深圳腾凯特种机电有限公司
SHENZHEN TENKAI GROUP LIMITED

SPECIFICATION FOR APPROVAL

规格承认书

To: 2207182315

产品型号 Par No. : CA7020H12B

类别 Category: ☐Fan ☐Blower ☑Centrifugal

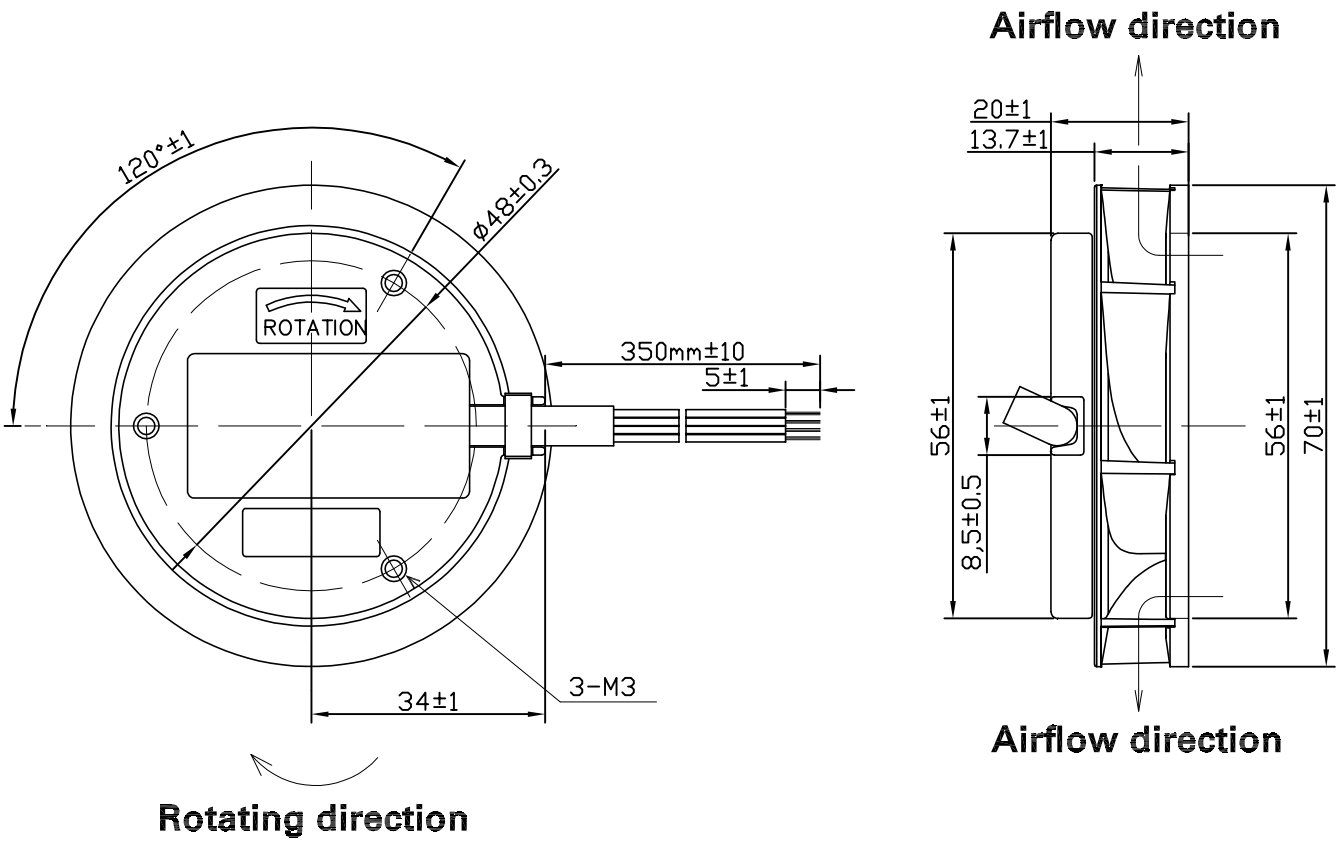
认证 Certification: ☑CE ☐ROHS ☐UL ☐TUV

编号 Spec No: CA7020H12B-A220721 版次 Version: 02

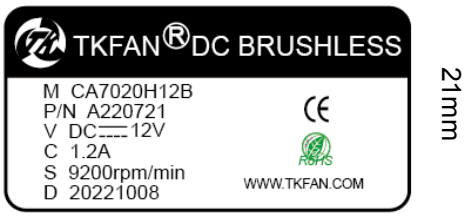
样品数 Quantity: 1 PCS 日期 Date: 2022-10-08

Company Stamp	CUSTOMER APPROVAL Stamp
深圳市腾凯特种机电有限公司 工程部	
制作：朱蒸蒸	承认：
复核：刘良军	核准：
核准：	日期：

