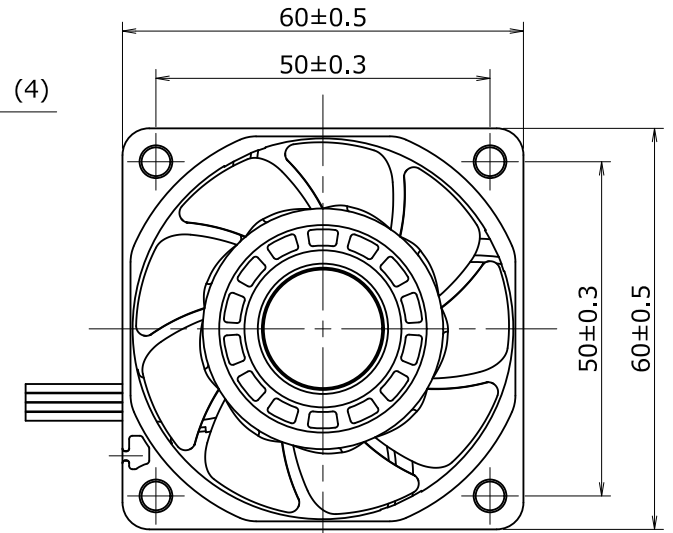
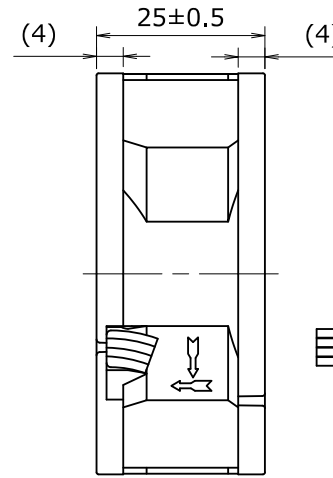
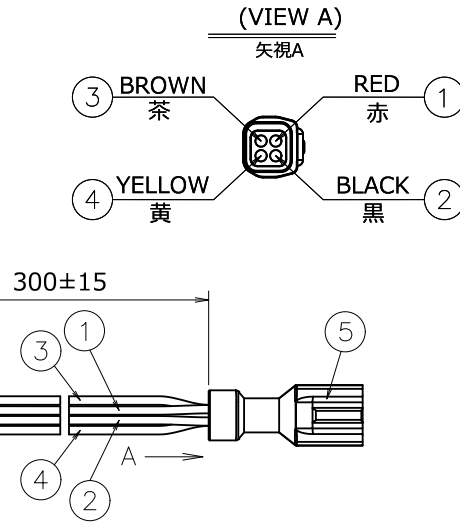


1. DIMENSIONS AND PARTS LIST

<DIMENSIONS>

4- \varnothing 4.5 \pm 0.3

LABEL(NOTE 1-1)



ROTATING DIRECTION

AIRFLOW DIRECTION

<LEAD WIRE CONNECTION>

ITEM No.	SIGNAL	LEAD WIRE	COLOR	PIN No.
1	+	UL1430 AWG26	RED	1
2	GND	UL1430 AWG26	BLACK	2
3	PWM	UL1430 AWG26	BROWN	3
4	SENSOR	UL1430 AWG26	YELLOW	4

ITEM No.	PARTS NAME	REMARKS
5	CONTACT	HIROSE : DF62W-EP2226PCF
	CONNECTOR	HIROSE : DF62W-4EP-2.2C

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
	E0206400	San Ace 10W (9WPA) RIBBED/PULSE/SENSOR/PWM_CONTROL
単位 Unit	新規 New Design	Rev.
mm	G.RICO 20-11-10	
尺度 Scale	図面番号 Dwg. No.	承認 Approved By
-	-	T.IKEDA 21-03-15
SANYODENKI		審査 Checked By
		H.OHSAWA 21-03-09
Group D12		設計 Designed By
		Y.OKUDA 21-03-08
User E0		Page 1/4

