



# 42 mm sq. (1.65 inch sq.)

1.8° /step **Slim form**

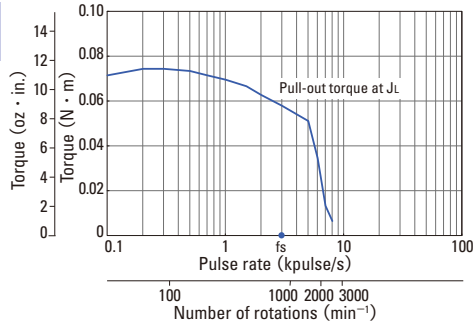
Bipolar winding · Lead wire type

## Bipolar winding · Lead wire type

Model number		Holding torque at 2-phase energization	Rated current	Wiring resistance	Winding inductance	Rotor inertia	Mass (Weight)
Single shaft	Dual shaft	[N · m (oz · in) MIN.]	A/phase	Ω /phase	mH/phase	[×10 <sup>-4</sup> kg · m <sup>2</sup> (oz · in <sup>2</sup> )]	[kg (lbs)]
<b>SS2421-5041</b>	<b>SS2421-5011</b>	0.083 (11.75)	1	3.5	1.2	0.015 (0.082)	0.07 (0.15)
<b>SS2422-5041</b>	<b>SS2422-5011</b>	0.186 (26.33)	1	5.4	2.9	0.028 (0.153)	0.14 (0.31)

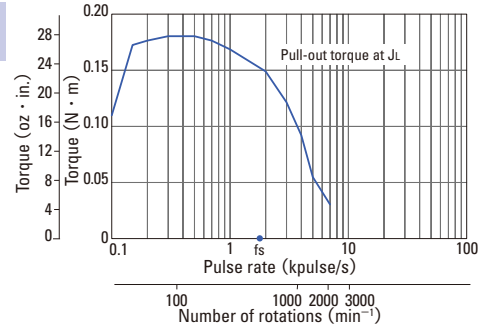
## Characteristics diagram

**SS2421-5041**  
**SS2421-5011**



Constant current circuit  
Source voltage : DC24V · Operating current : 1A/phase,  
2-phase energization (full-step)  
 $J_L = [0.33 \times 10^{-4} \text{kg} \cdot \text{m}^2 (1.80 \text{oz} \cdot \text{in}^2) \text{ use the rubber coupling}]$   
fs: Maximum self-start frequency when not loaded

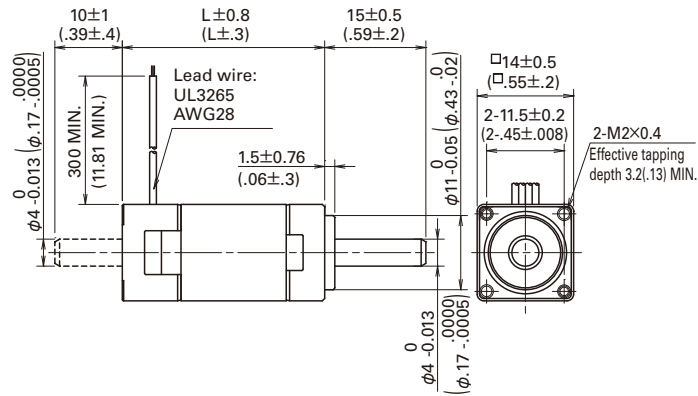
**SS2422-5041**  
**SS2422-5011**



Constant current circuit  
Source voltage : DC24V · Operating current : 1A/phase,  
2-phase energization (full-step)  
 $J_L = [0.33 \times 10^{-4} \text{kg} \cdot \text{m}^2 (1.80 \text{oz} \cdot \text{in}^2) \text{ use the rubber coupling}]$   
fs: Maximum self-start frequency when not loaded

# Stepping motors [Unit: mm (inch)]

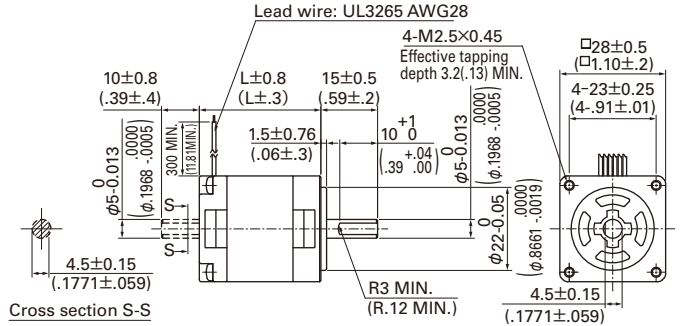
## 14 mm sq. (0.55 inch sq.)



### Bipolar

Set model number		Motor model number		Motor length (L)
Single shaft	Dual shaft	Single shaft	Dual shaft	
-	-	SH2141-5541	SH2141-5511	30 (1.18)

## 28 mm sq. (1.10 inch sq.)



Note: A unipolar motor is illustrated; bipolar motors have four lead wires.

