




TO:

承认 APPROVED	确认 CHECKED	担当 INSPECTED
		

电机出货资料 MOTOR SHIPMENT DATA

贵司型号
CUSTOMER MODEL: _____

弊司型号
SHINANO MODEL: DR-42310-Y20-02500

出货数量
QUANTITY: 10 PCS

出货日期
DATE: 2021/01/15

出货目的
PURPOSE: 特性评价

添附资料
CONCLUSION:
电动机规格书
MOTOR SPECIFICATION: 4 PAGES

实验成绩表
TEST DATA SHEET: 2 PAGES


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实 验 成 绩 表

测试日: 2021/01/15

客户型号: _____
 机种名: DR-42310-Y20-02500
 实验名: 特性测量

温度: 25 °C
 湿度: 52 %RH
 气压: 1026 hPa

确 认	担 当
	

项 目		单 位	试 验 条 件	规 格	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6	NO. 7	NO. 8	NO. 9	NO. 10	平 均 值	判 定
空 载	转 速	[r/min]	Vs=48V	5000MAX	3885	3900	3850	3870	3920	3890	3798	3865	3879	3995	3885	OK
	电 流	[mA]	空 载	---	81	89	95	84	87	85	91	86	89	80	87	OK
负 载	转 速	[r/min]	Vs=48V	3070±15%	3069	3050	3085	3074	3075	3065	3060	3080	3065	3075	3070	OK
	电 流	[mA]	負載1.0kgf·cm	960±15%	894	870	910	920	910	895	879	905	902	915	900	OK
电 阻	U-V	[Ω]	25°C	7.36±10%	7.24	7.25	7.28	7.08	7.31	7.22	7.34	7.25	7.27	7.27	7.25	OK
	U-W	[Ω]	25°C	7.36±10%	7.32	7.25	7.34	7.07	7.23	7.28	7.45	7.24	7.26	7.34	7.28	OK
	V-W	[Ω]	25°C	7.36±10%	7.30	7.34	7.27	7.17	7.32	7.33	7.37	7.32	7.27	7.37	7.31	OK
电 感	U-V	[mH]	1KHz 0.5V	5.88±20%	5.80	5.79	5.86	5.89	6.18	5.72	5.90	5.88	6.27	5.70	5.90	OK
	U-W	[mH]	1KHz 0.5V	5.88±20%	6.19	6.00	6.27	5.71	5.77	5.99	6.30	5.95	5.87	6.11	6.02	OK
	V-W	[mH]	1KHz 0.5V	5.88±20%	6.08	6.22	5.89	6.18	6.08	6.15	6.02	6.28	5.86	6.07	6.08	OK
振 动	--	--	手 感	--	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
噪 音	--	--	听 感	--	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
绝 缘 耐 压	--	--	AC1200V 1mA 1s	--	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
绝 缘 电 阻	--	MΩ	DC500V	10[MΩ]MIN	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

