

## **SPECIFICATION FOR APPROVAL**

MODEL:	D12038V48SSB-TK-RD-PWM
DIMENSIONS:	120×120×38 mm
DESCRIPTION:	DC Axial Fan
RELEASED DATE:	2021.2.9

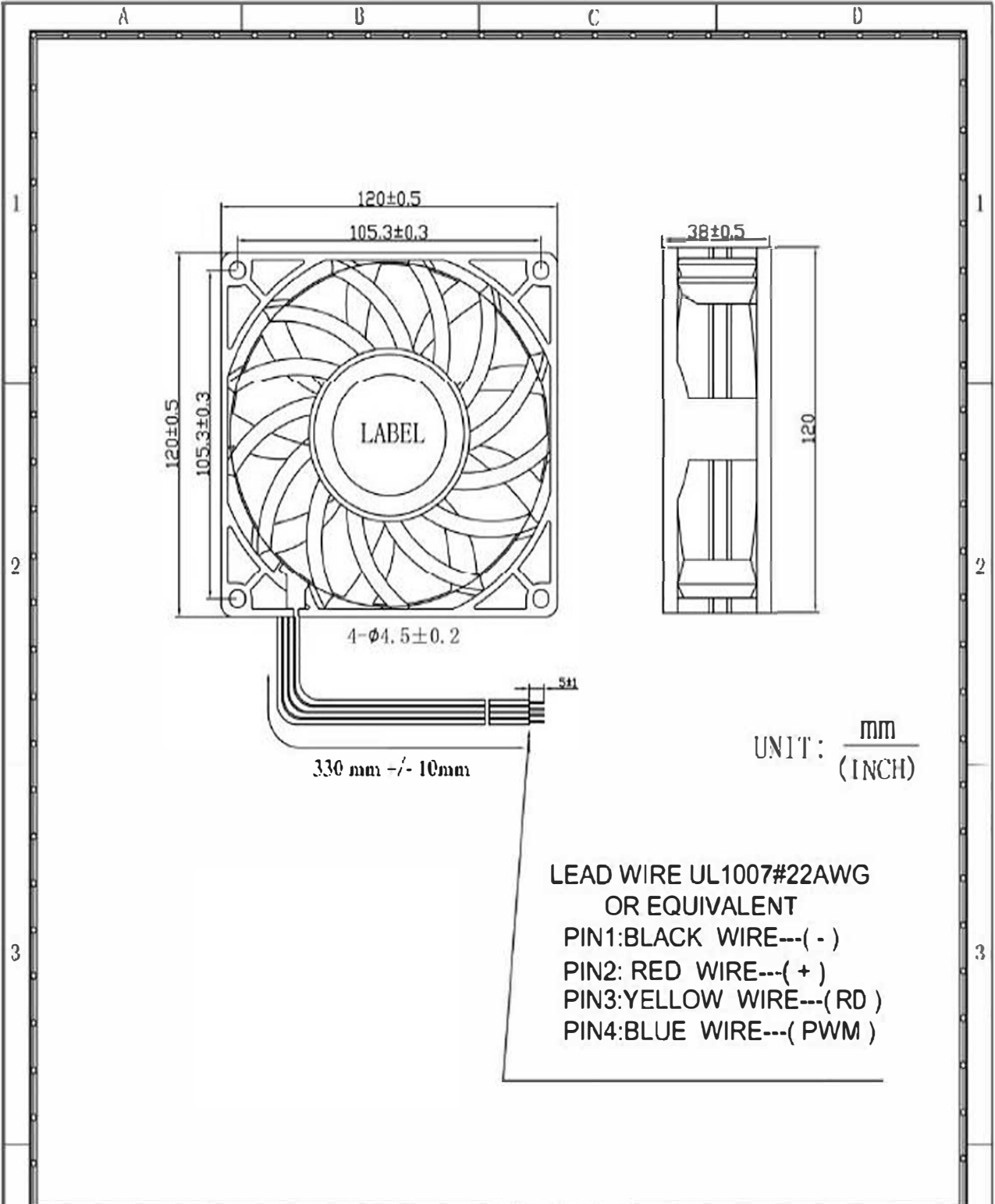


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UNIT:  $\frac{\text{mm}}{\text{(INCH)}}$

