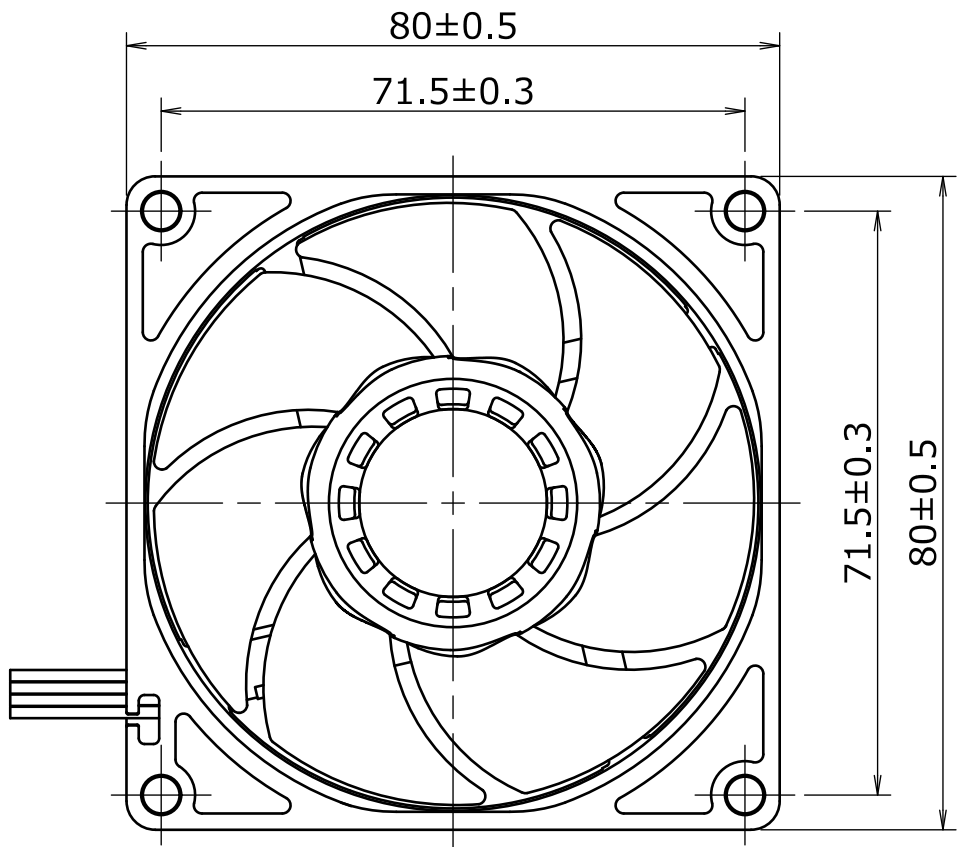
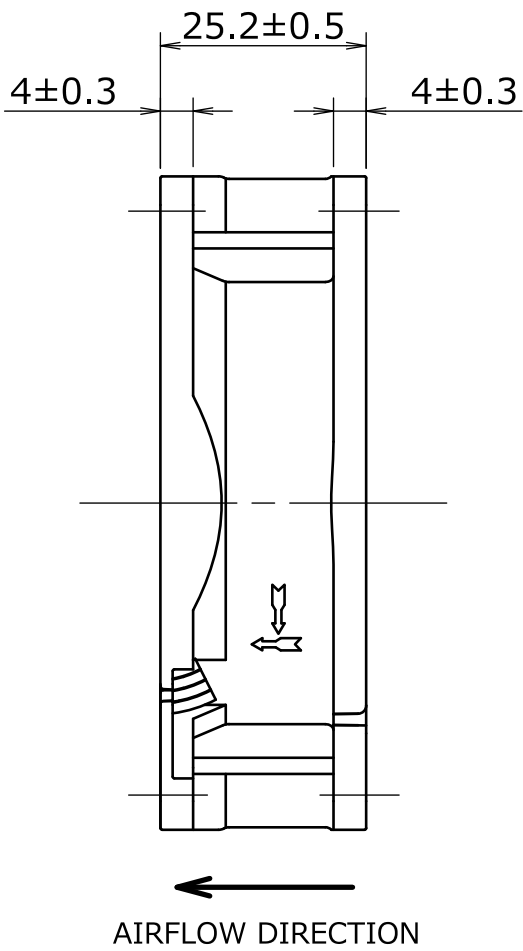
