

MOONS'

STEPPER MOTOR WITH GEARHEAD SPECIFICATION

MOONS' MODEL
PG22L71.7-20P020L0-14
4611120002272

版本 REV	描述 DESCRIPTION	日期 DATE
A	FIRST ISSUED	2018.07.12
B	删去30.83; 增加A处铭牌; 增加螺钉; B向改为镜像位置 Δ	2019.02.25

上海鸣志电器股份有限公司
SHANGHAI MOONS' ELECTRIC CO., LTD.
中国上海市闵北工业区鸣嘉路168号
North Minhang Industrial Park District
168 Mingjia Rd, Shanghai, China

1. RATED CHARACTERISTICS AND CONDITIONS

NO.	ITEM	SPECIFICATION	REMARK
1.1	Operating Voltage Range	9~30 VDC	with Chopper Driver
1.2	Nominal Voltages	9.2 VDC	
1.3	Constant Current	≤ 0.46 A/Phase	with Chopper Driver
1.4	Phase Number	Two(2)	Phases A & B
1.5	Gear Ratio	1:71.7	Planetary Gearhead
1.6	Step Angle	18°/71.7	Gear Ratio=1:71.7
1.7	Excitation Method	Bipolar	with Chopper Driver IC
1.8	Insulation Class	Class B	
1.9	Feedback by Hall Sensor	1 Signal/Revolution	As Motor

2. ELECTRICAL CHARACTERISTICS

NO.	ITEM	SPECIFICATION	REMARK
2.1	Resistance per Phase	$6.4 \Omega \pm 7\%$	@25°C
2.2	Inductance per Phase A/B	$5.579 \text{ mH} \pm 20\%$	@1kHz 1V rms
2.3	Output Torque	9.2V, 0.46A, 1/4 细分, 25°C	1530pps/16rpm, 4.2kgfcm min 2390pps/25rpm, 3.6kgfcm min 3059pps/32rpm, 3.3kgfcm min 3441pps/36rpm, 2.8kgfcm min 3728pps/39rpm, 2.55kgfcm min 4015pps/42rpm, 2.4kgfcm min 4208pps/44rpm, 2.25kgfcm min 4397pps/46rpm, 2.1kgfcm min
		9.2V, 0.46A, 1/4 细分, -40°C	1530pps/16rpm, 4.1kgfcm min 2390pps/25rpm, 3.2kgfcm min 3059pps/32rpm, 3.0kgfcm min 3441pps/36rpm, 2.6kgfcm min 3728pps/39rpm, 2.35kgfcm min 4015pps/42rpm, 2.2kgfcm min 4208pps/44rpm, 2.0kgfcm min 4397pps/46rpm, 1.9kgfcm min
2.4	Pull-in Pulse Rate for 10V	800 pps min.	@ No Load
2.5	Step Angle Accuracy	$18^\circ \pm 6\%$ (as of Motor)	@1 pps Full-Step
2.6	Insulation Resistance	100 M Ω min.	Case-lead DC500V
2.7	Dielectric Strength	Leak Current 3mA max.	Case-lead AC600V 1 sec.
2.8	Temperature Rise	65°C max. @1K pps Full-Step	On 100X200X2t Al Plate
2.9	Direction of Rotation	CW & CCW	Seen from Gearhead Side
2.10	Resonant Frequency	200Hz	
Safety Standard: Conform to EA&MSL (Japan), UL, CSA, TUV, RoHS			

3. MECHANICAL CHARACTERISTICS

NO.	ITEM	SPECIFICATION	REMARK
3.1	Outline Dimension	As Attached Outline Drawing	
3.2	自锁力Tlock(kgfcM)	0.46A时, 转动静止电机的转矩 电机不带电时转动静止的转矩	≥ 6.8 ≤ 4.5
3.3	堵转转矩T (kgfcM)	齿轮箱输出转速在16rpm~25rpm时堵转转矩 齿轮箱输出转速大于25rpm时堵转转矩	≤ 6 ≤ 5
3.4	输出扭矩损耗	齿轮箱输出轴轴向位移 $\leq 0.3\text{mm}$ 以输出轴中心为圆心加载至3.5kg 齿轮箱输出轴摆角 $\leq 3^\circ$, 以输出轴外露点为支点计算扭矩达3.5kgfcM	输出扭矩损耗 $\leq 10\%$
3.5	Radial Backlash	3° max.	@ no load
3.6	Noise	50dB	Distance 1m @No load 9.2V 0.46A 43697pps 1/4细分
3.7	Bearing on Output Shaft	Ball Bearing	
3.8	Rated Weight	100g max.	

4. OPERATING CONDITIONS

NO.	ITEM	SPECIFICATION	REMARK
4.1	Ambient Temperature	$-40^\circ\text{C} \sim +85^\circ\text{C}$	
4.2	Ambient Humidity	15~100%RH	No Condensation
4.3	Storage Temperature	$-55^\circ\text{C} \sim +95^\circ\text{C}$	
4.4	Storage Humidity	15~100%RH	No Condensation
4.5	level of Protection	IP56	IEC 60529
4.6	Salt-Fog Durability	48h	50g/L PH7.0
4.8	Atmospheric Pressure	4~106kPa	
4.9	Fireproofing Grade	UL94-V0	