LEAD WIRE UL1007#22AWG  
 OR EQUIVALENT  
 PIN1:BLACK WIRE---( - )  
 PIN2: RED WIRE---( + )  
 PIN3:YELLOW WIRE---( RD )  
 PIN4:BLUE WIRE---( PWM )

**SOFASCO INC**

TOLERANCES:		
LINEAR	.X	.XX
(0.50)	±0.10	±0.05
(1.00, 10.00)	±0.20	±0.10
(100.00)	±0.30	±0.15
ANGULAR	X	XX
	±0.5°	±0.1°

PROJECTION:	UNIT	MM
	PAGE	1/1

SERIERS	DC FAN	PARTS NO	D12038V48SSB-TK-RD-PWM	PART NO	
MADE BY	刘良军	CHECKED		DRAWING	
DATE	2016-1-22	DATE		DATE	

# 規格參數

## SPECIFICATION

Model 型号：			
Item 項目	Unit 单位	Specification 參數	Condition 條件
Dimension 尺寸	mm 毫米	120X120X38	LxWx Thickness 板宽高
Bearing System 轴承类型	--	Two Ball Bearing	--
Impellers		Thermoplastic PBT, UL 940	
Rated Voltage 額定电压	VDC	48 V	--
Motor 馬達	-----	DC Brushless Motor	
Operating Voltage Range 操作电压范围	VDC	48V (36V ~ 60V)	At 25°C
Start-up Voltage 启动电压	VDC	≤ 36V	At 25°C
Rated Current 額定电流	Amp 安培	< ≤ 0.85	At Rated 在額定电压下
Lock Rotor Current 锁定电流	Amp 安培	< 1A	Locked 锁死
Rated Power 額定功耗	Watt 瓦特	≤ 40.8	At Rated 在省的定电压下
Rated Speed 額定转速	RPM 圈/分	5000 RPM	AT Rated Voltage 30°C
Air Flow 风量	CFM	240CFM MAXIMUM 260 CFM	In Free Air 天风阻条件
Static Air Pressure 静压	mmH <sub>2</sub> O	38	When Air Flow=0
Noise Level 噪音	dBA	<60dBA	At Rated Speed 額定速
Polarity protection 反向保护	Yes	Reverse protection	Yes
Other Spec.	Tachometer Output 转速反馈		No
	Soft-restart function 软启动		Yes
	Lock Protection 锁定保护		Yes
	Lock Rotor Alarm 锁定报警		Yes
	PWM Control 速度控制		Yes
	Safety Certificate		UL
	Compliance		CE, RoHS/EN50081 or EN61000 Compliance
	Insulation		Class A
	Dielectric Strength		5mA at 500VDC
	Insulation Resistance		10 Mega ohm min. at 500VDC
Operating Temperature		- 20 to +70 C	
Connection Lead Type 连接方式	Lead Wire 导线型号	330 mm +/- 10 mm	See Page 2 見閣紙
	Connector 端子	NO	Not Required 无要求
Life Expectancy 预期寿命	Hours 小时	50000hrs	At the condition 25 Degree Celsius
Service life L10 (40 °C)	Hours 小时	> 70000 at 40deg Celsius	
各注 Note	客户七用纸箱，客户杯签 > 70000 Hours at the condition on 40 degree Celsius; UL No.:196756		

SOFASCO INC.

MODEL NO.