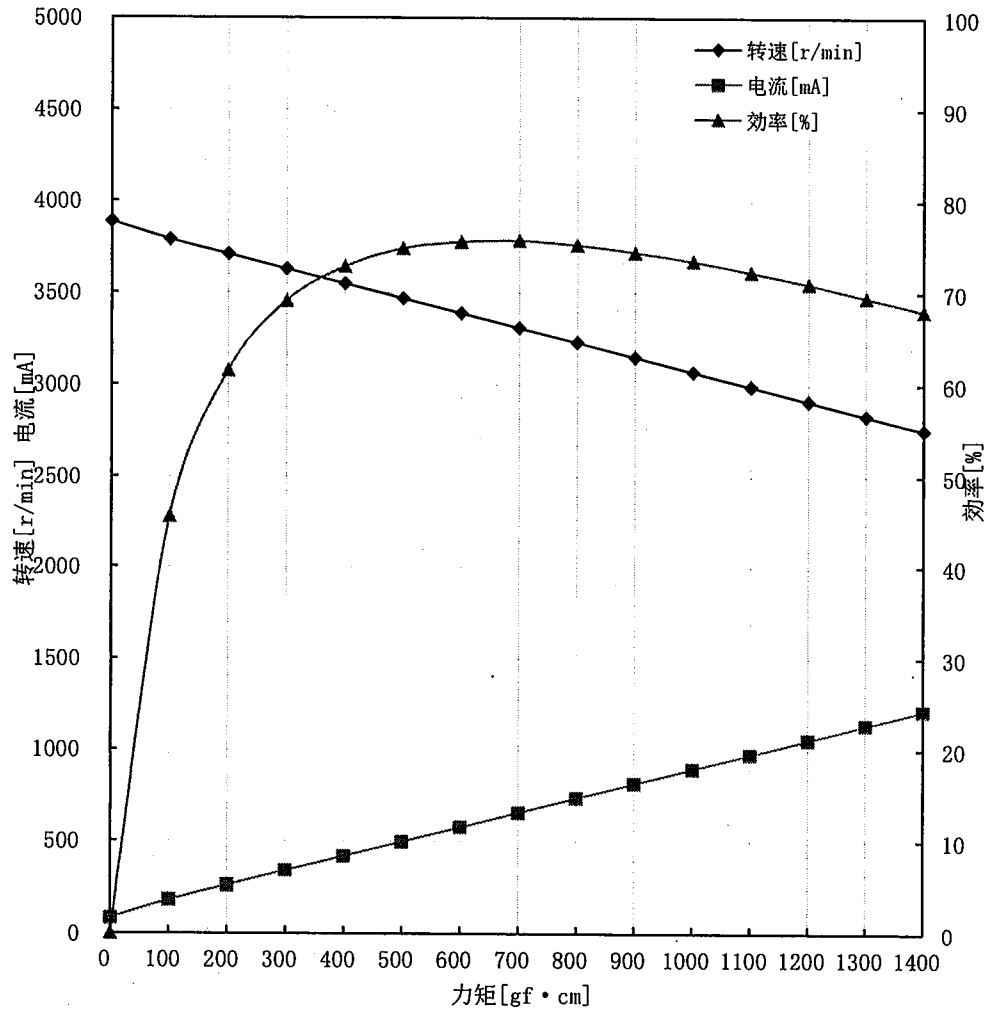
实验成绩表

客户型号: _____
 机种名: DR-42310-Y20-02500
 实验名: 力矩曲线测试

温度: 25 °C
 湿度: 52 %RH
 气压: 1026 hPa

测试日: 2021/1/15

确认	担当
2021-01-18 闫帅师	2021-01-15 蔡凤兰



测试条件: DC48V 转向: 轴出侧CW

力矩		电流	转速	输入	输出	效率	损失
[gf·cm]	[mN·m]	[mA]	[r/min]	[W]	[W]	[%]	[W]
0	0.0	81	3885	3.9	0.0	0.0	3.9
100	9.8	178	3787	8.5	3.9	45.5	4.7
200	19.6	258	3707	12.4	7.6	61.5	4.8
300	29.4	337	3627	16.2	11.2	69.1	5.0
400	39.2	417	3548	20.0	14.6	72.8	5.4
500	49.0	496	3468	23.8	17.8	74.8	6.0
600	58.8	576	3388	27.6	20.9	75.5	6.8
700	68.6	655	3309	31.4	23.8	75.7	7.7
800	78.4	735	3229	35.3	26.5	75.2	8.8
900	88.2	815	3149	39.1	29.1	74.4	10.0
1000	98.0	894	3069	42.9	31.5	73.4	11.4
1100	107.8	974	2990	46.8	33.8	72.2	13.0
1200	117.6	1053	2910	50.5	35.9	71.0	14.7
1300	127.4	1133	2830	54.4	37.8	69.5	16.6
1400	137.2	1212	2751	58.2	39.6	68.0	18.6

电动机规格书(暂定)
MOTOR SPECIFICATION (TENTATIVE)

电动机型号 MOTOR MODEL DR-42310-Y20-02500
顾客型号 CUSTOMER MODEL

1. 适用范围 SCOPE

本电动机规格书适用于3相直流无刷电动机的技术规定
其中没有特别指明处均遵从中国国家强制性产品认证及日本电气用品安全法
THIS SPECIFICATION IS SPECIFIED FOR 3-PHASE DC BRUSHLESS MOTOR.
ITEMS EXCEPT INDICATED IN THE SPECIFICATION, ARE APPLIED TO CHINA COMPULSORY PRODUCT
CERTIFICATION AND ELECTRICAL APPLICANCE AND MATERIAL SAFETY LAW OF JAPAN