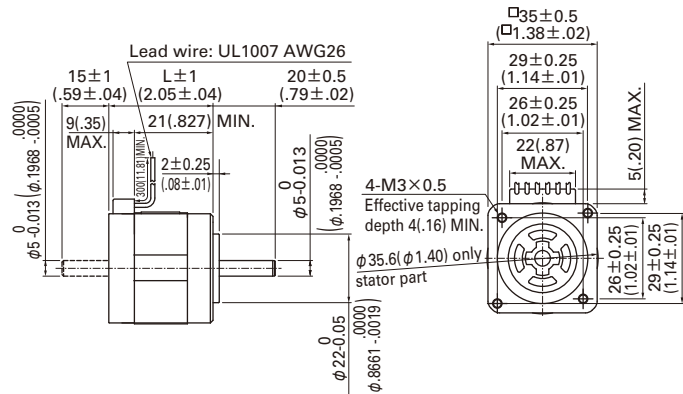
### Unipolar

Set model number		Motor model number		Motor length (L)
Single shaft	Dual shaft	Single shaft	Dual shaft	
-	-	SH2281-5171	SH2281-5131	32 (1.26)
DU14S281S	DU14S281D	SH2281-5271	SH2281-5231	32 (1.26)
-	-	SH2285-5171	SH2285-5131	51.5 (2.03)
DU14S285S	DU14S285D	SH2285-5271	SH2285-5231	51.5 (2.03)

### Bipolar

Set model number		Motor model number		Motor length (L)
Single shaft	Dual shaft	Single shaft	Dual shaft	
-	-	SH2281-5671	SH2281-5631	32 (1.26)
DB14S281S	DB14S281D	SH2281-5771	SH2281-5731	32 (1.26)
-	-	SH2285-5671	SH2285-5631	51.5 (2.03)
DB14S285S	DB14S285D	SH2285-5771	SH2285-5731	51.5 (2.03)

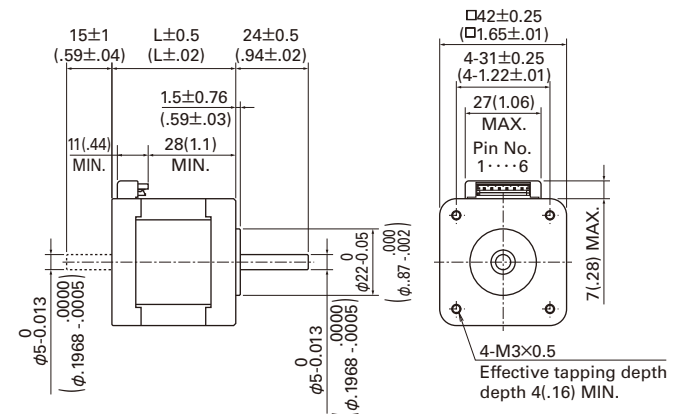
## 35 mm sq. (1.65 inch sq.)



### Unipolar

Set model number		Motor model number		Motor length (L)
Single shaft	Dual shaft	Single shaft	Dual shaft	
-	-	SH3533-12U40	SH3533-12U10	33 (1.25)
-	-	SH3537-12U40	SH3537-12U10	37 (1.54)
-	-	SH3552-12U40	SH3552-12U10	52 (1.89)

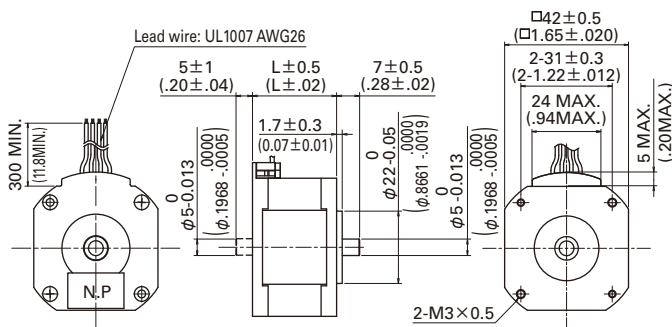
## 42 mm sq. (1.65 inch sq.)



### Unipolar

Set model number		Motor model number		Motor length (L)
Single shaft	Dual shaft	Single shaft	Dual shaft	
DU15H521S	DU15H521D	103H5205-0440	103H5205-0410	33 (1.25)
DU15H522S	DU15H522D	103H5208-0440	103H5208-0410	39 (1.54)
-	-	103H5209-0440	103H5209-0410	41 (1.61)
DU15H524S	DU15H524D	103H5210-0440	103H5210-0410	48 (1.89)

## 42 mm sq. (1.65 inch sq.)

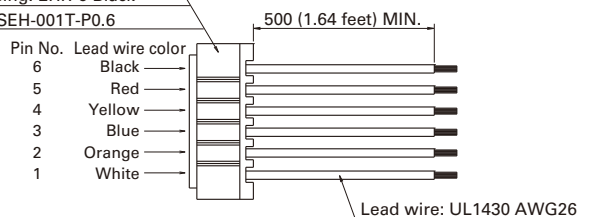


### Bipolar

Set model number		Motor model number		Motor length (L)
Single shaft	Dual shaft	Single shaft	Dual shaft	
-	-	SS2421-5041	SS2421-5011	11.6 (.457)
-	-	<b>SS2422-5041</b>	SS2422-5011	18.6 (.732)

### Motor cable Model number: 4835710-1

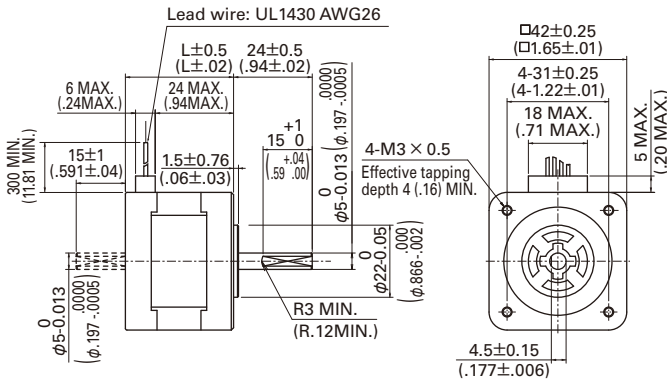
Maker: J.S.T Mfg.Co.,Ltd  
Housing: EHR-6 Black  
Pin: SEH-001T-P0.6



This driver-motor cable is for motor model numbers 103H52□□-04□□.