sD12038V48SSB-TK-RD-PWM

**MTBF REPOPT**

STARTED DATE: 2009.5.16

FINISHED DATE: 2009.10.20

<b>TEST CONDITION TEST</b> (1) VOLTAGE: 48VDC (2) TEMPERATURE: 75°C	ITEM	SPECIFICATION	TEST SAMPLES	20						
	OPERATION VOLTAGE	48VDC±10%	TEST HRS/EA	2,200						
	CURRENT DRAIN	MAX ≤0.85A	TOTAL TEST HRS	44,000						
	SPEED	5000RPM±10%	FAILURE Q' TY	0						
	ACOUSTICAL NOISE		CONFIDENCE LEVEL	90%						
			MTBF	53905hours						
<b>FAILURE DEFINITION</b>  (1) CURRENT: Over 10%/-30% of Original value  (2) RPM: Over 30%/-15% of Original value  (3) NOISE LEVEL: Over ±10% of origin	ITEM	CHECK POINT AT THE HOURS								
	TEST DURATION(HRS)	250	500	1k	1.5k	2k	2.2k			
	ACCUMULATED FAILURE Q' TY	0	0	0	0	0	0			
	SURVIVAL Q' TY	20	20	20	20	20	20			
	ACCUMULATED FAILURE RATIO	0%	0%	0%	0%	0%	0%			
	FAIL NO. TEST TIME(HRS) SURVIVAL Q' TY ACCUMULATED FAIL RATIO DESCRIPTION									
	TEST RESULT:	1. FORMULA OF FIGURING OUT ACCELERATION FACTOR:					2. CONFIDENCE LEVEL: ACCORDING TO GEM TABLE 90% ZERO FAILURE TR=1.3026			
		Tu: Required Temp (25°C)      Ta: Experiment Temp.(75°C) $AF = 2^{\wedge}[(Ta-Tu)/10]$ $= 2^{\wedge}[(75-25)/10]$ $= 32$								
		MTBF=[ACTUAL TEST TIME*SAMPLE Q' TY]*AF/TR/SAMPLE Q' TY $MTBF = [(2200*20)*32]/1.3026/20 = 53905 HOURS$								

## 风扇特性曲线风量风压测试报告

### The Report of Fan Performance P-Q Curve Test

1.产品特性依照 AMCA-210 标准在双箱里包括风量与风压的测试。

The performance including air flow and air pressure measured in Double Chamber is measured according to AMCA210-92 standard.

测试编号(No.): 883

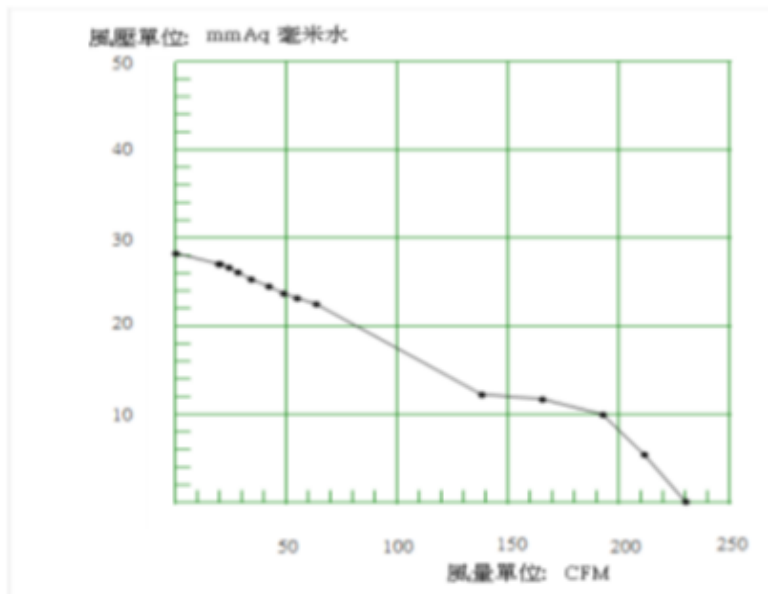
测试日期(Date) : 2016/09/08

2.测试数据:

序号 No.	项目 Item	规格 Specification	单位 Unit
1	测试电压 Test Voltage	48	VDC
2	转速 Speed	5000	RPM
3	大气压力 Barometric Pressure	761.5	mmHg
4	相对湿度 Relative Humidity	53	%
5	最大风量(零静压时)Max.Air Flow(At Zero Static Pressure)	38	CFM
6	最大风压(零风量时) Max. Air Pressure(At Zero Air Flow)	240.23	mmH <sub>2</sub> O

3.P-Q 数据及曲线 P-Q Data and Curve

序号	mmAq	CFM	A	Watt	RPM
1	38	0	0.86	41.28	5000
2	25	33.76	0.8	38.4	5000
3	17	138.2	0.68	32.64	5000
4	12.3	165.51	0.74	35.52	5000
5	9.9	192.55	0.8	38.4	5000
6	5.31	211.32	0.8	38.4	5000
7	0	240.23	0.77	36.96	5000
8	0	240.23	0.77	36.96	5000