电话(TEL): 86-0755-23126453 传真(FAX): 86-0755-23129135
邮箱(MAIL): sales@tenkai-group.com
网址(WEB): Http://www.tkfan.com
地址(ADD): 深圳市龙华区观澜格澜 9 路金雄达科技园 C 栋 5 楼



LEAD WIRE:
UL 1007#22AWG OR EQUIVALENT
PIN1: RED WIRE---(+)
PIN2: BLACK WIRE---(-)
PIN3: YELLOW WIRE---(FG)
PIN4: BLUE WIRE---(PWM)



Mark 记号	REASON 变更原因

PROJECTION

单位 UNIT mm

比例 SCALE 1:1

公差 TOL	LINEAR	.X	.XX	ANGULAR
	(0,50]	±0.10	±0.05	X. ±0.5°
	(50,100]	±0.20	±0.10	X.X ±0.1°
	(100,+∞]	±0.30	±0.15	

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型号 Model NO.	CA7020H12B			图号 Drawing NO.	CA7020H12B-A220721		
制图 Drawing	朱蒸蒸	日期 Date	2022.07.28	描述 Description	DC BRUSHLESS BLOWER		
检查 Check	刘良军	日期 Date	2022.07.28	材质 Material		页数 Page	1/1
批准 Approved		日期 Date		表面 Finish		版次 Rev	A0

規格參數
SPECIFICATION

Model 型号:			
Item 项目	Unit 单位	Specification 參數	Condition 條件
Dimension 尺寸	Mm 毫米	Ø70X20	LxWxThickness 长宽高
Bearing System 轴承类型	----	Two Ball Bearing	----
Rated Voltage 额定电压	VDC	12	----
Operating Voltage Range 操作电压范围 VDC		7.5~13.5	At 25℃
Start-up Voltage 启动电压	VDC	≤7.5	At 25℃
Rated Current 额定电流	Amp 安培	1.0	At Rated 在额定电压下
Lock Rotor Current 锁定电流	Amp 安培	0	Locked 锁死
Rated Power 额定功耗	Watt 瓦特	12.0	At Rated 在额定电压下
Rated Speed 额定转速	RPM 圈/分钟	9200±10%	AT Rated Voltage 30℃
Air Flow 风量	CFM	42.8	In Free Air 无风阻条件
Static Air Pressure 静压	mmH_2O	48.1	When Air Flow=0
Noise Level 噪音	dBA	60.8	At Rated Speed 额定速
Polarity protection 反向保护	--	Reverse protection	Yes
Other Spec.	Tachometer Output 转速反馈	Yes	
	Soft-restart function 软启动	Yes	
	Lock Protection 锁定保护	Yes	
	Lock Rotor Alarm 锁定报警	NO	
	PWM Control 速度控制	Yes	
	Thermal Control 过热保护	NO	
	Over voltage protection 过压保护	NO	
	Over current protection 过流保护	NO	
	fixed constant speed Function 恒速功能	NO	
Connection Lead Type 连接方式	Lead Wire 导线型号	350mm 1007#22AWG	See Page 2 见图纸
	Connector 端子	NO	
Life Expectancy 预期寿命	Hours 小时	50000hrs	At 25℃ 在 25℃条件下
Net Weight 净重	g 克	97g	1PCS
备注 Note			