# Stepping motors [Unit: mm (inch)]

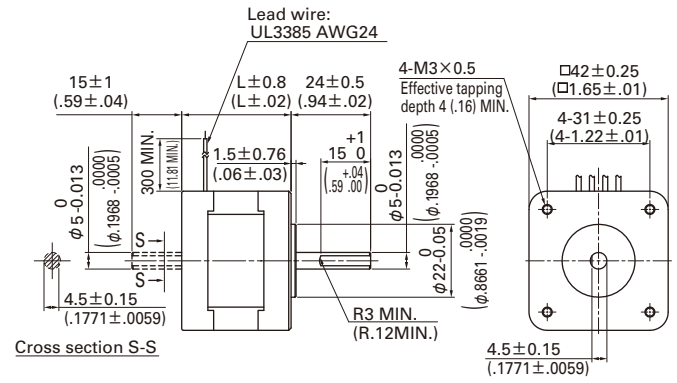
## 42 mm sq. (1.65 inch sq.)



### Bipolar

Set model number		Motor model number		Motor length (L)
Single shaft	Dual shaft	Single shaft	Dual shaft	
-	-	103H5205-5040	103H5205-5010	33 (1.25)
-	-	103H5205-5140	103H5205-5110	33 (1.25)
DB14H521S	DB14H521D	103H5205-5240	103H5205-5210	33 (1.25)
-	-	103H5208-5040	103H5208-5010	39 (1.54)
-	-	103H5208-5140	103H5208-5110	39 (1.54)
DB14H522S	DB14H522D	103H5208-5240	103H5208-5210	39 (1.54)
-	-	103H5209-5040	103H5209-5010	41 (1.61)
-	-	103H5209-5140	103H5209-5110	41 (1.61)
-	-	103H5209-5240	103H5209-5210	41 (1.61)
-	-	103H5210-5040	103H5210-5010	48 (1.89)
-	-	103H5210-5140	103H5210-5110	48 (1.89)
DB14H524S	DB14H524D	103H5210-5240	103H5210-5210	48 (1.89)

## 42 mm sq. (1.65 inch sq.)



Note: A bipolar motor is illustrated; unipolar motors have six lead wires.

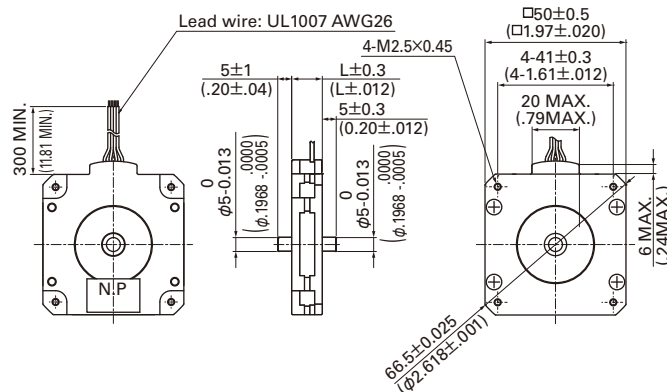
### Unipolar

Set model number		Motor model number		Motor length (L)
Single shaft	Dual shaft	Single shaft	Dual shaft	
DU15S141S	DU15S141D	SH1421-0441	SH1421-0411	33 (1.25)
DU15S142S	DU15S142D	SH1422-0441	SH1422-0411	39 (1.54)
DU15S144S	DU15S144D	SH1424-0441	SH1424-0411	48 (1.89)

### Bipolar

Set model number		Motor model number		Motor length (L)
Single shaft	Dual shaft	Single shaft	Dual shaft	
-	-	SH1421-5041	SH1421-5011	33 (1.25)
DB16S141S	DB16S141D	SH1421-5241	SH1421-5211	33 (1.25)
-	-	SH1422-5041	SH1422-5011	39 (1.54)
DB16S142S	DB16S142D	SH1422-5241	SH1422-5211	39 (1.54)
-	-	SH1424-5041	SH1424-5011	48 (1.89)
DB16S144S	DB16S144D	SH1424-5241	SH1424-5211	48 (1.89)

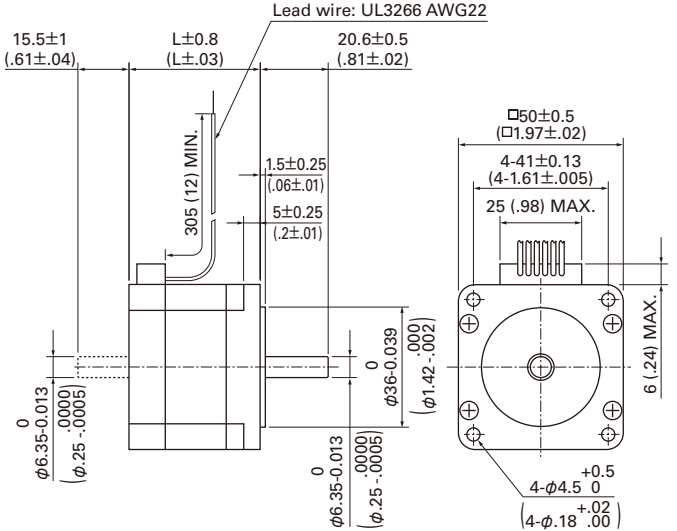
## 50 mm sq. (1.97 inch sq.)