# 风扇特性曲线 PWM 测试报告

## The Report of Fan Performance PWM Curve Test

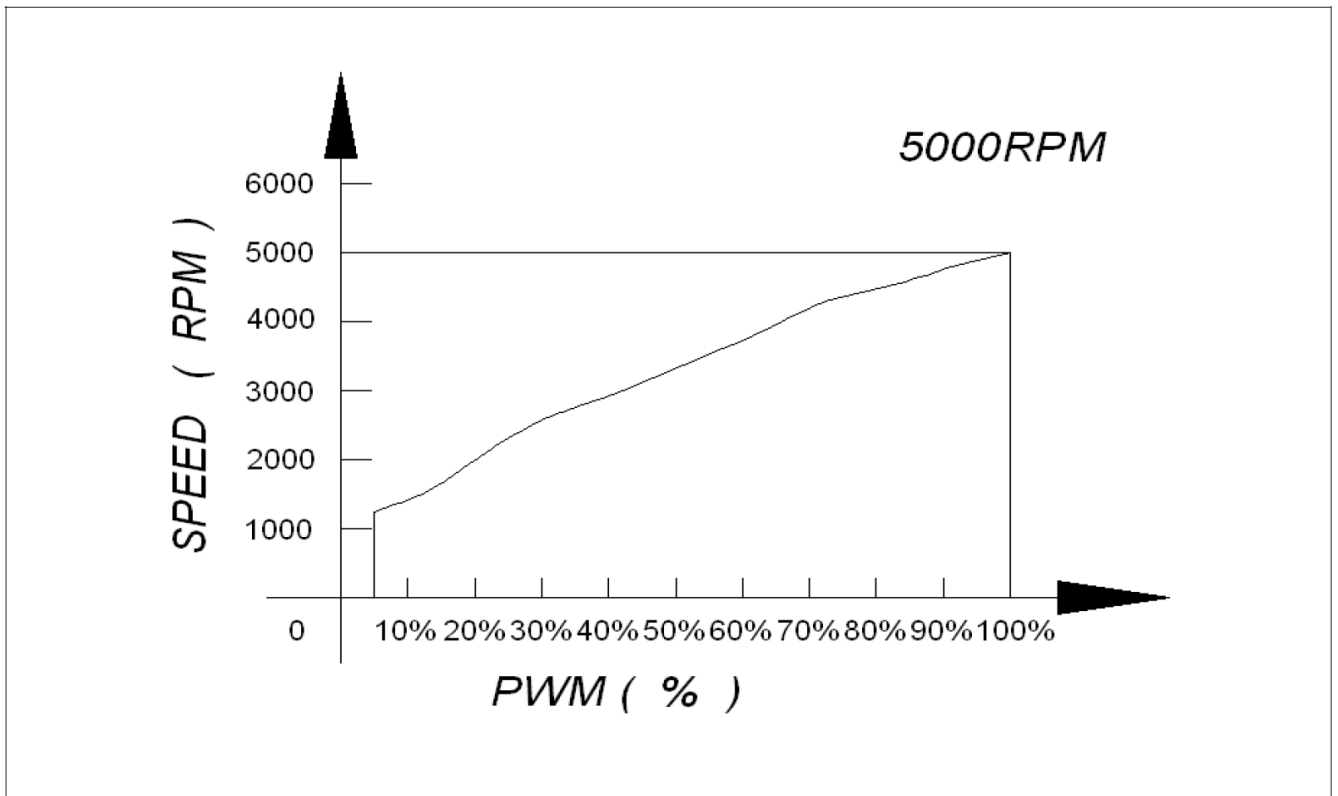
测试编号(No.): 261

测试日期(Date) : 2016-9-8

### 1.测试数据:

序号	百分比	转速	单位 Unit
1	5%	1250	RPM
2	10%	1550	RPM
3	20%	2100	RPM
4	30%	2600	RPM
5	40%	3100	RPM
6	50%	3500	RPM
7	60%	4000	RPM
8	70%	4400	RPM
9	80%	4700	RPM
10	90%	4900	RPM
11	100%	5000	RPM

