

NVIDIA Jetson Nano Module Active Heat Sink



规格说明书 SPECIFICATION		(AT Ta= 25 Degree.)	
项目 /ITEMS	单位 /UNIT	参数 / PARAMETERS	备注 /NOTES
尺寸/Dimension	mm	40*40*15	Length* Width * Thickness
外框/Fan Frame	----	BLACK PBT (UL94V-0)	Glass Fiber Reinforced
扇叶/Fan Impeller	----	BLACK PBT (UL94V-0)	7 Blades
轴承种类/Bearing System	<input type="checkbox"/> S:Sleeve Bearing <input checked="" type="checkbox"/> B: Dual Ball Bearing		
额定电压/Rated Voltage	VDC	5	N/A
工作电压 Operating Voltage Range	VDC	4.5-5.5	At 25℃/Relative Humidity 65%
起动电压/Start-up Voltage	VDC	2.5	At 25℃/Relative Humidity 65%
额定电流/Rated Current	Amp	0.08 ± 0.02	At rated Voltage, Measured after 3 Mins.
标签电流/Label Current	Amp	0.10	At rated Voltage, Measured after 3 Mins
额定功率/Rated Power	Watt	0.40	At rated Voltage, Measured after 3 Mins.
额定转速/Rated Speed	RPM	5500± 10%	At rated Voltage, Measured after 3 Mins.
风量/Air Flow	CFM	2.95	Maximum In Free Air, Refer to 4.2.
风压/Air Pressure	mmAq	2.95	Maximum When Air Flow = 0
噪音/Noise Level	BA	Ø3.71	At Rated Speed, Refer to 4.3.
马达保护/Motor Protection	Polarity Protection	Yes	Refer to 8.1.
锁机保护/Locked Motor Protection	Auto Restart	No	Refer to 8.2.
缓启动/Soft Start	----	No	N/A
速度感应/FG Sensor	Tachometer Sensor	Yes	Refer to 2.1.

锁机报警/RD Alarm	Locked Motor Alarm	No	Refer to 2.1.
调速控制/PWM Control	-----	Yes	Refer to 2.2.
防水等级/Waterproof Class	<input type="checkbox"/> IP44以下	Rotor or PCBa Coating by Insulating Paint	
	<input type="checkbox"/> IP55	Rotor NT Vacuum Coating or PCBa Coating by Waterproof Glue	
	<input type="checkbox"/> IP56以上	Rotor Coating by Epoxy Waterproof Glue or Injection by Mould	
环保要求/Conform to RoHS	-----	Yes	Refer to 6.
安规规格/Safety Approval	-----	<input type="checkbox"/> UL <input type="checkbox"/> CUL <input checked="" type="checkbox"/> CE	
导线/Lead Wire	UL2468/28AWGx100mm 并线	<input checked="" type="checkbox"/> RED (+) <input checked="" type="checkbox"/> Black(-) <input checked="" type="checkbox"/> Yellow(FG) <input type="checkbox"/> White(RD) <input checked="" type="checkbox"/> Blue(PWM)	
端子/Connector	1.25-4P	黑红黄蓝	Pin1:+,Pin2:-,
套管/Tube	-----	No	-----
预估寿命/Life Expectancy	小时/Hours	50000	Refer to 7.
净重/Net Weight	克/Gram	17	N/A
装箱/Packing	件/箱/Pieces/Carton	600	N/A

出货检验程序 Product inspection procedure

出货检验程序均依照下列步骤实施 Inspection procedures below are extremely followed.

1-1.100%生产线上电性;死角,扇叶拉拔.

100% Electric; rotating, dead spot, fan blade fasten, and primary noise test on production line.

1-2.100%生产线上以示波器作正常电流波形筛检

100% Current wave test with scope on production line.

1-3.100%以手敲击测试及静音室异音过滤

100% Strick test by hand and noise filter in quiet room.

1-4.10cm 落地试验依 MIL-STD-105E 作抽样

10cm drop test at random in accordance with MIL-STD- 105E standard

1-5 出货抽样检验依 MIL-STD- 105E 作允退判定

Random inspection in accordance with MIL-STD- 105E standard.

