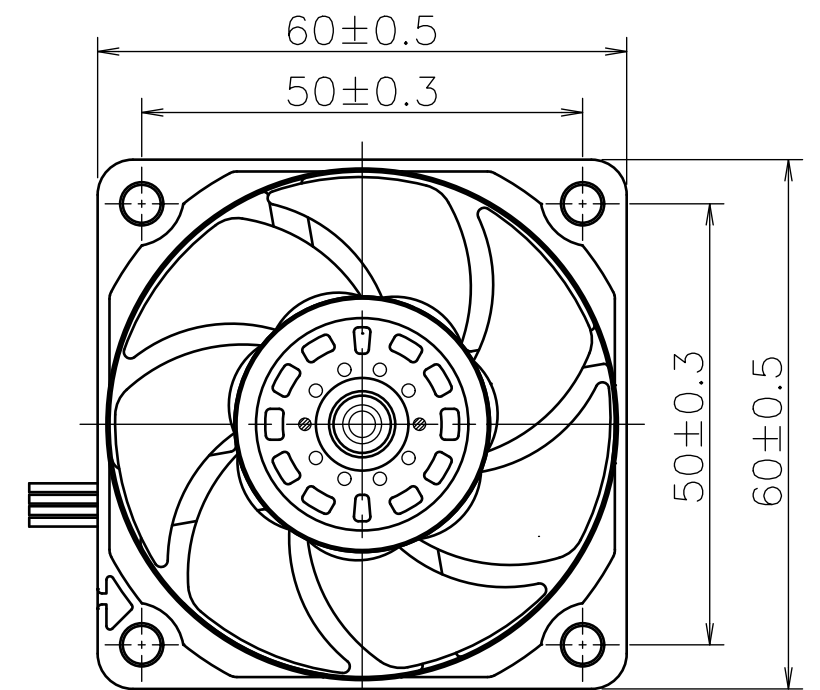
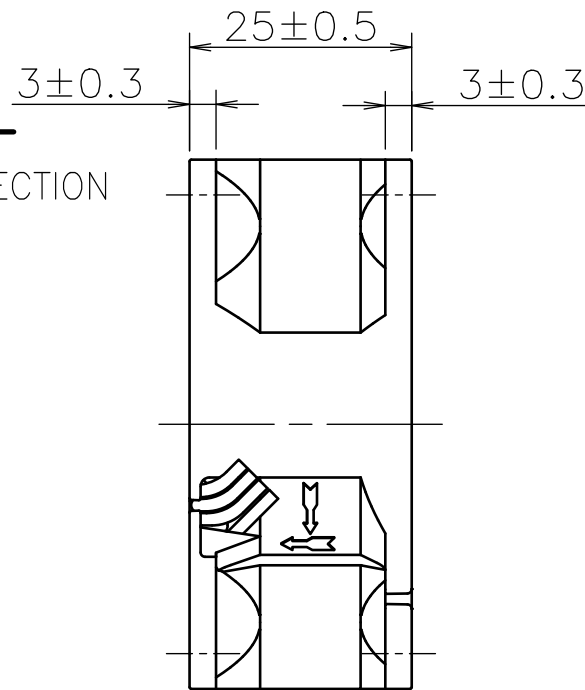
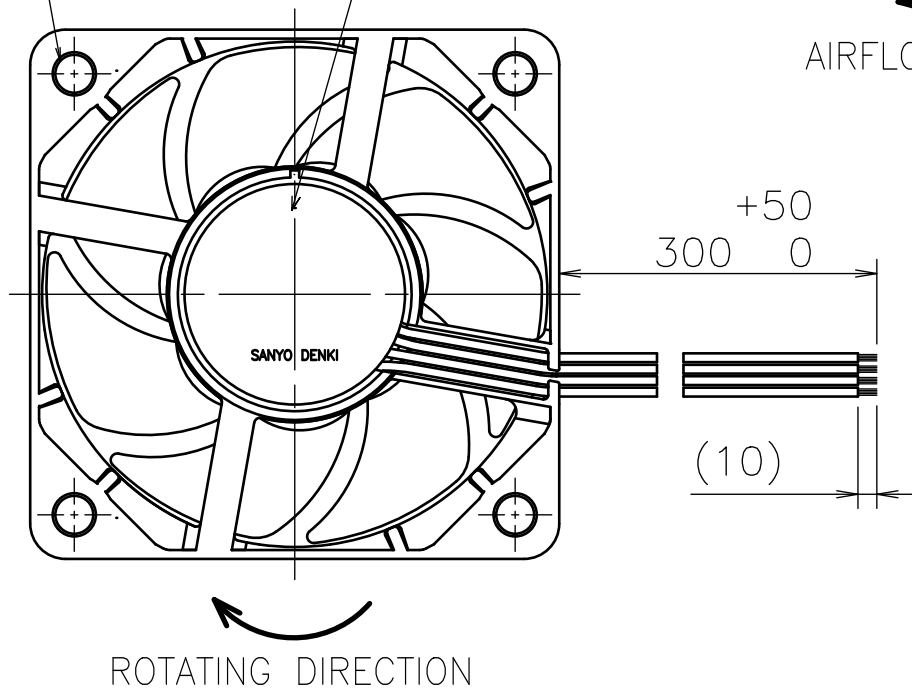