2. 规格 SPECIFICATION

项目 ITEM	规格 SPECIFICATION	备注 REMARKS
1 电机种类 MOTOR TYPE	内转子直流无刷电机 INNER ROTOR TYPE DC BRUSHLESS MOTOR	
2 相数 极数 PHASES AND POLES	3相 10极 3 PHASES 10 POLES	
3 外壳区分 CLASSIFICATION OF PROTECTION	全闭型 TOTALLY ENCLOSED	
4 额定电压 RATED VOLTAGE	48 [V]DC	
5 额定电流 RATED CURRENT	1.0 [A]	标称值 NOMINAL
6 额定转速 RATED SPEED	3160 [r/min]	标称值 NOMINAL
7 额定输出功率 RATED OUTPUT	30 [W]	
8 额定负载 RATED LOAD	0.098 [N·m] (1.00 [kgf·cm])	
9 旋转方向 ROTATION DIRECTION	面向轴出端看时针/逆时针方向转动 CW/CCW ROTATION VIEWING FROM OUTPUT SHAFT	
10 瞬间最大力矩 INSTANTANEOUS MAX TORQUE	0.294 [N·m] (3.00 [kgf·cm])	
11 最大容许电流 MAX. CURRENT	2.5 [A]	
12 最大容许转速 MAX. SPEED	5000 [r/min]	
13 绝缘等级 INSULATION CLASS	E 级 CLASS	
14 工作方式 RATING (DUTY CYCLE)	连续 CONTINUOUS	
15 防护等级 INGRESS PROTECTION	IP5X	

3. 使用条件 OPERATING CONDITIONS

RoHS指令对应(详细内容参考D1-00005)
CONFORM TO RoHS INSTRUCTIONS (DETAILS ARE ACCORDING TO D1-00005)

项目 ITEM	规格 SPECIFICATION	备注 REMARKS
1 使用状态 POSTURE	输出轴水平 HORIZONTAL OUTPUT SHAFT	
2 使用环境 LOCATION	室内 INDOOR	
3 周围温度 AMBIENT TEMPERATURE	0 ~50 [°C]	
4 周围湿度 AMBIENT HUMIDITY	20~85 [%RH]	无结露 NO CONDENSATION
5 海拔 ALTITUDE	海拔1000m以下 1000m MAX ABOVE SEAL LEVEL	
6 寿命 LIFE	5000 [h]MIN	额定电压 额定转速 额定负载下 连续运转 RATED VOLTAGE、RATED SPEED、 RATED LOAD CONTINUOUS OPERATING

4. 保存条件 STORAGE CONDITIONS

项目 ITEM	规格 SPECIFICATION	备注 REMARKS
1 周围温度 AMBIENT TEMPERATURE	-20~50 [°C]	
2 周围湿度 AMBIENT HUMIDITY	20~90 [%RH]	无结露 NO CONDENSATION

5. 电气特性 ELECTRICAL CHARACTERISTICS

项目 ITEM	规格 SPECIFICATION	备注 REMARKS
1 转速 SPEED	3070±15% [r/min]	标准试验状态(见第3页) STANDARD TESTING CONDITION(SEE SHEET 3)
2 电流 CURRENT	1s=0.96±15% [A]	
3 电阻 RESISTANCE	7.36±10% [Ω]	25[°C] 相间电阻 PHASE TO EACH PHASE
4 电感 INDUCTANCE	5.88 [mH]	1[kHz] 相间电感(标称值) PHASE TO EACH PHASE(NOMINAL)
5 力矩常数 TORQUE CONSTANT	0.114 [N·m/A] (1.16 [kgf·cm/A])	标称值 NOMINAL
6 电气时间常数 ELECTRICAL TIME CONSTANT	0.80 [ms]	标称值 NOMINAL
7 绝缘电阻 INSULATION RESISTANCE	DC500[V] 100[MΩ]MIN	
8 绝缘耐压 DIELECTRIC STRENGTH	AC1200[V] 50/60[Hz] 泄漏电流3[mA] 1秒印加 后电机无异常 TO CONFIRM FOLLOWING MEASURED BY AC1200[V] 50/60[Hz] CUT OFF CURRENT 3[mA] FOR 1[s]	电机外壳(定子铁芯)与电机引线 (卷线)间印加 BETWEEN MOTOR CHASSIS (STATOR CORE) AND THE LEAD WIRES (COIL.)

