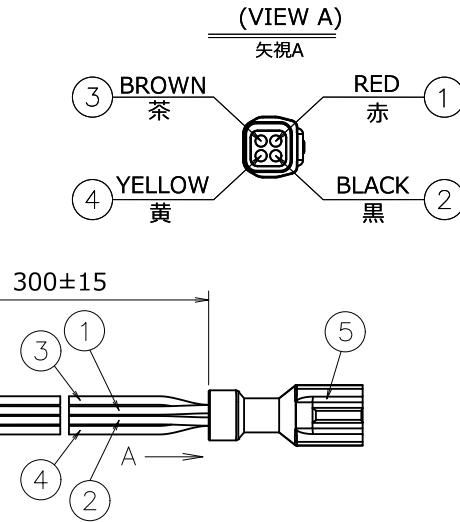


1. DIMENSIONS AND PARTS LIST

<DIMENSIONS>

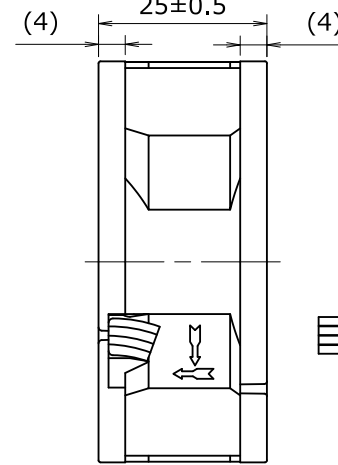
4- \varnothing 4.5 \pm 0.3

LABEL(NOTE 1-1)

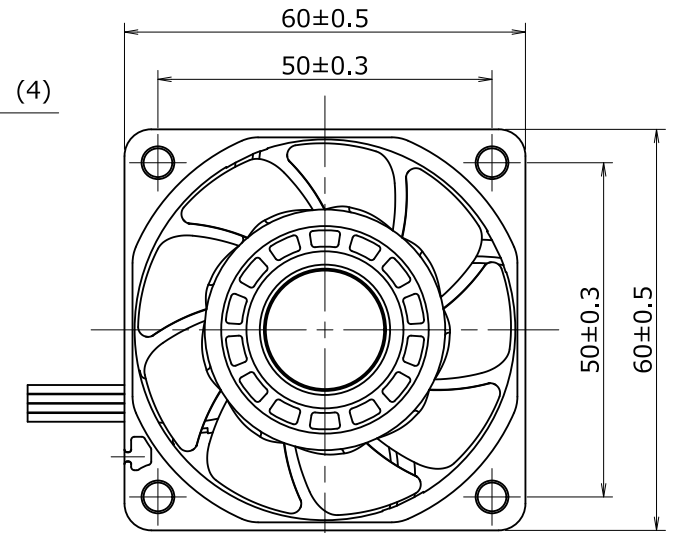


300 \pm 15

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 90W (9WPA) RIBBED/PULSE/SENSOR/PWM_CONTROL		
単位 Unit	新規 New Design	SANYO DENKI CO., LTD. ISSUED		
mm	G.RICO 20-11-10			
尺度 Scale	図面番号 Dwg. No.	7WPA0612P4G003		Rev. C
承認 Approved By		審査 Checked By	設計 Designed By	
T.IKEDA		H.OHSAWA	Y.OKUDA	
21-03-15		21-03-09	21-03-08	
Group	D12	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)		

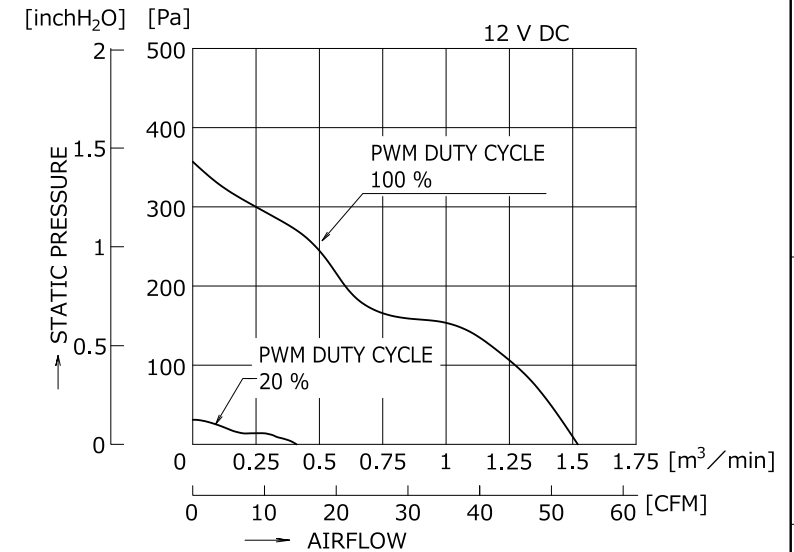
2-6. ALL ELECTRICAL PARTS IN THIS FAN MOTOR HAVE BEEN COATED WITH A LAYER OF RESIN.