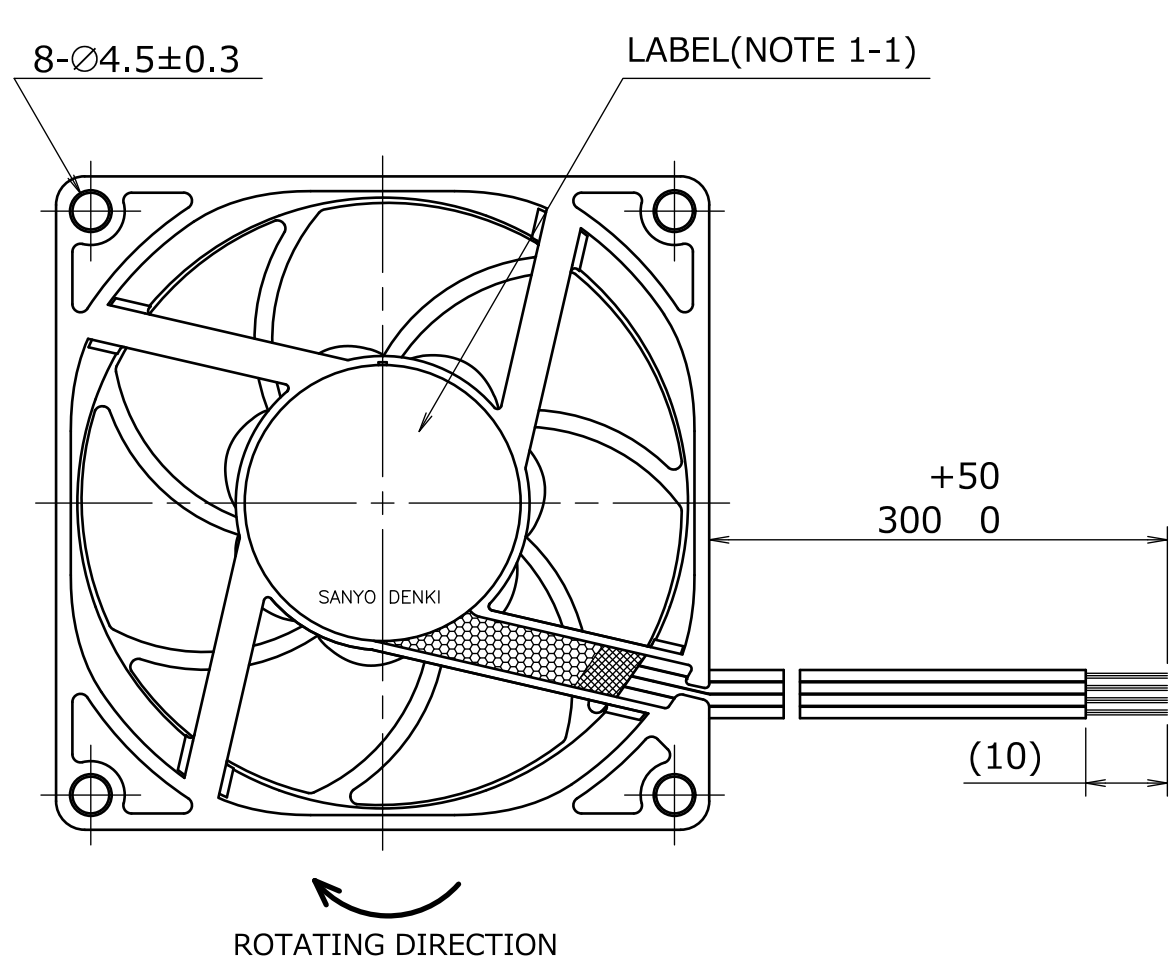