絕緣耐壓 Dielectric Strength	5mA Max./導線与外框間測量，500VAC/min 5mA Max./Measured between lead wire(+)and frame at 500VAC/min
極數 Number of Pole	4 極 4 Poles
EMC	
運轉溫/濕度範圍 Operating temp. Range	溫度/temperature: -40℃~+80℃ 濕度/Humidity: 35%~85%RH
絕緣阻抗 Insulation Resistance	10MΩ/裸線与外框間測量，500VDC/min 10MΩ/between unshackled wire and frame at 500VDC/min
耐濕性 Humidity	電器規格依據 MIL-STD 202F Method 103B 濕度：95%RH，溫度：40±2℃ According to MIL-STD 202F Method 103B Humidity: 95%RH,Temp.: 40±2℃
熱衝擊 Thermal Shock	電器規格依據 MIL-STD 202F Method 107D According to MIL-STD 202F Method 107D
絕緣階段 Insulation Shock	UL: A 種 UL: Class A

SHENZHEN TENKAI GROUP	MODEL NO.	CA7020H12B

MTBF REPOPT

STARTED DATE: 2009.5.16			FINISHED DATE: 2009.10.20	
TEST CONDITIONTEST （1） VOLTAGE:12VDC （2） TEMPERATURE: 75℃	ITEM	SPECIFICATION	TEST SAMPLES	20
	OPERATION VOLTAGE	12VDC±10%	TEST HRS/EA	2,200
	CUPPENT DPAIN	MAX ≤1.0A	TOTAL TEST HRS	44,000
	SPEED	9200RPM±10%	FAILURE Q'TY	0
	ACOUSTICAL NOISE		CONFIDENCE LEVEL	90%
			MTBF	53905hours

FAILURE DEFINITION	ITEM	CHECK POINT AT THE HOURS							
(1) CURRENT:= Over 10%/-30%of Original value	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%		
(2) RPM: Over 30%/-15%of Original value	FAILNO.TEST TIME(HRS)SURVIVAL Q'TY ACCUMULATED FAIL RATIO DESCRIPTION								
(3) NOISE LEVEL: Over±10% of origin	TEST RESULT: 1. FORMULA OF FIGURING OUT ACCELERATION FACTOR: Tu: Required Temp（25℃） Ta：Experiment Temp.(75℃) AF =2∧[(Ta-Tu)] =2∧[(75-25)/10] =32 MTBF=[ACTUAL TEST TIME*SAMPLE Q'TY]*AF]/TR/SAMPLE Q'TY MTBF=[(2200*20)*32]/1.3026/20=53905HOURS						2. CONFIDENCE LEVEL: ACCORDING TO GEM TABLE90% ZERO FAILURE TR=1.3026		

APPROVED BY: BOPING GONG	CHECKED BY: SHU LIN XIE	TESTED BY: JUN ZHANG

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。

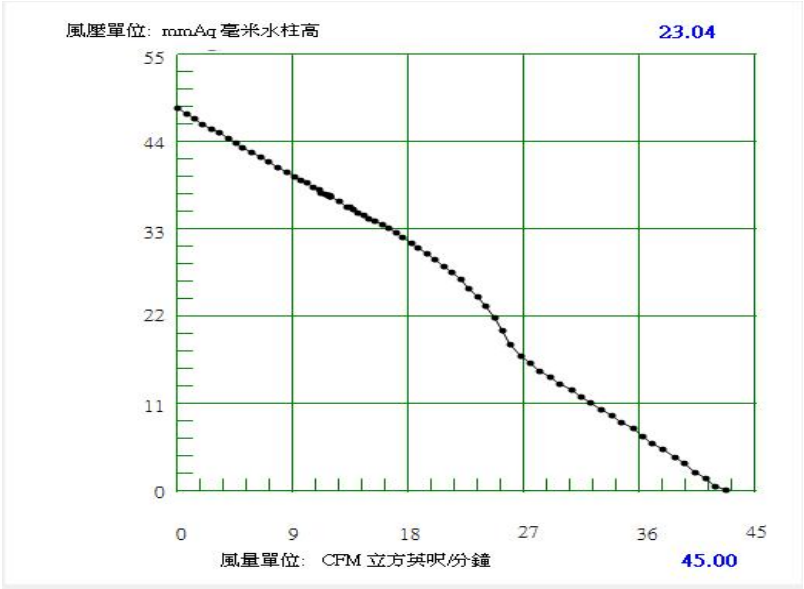
测试编号(No.): 5153　　测试日期(Date) : 2022/03/26