1. DIMENSIONS AND PARTS LIST

<DIMENSIONS>

8- $\phi 4.3 \pm 0.3$

LABEL (NOTE 1-1)



NOTE

1-1. THE PRODUCT NAME, MODEL NO., MANUFACTURER, MANUFACTURE DATE, ETC. ARE PRINTED ON LABEL.
 銘板上に品名, 型名, 製造会社名 及び 製造年月日等を表示する。

<LABEL> SHOWS LOT No. はロットNo.を示す。

<LEAD WIRE CONNECTION TABLE>

FAN		
	LEAD WIRE	COLOR
+	UL1007 AWG26	RED
GND	UL1007 AWG26	BLACK
SENSOR	UL1007 AWG26	YELLOW
PWM	UL1007 AWG26	BROWN



OR



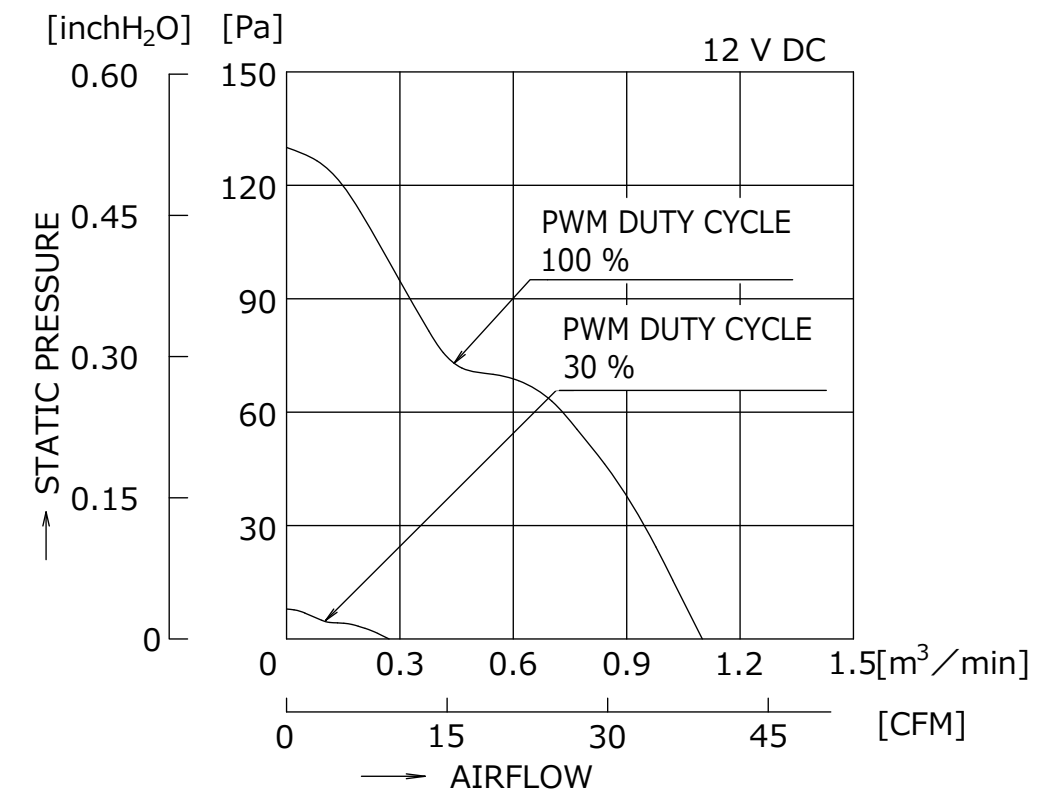
	ECN No.	名称 Title	
	E0220317	San Ace 60 (9RA)	
単位 Unit	新規 New Design	RIBLESS/PULSE_SENSOR/PWM_CONTROL	
mm	J.FERNANDEZ		
	21-05-18		
尺度 Scale	図面番号 Dwg. No.	Rev.	
-		9RA0612P4J0011 C	
SANYO DENKI		承認 Approved By	審査 Checked By
		TE.YAMAZAKI	R.MOLINO
		24-01-10	24-01-10
		設計 Designed By	P.MENDOZA
			23-11-29
Group	D12	User	E0
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2. GENERAL SPECIFICATIONS