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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mm	G.RICO 20-11-10	
尺度 Scale	図面番号 Dwg. No.	Rev.
-	-	9WPA0612P4G003 C
承認 Approved By		設計 Designed By
T.IKEDA		Y.OKUDA
21-03-15		21-03-08
Group	D12	Page 2/4

3. SENSOR SPECIFICATIONS

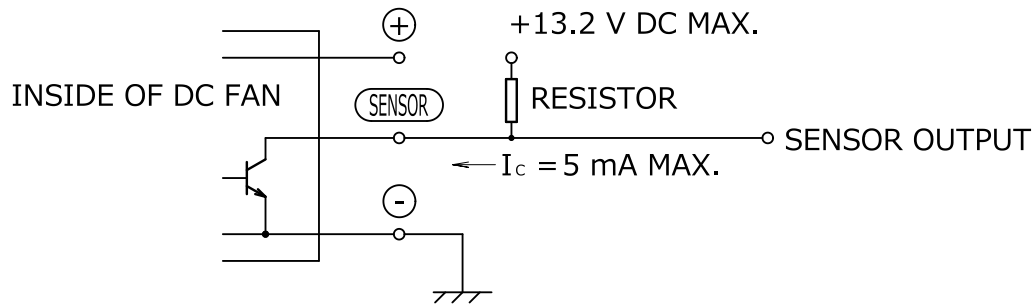
<OUTPUT CIRCUIT>

OPEN COLLECTOR

<SPECIFICATIONS>

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

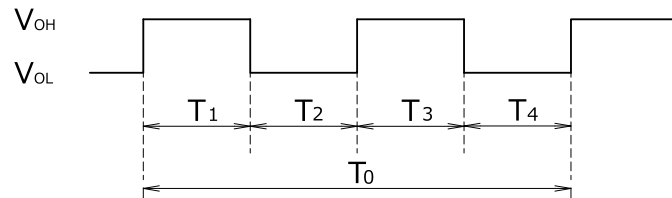
$I_c = 5 \text{ mA MAX. (} V_{CE} \text{ (SAT)} = 0.8 \text{ V MAX.)}$