MATERIAL	---							DR-42310-Y20-02500
FINISH	---		21-01-14	00 初版	苏凤兰			
		SYM	DATE	REVISION NO.	REVISIONS	BY	NOTE	
DRAWN	DESIGNED	CHECKED	APPROVAL	SCALE 1:1	TITLE	电动机规格书(暂定) MOTOR SPECIFICATION (TENTATIVE)		THIRD ANGLE PROJECTION
东莞信浓 21-01-14 苏凤兰	东莞信浓 21-01-14 苏凤兰	东莞信浓 2021-01-13 周伟 周伟	东莞信浓 2021-01-13 周伟 周伟	UNIT [mm]	DWG. NO.	Y-20-1952-0		
ASPINA Dongguan Shinano Motor Co., Ltd. SHEET								1/4

SKY

6. 机械特性 MECHANICAL CHARACTERISTICS

项目 ITEM	规格 SPECIFICATION	备注 REMARKS
1 质量 MASS	约 0.31 [kg] APPROX	
2 转子转动惯量 ROTOR INERTIA	31.7 [g·cm ²] NOMINAL	标称值
3 机械时间常数 MECHANICAL TIME CONSTANT	1.73 [ms] NOMINAL	标称值
4 容许径向载荷 MAX. RADIAL LOAD	50 [N] (5.0 [kgf])	安装面开始15mm处 AT 15mm FROM MOUNTING SURFACE
5 容许轴向载荷 MAX. THRUST LOAD	1.5 [N] (0.15 [kgf])	
6 引线拔出力 PULL OFF FORCE OF LEAD WIRES	19.6 [N] (2.0 [kgf])	
6 带轮空转力矩 LOOSE TORQUE OF PULLY	0.588 [N.m] (6.0 [kgf.cm])	温度 25 °C TEMPERATURE