2. DESCRIPTION AND AIRFLOW-STATIC PRESSURE CHARACTERISTICS EXAMPLE

<DESCRIPTION>

ITEM	UNIT	DESCRIPTION		
PWM DUTY CYCLE	%	100	20	0
RATED VOLTAGE	V DC	12		
OPERATING VOLTAGE RANGE	V DC	10.8 ~ 13.2		
MAX. AIRFLOW (NOTE 2-2)	m ³ /min (CFM)	1.52 (53.7)	0.43 (15.1)	-
MAX. STATIC PRESSURE (NOTE 2-2)	Pa (inchH ₂ O)	357 (1.43)	30 (0.12)	-
RATED CURRENT (NOTE 2-2)	A	0.93	0.09	0.04 MAX.
RATED SPEED	min ⁻¹	12000±1200	3500±1050	NO ROTATION
INSULATION RESISTANCE (NOTE 2-3)	-	10 MΩ MIN. AT 500 V DC		
DIELECTRIC STRENGTH (NOTE 2-3)	-	1 MINUTE AT 500 V AC, 50/60 Hz		
OPERATING TEMPERATURE	°C	-20 ~ +70		
STORAGE TEMPERATURE	°C	-30 ~ +70		
EXPECTED LIFE	-	40,000 h / 60 °C (L10, CONTINUOUS OPERATION)		
SOUND PRESSURE LEVEL (NOTE 2-2, 2-4)	dB(A)	56	22	-
MASS	g	APPROX. 110		
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)		

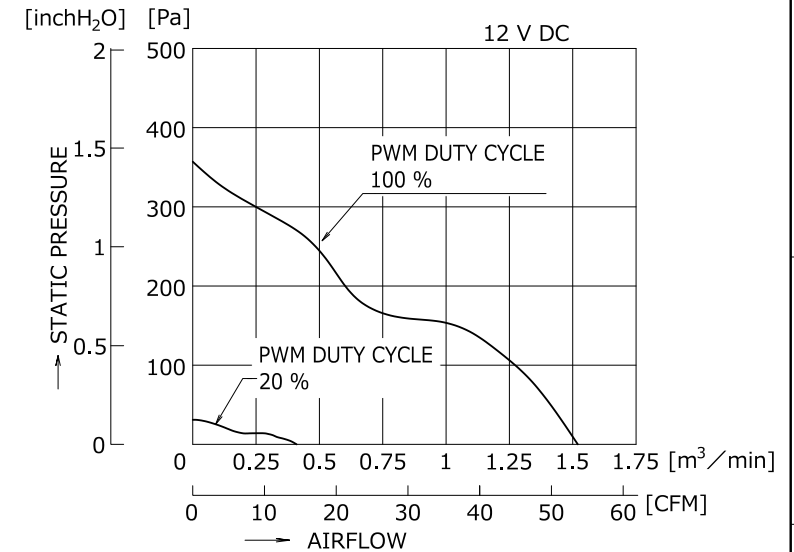
2-6. ALL ELECTRICAL PARTS IN THIS FAN MOTOR HAVE BEEN COATED WITH A LAYER OF RESIN.

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。

2-7. THE HARNESS IS EXEMPT FROM IP68.

ハーネス部はIP68の対象外です。

<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。

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	E0206400		
単位 Unit	新規 New Design	WPA0612P4G003 C	
mm	G.RICO 20-11-10		
尺度 Scale	図面番号 Dwg. No.	承認 Approved By	審査 Checked By
-		T.IKEDA 21-03-15	H.OHSAWA 21-03-09
SANYODENKI		設計 Designed By	設計 Designed By
		Y.OKUDA 21-03-08	Y.OKUDA 21-03-08
Group	D12	User	E0
A 3G-P 5		Page 2/4	