<CHARACTERISTICS>

ITEM	UNIT	CHARACTERISTICS		
PWM DUTY CYCLE	%	100	30	0
RATED VOLTAGE	V DC	12		
OPERATING VOLTAGE RANGE	V DC	10.8~ 13.2		
MAX. AIRFLOW	m ³ /min (CFM)	1.1 (38.8)	0.27 (9.5)	-
MAX. STATIC PRESSURE	Pa (inchH ₂ O)	130 (0.52)	8.1 (0.03)	-
RATED CURRENT	A	0.35	0.05	0.04 MAX.
RATED SPEED	min ⁻¹	7700±770	1900±570	NO ROTATION
INSULATION RESISTANCE (NOTE 2-2)	-	10M Ω MIN. AT 500 V DC		
DIELECTRIC STRENGTH (NOTE 2-2)	-	1 MINUTE AT 500 V AC, 50/60 Hz		
OPERATING TEMPERATURE	°C	-20 ~ +70		
STORAGE TEMPERATURE	°C	-30 ~ +70		
EXPECTED LIFE	-	60,000 h / 60 °C (L10, CONTINUOUS OPERATION)		
SOUND PRESSURE LEVEL (NOTE 2-3)	dB(A)	41	13	-
MASS	g	APPROX. 70		
MATERIAL	-	FRAME, IMPELLER : PLASTICS		
BEARING SYSTEM	-	2 BALL BEARINGS		

<REFERENCE AIRFLOW-STATIC PRESSURE CHARACTERISTICS>



2-4. WITHIN THE OPERATING VOLTAGE RANGE, THE MOTOR IS PROTECTED FROM BURNOUT DUE TO LOCKED ROTOR. DO NOT LOCK ROTOR OUTSIDE OF OPERATING VOLTAGE.
使用電圧範囲にて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。

2-5. FAN MIGHT NOT START UP NORMALLY IF THE IMPELLER IS ROTATING WHEN THE POWER IS TURNED ON.
電源投入時、羽根が空転していると正常に起動できない場合がある。

NOTE 2-1. ALL THE VALUES IN THE TABLE ARE TYPICAL VALUES MEASURED AFTER 30 MINUTES OF OPERATION AT ROOM TEMPERATURE AND NORMAL HUMIDITY.
表中の値はいずれも、常温、常湿、30分間動作後の標準値。

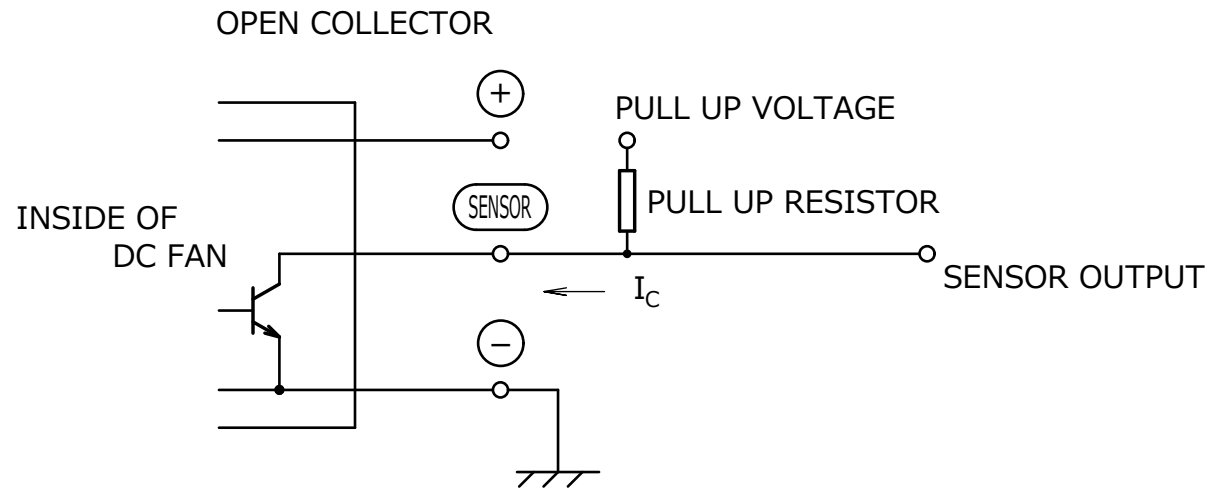
2-2. MEASURED BETWEEN LEAD WIRE CONDUCTORS AND FRAME.
リード線導体部とフレームとの間。