1. DIMENSIONS AND PARTS LIST

<DIMENSIONS>



| <LEAD WIRE CONNECTION TABLE> |              |        |
|------------------------------|--------------|--------|
| FAN                          |              |        |
| SIGNAL                       | LEAD WIRE    | COLOR  |
| +                            | UL1430 AWG26 | RED    |
| GND                          | UL1430 AWG26 | BLACK  |
| PWM                          | UL1430 AWG26 | BROWN  |
| SENSOR                       | UL1430 AWG26 | YELLOW |

NOTE 1-1. PRINT PRODUCT NAME, MODEL No., MANUFACTURER, AND MANUFACTURED DATE ETC.  
品名, 型名, 製造会社名 及び 製造年月日等を表示する。

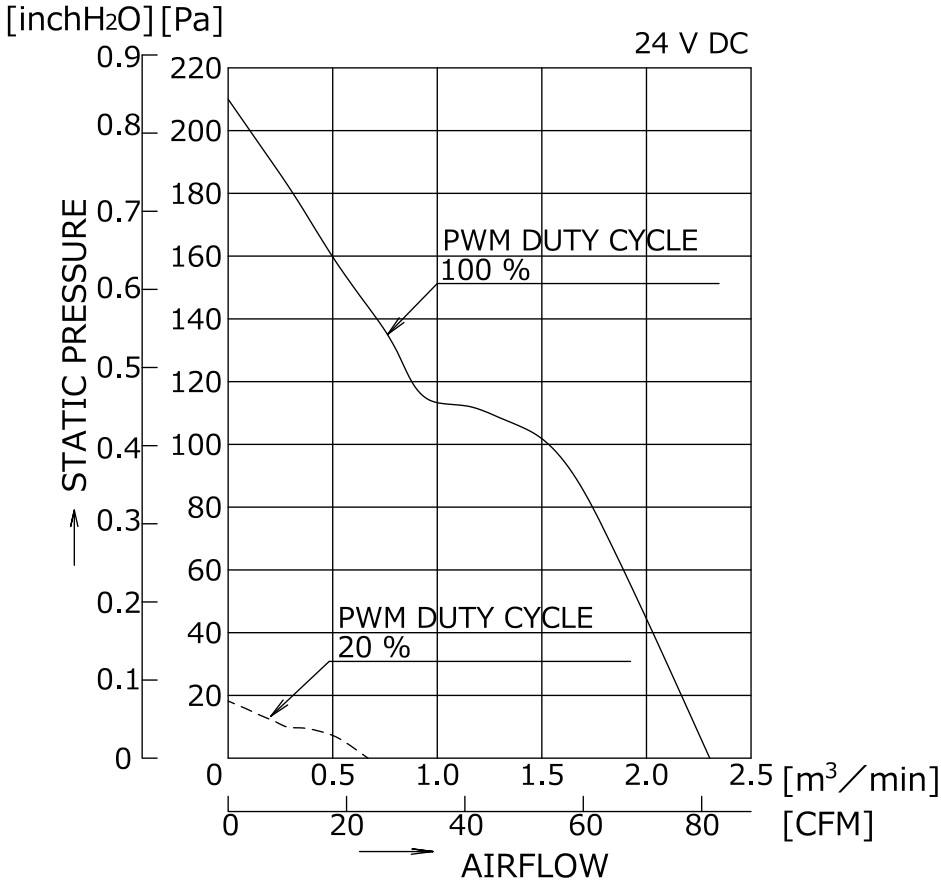
|             |               |                                   |               |                |
|-------------|---------------|-----------------------------------|---------------|----------------|
|             | ECN No.       | 名称 Title                          |               |                |
|             | E0204670      | San Ace 80W (9WPA)                |               |                |
| 単位 Unit     | 新規 New Design | RIBLESS/PULSE_SENSOR/ PWM_CONTROL |               |                |
| mm          | T.KAISE       |                                   |               |                |
| 20-10-27    | 図面番号 Dwg. No. |                                   |               |                |
| 尺度 Scale    | -             | 9WPA0824P4G2011                   |               |                |
|             |               | Rev. B                            |               |                |
| SANYO DENKI |               | 承認 Approved By                    | 審査 Checked By | 設計 Designed By |
|             |               | T.IKEDA                           | M.TAKAKUWA    | T.KAISE        |
|             |               | 20-11-13                          | 20-11-12      | 20-11-12       |
|             |               | Group                             | User          | Page           |
|             |               | D12K                              | E0            | 1/4            |