3. SENSOR SPECIFICATIONS

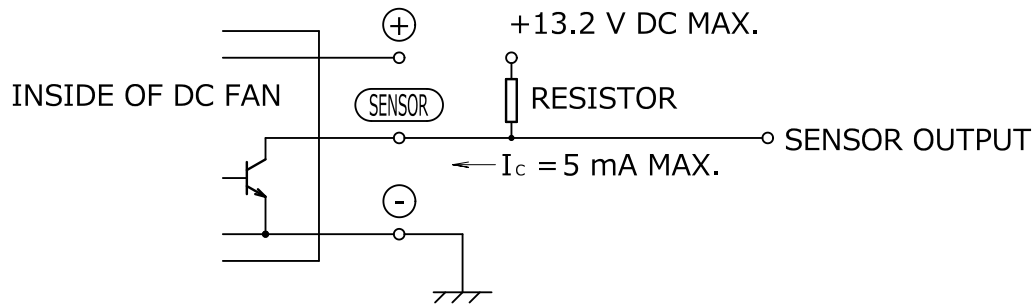
<OUTPUT CIRCUIT>

OPEN COLLECTOR

<SPECIFICATIONS>

$V_{CE} = +13.2 \text{ V DC MAX.}$

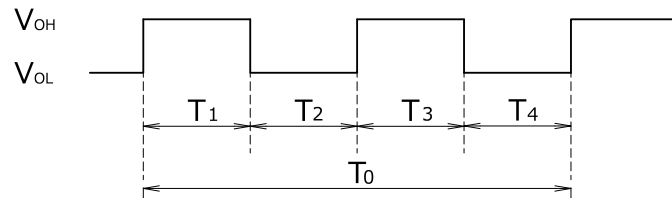
$I_c = 5 \text{ mA MAX. (} V_{CE} \text{ (SAT)} = 0.8 \text{ V MAX.)}$



<OUTPUT WAVEFORM>

(a) IN CASE OF STEADY RUNNING

ONE REVOLUTION



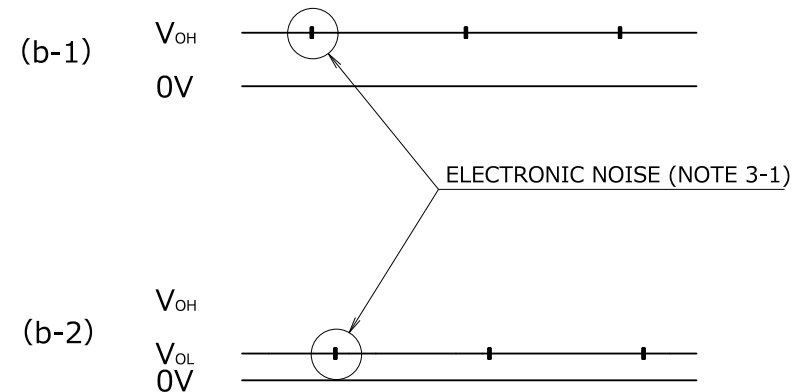
$$T_{1 \text{ to } 4} = (1/4) T_0$$

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

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

(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。



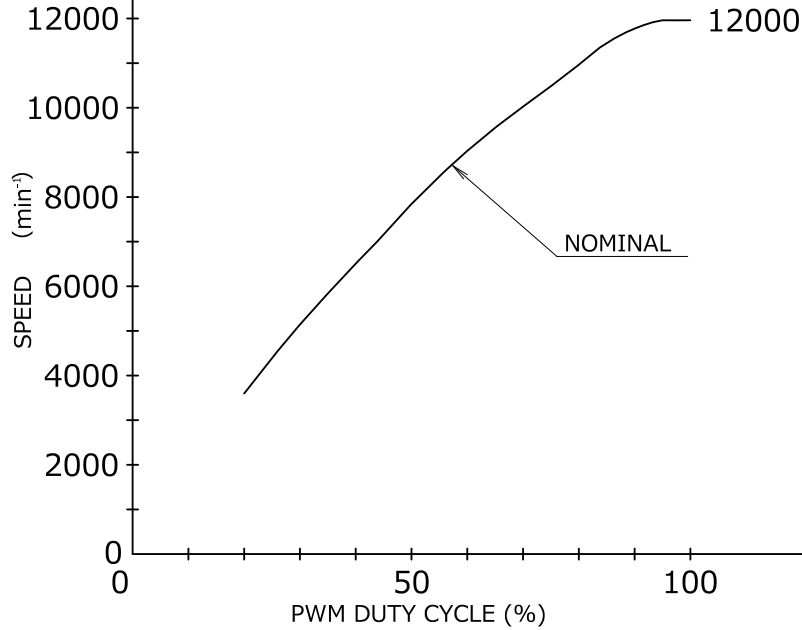
NOTE: 3-1. THE ELECTRONIC NOISE DUE TO AUTO-RESTART BEHAVIOR OF THE MOTOR MAY INFLUENCE V_{OH} OR V_{OL} .
モータの再起動動作にともない、 V_{OH} あるいは V_{OL} にノイズが載ることがある。