保 密

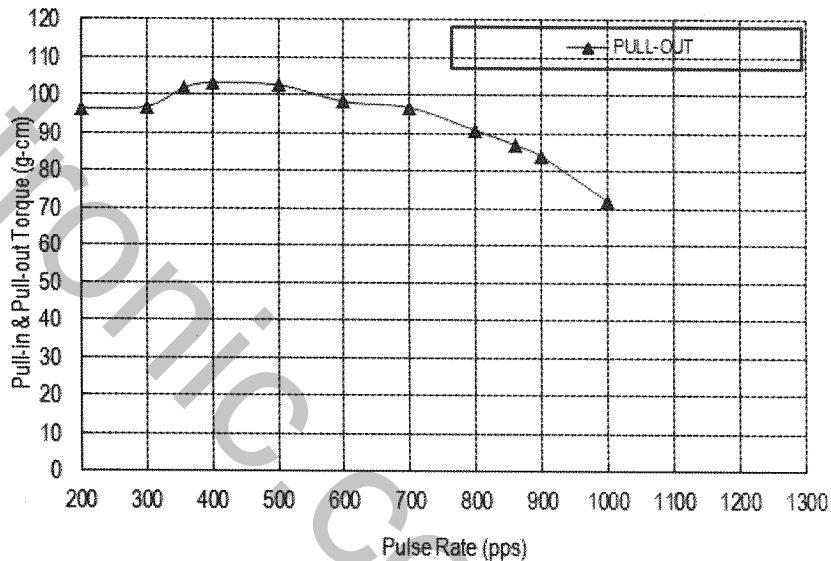
5. RELIABILITY AND WARRANTY

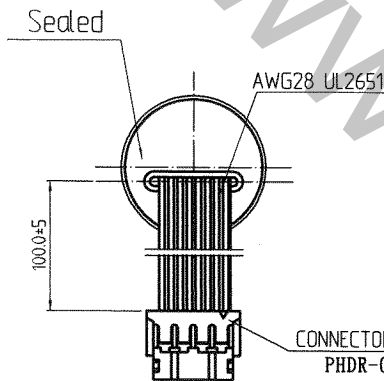
NO.	SPECIFICATION	REMARK
5.1	Lifetime 500h	高温 $+55^\circ\text{C} \pm 2^\circ\text{C}$, 9.2V, 0.46A, 36rpm, 2kgfcM
5.2	Electrical & Mechanical Characteristics Preserved	1. Vibration Test at Package 2. Frequency: 5Hz~200Hz; 9Hz; single amplitude: 3.1mm (5-9Hz), 10m/s^2 , (9-200Hz); under 5 cycles each axis, 3 axes 3. Reside Vibration: 10m/s^2 ; Time: 1min 4. Verity the thread strength after locking motor shell
5.3	Electrical & Mechanical Characteristics Preserved	1. Test according to the following conditions after installing wiring connector: Peak acceleration: 50g; pulse duration: 11ms; Speed variation: Half sine wave, 3.4m/s; axial direction: three axis; Continuous impact times: 18 2. High/low temperature storage test; High/low temperature operating test、机械寿命 测试、温度冲击以及印刷标志耐擦性试验。

MOONS' PM STEPPING MOTOR CHARACTERISTICS

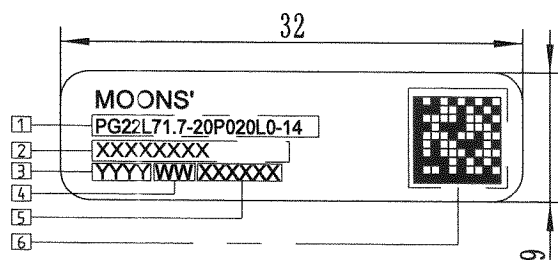
20P020L0-00665 (Rev. A)

Rated Voltage 9.2V Constant Phase Current 0.46A Bipolar Full-Step 3540M Driver



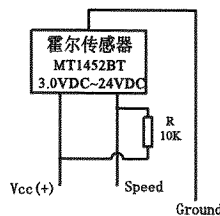


DETAIL A

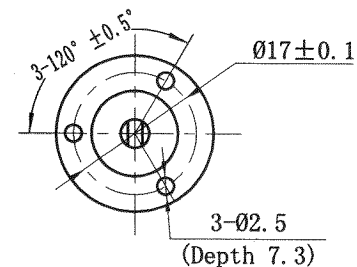
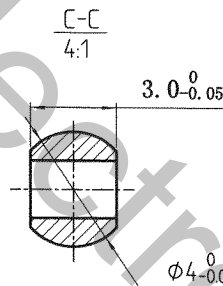


1	Moons' Motor Code
2	Customer Code
3	Year
4	Week
5	Serial Number
6	Barcode

View B



Ground



CONNECTOR PIN LOCATION

PIN NO.	CCW ← → CW (SEEN FROM FLANGE SIDE)				PHASE
1					SPEED
2					NC
3					GROUND
4					Vcc
5	ON			ON	B-
6		ON	ON		B+
7			ON	ON	A-
8	ON	ON		ON	A+

Direction

Unit : mm
 第一角画法
 FIRST ANGLE METHOD
 未注线性与角度尺寸公差
 Tolerances for linear and angular dimensions without individual tolerance indications
 GB/T 1804-m eqv ISO 2768-1m
 未注形状与位置尺寸公差
 Geometrical tolerance for features without individual tolerance indications
 GB/T 1184-K eqv ISO 2768-2-K

批准 Approve		2019.03.12
标准化 Standard		2.12
工艺 Technology		3.12
审核 Check		3.12
设计 Design	李兴建	2019.02.25
NAMES	SIGNATURE	DATE

MOONS'

GEARBOX MOTOR

Shanghai Moons' Electric Co., Ltd.

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A	原始版本 Original revision	2018.07.12
REV.	版本记录 REVISION RECORD	DATE