2.测试数据：

序号 No.	项目 Item	规格 Specification	单位 Unit
1	测试电压 Test Voltage	12	VDC
2	转速 Speed	9200	RPM
3	大气压力 Barometric Pressure	761.5	mmHg
4	相对湿度 Relative Humidity	48	%
5	最大风量(零静压时)Max.Air Flow(At Zero Static Pressure)	42.8	CFM
6	最大风压（零风量时）Max. Air Pressure(At Zero Air Flow)	48.1	mmH_2O

3.P-Q 数据及曲线 P-Q Data and Curve

序号	mmAq	CFM	A	Watt	RPM
1	48.12	0	0.81	9.7	
2	41.93	6.43	0.8	9.6	
3	36.31	12.57	0.82	9.8	
4	30.48	18.73	0.83	10	
5	21.77	24.67	0.86	10.3	
6	12.66	30.67	0.91	10.9	
7	5.93	37.01	0.91	11	
8	0	42.77	0.91	10.9	



风扇特性曲线 PWM 测试报告

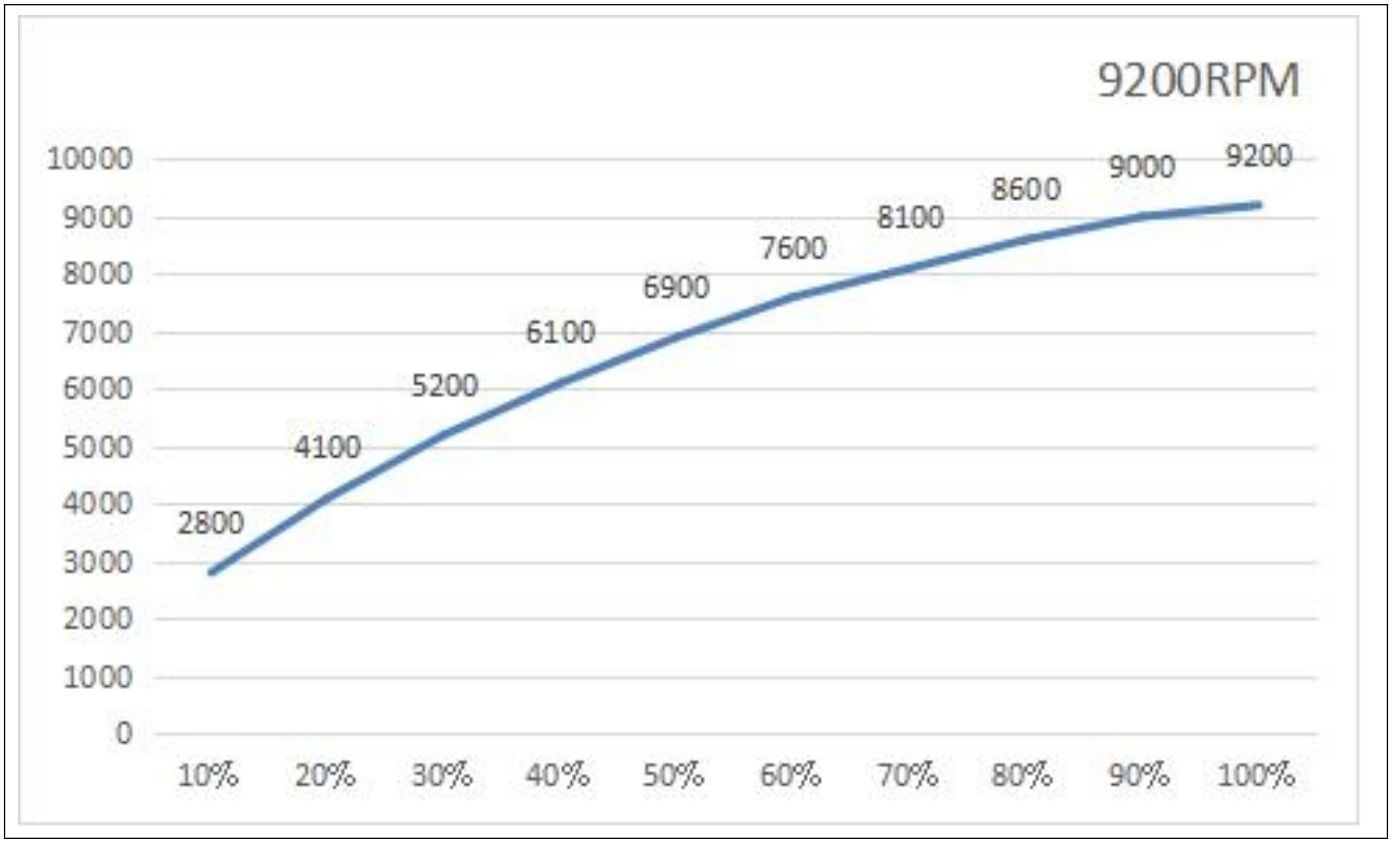
The Report of Fan Perfermance PWM Curve Test