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尺度 Scale	図面番号 Dwg. No.			
-	-			
SANYODENKI		承認 Approved By T.IKEDA 21-03-15	審査 Checked By H.OHSAWA 21-03-09	設計 Designed By Y.OKUDA 21-03-08
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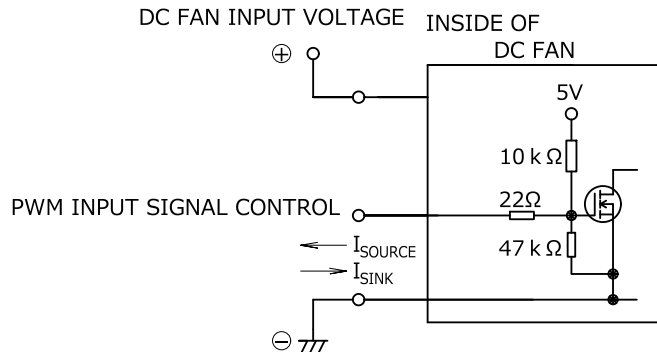
4. PWM DUTY-SPEED CHARACTERISTICS EXAMPLE

<PWM DUTY-SPEED CHARACTERISTICS EXAMPLE>

VOLTAGE : 12 V DC
 PWM FREQUENCY : 25 kHz
 (AT ROOM TEMPERATURE, NORMAL HUMIDITY)

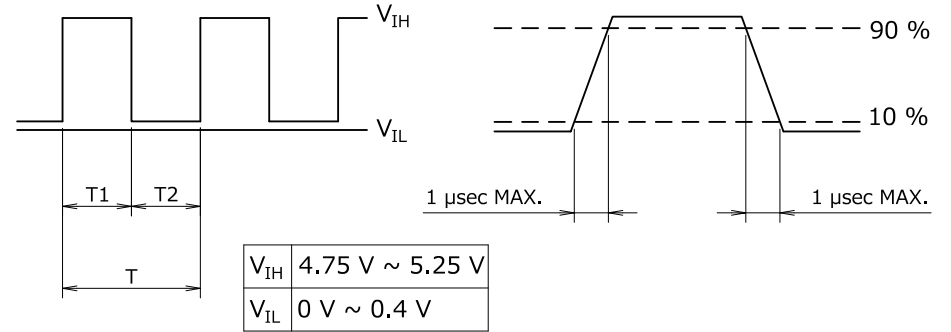


<EXAMPLE OF CONNECTION SCHEMATIC>



<PWM INPUT SIGNAL EXAMPLE>

$$\frac{T1}{T} \times 100 = \text{PWM DUTY CYCLE [\%]}$$



- 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ります。
- 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) x 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) x 100 / T のこと。

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尺度 Scale	図面番号 Dwg. No.	Rev.
-		9WPA0612P4G003 C
		承認 Approved By T.IKEDA 21-03-15 審査 Checked By H.OHSAWA 21-03-09 設計 Designed By Y.OKUDA 21-03-08
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