### Bipolar

Set model number		Motor model number		Motor length (L)
Single shaft	Dual shaft	Single shaft	Dual shaft	
-	-	SS2501-8040	SS2501-8010	11.4 (.43)
-	-	SS2502-8040	SS2502-8010	16.4 (.63)

## 50 mm sq. (1.97 inch sq.)



Note: A unipolar motor is illustrated; bipolar motors have four lead wires.

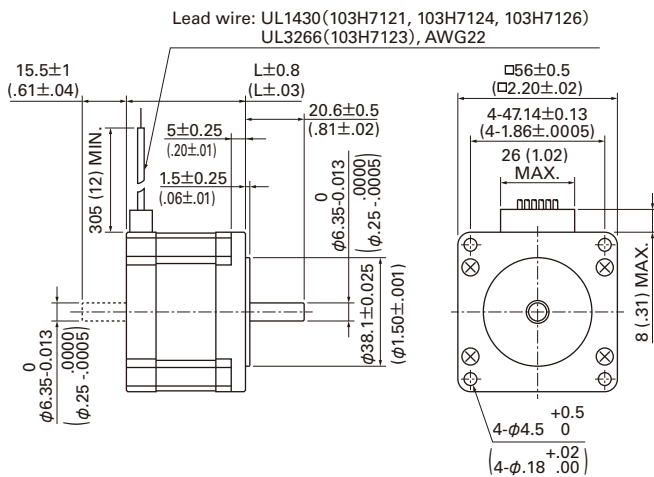
### Unipolar

Set model number		Motor model number		Motor length (L)
Single shaft	Dual shaft	Single shaft	Dual shaft	
-	-	103H6701-0140	103H6701-0110	39.8 (1.57)
-	-	103H6701-0440	103H6701-0410	39.8 (1.57)
-	-	103H6701-0740	103H6701-0710	39.8 (1.57)
-	-	103H6703-0140	103H6703-0110	51.3 (2.02)
-	-	103H6703-0440	103H6703-0410	51.3 (2.02)
-	-	103H6703-0740	103H6703-0710	51.3 (2.02)
-	-	103H6704-0140	103H6704-0110	55.8 (2.20)
-	-	103H6704-0440	103H6704-0410	55.8 (2.20)
-	-	103H6704-0740	103H6704-0710	55.8 (2.20)

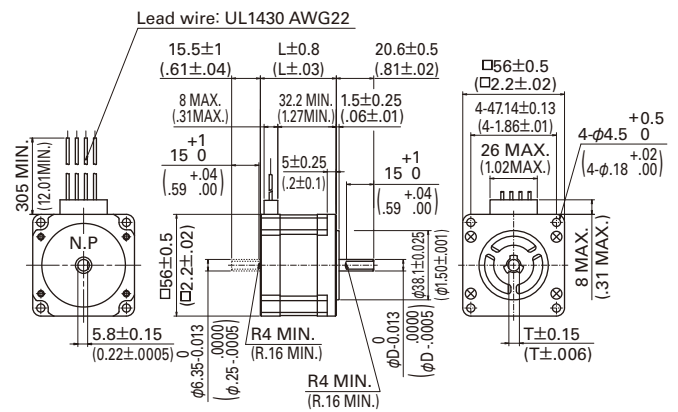
### Bipolar

Set model number		Motor model number		Motor length (L)
Single shaft	Dual shaft	Single shaft	Dual shaft	
DB16H671S	DB16H671D	103H6701-5040	103H6701-5010	39.8 (1.57)
DB16H673S	DB16H673D	103H6703-5040	103H6703-5010	51.3 (2.02)
-	-	103H6704-5040	103H6704-5010	55.8 (2.20)

### 56 mm sq. (2.20 inch sq.)



### 56 mm sq. (2.20 inch sq.)



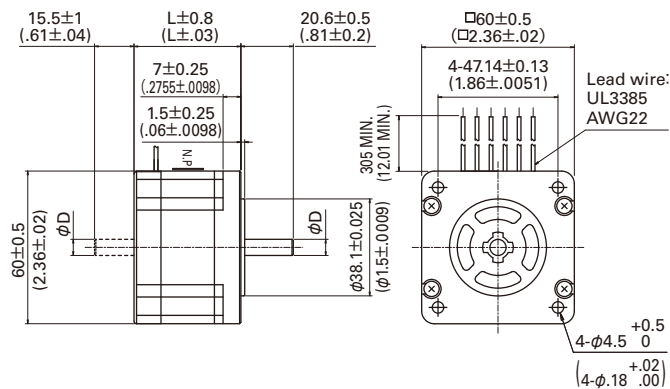
#### Unipolar

Set model number		Motor model number		Motor length (L)
Single shaft	Dual shaft	Single shaft	Dual shaft	
-	-	103H7121-0140	103H7121-0110	41.8 (1.65)
DU16H711S	DU16H711D	103H7121-0440	103H7121-0410	41.8 (1.65)
-	-	103H7121-0740	103H7121-0710	41.8 (1.65)
-	-	103H7123-0140	103H7123-0110	53.8 (2.12)
DU16H713S	DU16H713D	103H7123-0440	103H7123-0410	53.8 (2.12)
-	-	103H7123-0740	103H7123-0710	53.8 (2.12)
-	-	103H7124-0140	103H7124-0110	63.8 (2.51)
-	-	103H7124-0440	103H7124-0410	63.8 (2.51)
-	-	103H7124-0740	103H7124-0710	63.8 (2.51)
-	-	103H7126-0140	103H7126-0110	75.8 (2.98)
DU16H716S	DU16H716D	103H7126-0440	103H7126-0410	75.8 (2.98)
-	-	103H7126-0740	103H7126-0710	75.8 (2.98)