测试编号(No.): 268　　测试日期(Date) : 2022-07-28

1.测试数据：

序号	百分比	转速	单位 Unit
1	10％	2800	RPM
2	20％	4100	RPM
3	30％	5200	RPM
4	40％	6100	RPM
5	50％	6900	RPM
6	60％	7600	RPM
7	70％	8100	RPM
8	80％	8600	RPM
9	90％	9000	RPM
10	100％	9200	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

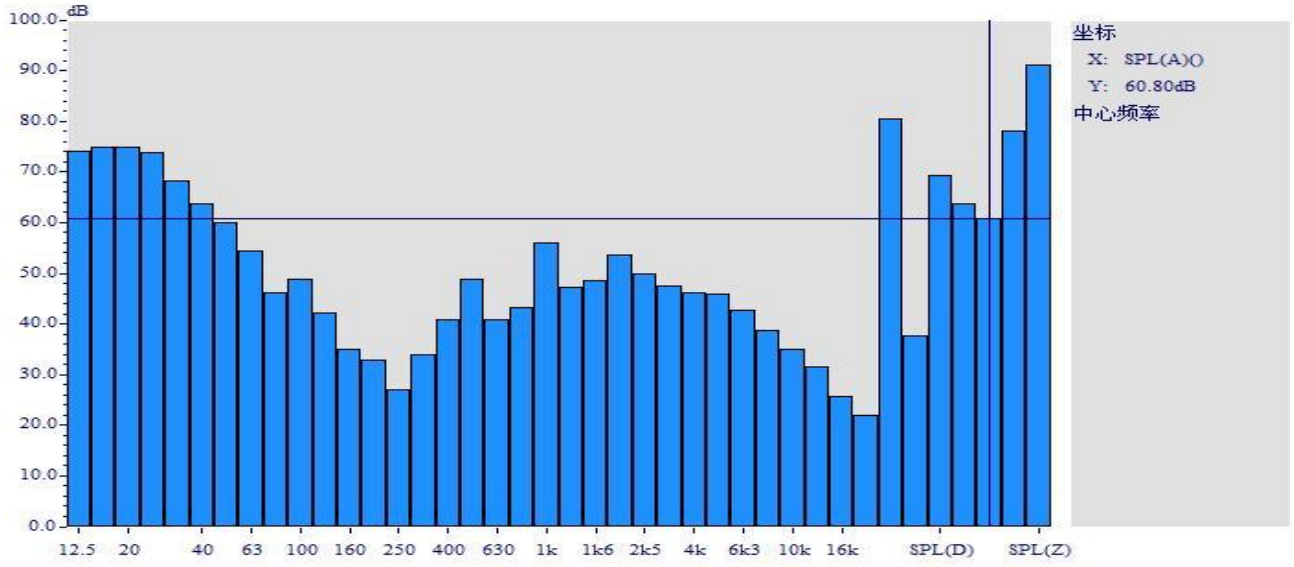
样品名称 Sample Name	Brushless Fan / Blower
测试条件 Test Condition	测试方法 Test Method
1.温度 Temperature: 31 ℃ 2.湿度 Humidity: 75 %RH	1.测试位置 Test Position： 180° 2.测试距离 Test Distance:1.0M From the fan intake 3.背景噪音 Background Noise: 19.1dB(A) 4.测试依照标准 ISO3745 执行 This test executes according to ISO3745 standard

测试设备 Test Equipment:

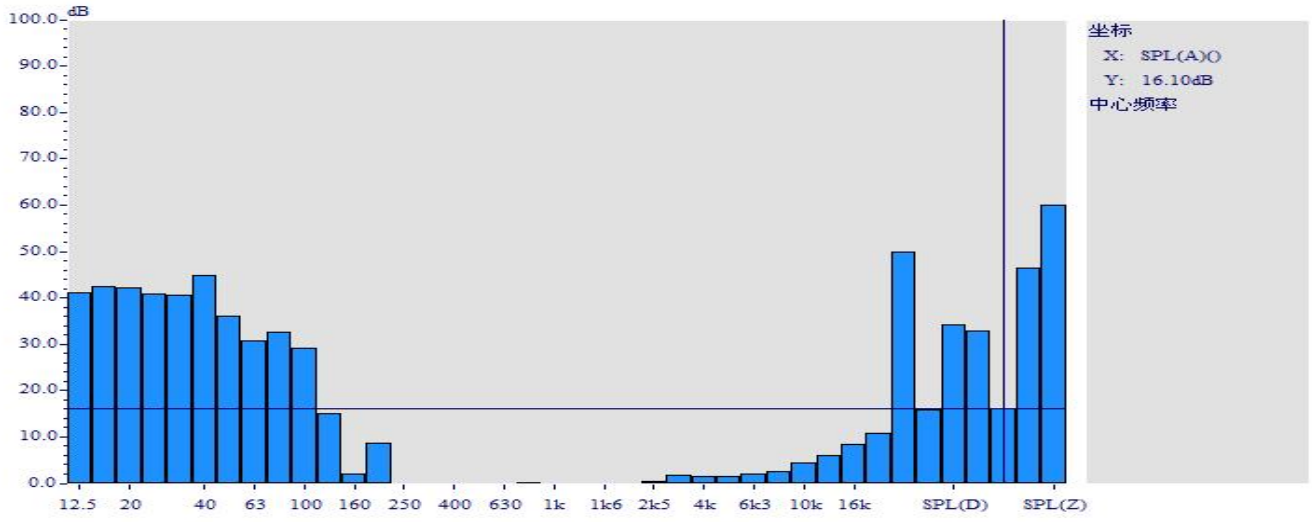
声望 VA-Lab2 二通道噪声频谱分析仪 BSWA VA-Lab2 double channels noise Spectrum Analyzer

测试结果 Test Result: Leq:60.80dB(A); 测试距离 Test distance: 1 meter

倍频段频谱图 Octave-Band(1m)