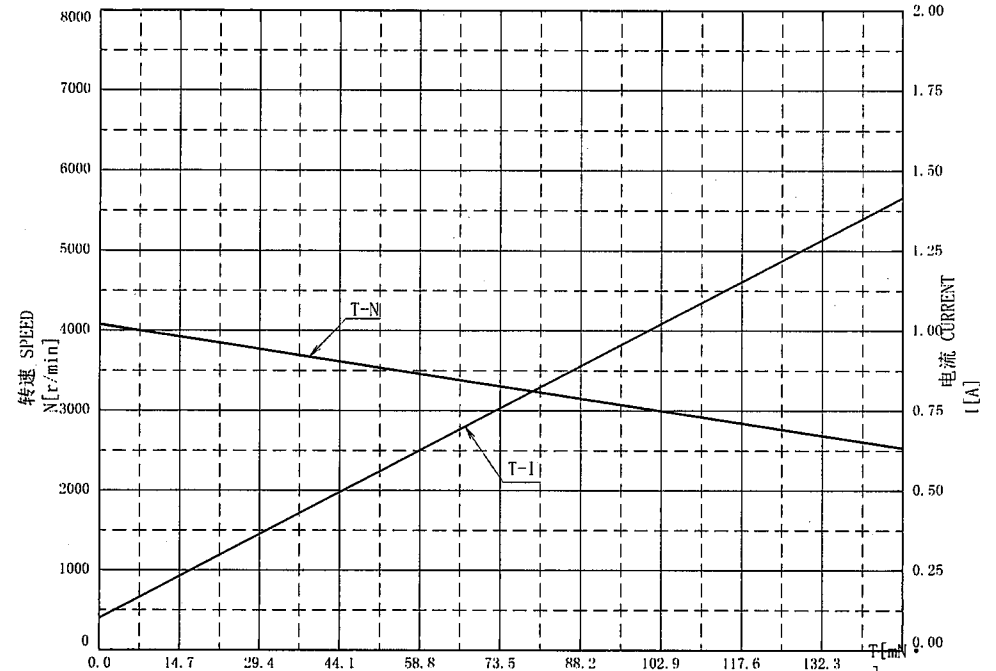
7. 霍尔传感器特性 HALL SENSOR CHARACTERISTICS

项目 ITEM	规格 SPECIFICATION	备注 REMARKS	
1 电源电压 SUPPLY VOLTAGE	V _{CC} =5 [V]DC		
2 消耗电流 CONSUMPTION CURRENT	I _{CC} =0.04 [A]	标称值 NOMINAL	
3 输出信号数 NUMBER OF SIGNALS	3	Hu Hv Hw	
4 输出规格 OUTPUT SPECIFICATION	输出形式 OUTPUT TYPE	OPEN COLLECTOR	
	V _{O(ON)}	=V _{CC} [V]MAX	输出开放电压 OUTPUT H VOLTAGE
	I _{SINK}	=0.01 [A]	输出流入电流 OUTPUT L CURRENT
	V _{SAT}	=0.4 [V]	输出饱和电压 OUTPUT SATURATION VOLTAGE

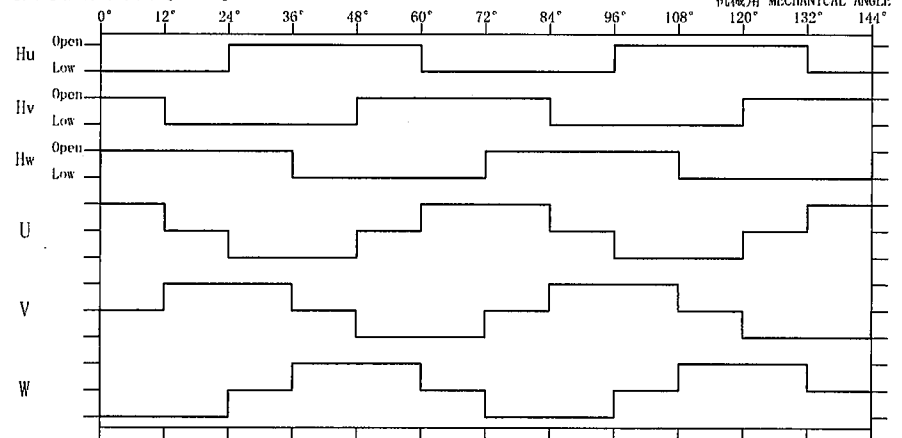
8. 温度规格 TEMPERATURE SPECIFICATION

项目 ITEM	规格 SPECIFICATION	备注 REMARKS
1 电机表面温度 MOTOR SURFACE TEMPERATURE	90 [°C]MAX	
2 使用温度范围 OPERATING TEMPERATURE RANGE	晶体管 POWER TRANSISTOR	105 [°C]MAX
	滚珠轴承 BALL BEARING	90 [°C]MAX
	绕组 COIL	110 [°C]MAX

[图1]力矩曲线(代表特性) [FIG. 1]TORQUE CURVE (TYPICAL CHARACTERISTICS)



[图2]驱动时序图 [FIG. 2]TIMING DIAGRAM



输出轴端看顺时针方向 CW ROTATION VIEWING FROM OUTPUT SHAFT

MATERIAL	---				DR-42310-Y20-02500	
FINISH	---		21-01-14	00 初版	苏凤兰	
DRAWN		DESIGNED	CHECKED	APPROVAL	BY	
东莞信浓 21-01-14 苏凤兰		东莞信浓 21-01-14 苏凤兰	苏光裕 2021-01-18 周炳辉	苏光裕 2021-01-18 周炳辉	电动机规格书(暂定) MOTOR SPECIFICATION (TENTATIVE)	
SCALE 1:1		TITLE	UNIT [mm]		DWG. NO.	THIRD ANGLE PROJECTION
Y-20-1952-0		ASPINA Dongguan Shinano Motor Co., Ltd.		SHEET		2/4