2. DESCRIPTION AND AIRFLOW-STATIC PRESSURE CHARACTERISTICS EXAMPLE

<DESCRIPTION>

| ITEM                                    | UNIT                         | DESCRIPTION                                           |                 |             |
|-----------------------------------------|------------------------------|-------------------------------------------------------|-----------------|-------------|
| PWM DUTY CYCLE                          | %                            | 100                                                   | 20              | 0           |
| RATED VOLTAGE                           | V DC                         | 24                                                    |                 |             |
| OPERATING VOLTAGE RANGE                 | V DC                         | 21.6 ~ 26.4                                           |                 |             |
| MAX. AIRFLOW<br>(NOTE 2-2)              | m <sup>3</sup> /min<br>(CFM) | 2.32<br>(81.9)                                        | 0.67<br>(23.6)  | -<br>-      |
| MAX. STATIC PRESSURE<br>(NOTE 2-2)      | Pa<br>(inchH <sub>2</sub> O) | 210<br>(0.84)                                         | 18.2<br>(0.073) | -<br>-      |
| RATED CURRENT<br>(NOTE 2-2)             | A                            | 0.36                                                  | 0.05            | 0.04 MAX.   |
| RATED SPEED                             | min <sup>-1</sup>            | 8250±825                                              | 2400±720        | NO ROTATION |
| INSULATION RESISTANCE<br>(NOTE 2-3)     | -                            | 10 MΩ MIN. AT 500 V DC                                |                 |             |
| DIELECTRIC STRENGTH<br>(NOTE 2-3)       | -                            | 1 MINUTE AT 500 V AC, 50/60 Hz                        |                 |             |
| OPERATING TEMPERATURE                   | ℃                            | -40 ~ 70                                              |                 |             |
| STORAGE TEMPERATURE                     | ℃                            | -40 ~ 70                                              |                 |             |
| EXPECTED LIFE                           | -                            | 40,000 h / 60 ℃ (L10, CONTINUOUS OPERATION)           |                 |             |
| SOUND PRESSURE LEVEL<br>(NOTE 2-2, 2-4) | dB(A)                        | 54                                                    | 21              | -           |
| MASS                                    | g                            | APPROX. 130                                           |                 |             |
| MATERIAL                                | -                            | FRAME, IMPELLER : PLASTICS                            |                 |             |
| BEARING SYSTEM                          | -                            | 2 BALL BEARINGS                                       |                 |             |
| CONTROL TERMINAL                        | -                            | SOURCE CURRENT: 1 mA MAX. AT CONTROL VOLTAGE 0 V      |                 |             |
|                                         | -                            | SINK CURRENT : 1 mA MAX. AT CONTROL VOLTAGE 5.25 V    |                 |             |
|                                         | -                            | CONTROL TERMINAL VOLTAGE : 5.25 V MAX. (OPEN CIRCUIT) |                 |             |
| IP CODE                                 | -                            | IP68 (IEC 60529:2001)                                 |                 |             |

<AIRFLOW-STATIC PRESSURE CHARACTERISTICS EXAMPLE>



- NOTE 2-1. VALUES FOR EACH CHARACTERISTIC ARE AT ROOM TEMPERATURE AND NORMAL HUMIDITY.  
諸特性は常温、常湿での値。
- 2-2. UNSPECIFIED VALUE IS THE NOMINAL VALUE.  
指定なき値は標準値。
- 2-3. MEASURED BETWEEN LEAD WIRE CONDUCTORS AND FRAME.  
リード線導体部とフレームとの間。
- 2-4. MEASURED AT 1 m FROM THE AIR INLET.  
ファン吸込側より1 mにて測定する。
- 2-5. MOTOR IS PROTECTED FROM DAMAGE OF LOCKED ROTOR CONDITION AT THE OPERATING VOLTAGE.  
DO NOT LOCK ROTOR OUTSIDE OF OPERATING VOLTAGE.  
ファン拘束時焼損の恐れはない。使用電圧範囲外でファンを拘束しないこと。

2-6. ALL ERECTRICAL PARTS IN THIS FAN MOTOR HAVE BEEN COATED WITH A LAYER OF RESIN.  
本ファンモータは、活電部に樹脂コーティングを施しています。

|               |                                      |                                       |                                         |                                       |
|---------------|--------------------------------------|---------------------------------------|-----------------------------------------|---------------------------------------|
|               | ECN No.                              | 名称 Title                              |                                         |                                       |
|               | E0204670                             | San Ace 80W (9WPA)                    |                                         |                                       |
| 単位 Unit<br>mm | 新規 New Design<br>T.KAISE<br>20-10-27 | RIBLESS/PULSE_SENSOR/ PWM_CONTROL     |                                         |                                       |
| 尺度 Scale<br>- | 図面番号 Dwg. No.                        | 9WPA0824P4G2011                       |                                         | Rev.<br>B                             |
|               |                                      | 承認 Approved By<br>T.IKEDA<br>20-11-13 | 審査 Checked By<br>M.TAKAKUWA<br>20-11-12 | 設計 Designed By<br>T.KAISE<br>20-11-12 |
|               |                                      | Group D12K                            | User E0                                 | Page 2/4                              |