#### Bipolar

Set model number		Motor model number		Motor length (L)	Shaft diameter (D)	Dcut thickness (T)
Single shaft	Dual shaft	Single shaft	Dual shaft			
-	-	103H7121-5640	103H7121-5610	41.8 (1.65)	φ 6.35 (φ 0.25)	5.8 (0.23)
DB16H711S	DB16H711D	103H7121-5740	103H7121-5710	41.8 (1.65)	φ 6.35 (φ 0.25)	5.8 (0.23)
-	-	103H7121-5840	103H7121-5810	41.8 (1.65)	φ 6.35 (φ 0.25)	5.8 (0.23)
-	-	103H7123-5640	103H7123-5610	53.8 (2.12)	φ 6.35 (φ 0.25)	5.8 (0.23)
DB16H713S	DB16H713D	103H7123-5740	103H7123-5710	53.8 (2.12)	φ 6.35 (φ 0.25)	5.8 (0.23)
-	-	103H7123-5840	103H7123-5810	53.8 (2.12)	φ 6.35 (φ 0.25)	5.8 (0.23)
-	-	103H7126-5640	103H7126-5610	75.8 (2.98)	φ 6.35 (φ 0.25)	5.8 (0.23)
DB16H716S	DB16H716D	103H7126-5740	103H7126-5710	75.8 (2.98)	φ 6.35 (φ 0.25)	5.8 (0.23)
-	-	103H7126-5840	103H7126-5810	75.8 (2.98)	φ 6.35 (φ 0.25)	5.8 (0.23)
-	-	103H7128-5640	103H7128-5610	94.8 (3.73)	φ 8 (φ 0.31)	7.5 (0.30)
-	-	103H7128-5740	103H7128-5710	94.8 (3.73)	φ 8 (φ 0.31)	7.5 (0.30)
-	-	103H7128-5840	103H7128-5810	94.8 (3.73)	φ 8 (φ 0.31)	7.5 (0.30)

### 60 mm sq. (2.36 inch sq.)



Note: A unipolar motor is illustrated; bipolar motors have four lead wires.

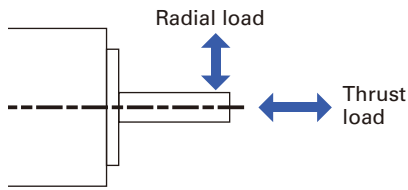
#### Unipolar

Set model number		Motor model number		Motor length (L)	Shaft diameter (D)
Single shaft	Dual shaft	Single shaft	Dual shaft		
-	-	SH1601-0440	SH1601-0410	42 (1.65)	φ 6.35-0.013 (φ .25 -.0005)
-	-	SH1602-0440	SH1602-0410	54 (2.13)	φ 6.35-0.013 (φ .25 -.0005)
-	-	SH1603-0440	SH1603-0410	76 (2.99)	φ 8-0.015 (φ .31 -.0006)

#### Bipolar

Set model number		Motor model number		Motor length (L)	Shaft diameter (D)
Single shaft	Dual shaft	Single shaft	Dual shaft		
DB16S161S	DB16S161D	SH1601-5240	SH1601-5210	42 (1.65)	φ 6.35-0.013 (φ .25 -.0005)
DB16S162S	DB16S162D	SH1602-5240	SH1602-5210	54 (2.13)	φ 6.35-0.013 (φ .25 -.0005)
-	-	SH1603-5240	SH1603-5210	76 (2.99)	φ 8-0.015 (φ .31 -.0006)

## Allowable Radial / Thrust Load



Flange size	Model number	Distance from end of shaft : mm (in)				Thrust load N (lbs)
		0	5	10	15	
		Radial load : N (lbs)				
14 mm sq. (0.55 in sq.)	SH2141	10 (2.25)	11 (2.47)	13 (2.92)	-	0.7 (0.16)
28 mm sq. (1.10 in sq.)	SH228 □	42 (9)	48 (10)	56 (12)	66 (14)	3 (0.67)
35 mm sq. (1.38 in sq.)	SH353 □	40 (8)	50 (11)	67 (15)	98 (22)	10 (2.25)
42 mm sq. (1.65 in sq.)	103H52 □□ SH142 □	22 (4)	26 (5)	33 (7)	46 (10)	10 (2.25)
50 mm sq. (1.97 in sq.)	103H670 □	71 (15)	87 (19)	115 (25)	167 (37)	15 (3.37)
56 mm sq. (2.20 in sq.)	103H712 □	52 (11)	65 (14)	85 (19)	123 (27)	15 (3.37)
	103H7128	85 (19)	105 (23)	138 (31)	200 (44)	15 (3.37)
60 mm sq. (2.36 in sq.)	103H782 □	70 (15)	87 (19)	114 (25)	165 (37)	20 (4.50)
	SH160 □					15 (3.37)
86 mm sq. (3.39 in sq.)	SM286 □	167 (37)	193 (43)	229 (51)	280 (62)	60 (13.488)
	SH286 □					
86 mm sq. (3.39 in sq.)	103H822 □	191 (43)	234 (53)	301 (68)	421 (95)	60 (13.488)
φ 106 mm (φ 4.17 in)	103H8922 □	321 (72)	356 (79)	401 (90)	457 (101)	100 (22.48)

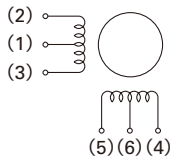
## Internal Wiring and Rotation Direction

### Unipolar winding

103H52 □□ Connector type

#### Internal wire connection

( ) connector pin number



#### Direction of motor rotation

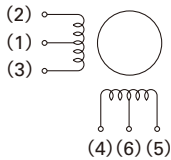
The output shaft shall rotate clockwise as seen from the shaft side, when excited by DC in the following order.

