MOTOR SPECIFICATION

CUSTOMER´S P/N : 4T5618S2404-A

1. SCOPE

1-1 Scope

This specification covers the general requirements for the step motor

1-2 Type

This step motor consists of bipolar winding stator and hybrid magnet rotor.

2. RATING

2-1 Duty	:	Continuous (Under the condition specified in paragraph 4-12.)
2-2 Step angle	:	1.8 deg / full step
2-3 Number of phase	:	2
2-4 Rated voltage	:	1.25 V D.C.
2-5 Rated current	:	3.6 A / phase
2-6 Insulation class (UL)	:	Materials to be equivalent to UL-B class. (Except lead wires)

3. STANDARD TEST CONDITION

Unless otherwise specified, all measurements and tests shall be made under the following condition.

3-1 Ambient temperature	:	15 ℃ ～ 30 ℃
3-2 Ambient humidity	:	45 % ～ 80 %
3-3 Atmospheric pressure	:	930 hPa ～ 1020 hPa
3-4 Exciting method	:	2 phase exciting
3-5 Test circuit	:	According to Fig. 1

4. ELECTRICAL CHARACTERISTICS

4-1 Winding resistance	:	0.35 Ω ± 15 % ･･･ at 25 ℃
4-2 Winding inductance	:	1.2 mH ± 20 % ･･･ 1kHz, 0.5Vrms
4-3 Holding torque	:	79.4 N·cm (8.1kgf·cm) MIN. ･･･ 3.6 A / phase, 2 phase exciting
4-4 Detent torque	:	3.04 N·cm (310 gf·cm) NOMINAL
4-5 Maximum starting pulse rate	:	860 pps MIN. ･･･ No load
4-6 Positional accuracy	:	Less than ± 0.09 deg ･･･ Excluding hysteresis

4-7 BACK EMF (300 rpm)

	Voltage [V]	Frequency [Hz]
PHASE A	4.76 ± 20%	250 ± 1%
PHASE B	4.76 ± 20%	250 ± 1%
PHASE A+B	6.65 ± 20%	

4-8 Direction of rotation

Phase sequence to produce clockwise rotation viewed from mounting end is as Table 1.

STEP	A	B	$\overline{A}$	$\overline{B}$
1	+	+	−	−
2	−	+	+	−
3	−	−	+	+
4	+	−	−	+
5	+	+	−	−

Table 1. Phase sequence

4-9 Lead wire

4-9-1 Type	:	AWG 22 , UL 3265 , CSA AWM
4-9-2 Color	:	According to Table 2.

Phase	A	B	$\overline{A}$	$\overline{B}$
Color	Brown	Red	Orange	Yellow

Table 2. lead color

4-10 Insulation resistance	:	More than 100 MΩ
	･･･	Apply 500 V D.C. between motor frame and lead wires.
4-11 Dielectric strength	:	500 V A.C. ; 1 minute.
	･･･	Motor is capable of withstanding without break down, when 500 V A.C. is applied for period of a minute between motor frame and lead wires. Cut off current is less than 3mA.

4-12 Temperature rise

4-12-1 Coil temperature rise	:	Less than 80 K (80 deg)
	･･･	Measured by resistance method when two windings are excited by 1.25 V D.C. 0 pps, with aluminum heat sink 150×150×t2

一般公差 TOLERANCES (EXCEPT AS NOTES)	±								
材質 MATERIAL									
仕上処理 FINISH									
		改訂 SYM	年月日 DATE	変更票番号 REVISION NO.	変更事項 REVISIONS	担当者 BY	備考 NOTE		
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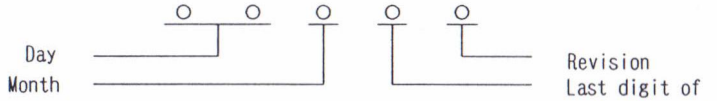
製図 DRAWN	設計 DESIGNED	検図 CHECKED	検印 CHECKED	尺度 SCALE	—	品名 TITLE	MOTOR SPECIFICATION	三角法 THIRD ANGLE PROJECTION	
精電事 '97-11-21 西沢(智)	精電事 '97-11-21 西沢(智)	'97.11.21 佐野	精電事 '97.11.21 和田(仁)			図番 DWG. NO.	X-140-8331-00		
							シート SHEET	1 / 3	

