2-phase Stepping Motor

60mm sq.
(2.36inch sq.)

103H782□
1.8˚/step

Recommendable Driver
Refer to the page 7,17,27 and 45.

Specifications

Unipolar winding

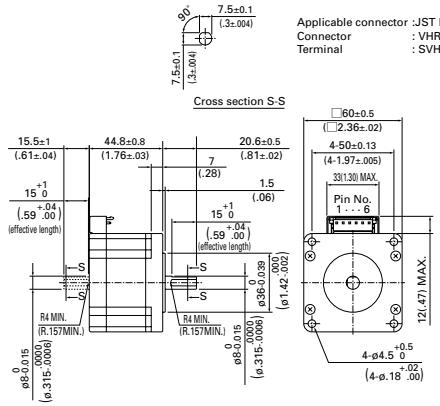
Model		Holding torque at 2-phase energization	Rated current	Resistance	Inductance	Rotor inertia	Mass(Weight)
Single shaft	Double shaft	N·m (oz·in) MIN.	A/phase	Ω/phase	mH/phase	x10^{-4}kg·m^2(oz·in^2)	kg(lbs)
103H7821-0140	-0110	0.78(110.5)	1	5.7	8.3	0.275(1.50)	0.6(1.32)
103H7821-0440	-0410	0.78(110.5)	2	1.5	2	0.275(1.50)	0.6(1.32)
103H7821-0740	-0710	0.78(110.5)	3	0.68	0.8	0.275(1.50)	0.6(1.32)
103H7822-0140	-0110	1.17(165.7)	1	6.9	14	0.4(2.19)	0.77(1.70)
103H7822-0440	-0410	1.17(165.7)	2	1.8	3.6	0.4(2.19)	0.77(1.70)
103H7822-0740	-0710	1.17(165.7)	3	0.8	1.38	0.4(2.19)	0.77(1.70)
103H7823-0140	-0110	2.1(297.4)	1	10	21.7	0.84(4.59)	1.34(2.95)
103H7823-0440	-0410	2.1(297.4)	2	2.7	5.6	0.84(4.59)	1.34(2.95)
103H7823-0740	-0710	2.1(297.4)	3	1.25	2.4	0.84(4.59)	1.34(2.95)

Bipolar winding

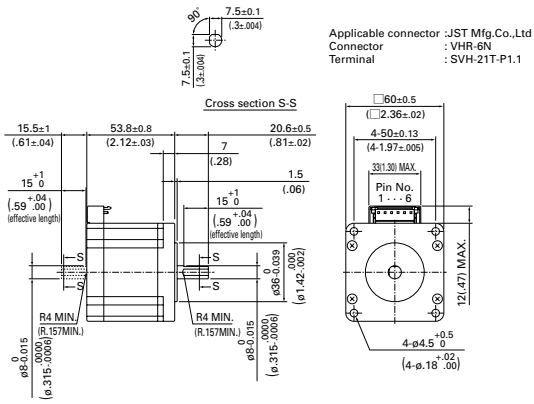
Model		Holding torque at 2-phase energization	Rated current	Resistance	Inductance	Rotor inertia	Mass(Weight)
Single shaft	Double shaft	N·m (oz·in) MIN.	A/phase	Ω/phase	mH/phase	x10^{-4}kg·m^2(oz·in^2)	kg(lbs)
103H7821-1740	-1710	0.88(124.6)	4	0.35	0.8	0.275(1.50)	0.6(1.32)
103H7822-1740	-1710	1.37(194.0)	4	0.43	1.38	0.4(2.19)	0.77(1.70)
103H7823-1740	-1710	2.7(382.3)	4	0.65	2.4	0.84(4.59)	1.34(2.95)

Dimensions [Unit:mm(inch)]

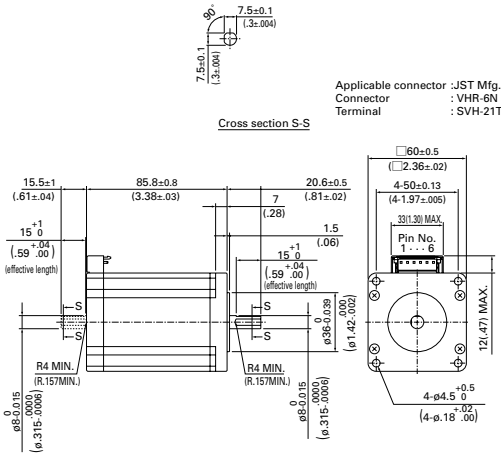
103H7821-0140/0440/0740 (Single shaft)
103H7821-0110/0410/0710 (Double shaft)