2-3. AT 1 m AWAY FROM THE AIR INLET.
ファン吸込側1 mにおける値。

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	単位 Unit	新規 New Design	J.FERNANDEZ	RIBLESS/PULSE_SENSOR/PWM_CONTROL	
	mm	21-05-18			
尺度 Scale	図面番号 Dwg. No.	9RA0612P4J0011			Rev. C
SANYO DENKI		SANYO DENKI CO.,LTD. ISSUED		承認 Approved By	設計 Designed By
				TE.YAMAZAKI	P.MENDOZA
				24-01-10	23-11-29
Group	D12	審査 Checked By	R.MOLINO	24-01-10	Page 2/4
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3. SENSOR SPECIFICATIONS

<OUTPUT CIRCUIT>

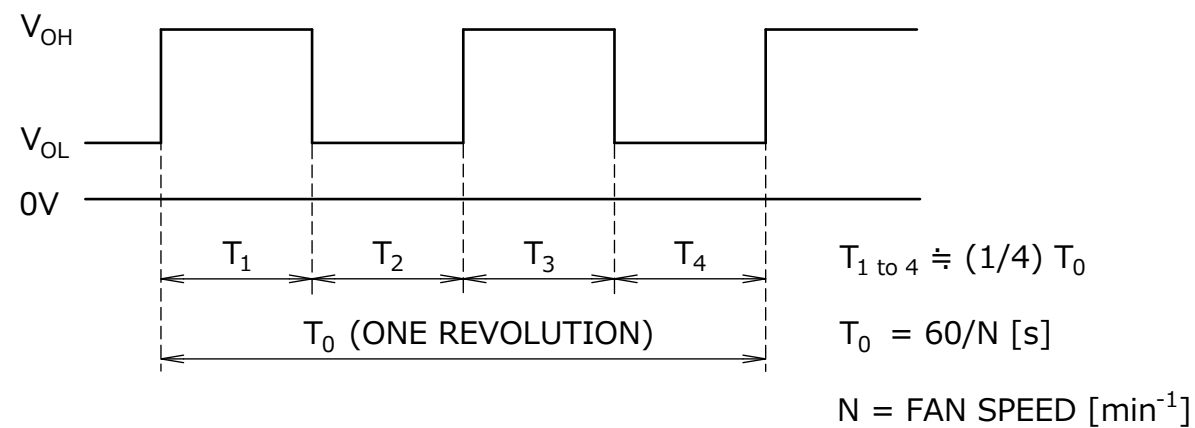


<SENSOR SPECIFICATIONS>

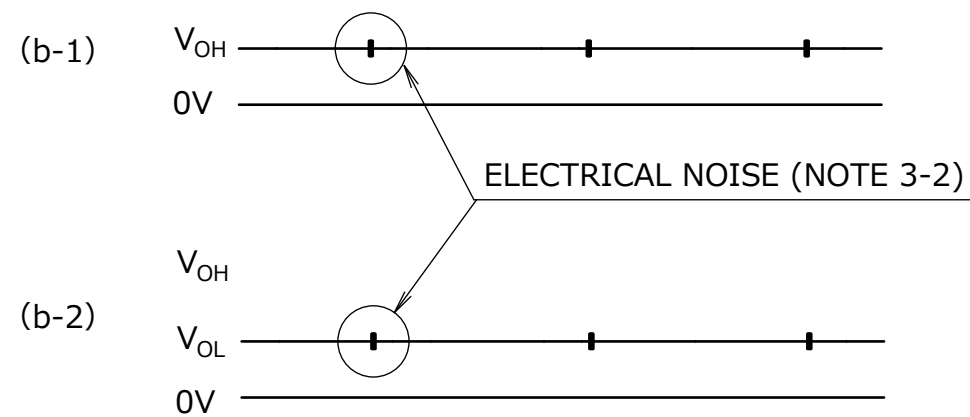
ITEM	SYMBOL	UNIT	MAX.
PULL UP VOLTAGE	-	V	15
COLLECTOR - EMITTER VOLTAGE (V_{CE})	V_{OH}	V	15
COLLECTOR CURRENT	I_C	mA	5
COLLECTOR SATURATION VOLTAGE ($V_{CE(SAT)}$)	V_{OL}	V	0.6