<OUTPUT WAVEFORM>

(a) IN CASE OF STEADY RUNNING

ONE REVOLUTION



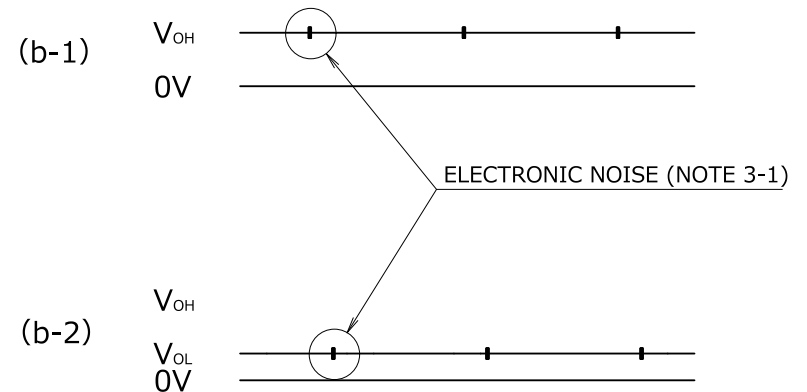
$$T_{1 \text{ to } 4} = (1/4) T_0$$

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

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

(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。



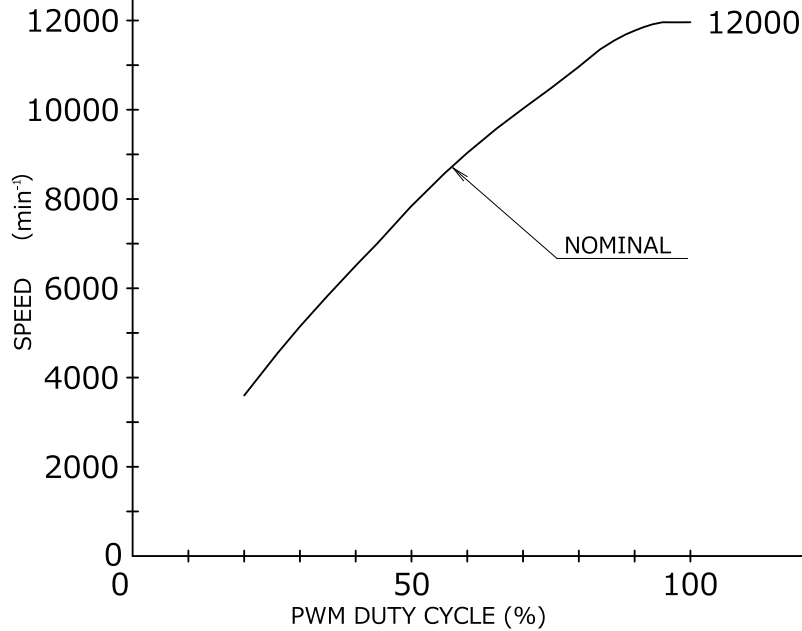
NOTE: 3-1. THE ELECTRONIC NOISE DUE TO AUTO-RESTART BEHAVIOR OF THE MOTOR MAY INFLUENCE V_{OH} OR V_{OL} .
モータの再起動動作にともない、 V_{OH} あるいは V_{OL} にノイズが載ることがある。

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mm	G.RICO 20-11-10	
尺度 Scale	図面番号 Dwg. No.	Rev.
-		WPA0612P4G003 C
SANYODENKI		
承認 Approved By	審査 Checked By	設計 Designed By
T.IKEDA 21-03-15	H.OHSAWA 21-03-09	Y.OKUDA 21-03-08
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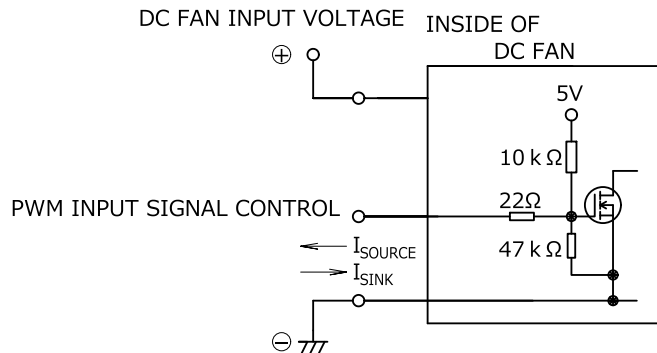
4. PWM DUTY-SPEED CHARACTERISTICS EXAMPLE

<PWM DUTY-SPEED CHARACTERISTICS EXAMPLE>

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

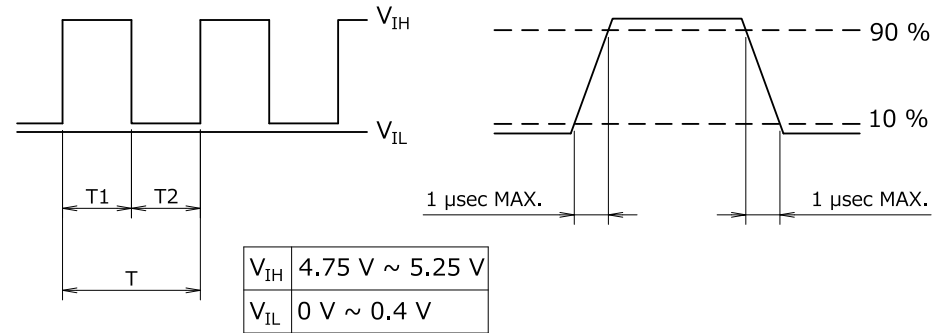


<EXAMPLE OF CONNECTION SCHEMATIC>



<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。

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尺度 Scale	図面番号 Dwg. No.	Rev.
-	-	90WPA0612P4G003 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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