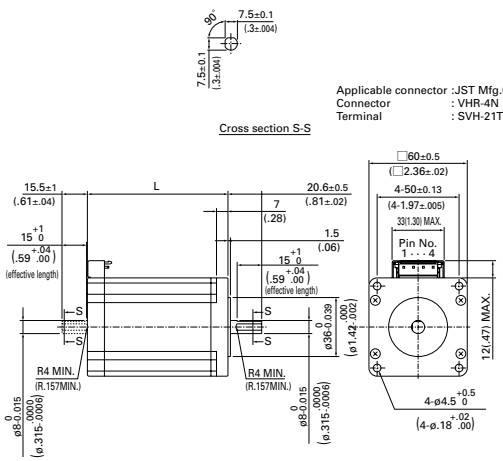
103H7822-0140/0440/0740 (Single shaft)
103H7822-0110/0410/0710 (Double shaft)



103H7823-0140/0440/0740 (Single shaft)
103H7823-0110/0410/0710 (Double shaft)



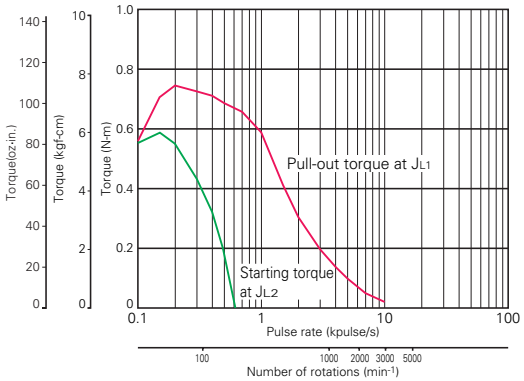
Bipolar winding
103H7821-1740/103H7822-1740/103H7823-1740(Single shaft)
103H7821-1710/103H7822-1710/103H7823-1710(Double shaft)



Model	L
103H7821-□□□□	44.8±0.8 (1.76±0.03)
103H7822-□□□□	53.8±0.8 (2.12±0.03)
103H7823-□□□□	85.8±0.8 (3.38±0.03)

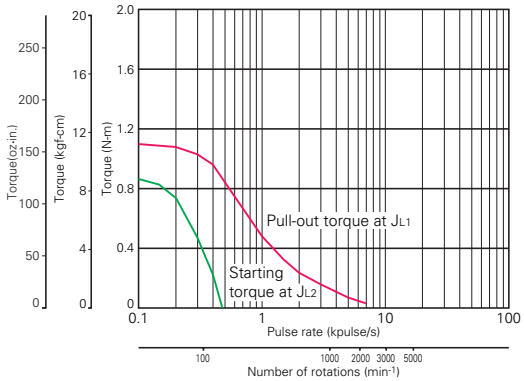
Pulse Rate - Torque Characteristics

● 103H7821-0140



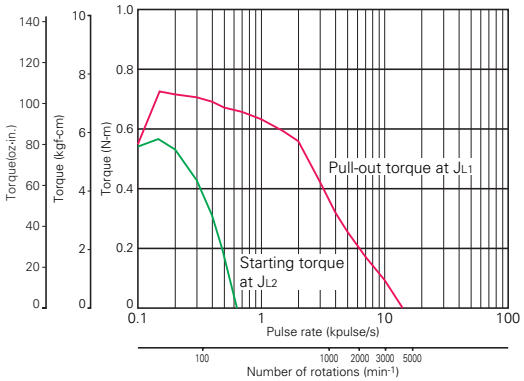
Sanyo constant current circuit
Source voltage: DC24V Operating current: 1A/phase, 2-phase energization (full-step)
J_{L1}=[0.94x10^{-4}kg·m^2 (5.14 oz·in^2) Use the rubber coupling]
J_{L2}=[0.8x10^{-4}kg·m^2 (4.37 oz·in^2) Use the direct coupling]

● 103H7822-0140



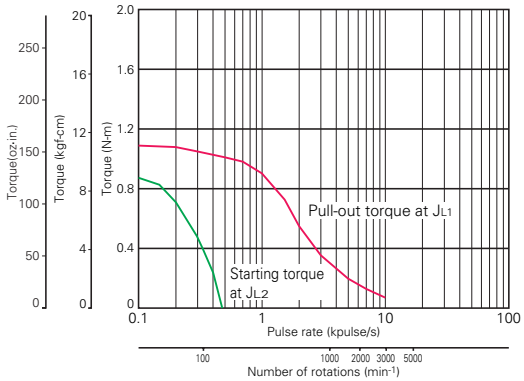
Sanyo constant current circuit
Source voltage: DC24V Operating current: 1A/phase, 2-phase energization (full-step)
J_{L1}=[7.4x10^{-4}kg·m^2 (40.46 oz·in^2) Use the rubber coupling]
J_{L2}=[7.4x10^{-4}kg·m^2 (40.46 oz·in^2) Use the direct coupling]