### 3. SENSOR SPECIFICATIONS

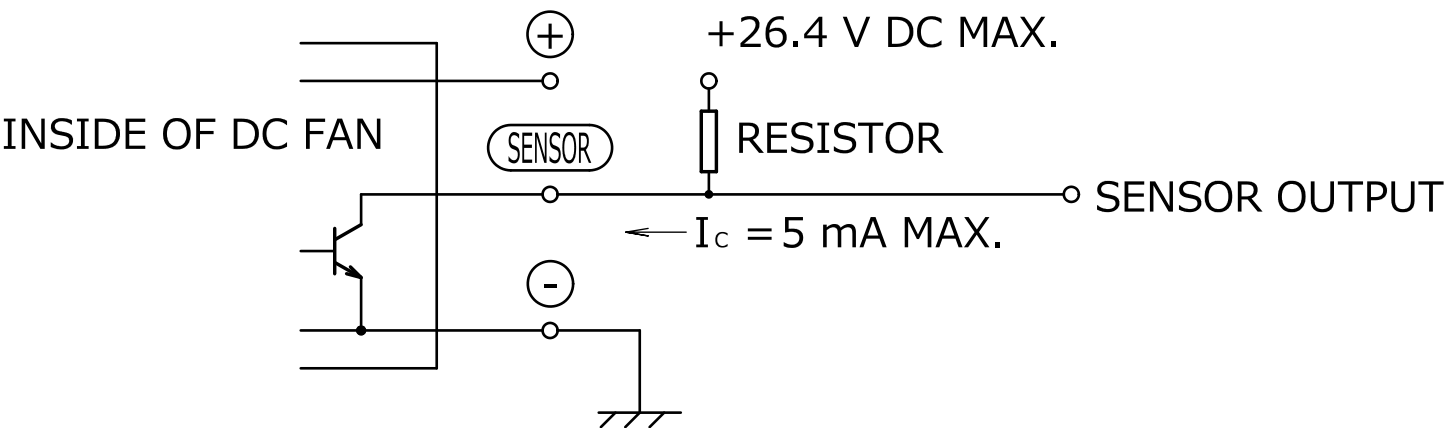
<OUTPUT CIRCUIT>

OPEN COLLECTOR

<SPECIFICATIONS>

$$V_{CE} = +26.4 \text{ V DC MAX.}$$

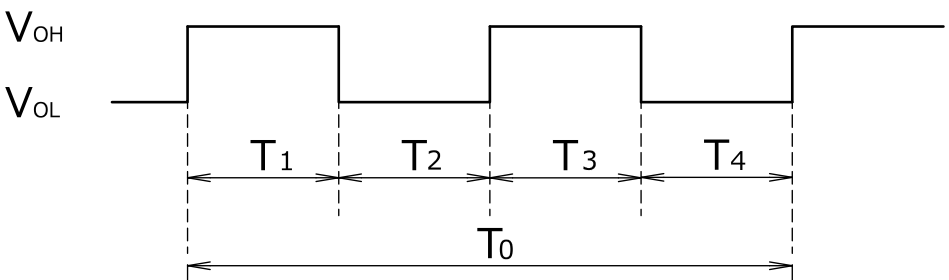
$$I_C = 5 \text{ mA MAX. (} V_{CE} \text{ (SAT)} = 0.8 \text{ V MAX.)}$$