Exciting order	Connector pin number				
	(1.6)	(5)	(3)	(4)	(2)
1	+	-	-	-	-
2	+	-	-	-	-
3	+	-	-	-	-
4	+	-	-	-	-

103H782 □□ Connector type

#### Internal wire connection

( ) connector pin number



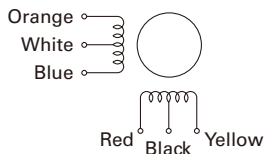
#### Direction of motor rotation

The output shaft shall rotate clockwise as seen from the shaft side, when excited by DC in the following order.

Exciting order	Connector pin number				
	(1.6)	(4)	(3)	(5)	(2)
1	+	-	-	-	-
2	+	-	-	-	-
3	+	-	-	-	-
4	+	-	-	-	-

Lead wire type

#### Internal wire connection



#### Direction of motor rotation

The output shaft shall rotate clockwise as seen from the shaft side, when excited by DC in the following order.

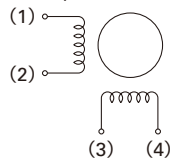
Exciting order	Lead wire color				
	White & black	Red	Blue	Yellow	Orange
1	+	-	-	-	-
2	+	-	-	-	-
3	+	-	-	-	-
4	+	-	-	-	-

### Bipolar winding

Connector type

#### Internal wire connection

( ) connector pin number, terminal block number



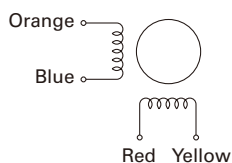
#### Direction of motor rotation

The output shaft shall rotate clockwise as seen from the shaft side, when excited by DC in the following order.

Exciting order	Connector pin number, terminal block number			
	(3)	(2)	(4)	(1)
1	-	-	+	+
2	+	-	-	+
3	+	+	-	-
4	-	+	+	-

Lead wire type

#### Internal wire connection



#### Direction of motor rotation

The output shaft shall rotate clockwise as seen from the shaft side, when excited by DC in the following order.

Exciting order	Lead wire color			
	Red	Blue	Yellow	Orange
1	-	-	+	+
2	+	-	-	+
3	+	+	-	-
4	-	+	+	-

# General Specifications

Motor model number	<b>SH2141</b>	<b>SH228</b> <input type="checkbox"/>	<b>SH353</b> <input type="checkbox"/>	<b>SS242</b> <input type="checkbox"/>	<b>SH142</b> <input type="checkbox"/>	<b>103H52</b> <input type="checkbox"/>	<b>SS250</b> <input type="checkbox"/>	<b>103H67</b> <input type="checkbox"/>	<b>103H712</b> <input type="checkbox"/>
Type	-								
Operating ambient temperature	- 10°C to + 50°C								
Conversation temperature	- 20°C to + 65°C								
Operating ambient humidity	20 to 90% RH (no condensation)								
Conversation humidity	5 to 95% RH (no condensation)								
Operation altitude	1000m (3280 feet) MAX above sea level								
Vibration resistance	Vibration frequency 10 to 500 Hz, total amplitude 1.52 mm (10 to 70 Hz), vibration acceleration 147m/s <sup>2</sup> (70 to 500 Hz), sweep time 15 min/cycle, 12 sweeps in each X, Y and Z direction.								
Impact resistance	490m/s <sup>2</sup> of acceleration for 11 ms with half-sine wave applying three times for X, Y, and Z axes each, 18 times in total.								
Insulation class	Class B (+130°C )								
Withstand voltage	At normal temperature and humidity, no failure with 500 V AC @50/60 Hz applied for one minute between motor winding and frame.						At normal temperature and humidity, no failure with 1000 V AC @50/60 Hz applied for one minute between motor winding and frame.		
Insulation resistance	At normal temperature and humidity, not less than 100MΩ between winding and frame by DC500V megger.								
Protection grade	IP40								
Winding temperature rise	80K MAX. (Based on Sanyo Denki standard)								
Static angle error	± 0.09°				± 0.054°		± 0.09°		
Axial play *1	0.075 mm (0.003 in) MAX. (load: 0.35N (0.08 lbs))	0.075 mm (0.003 in) MAX. (load: 1.5N (0.34 lbs))	0.075 mm (0.003 in) MAX. (load: 5N (1.12 lbs))	0.075 mm (0.003 in) MAX. (load: 4N (0.9 lbs))	0.075 mm (0.003 in) MAX. (load: 5N (1.12 lbs))	0.075 mm (0.003 in) MAX. (load: 5N (1.12 lbs))	0.075 mm (0.003 in) MAX. (load: 4N (0.9 lbs))	0.075 mm (0.003 in) MAX. (load: 10N (2.25 lbs))	0.075 mm (0.003 in) MAX. (load: 10N (2.25 lbs))
Radial play *2	0.025 mm (0.001 in) MAX. (load: 5N (1.12 lbs))								
Shaft runout	0.025 mm (0.001 in)								
Concentricity of mounting pilot relative to shaft	φ 0.05 mm ( φ 0.002 in)	φ 0.05 mm ( φ 0.002 in)	φ 0.075 mm ( φ 0.003 in)	φ 0.075 mm ( φ 0.003 in)	φ 0.05 mm ( φ 0.002 in)	φ 0.05 mm ( φ 0.002 in)	φ 0.075 mm ( φ 0.003 in)	φ 0.075 mm ( φ 0.003 in)	φ 0.075 mm ( φ 0.003 in)
Squareness of mounting surface relative to shaft	0.1 mm (0.004 in)	0.1 mm (0.004 in)	0.1 mm (0.004 in)	0.1 mm (0.004 in)	0.1 mm (0.004 in)	0.1 mm (0.004 in)	0.1 mm (0.004 in)	0.075 mm (0.003 in)	0.075 mm (0.003 in)