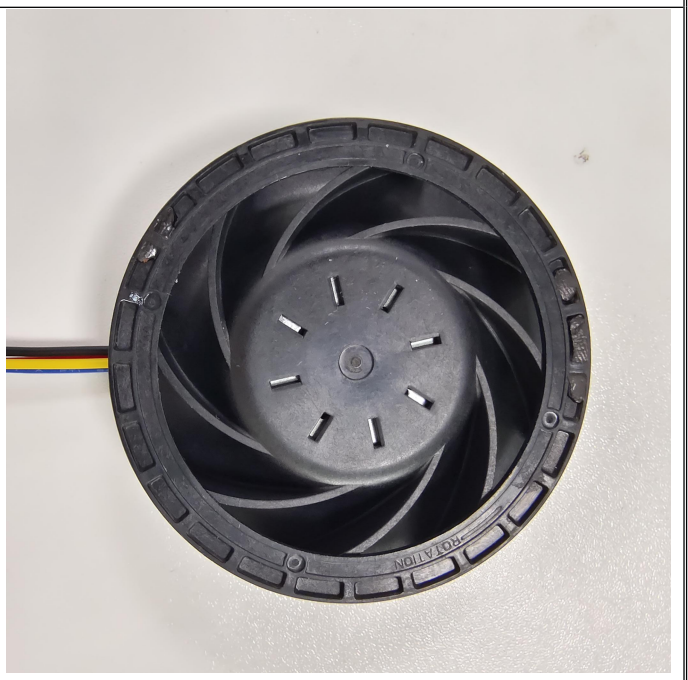


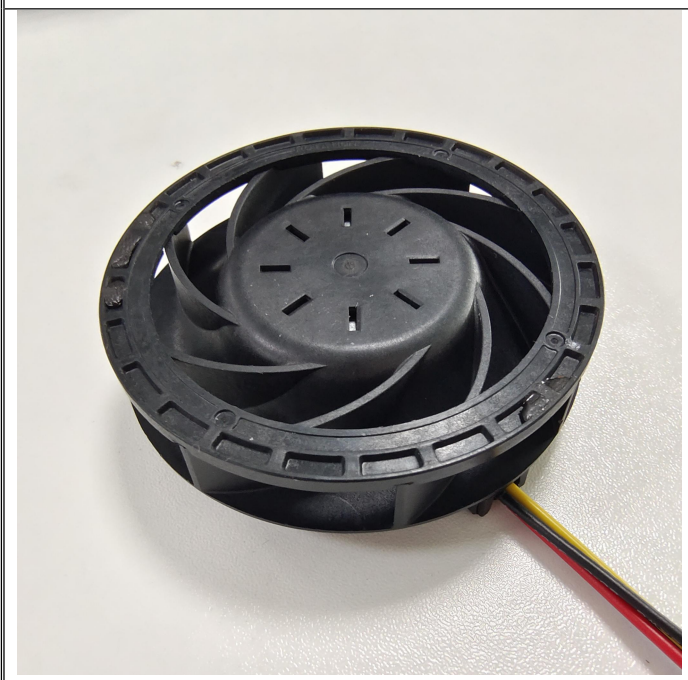
测试结果 Test Result: Leq:16.1dB(A); 背景噪音 Background Noise



实物图

The pictures

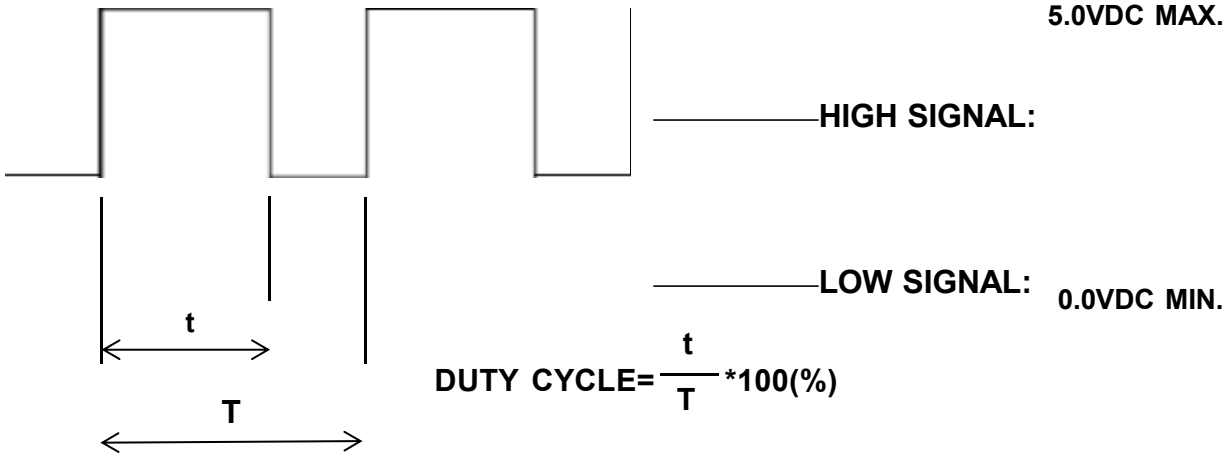




功能描述
Functional description

一. PWM CONTROL SIGNAL　PWM 控制信号:

SIGNAL VOLTAGE RANGE 控制电压输入范围:0.0～+5.0VDC



- THE FREQUENCY FOR CONTROL SIGNAL OF THE FAN SHALL BE ABLE TO ACCEPT 16K～32 KHZ.
- THE PREFERRED OPERATING POINT FOR THE FAN IS 25K HZ.
- AT 100% DUTY CYCLE,THE ROTOR WILL SPIN AT MAXIMUM SPEED.
- AT 0% DUTY CYCLE,THE ROTOR WILL STOP.
- WHEN CONTROL SIGNAL LEAD DISCINNECTED,THE FAN WILL MAXIMUM SPEED.
- AT 25K 3%～5% DUTY CYCLE,THE FAN WILL BE ABLE TO START FROM A DEAD STOP.
- THE FAN SPEED CONTROL IS CLOSED-LOOP.

转速信号反馈介绍

FG speed feedback signal is introduced

FG (Tach output type) Connection Diagram

Fan with FG function will creat 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 Iin have to be small than 20mA.