1 2 3 4 5 6

9. 其他 OTHERS

项目 ITEM	规格 SPECIFICATION
1 环境对应 ENVIRONMENTAL COMPLIANCE	本电机Pb Cr(VI+) Cd Hg PBB PBDE 6种物质的含有量满足RoHS指令(2011/65/EU)的要求 MATERIALS OF MOTOR CONTAIN SIX SUBSTANCES Pb Cr(VI+) Cd Hg PBB AND PBDE. THOSE CONTENTS COMPLY WITH THE RoHS INSTRUCTION
2 注意事项 RECOMMENDATIONS	<p>本电机内未设有轴堵转 过电压 过电流 过温度上升 接线反接等保护线路 请注意 NOTE THAT THE MOTOR HAVE NO ANY PROTECTION CIRCUIT FOR SHAFT LOCK, OVER VOLTAGE, OVER CURRENT, OVER TEMPERATURE RISING AND REVERSE CONNECTION.</p> <p>从电源基板到电机间电缆线全长较长的情况下 电缆线的电感及电阻是不可以忽视的 请注意由此所产生的电压引起的电路误动作及过电压引起的损坏等 IN CASE OF LONGER CABLE BETWEEN MOTOR AND POWER SUPPLY, THE CABLE INDUCTANCE AND RESISTANCE COULD NOT BE DISREGARDED. PLEASE BE CAREFUL OF THE CIRCUIT MALFUNCTION BY THE VOLTAGE WHICH OCCURRED FROM INDUCTANCE AND RESISTANCE OR DESTRUCTION BY OVER VOLTAGE.</p> <p>本规格书中的各项规格敝公司都进行信赖性评价 规格如有变更请务必联络敝公司 THE RELIABILITY OF MOTOR IS EVALUATED IN ACCORDANCE WITH THE RATING ON THE PRODUCT SPECIFICATION. WHEN THERE IS CHANGE TO THE RATING, PLEASE CONTACT US.</p> <p>请注意腐蚀性气体可能会对金属部及轴承润滑油等引起化学影响 CORROSIIVE GAS MAY AFFECT TO ACCELERATE THE CORROSION ON METAL PART. AND THE CHEMICAL REACTION ON THE BEARING GREASE MAY ALSO BE AFFECTED.</p> <p>本规格书中的各项规格敝公司都进行信赖性评价 规格如有变更请务必联络敝公司 THE RELIABILITY OF MOTOR IS EVALUATED IN ACCORDANCE WITH THE RATING ON THE PRODUCT SPECIFICATION. WHEN THERE IS CHANGE TO THE RATING, PLEASE CONTACT US.</p> <p>请充分确认防锈油等对树脂的影响 PLEASE CONFIRM THE INFLUENCE OF RUST PREVENTION OIL TO THE RESIN.</p> <p>电机在整机整装状态下的适用性评价 请贵公司注意确认 THE CONGENIALITY OF COMPLETED UNIT WITH THE MOTOR IN EVALUATION SHOULD BE TESTED AT CUSTOMER SIDE.</p> <p>取用电机时不可拎电机引线 DO NOT LIFT THE MOTOR WITH THE LEAD WIRE UP ROUGHLY.</p> <p>直接用手接触电机的作业员及接触电机的设备机器必须采取防静电及防漏电对策 OPERATOR HANDLING THE MOTOR BY HAND(S) AND MACHINE EQUIPPING THE MOTOR SHOULD BE COUNTER MEASURED BY ANTI-STATIC ELECTRICITY AND ANTI-LEAK.</p> <p>电机不可落地或受到强力冲击 即使开始时没有异常也不能保证电机的品质 DO NOT DROP AND/OR HURL MOTOR TO HARD MATERIAL. NO GUARANTEE IS MADE TO THE MOTOR EVEN IF THE INITIAL WORKING OF THE MOTOR IS OBSERVED.</p> <p>电机的GND必须确实连接到地 MAKE SURE THAT GND TERMINAL IS CONNECTED TO THE GROUND.</p> <p>取用电机时请注意电机可能使用的钣金的切断面及轴的尖锐边角 请佩戴手套取用 WEAR GLOVES WHEN OPERATORS HANDLE THE MOTOR AS THERE IS SHARP EDGE ON STAMPED PLATE SHAFT AND MACHINED SHAFT.</p> <p>电机运转中不可用手或物接触转动部 非常危险 DO NOT TOUCH YOUR HAND TO THE ROTATING MOTOR, WHICH IS DANGEROUS.</p> <p>由于声音的原因轴承是不耐冲击的物品 请注意电机不可受到冲击 THE BEARING IS WEAK FOR MECHANICAL IMPACT IN TERMS BECAUSE OF THE NOISE PLEASE AVOIDING THE MOTOR BY THE IMPACT.</p> <p>电机运转时及无通电运转时不可插拔电机引线插头 DO NOT PLUG OR UNPLUG THE CONNECTOR WHILE POWER ON OR SHAFT ROTATING WITHOUT POWER.</p> <p>由本电机的使用方法等引起的专利问题 本公司不予保证 请贵公司特别注意 WE, SHINANO KENSHI, DOES NOT HAVE ANY RESPONSIBILITY FOR ANY PATENT DISPUTE RELATING TO THE USAGE AND APPLICATION. YOU ARE KINDLY REQUESTED TO INVESTIGATE THE PATENT BEFORE THE DESIGN.</p>

