

HYBRID STEPPING MOTOR SPECIFICATIONS

Manufacturer: SHANGHAI MOONS' ELECTRIC CO., LTD.

MODEL No.: 24HS5402-10N

CUSTOMER'S MODEL No.:

1. SCOPE

This specification covers the general requirements for the stepping motor

2. APPLICABLE DOCUMENTS

IEC 60034-1:

IEC 60034-1: Rotating electrical machines

Part 1: Rating and performance

IEC TS60034-20-1: IEC TS60034-20-1: Rotating electric machine

Part 20-1: Control motors-Stepping motors

3. RATING

3-1 Step Angle ----- 1.8°/full 1 step

3-2 Number of Phase -----2

3-3 Rated Voltage ----- 4.56V DC

3-4 Rated Current(peak value when microstep) -----2.8A 3-5 Insulation Class -----Class B

3-6 Source Voltage ----- 36V DC

表 Indicates the voltage that the power supplier applies to the driver circuit.

It is same as the rated voltage when motor is driven on a constant voltage model.

4. ELECTRICAL CHARACTERISTICS

4-1 Coil Resistance/phase----- 1.63Ω±10% (20°C)

4-2 Coil Inductance/phase ----- 6.27mH±20% (1kHz 1V rms)

4-3 Holding torque ----- 2.7N.m two phase on/rated current)

4-4 Detent torque ----- Approximately 100mN.m

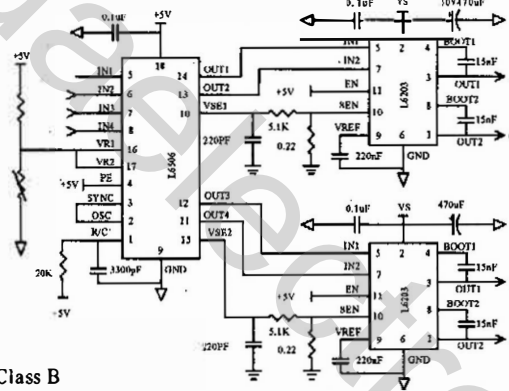
4-5 Step angle accuracy ----- ±5%

/36V / 1pps/:PV7300

Testing condition: Constant current driver/36V/Two phase on/Rated current/Speed: 1pps(Full step)

Onosokki: PV7300

Testing Circuit for Dynamic Performance 4-6, 4-7, 4-8, 4-9.



4-6 Slew rate with no load ----- N/A 流36V/

Testing condition: Source Voltage 36V/Half step

4-7 Pull-in rate with no load -----N/A

36V / Testing condition: Source Voltage 36V/Half step

4-8 Pull out torque

6V Testing condition: Source Voltage 36V/Half step

@1000pps ----- N/A.

@2000pps ----- N/A.

@3000pps ----- N/A.

4-9 Pull in torque

36V/Testing condition: Source Voltage 36V/Half

step

@600pps ----- N/A.

@900pps ----- N/A.

4-10 Back Elec roMotiveForce -----N/A

测 300RPM, . Testing condition: The back EMF is the RMS value measured across the coils,

carrying the motor shaft at the constant speed of 300 RPM.

G			Unit: mm	批准 Approve	张芝	7.31	备注 Comment:
F			第一角画法 FIRST ANGLE METHOD	标准化 Standard	张芝	10-3-31	
E			公差等级与配合尺寸 Tolerances for linear and angular dimensions without individual tolerance indications	工艺 Technology	张芝	03.31	
D			GB/T 1804-m eqv ISO 2768-1m	审核 Check	张芝	10-3-31	
C			几何公差与特征尺寸 Geometrical tolerance for features without individual tolerance indications	设计 Design	张芝	2010.03.30	
B			GB/T 1184-K eqv ISO 2768-2:K				
A	原始版本 Original revision	2010.03.30					
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4-11 Insulation resistance -----100M Ω More than 100M Ω

500V. Testing condition: Between coils and frame,
500V DC.

4-12 Dielectric strength -----500V 50/60Hz/ 500V AC 1 minute

500V 50/60Hz, 3mA.
Testing condition: Motor is capable of withstanding with out break down,

when 500V AC (RMS value) for period of 1 minute between motor frame and lead wires.
Cut off current is less than 3mA.

4-13 Temperature rise -----80°C less than 80°C

160 × 160 × t1.6(mm)

Temperature rise is the maximun coil tempaure increase respect to the ambient temperature.

Coil temperature is measured with resistance method.

Two phase on rated voltage at 0 pps speed when constant voltage driving model.

Two phase on rated current at pull in rate speed when constant current driving model.

Al heat sink plate: 160 × 160 × t1.6(mm)

5. Mechanical Characteristics

5-1 Outline Diementions ----- / See sheet 3:

5-2 Material of shaft -----Stainless steel

5-3 Material of magnet ----- Rare earth alloy

4 Material of end bell ----- luminum alloy die casting

5-5 Bearing ----- Double shield deep groove ball bearing

5-6 Label -----Ink jet printing on the rear end bell 5-7 Rotor Inertia -----

Approximately 900g.cm²

5-8 Mass -----Approximately 1400g

5-9 End play of the shaft ----- 0.08mm@500gf

5-10 Radial play of the shaft ----- 0.02mm@500gf

6 Application conditions

6-1 Operating environment conditions

6-1-1 Ambient temperature ----- -20°C ~ +50°C

6-1-1 Ambient humidity ----- 15% ~ 85% (No condensation)

7-2 Storage envirement conditions

6-2-1 Storage temperature ----- -30°C ~ +70°C

6-2-1 Storage humidity -----1 5% ~ 85% (/No condensation)

6-3 Shaft load condition

6-3-1 Dynamic axial load ----- 15N Max.

6-3-2 Dynamic radial load -----75N Max.

7. Warranty and Reliability

7-1 ,Warranty: If failure occurs due to manufacturing defect within one year,

the manufacturer shall repair or replace the motor

7-2 Reliability -----MTBF 6000 MTBF 6000 hours or more.

5°C, 100%, 1000pps. Application condition: Ambient temperature 25°C. Duty cycle 100%, Rated current,

two phase on, Speed 1000pps, full step.

8. Caution:

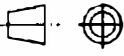
8-1 PCB. Please do not hold motor by PCB or lead wires.

8-2 . Please do not connect/disconnect the motor connector while power on 8-3

Please don't drop, hurl or dump motor against hard material. Malfunction may not be observed at early stage after such shock, But it may be found later, This type mishandling voids our warranty.

Please pay attention for handling because this motor has no protection circuits for overvoltage, temperature rise, opposing connection, foreign noise ect.

8-5 Please do not use disassembled motor again.

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