5. MECHANICAL CHARACTERISTICS

5-1 Outline dimensions	:	According to drawing number X-140-8331- (3/3)
5-2 Shaft material	:	SUS 303
5-3 Bearing	:	Single row ball bearing
5-4 Rotor inertia	:	Approximately 200 g·cm² (204×10^{-3} g·cm·s²)
5-5 End bell material	:	Aluminum alloy
5-6 Mass	:	Approximately 500 g
5-7 Label		
5-7-1 Material	:	Paper
5-7-2 Contents	:	customer's name , customer's P/N , rated current , rated voltage , Lot No.

5-7-3 Lot No. Construction



OCT. : X
NOV. : Y
DEC. : Z

6. Environmental conditions

6-1 Operating condition		
6-1-1 Ambient temperature	:	0 ℃ ～ +50 ℃
6-1-2 Ambient humidity	:	20 % ～ 90 % (No condensation)
6-2 Storage condition		
6-2-1 Ambient temperature	:	-20 ℃ ～ +70 ℃
6-2-2 Ambient humidity	:	20 % ～ 95 % (No condensation)

7. Life

: More than 5000 h

Motor is operated at 860 pps by the test circuit while temperature at ball bearing should be 80 ℃ MAX. After operated the life test, there shall be no problem in the tested result of 4. Electrical characteristics under 3. Standard test condition.

8. Recommendations

8-1 Please don't hold motor by PWB or lead wires.
8-2 Please don't plug in/out 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 of mishandling voids our warranty.
8-4 The function or performance shall be evaluated by installing motor to application, and should be checked at buyer's side.
8-5 Please pay attention for handling because this motor does not have any protection circuits for excessive voltage, temperature rise, reversing connection, foreign noise etc.
8-6 Please do not re-use disassembled motor.