10. 标准试验状态 STANDARD TESTING CONDITIONS

RoHS指令对应(详细内容参考D1-00005)
CONFORM TO RoHS INSTRUCTIONS (DETAILS ARE ACCORDING TO D1 00005)

项目 ITEM	规格 SPECIFICATION	备注 REMARKS
1 Vs	DC 48 [V]	电机引线端部 AT THE END OF THE LEAD WIRE
2 Vcc	DC 12 [V]	
3 负载 LOAD	98 [mN·m]	1.0 [kgf·cm]
4 温度 TEMPERATURE	25 [°C]	在无异义の場合 温度5~35[°C] IF THE PARAMETERS ARE UNDOUBTED THE TEMPERATURE OF 5~35[°C]
5 湿度 HUMIDITY	65 [%]RH	在无异义の場合 湿度45~85[%]RH IF THE PARAMETERS ARE UNDOUBTED THE HUMIDITY OF 45~85[%]RH
6 大气压 ATMOSPHERIC PRESSURE	1013 [hPa]	在无异义の場合 大气压920~1040[hPa] IF THE PARAMETERS ARE UNDOUBTED THE ATMOSPHERIC PRESSURE OF 920~1040[hPa]

图3 力矩特性测试电路
FIG. 3 STANDARD MOTOR DRIVE CIRCUIT

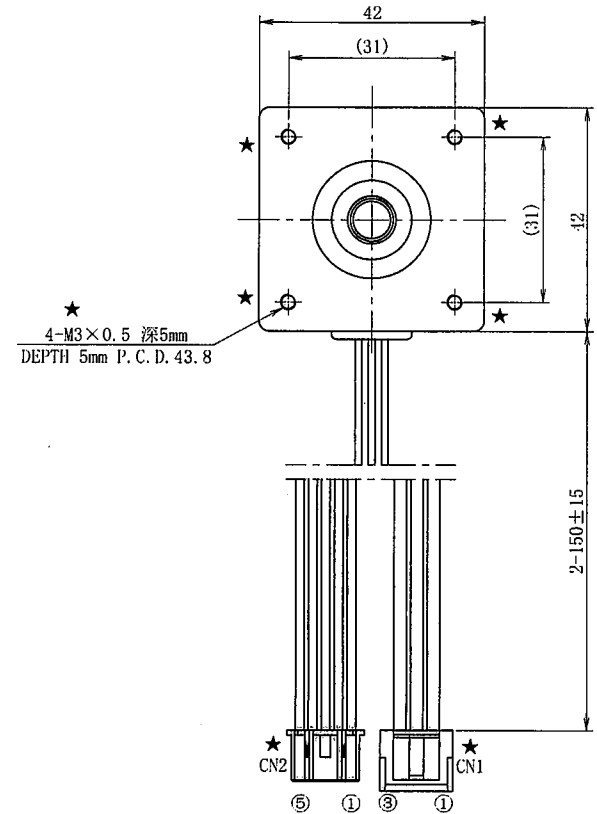
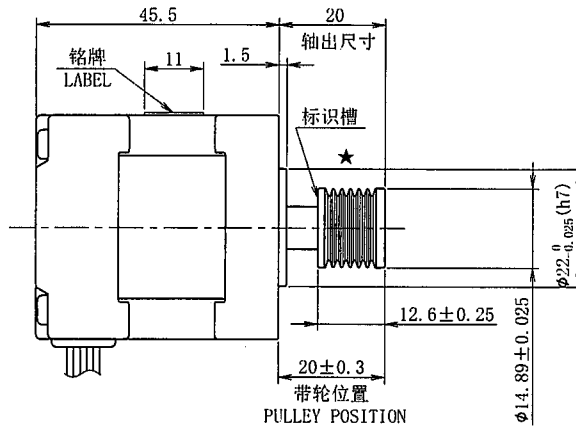
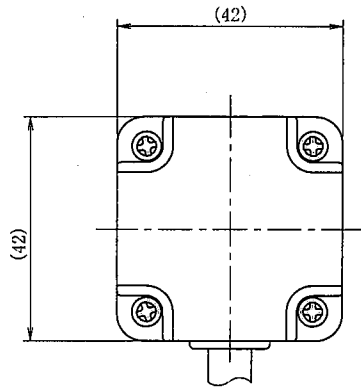
图4 电机内部电路
FIG. 4 MOTOR INTERNAL CIRCUIT