<OUTPUT WAVEFORM>

(a) IN CASE OF STEADY RUNNING

ONE REVOLUTION



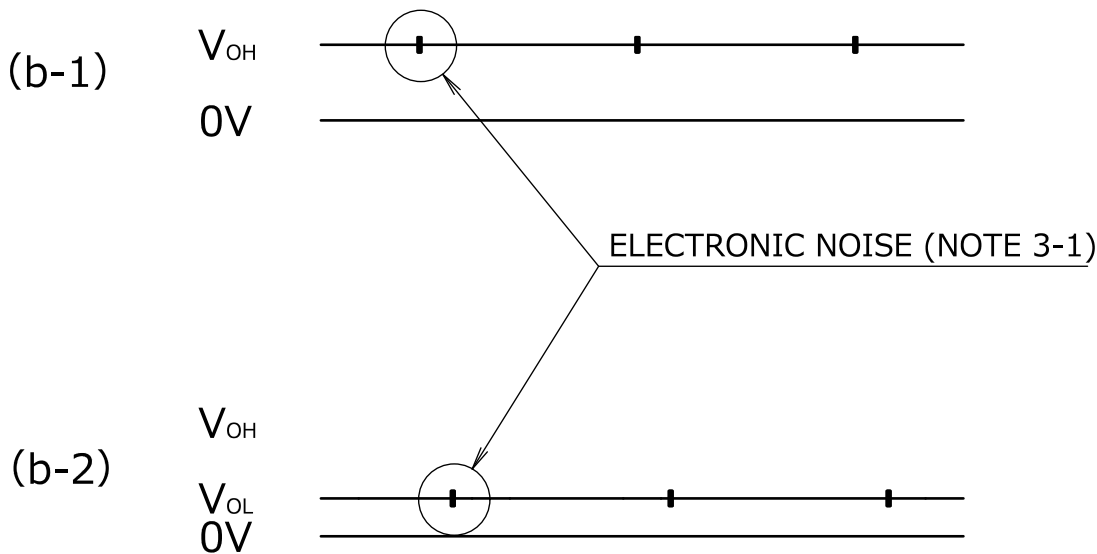
$$T_{1 \text{ to } 4} \cong (1/4) T_0$$

$$T_{1 \text{ to } 4} \cong (1/4) T_0 = 60/4 \text{ N (s)}$$

$$N = \text{FAN SPEED (min}^{-1}\text{)}$$

(b) IN CASE OF STEADY LOCKED ROTOR

SENSOR OUTPUT IS FIXED EITHER (b-1) OR (b-2) .  
センサー出力は(b-1)あるいは(b-2)のどちらかに固定される。