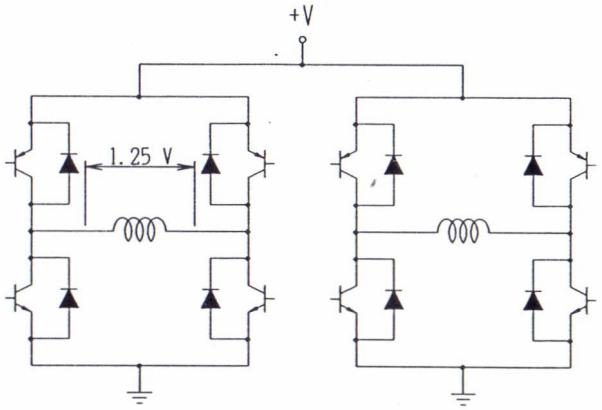


Fig 1. Test circuit

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材質 MATERIAL											
仕上処理 FINISH											
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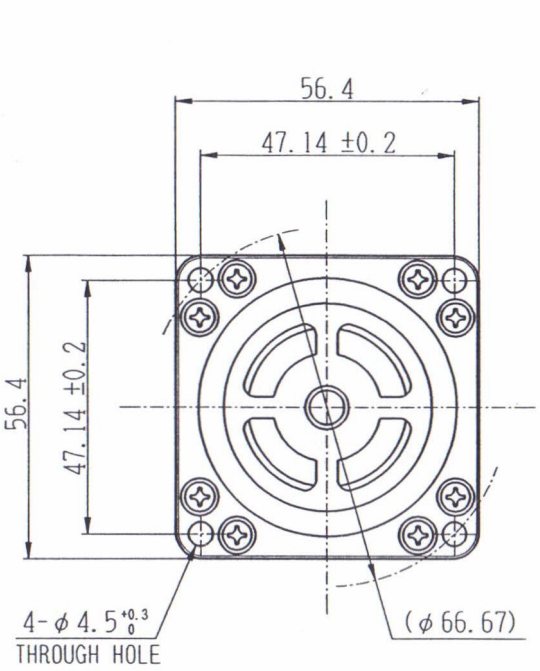
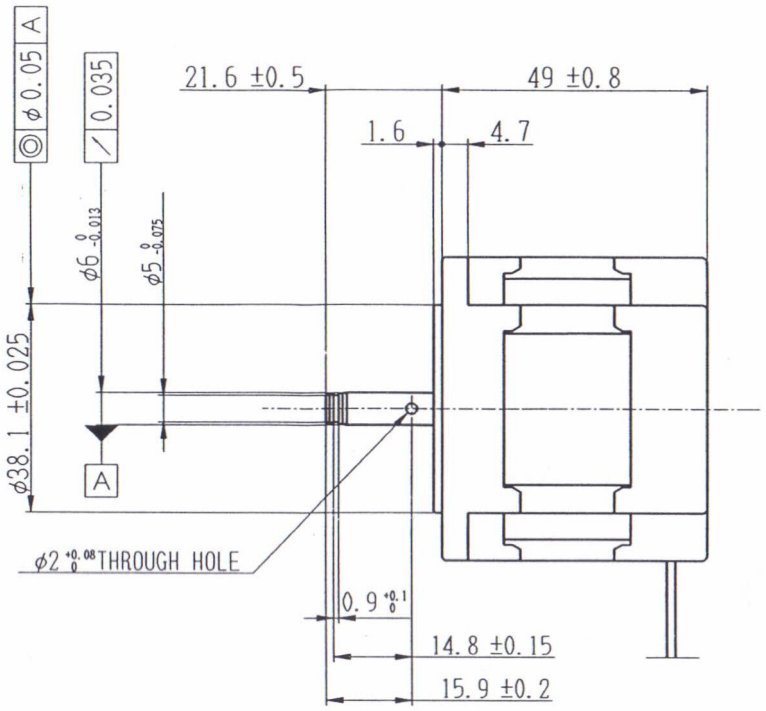
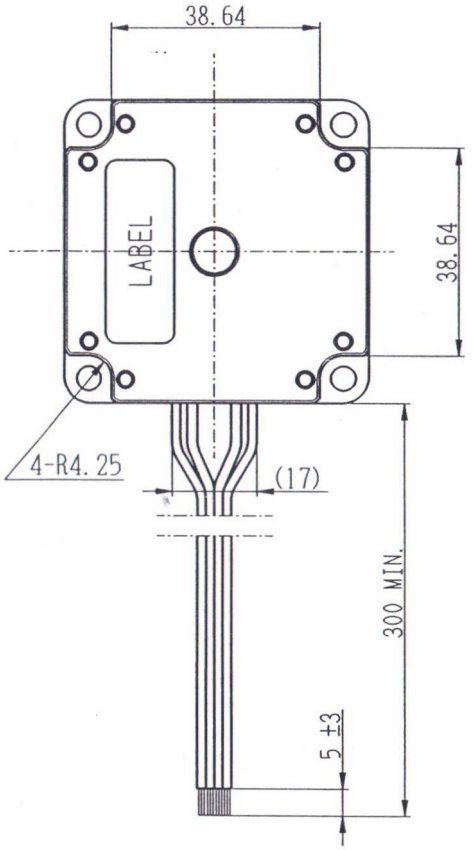
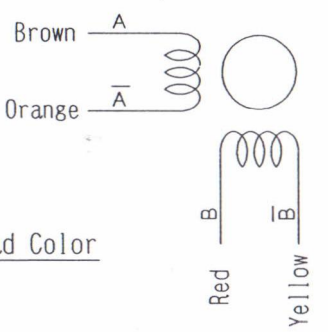
								シート SHEET	2 / 3		

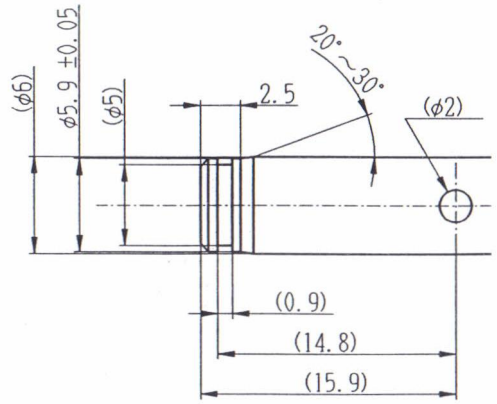








Lead Color



Shaft detail (3 : 1)

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