Motor model number	<b>SH160</b> <input type="checkbox"/>	<b>103H78</b> <input type="checkbox"/>	<b>SH286</b> <input type="checkbox"/>	<b>103H8922</b> <input type="checkbox"/>	<b>SM286</b> <input type="checkbox"/>	<b>103H712</b> <input type="checkbox"/> -6 <input type="checkbox"/> 0 <b>CE Model</b>	<b>103H822</b> <input type="checkbox"/> -6 <input type="checkbox"/> 0 <b>CE Model</b>	<b>103H8922</b> <input type="checkbox"/> -63 <input type="checkbox"/> 1 <b>CE Model</b>	
Type	-				S1 (continuous operation)				
Operating ambient temperature	- 10°C to + 50°C				- 10°C to + 40°C				
Conversation temperature	- 20°C to + 65°C				- 20°C to + 60°C				
Operating ambient humidity	20 to 90% RH (no condensation)				95%MAX. : 40°C MAX., 57%MAX. : 50°C MAX., 35%MAX. : 60°C MAX. (no condensation)				
Conversation humidity	5 to 95% RH (no condensation)								
Operation altitude	1000m (3280 feet) MAX above sea level								
Vibration resistance	Vibration frequency 10 to 500 Hz, total amplitude 1.52 mm (10 to 70 Hz), vibration acceleration 147m/s <sup>2</sup> (70 to 500 Hz), sweep time 15 min/cycle, 12 sweeps in each X, Y and Z direction.								
Impact resistance	490m/s <sup>2</sup> of acceleration for 11 ms with half-sine wave applying three times for X, Y and Z axes each, 18 times in total.								
Insulation class	Class B (+130°C )				Class F (+155°C )		Class B (+130°C )		
Withstand voltage	At normal temperature and humidity, no failure with 1000 V AC @50/60 Hz applied for one minute between motor winding and frame.				At normal temperature and humidity, no failure with 1500 V AC @50/60 Hz applied for one minute between motor winding and frame.				
Insulation resistance	At normal temperature and humidity, not less than 100MΩ between winding and frame by DC500V megger.								
Protection grade	IP40				IP43				
Winding temperature rise	80K MAX. (Based on Sanyo Denki standard)								
Static angle error	± 0.054°		± 0.09°						
Axial play *1	0.075 mm (0.003 in) MAX. (load: 10N (2.25 lbs))								
Radial play *2	0.025 mm (0.001 in) (load: 5N (1.12 lbs))	0.025 mm (0.001 in) (load: 5N (1.12 lbs))	0.025 mm (0.001 in) (load: 5N (1.12 lbs))	0.025 mm (0.001 in) (load: 5N (1.12 lbs))	0.025 mm (0.001 in) (load: 5N (1.12 lbs))	0.025 mm (0.001 in) (load: 5N (1.12 lbs))	0.025 mm (0.001 in) (load: 5N (1.12 lbs))	0.025 mm (0.001 in) (load: 5N (1.12 lbs))	0.025 mm (0.001 in) (load: 10N (2.25 lbs))
Shaft runout	0.025 mm (0.001 in)								
Concentricity of mounting pilot relative to shaft	φ 0.075 mm ( φ 0.003 in)								
Squareness of mounting surface relative to shaft	0.1 mm (0.004 in)	0.075 mm (0.003 in)	0.15 mm (0.006 in)	0.1 mm (0.004 in)	0.15 mm (0.006 in)	0.075 mm (0.003 in)	0.1 mm (0.004 in)	0.1 mm (0.004 in)	0.1 mm (0.004 in)

\*1 Axial play: Shaft displacement under axial load.  
 \*2 Radial play: Shaft displacement under radial load applied 1/3rd of the length from the end of the shaft.

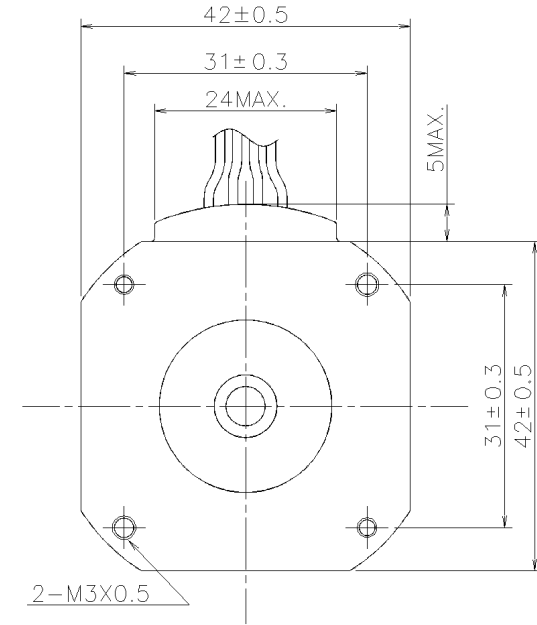
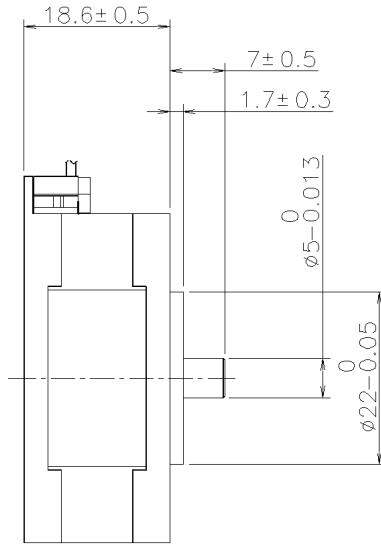
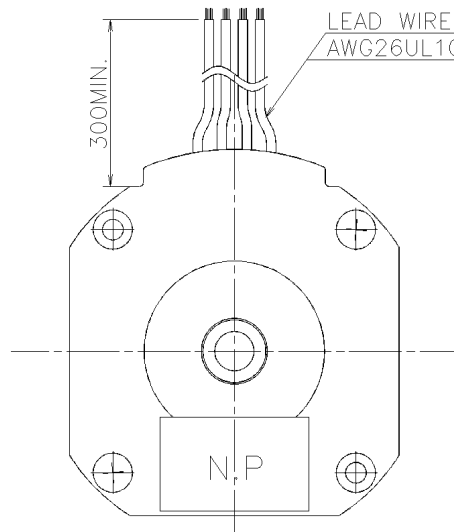
## Safety standards