### 3.PWM 数据及曲线 PWM Data and Curve



# 噪音测试报告

## The Report of Acoustic Noise Test

报告编号 Report No.TN1511309

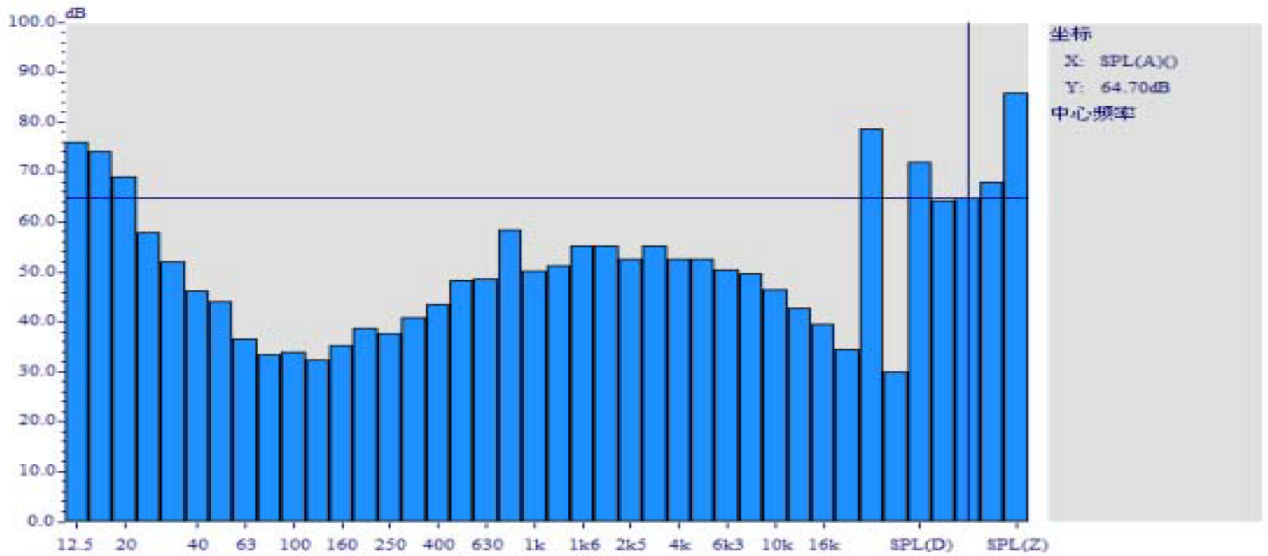
样品名称 Sample Name	Brushless Fan / Blower
测试条件 Test Condition	测试方法 Test Method
1.温度 Temperature: 31 °C 2.湿度 Humidity: 75 %RH	1.测试位置 Test Position : 180° 2.测试距离 Test Distance:1.0M From the fan intake 3.背景噪音 Background Noise: 19.1dB(A) 4.测试依照标准 ISO3745 执行 This test executes according to ISO3745 standard