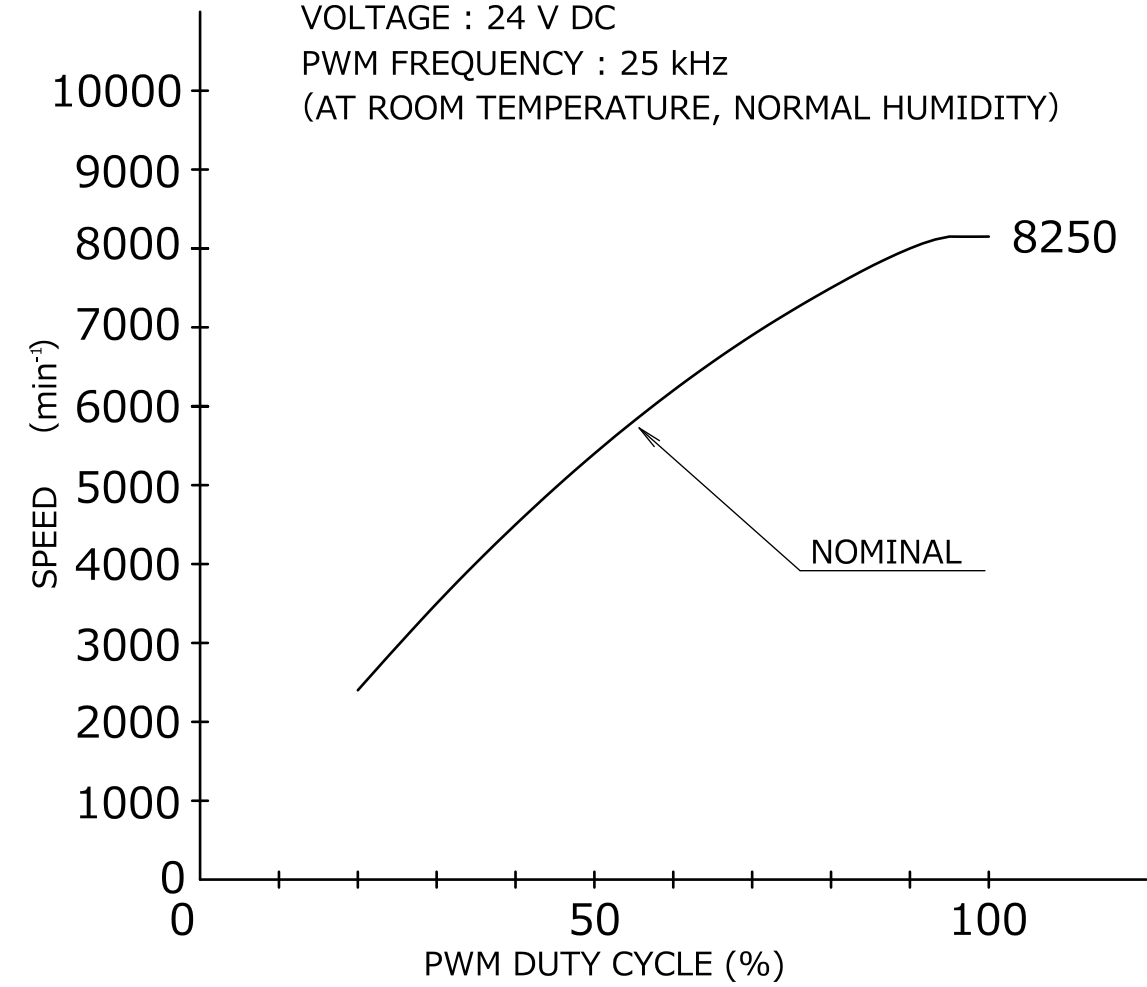


NOTE: 3-1. THE ELECTRONIC NOISE DUE TO AUTO-RESTART  
BEHAVIOR OF THE MOTOR MAY INFLUENCE  $V_{OH}$  OR  $V_{OL}$  .  
モータの再起動動作にともない、 $V_{OH}$  あるいは  $V_{OL}$  にノイズが載ることがある。

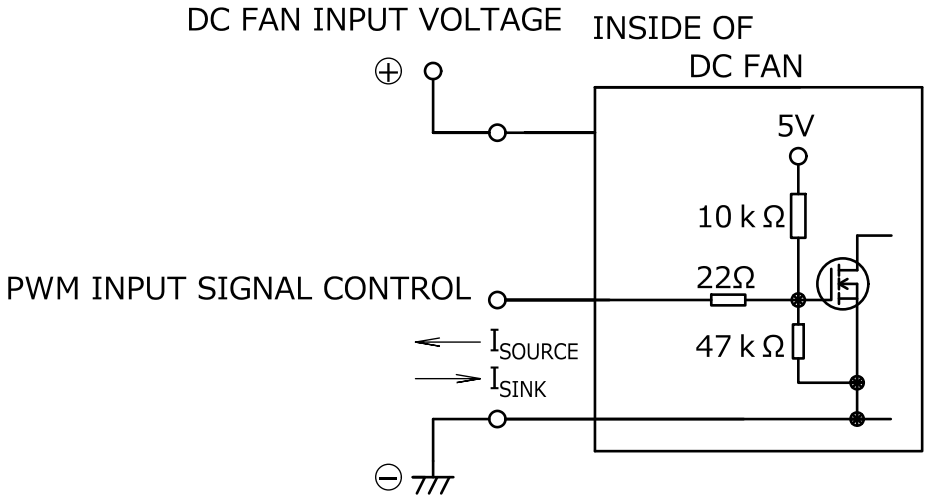
|                    |                     |                                   |                        |                     |
|--------------------|---------------------|-----------------------------------|------------------------|---------------------|
|                    | ECN No.             | 名称 Title                          |                        |                     |
|                    | E0204670            | San Ace 80W (9WPA)                |                        |                     |
| 単位 Unit            | 新規 New Design       | RIBLESS/PULSE_SENSOR/ PWM_CONTROL |                        |                     |
| mm                 | T.KAISE<br>20-10-27 |                                   |                        |                     |
| 尺度 Scale           | 図面番号 Dwg. No.       | 9WPA0824P4G2011                   |                        | Rev.                |
| -                  |                     | B                                 |                        |                     |
| <b>SANYO DENKI</b> |                     | 承認 Approved By                    | 審査 Checked By          | 設計 Designed By      |
|                    |                     | T.IKEDA<br>20-11-13               | M.TAKAKUWA<br>20-11-12 | T.KAISE<br>20-11-12 |
| Group              |                     | D12K                              | User                   | E0                  |
| A 3 G - P 5        |                     | Page                              |                        | 3/4                 |