Model Number: **SM286**  **CE** • UL marked models

CE (TÜV)	Standard category	Standard part	
	Low-voltage directives	EN60034-1, EN60034-5	
UL	Acquired standards	Standard part	File No.
	UL for Canada	UL1004-1	E179832

Model Number: **103H712**  -6  0, **103H822**  -6  0, **103H8922**  -63  1 **CE** marked model

CE (TÜV)	Standard category	Standard part	
	Low-voltage directives	EN60034-1, EN60034-5	



定格特性 RATED CHARACTERISTICS

相数 PHASES	2
基本ステップ角 FUNDAMENTAL STEP ANGLE	1.8 °
定格電圧 ① VOLTS	5.4 V(DC)
定格電流 AMPS	1 A/PHASE
巻線抵抗 ② WINDING RESISTANCE	5.4 Ω±10% at 25°C
巻線インダクタンス ③ WINDING INDUCTANCE	2.9 mH±20% at 1 kHz, 1 V(p-p)
ホールディングトルク ④ HOLDING TORQUE	0.186 N·m MIN. at I=1 A/PHASE 2 PHASE EXCITATION.
注1. 脱出トルク ⑤ NOTE 1. PULL OUT TORQUE	0.14 N·m MIN. at 1000 pulse/s
注1. 最大自起動周波数 NOTE 1. MAX. STARTING RATE	1400 pulse/s MIN. at NO LOAD
注1. 最大連続応答周波数 NOTE 1. MAX. SLEWING RATE	2200 pulse/s MIN. at NO LOAD
静止角度誤差 POSITIONAL ACCURACY	±0.09 °(0.18° SPREAD MAX.) 2 PHASE EXCITATION.
注2. 温度上昇値 NOTE 2. COIL TEMPERATURE RISE	80 K MAX.
ローターイナーシャ ROTOR INERTIA	0.028×10 <sup>-4</sup> kg·m <sup>2</sup> NOMINAL
絶縁階級 INSULATION CLASS	B
許容スラスト荷重 ALLOWABLE THRUST LOAD	4.9 N
許容ラジアル荷重 ALLOWABLE RADIAL LOAD	10 N 軸先端荷重 LOAD TO SHAFT END.

注1. ドライバー: BS1D200P10 E=24V[DC], I=1A/相 2Ex.  
NOTE) DRIVER: BS1D200P10 E=24[DC], I=1A/PHASE 2Ex.

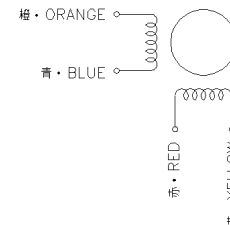
- ②. 160×160×6t アルミ放熱板に取付け、2相励磁E=5.4 V/相を連続通電し、抵抗法にて測定した時の値。  
MOUNT A MOTOR ON 160X160X6t ALUMINUM HEAT SINK AND ENERGIZE A COIL AT 2 PHASE EXCITATION, E=5.4 V/PHASE CONSTANTLY. MEASURED BY THE CHANGE OF RESISTANCE METHOD.
- ③. シャフトセンター穴の有無及び形状は、製造上の都合により任意とする。  
CENTER HOLE ON THE SHAFT END IS NOT ALWAYS MADE.
- ④. モータのリード線口出し部の配色は任意とする。  
A COLOR SCHEME OF MOTOR'S LEAD WIRE EXIT IS FREE.

回転方向・DIRECTION OF ROTATION

下記の様に直流励磁した場合、回転方向は面B側より見て時計方向回転のこと。  
WHEN A MOTOR IS SEQUENCED AS SHOWN IN THE TABLE BELOW, THE SHAFT ROTATION MUST BE CLOCKWISE WHEN YOU SEE FROM SURFACE "B" SIDE.

励磁順序 ENERGIZE ORDER	リード線色 LEADS COLOR			
	赤・RED	青・BLUE	黄・YELLOW	橙・ORANGE
1	⊖	⊖	⊕	⊕
2	⊕	⊖	⊖	⊕
3	⊕	⊕	⊖	⊖
4	⊖	⊕	⊕	⊖

内部結線 CONNECTION



C E0093497	08-10-01	製図 DRAWING	承認 APPROVED BY	08-10-02
B E0090642	08-03-24	製図 DRAWING	承認 APPROVED BY	08-10-02
A NEW DESIGN	08-03-13	設計 DESIGNED BY	設計 DESIGNED BY	08-10-01
山洋電気株式会社 SANYO DENKI CO., LTD.		SS2422-5041		