● 103H7821-0440



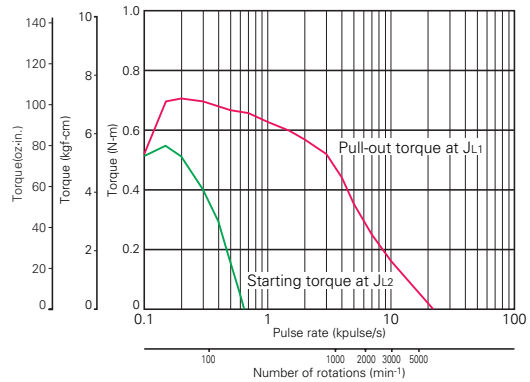
Sanyo constant current circuit
Source voltage: DC24V Operating current: 2A/phase, 2-phase energization (full-step)
J_{L1}=[0.94x10^{-4}kg·m^2 (5.14 oz·in^2) Use the rubber coupling]
J_{L2}=[0.8x10^{-4}kg·m^2 (4.37 oz·in^2) Use the direct coupling]

● 103H7822-0440



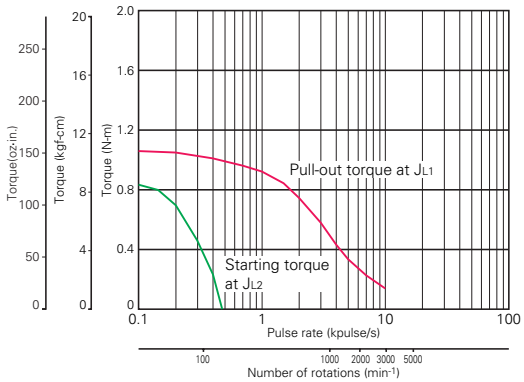
Sanyo constant current circuit
Source voltage: DC24V Operating current: 2A/phase, 2-phase energization (full-step)
J_{L1}=[7.4x10^{-4}kg·m^2 (40.46 oz·in^2) Use the rubber coupling]
J_{L2}=[7.4x10^{-4}kg·m^2 (40.46 oz·in^2) Use the direct coupling]

● 103H7821-0740



Sanyo constant current circuit
Source voltage: DC24V Operating current: 3A/phase, 2-phase energization (full-step)
J_{L1}=[0.94x10^{-4}kg·m^2 (5.14 oz·in^2) Use the rubber coupling]
J_{L2}=[0.8x10^{-4}kg·m^2 (4.37 oz·in^2) Use the direct coupling]

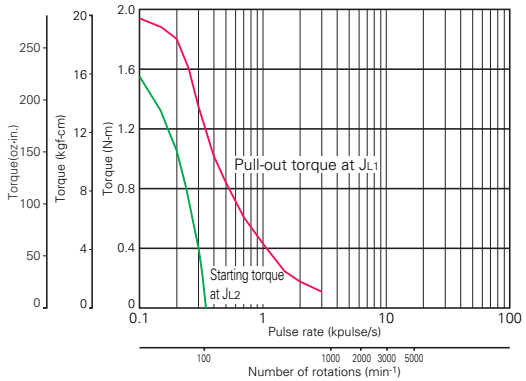
● 103H7822-0740



Sanyo constant current circuit
Source voltage: DC24V Operating current: 3A/phase, 2-phase energization (full-step)
J_{L1}=[7.4x10^{-4}kg·m^2 (40.46 oz·in^2) Use the rubber coupling]
J_{L2}=[7.4x10^{-4}kg·m^2 (40.46 oz·in^2) Use the direct coupling]

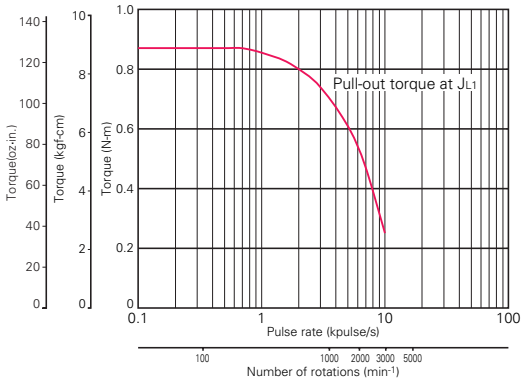
Pulse Rate - Torque Characteristics

● 103H7823-0140



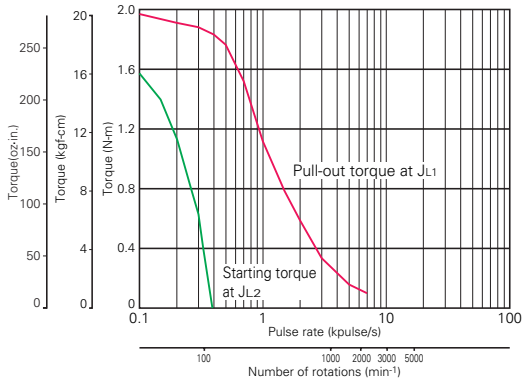
Sanyo constant current circuit
Source voltage: DC24V Operating current: 1A/phase, 2-phase energization (full-step)
J_{L1}=[7.4x10^{-4}kg·m^2 (40.46 oz·in^2) Use the rubber coupling]
J_{L2}=[7.4x10^{-4}kg·m^2 (40.46 oz·in^2) Use the direct coupling]