# 4. PWM DUTY-SPEED CHARACTERISTICS EXAMPLE

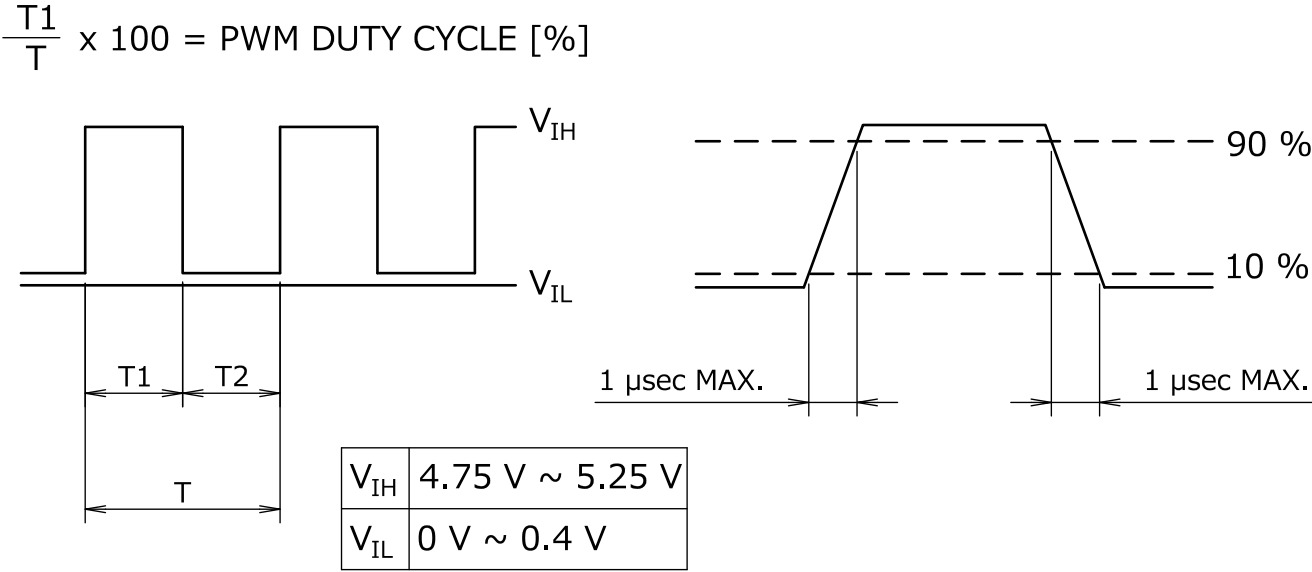
<PWM DUTY-SPEED CHARACTERISTICS EXAMPLE>



<EXAMPLE OF CONNECTION SCHEMATIC>



<PWM INPUT SIGNAL EXAMPLE>



- NOTE 4-1. PWM CONTROL SWITCHING MAY AFFECT THE SENSOR OUTPUT.  
PWM制御によるスイッチングがセンサ出力に影響する場合がある。
- 4-2. REFER TO PAGE 2 FOR THE SPEED WITH PWM DUTY CYCLE OF 0, 20, 100 %.  
PWMデューティサイクルが 0, 20, 100 %の時、回転速度は2頁を参照のこと。
- 4-3. WHEN THE CONTROL TERMINAL IS OPEN,  
FAN SPEED IS THE SAME AS WHEN PWM DUTY CYCLE IS 100 %.  
PWM入力端子がオープン状態の時、回転速度はPWMデューティサイクル100 %と同じであること。
- 4-4. EITHER TTL INPUT, OPEN COLLECTOR OR OPEN DRAIN CAN BE USED  
FOR PWM CONTROL INPUT SIGNAL.  
AND IN CASE OF OPEN COLLECTOR, DRAIN INPUT,  
THE PWM DUTY CYCLE SHOULD BE  $(T-T2) \times 100 / T$ .  
PWM入力信号はTTL入力又は、オープンコレクタ、ドレイン入力にて使用可能であること。  
但し、オープンコレクタ、ドレイン入力の場合、PWMデューティ =  $(T-T2) \times 100 / T$  のこと。

|          |               |                                   |               |                |
|----------|---------------|-----------------------------------|---------------|----------------|
|          | ECN No.       | 名称 Title                          |               |                |
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| 単位 Unit  | 新規 New Design | RIBLESS/PULSE_SENSOR/ PWM_CONTROL |               |                |
| mm       | T.KAISE       |                                   |               |                |
|          | 20-10-27      |                                   |               |                |
| 尺度 Scale | 図面番号 Dwg. No. | 9WPA0824P4G2011                   |               |                |
| -        |               | Rev. B                            |               |                |
|          |               | 承認 Approved By                    | 審査 Checked By | 設計 Designed By |
|          |               | T.IKEDA                           | M.TAKAKUWA    | T.KAISE        |
|          |               | 20-11-13                          | 20-11-12      | 20-11-12       |
|          |               | Group                             | User          | Page           |
|          |               | D12K                              | E0            | 4/4            |