MATERIAL	---	---	---	---	---	---	---	---	---	DR-42310-Y20-02500	
FINISH	---	---	---	---	---	---	---	---	---	00 初版 苏凤兰	
DRAWN	苏凤兰	DESIGNED	苏凤兰	CHECKED	苏凤兰	APPROVAL	苏凤兰	DATE	'21-01-14	SYMBOL	---
SCALE 1:1 TITLE 电动机规格书(暂定) MOTOR SPECIFICATION (TENTATIVE) UNIT [mm] DWG. NO. Y-20-1952-0											
DRAWN 苏凤兰 DESIGNED 苏凤兰 CHECKED 苏凤兰 APPROVAL 苏凤兰 DATE '21-01-14											

ASPINA Dongguan Shinano Motor Co., Ltd. SHEET 3/4

CONFIDENTIAL

RoHS指令对应 (详细内容参考D1-00005)
CONFORM TO RoHS INSTRUCTIONS (DETAILS ARE ACCORDING TO D1-00005)



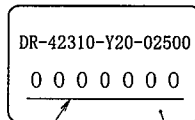
【CN1连接器式样 CONNECTOR SPECIFICATION】

接插件 HOUSING: VHR-03N (JST)

接触器 TERMINAL: SVH-21T-P1.1 (JST)

线序 PIN No.	信号名 SIGNAL	颜色 COLOR	线型 TYPE
①	V	白 WHITE	UL3266 AWG22
②	W	红 RED	UL3266 AWG22
③	U	黑 BLACK	UL3266 AWG22

【铭牌内容 (2:1) LABEL CONTENTS】



出货批次
LOT No.

白色 WHITE

【CN2连接器式样 CONNECTOR SPECIFICATION】

接插件 HOUSING: PAP-05V-S (JST)

接触器 TERMINAL: SPHD-002T-P0.5 (JST)

线序 PIN No.	信号名 SIGNAL	颜色 COLOR	线型 TYPE
①	Vcc	红 RED	UL1430 AWG26
②	GND	黑 BLACK	UL1430 AWG26
③	Hu	白 WHITE	UL1430 AWG26
④	Hv	橙 ORANGE	UL1430 AWG26
⑤	Hw	黄 YELLOW	UL1430 AWG26

日 DATE

月 MONTH(10:X 11:Y 12:Z)

公历年末尾 LAST NO. OF YEAR

0000000

制造国-中国; G

G: MEANS MADE IN CHINA

变更号码 REV NO.

★印部为顾客使用部 (安装部 动力传输部 电源部)
PORTIONS MARKED BY ★ ARE USED BY CUSTOMER
(MOUNTING, POWER TRANSMISSION, INTERFACE)

一般公差 TOLERANCES		±0.5/±2°							
MATERIAL	---								
FINISH	---	SY	DATE	REVISION NO.	REVISIONS	BY	NOTE	DR-42310-Y20-02500	
DRAWN	DESIGNED	CHECKED	APPROVAL	SCALE 1:1	TITLE	电动机规格书 (暂定) MOTOR SPECIFICATION (TENTATIVE)		THIRD ANGLE PROJECTION	
东莞信浓 21-01-14 苏凤兰	东莞信浓 21-01-14 苏凤兰	东莞信浓 2021-01-18 周帅	周帅	UNIT [mm]	DWG. NO.	Y-20-1952-0		ASPINA Dongguan Shinano Motor Co., Ltd. SHEET 4/4	

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