<OUTPUT WAVEFORM>

(a) IN CASE OF STEADY RUNNING (NOTE 3-1)



(b) IN CASE OF STEADY LOCKED ROTOR



NOTE 3-1. 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可能性がある。

3-2. ELECTRICAL NOISE MAY APPEAR ON V_{OL} WHEN THE MOTOR IS AUTO-RESTART.
モータの自動再起動動作にともない、 V_{OL} にノイズが載ることがある。

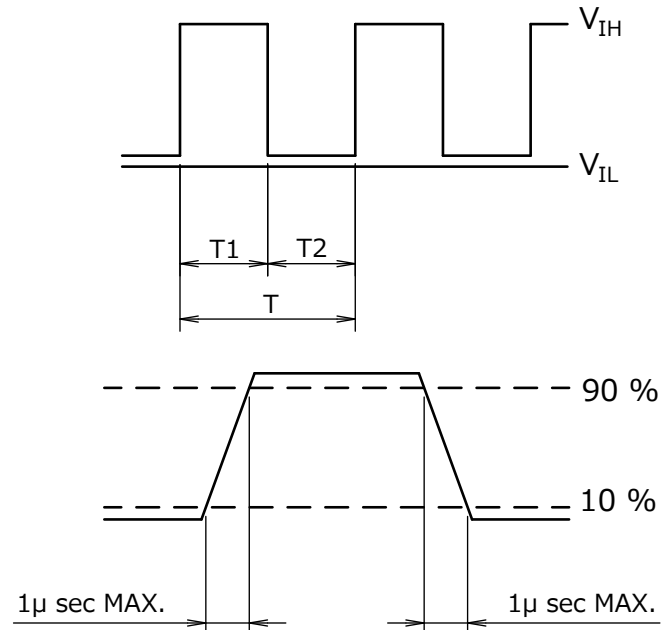
3-3. IF REQUIRED TO KEEP THE V_{OL} LOW, LOWER THE V_{OH} OR SET THE I_C SMALLER.
 V_{OL} を低くする場合は、 V_{OH} を下げるか I_C を小さく設定すること。

	ECN No.	名称 Title
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単位 Unit mm	新規 New Design J.FERNANDEZ 21-05-18	
尺度 Scale -	図面番号 Dwg. No.	9RA0612P4J0011
		承認 Approved By TE.YAMAZAKI 24-01-10
		審査 Checked By R.MOLINO 24-01-10
		設計 Designed By P.MENDOZA 23-11-29
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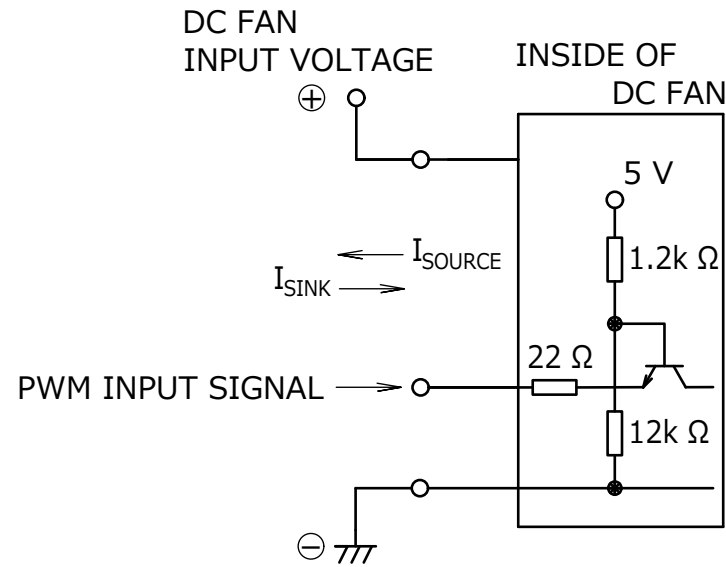
4. CONTROL SPECIFICATIONS