1-6 允退标准如下 P

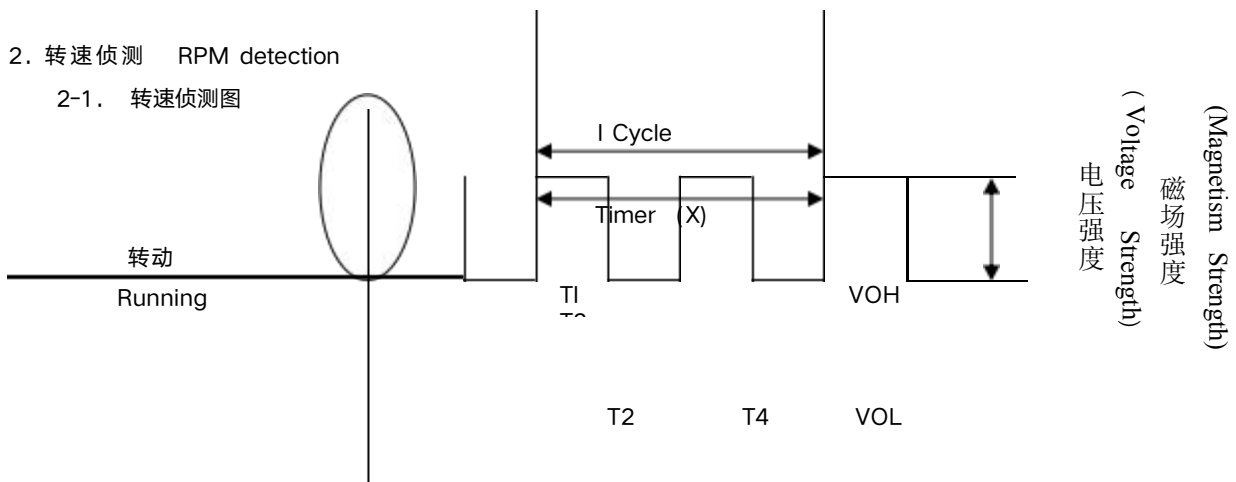
加严 Critical AQL:0.4

正常 Major AQL:0.65

宽松 Minor AQL:1.0

2. 转速侦测 RPM detection

2-1. 转速侦测图



$$T = T1 + T2 + T3 + T4$$

2-2. 转速侦测说明

2-2-1. 输出波形: 方波

Output waveform: square wave.

2-2-2. 当电压值愈高 (Voltage Y 值), 则输出波形愈高

When the voltage value is higher (Voltage Y) then output waveform is higher

2-2-3. 当风扇不转, 则输出波形为一水平线。

When the fan is shutdown then output waveform is a horizontal line

2-2-4. 循环距离越长 (Voltage Y 值), 则转速越慢

The cyclic distance is longer then the RPM is slower.

2-2-5. 转速计算公式如下:

RPM formula as follows:

$$RPM = \frac{60000}{X \text{ (ns)}}$$

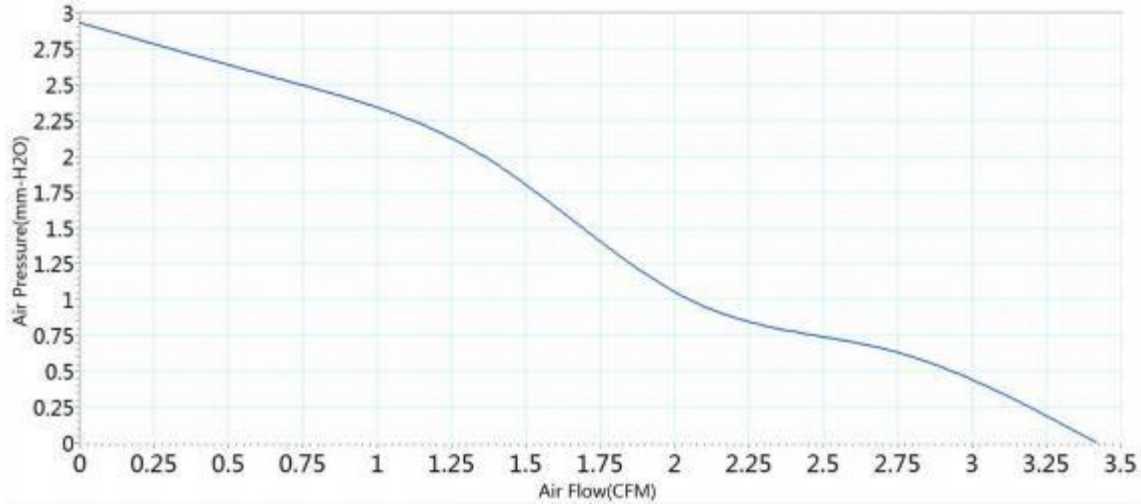
3. 机械特性 Mechanical Characteristics

3.1. 旋转方向 Rotation

参见第 3 页图纸所示 Refer to Page 3 Rotation

3.2. 风量风压曲线 Performance Curve

测试条件 Test Conditions: (1).Rated Voltage;(2).Room Temperature,65%Humidity;



4. 噪音 Noise Measure

4.3.1. 参照标准 ISO3745/GB4214-84, 背景噪音 20±2dBa, 室内环境下测量;

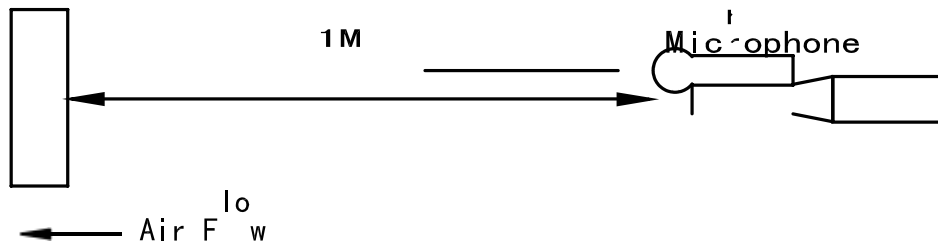
According to Standard ISO3745/GB4214-84, Back ground noise 20±2dBa with room condition;

4.3.2. 测试方法 Measure Condition:

风扇悬吊在无响室内, 在额定电压下, 麦克风距风扇进风口 1 米距离测试;

Fan is hanged in anechoic chamber, measured at rated voltage, measure microphone at a distance of one meter from the fan air intake;

FAN



5. 环境适应 Environmental

5.1. 运转温度 Operating Temperature	-----	-10 ~ +70
5.2. 储存温度 Storage Temperature	-----	°C -40 ~
5.3. 运转湿度 Operating Humidity	-----	+75 °C 35% ~
5.4. 储存湿度 Storage Humidity	-----	85%RH 35% ~
6. 环保要求 RoHS Compliance	-----	85%RH

产品有害物质的含量符合欧盟指令 2014/35/EU 的要求;
Product is in compliance with RoHS 2014/35/EU requirement;

7. 预期寿命 Life Expectancy

7.1. Conditions: At Confidence Level 90%; Rated Voltage; 65% Humidity Environment

7.2. Sleeve Bearing System: 30000 Hours At 25°C Environment

Hypro Bearing System: 30000 Hours At 40°C Environment

CycleSeal Bearing System: 40000 Hours At 40°C Environment

Dual Ball Bearing System: 50000 Hours At 40°C Environment

8. 马达保护 Motor Protection

8.1. 极性保护 Polarity Protection

如果产品的正负极电源线接反，产品能够承受 10 分钟不被损坏；

Be capable of withstanding 10 minutes will not cause damage if reverse connection for positive and negative lead wires;

8.2. 马达锁住保护 Locked Rotor Protection

在正常操作电压和温度范围下，当转子被锁住后，电路电流会被关闭或维持很小范围保护马达在 72 小时内不会损坏；

The current will be shut down or remain a little range to protect motor from damaged in 72 hours when locking rotor at operation voltage and temperature range;

9. 安全批准 Safety Approvals

参见第二页 Refer to page 2