**测试设备 Test Equipment:**

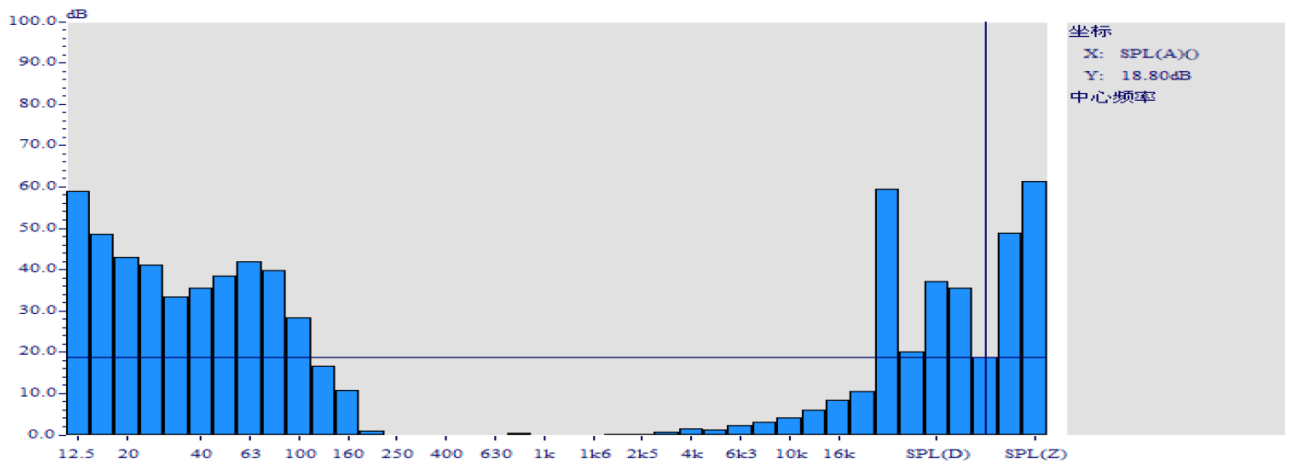
声望 VA-Lab2 二通道噪声频谱分析仪 BSWA VA-Lab2 double channels noise Spectrum Analyzer

**测试结果 Test Result:** Leq:64.7dB(A); 测试距离 Test distance: 1 meter

倍频段频谱图 Octave-Band(1m)



**测试结果 Test Result:** Leq:18.8dB(A); 背景噪音 Background Noise



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※一般情况下, 委托检验结果仅对所检验样品有效 Generally, commission test is responsible for the tested samples only;

※报告无主检、审核人签字无效 The test report is invalid without the signatures of Author and Reviewer.

# 转速反馈和报警信号反馈介绍

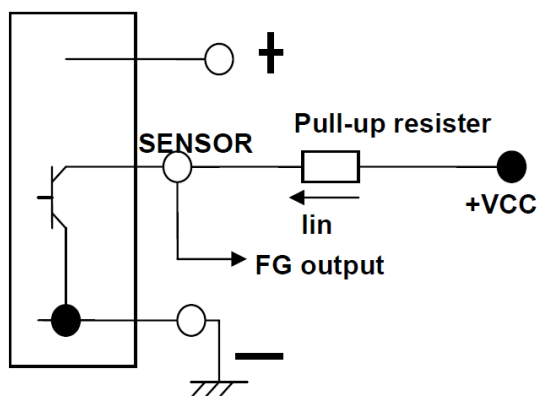
## FG and RD Function Introduction

### FG (Tach output type) Connection Diagram 转速反馈连接介绍

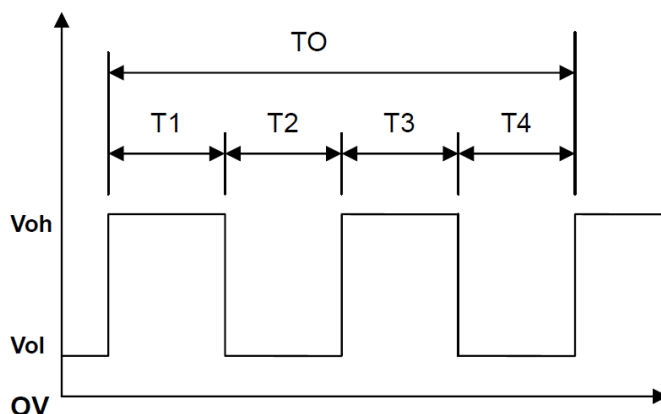
Fan with FG function will create a square wave output. You can know fan speed by sensing the output wave Frequency. Most dc fan have four pole. So when fan run for one round, there will be two high level pulse. About other Multipole brushless fan, high level pulse will be different.

But please notice if you want to sense it's output wave, there is a external circuit. Please check the circuit Diagram below. There is no pull-up and VCC value limit. But please notice the Max lin have to be small than 20mA.

Inside of DC fan



One revolution



### RD (Alarm output) connection Diagram 报警输出连接方式介绍

Some fan have RD extra function. There is a alarm signal output when fan stop work. Please notice there are Two kinds of signal output. Different customer will need different alarm type. Please check the diagram below.

Inside of DC fan