<PWM INPUT SIGNAL>

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



<EXAMPLE OF CONNECTION SCHEMATIC>

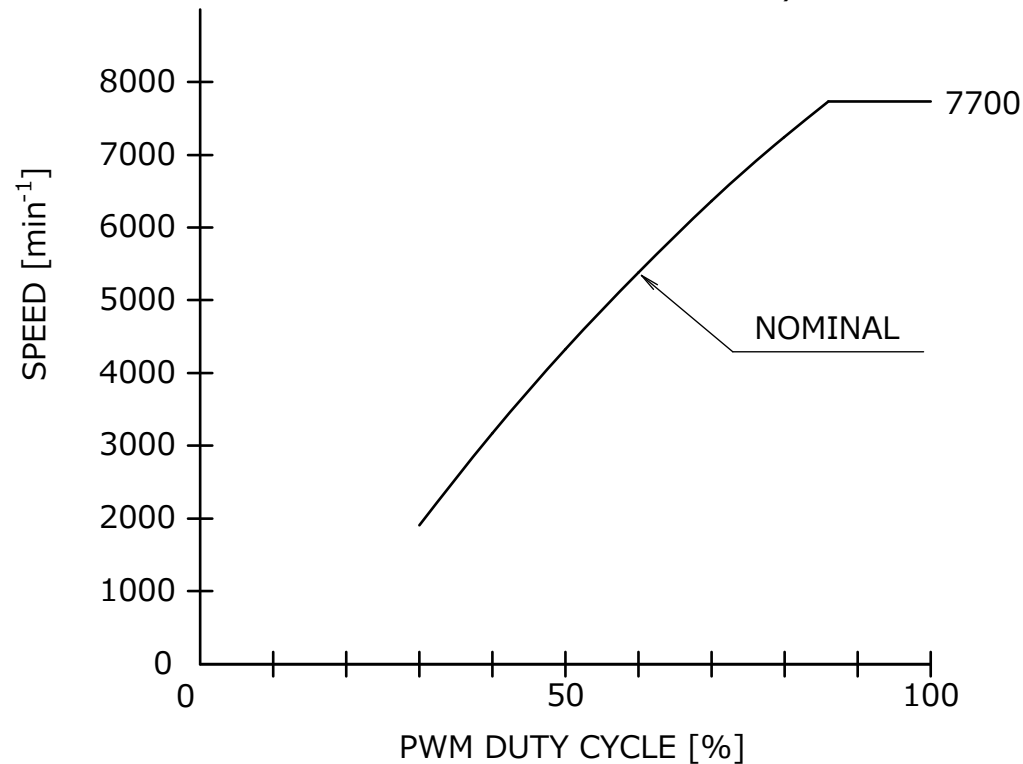


<PWM CONTROL SPECIFICATIONS>

ITEM	SYMBOL	UNIT	MIN.	PREFERRED	MAX.
PWM FREQUENCY	-	k Hz	20	25	30
PWM INPUT HIGH LEVEL	V _{IH}	V	4.75	5	5.25
PWM INPUT LOW LEVEL	V _{IL}	V	0	-	0.4
SOURCE CURRENT AT CONTROL VOLTAGE 0 V	I _{SOURCE}	mA	-	-	1.0
SINK CURRENT AT CONTROL VOLTAGE 5.25 V	I _{SINK}	mA	-	-	1.0
CONTROL TERMINAL VOLTAGE AT OPEN CIRCUIT	-	V	-	-	5.25

<REFERENCE PWM DUTY-SPEED CHARACTERISTICS>

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



- NOTE 4-1. REFER TO SECTION 2 FOR THE SPEED WITH PWM DUTY CYCLE OF 0, 30, 100 %.
 PWMデューティサイクルが 0, 30, 100 %の時、回転速度は2項を参照のこと。
- 4-2. 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。
- 4-3. 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 $((T-T2) / T) \times 100$.
 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。
 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 = $((T-T2) / T) \times 100$ である。

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