● 103H7821-1740



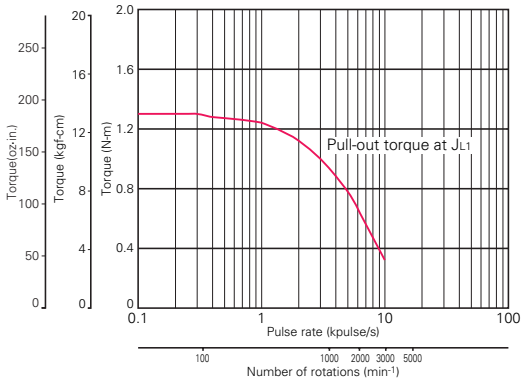
Sanyo constant current circuit
Source voltage: AC100V Operating current: 4A/phase, 2-phase energization (full-step)
J_{L1}=[2.6x10^{-4}kg·m^2 (14.22 oz·in^2) Use the rubber coupling]

● 103H7823-0440



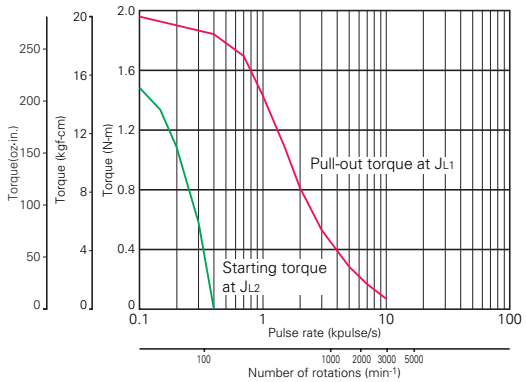
Sanyo constant current circuit
Source voltage: DC24V Operating current: 2A/phase, 2-phase energization (full-step)
J_{L1}=[7.4x10^{-4}kg·m^2 (40.46 oz·in^2) Use the rubber coupling]
J_{L2}=[7.4x10^{-4}kg·m^2 (40.46 oz·in^2) Use the direct coupling]

● 103H7822-1740



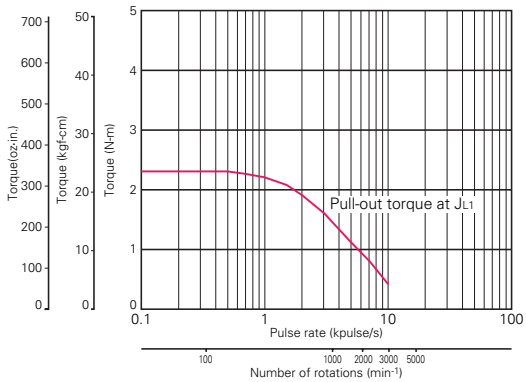
Sanyo constant current circuit
Source voltage: AC100V Operating current: 4A/phase, 2-phase energization (full-step)
J_{L1}=[2.6x10^{-4}kg·m^2 (14.22 oz·in^2) Use the rubber coupling]

● 103H7823-0740



Sanyo constant current circuit
Source voltage: DC24V Operating current: 3A/phase, 2-phase energization (full-step)
J_{L1}=[7.4x10^{-4}kg·m^2 (40.46 oz·in^2) Use the rubber coupling]
J_{L2}=[7.4x10^{-4}kg·m^2 (40.46 oz·in^2) Use the direct coupling]

● 103H7823-1740



Sanyo constant current circuit
Source voltage: AC100V Operating current: 4A/phase, 2-phase excitation (full-step)
J_{L1}=[7.4x10^{-4}kg·m^2 (40.46 oz·in^2) Use the rubber coupling]

2-phase Stepping Driver

PMM-UA-4303-1

AC100V
Unipolar type
(Applicable motor rated current 1.2A/phase, 2A/phase)
Full-step / Half-step
(200 x 1 division) **(200 x 2 division)**

● Applicable motor

□42 □50 □56 □60 ø86

PMM-UA-4304-1

AC100V
Unipolar high-speed type
(Applicable motor rated current 4A/phase)
Full-step / Half-step
(200 x 1 division) **(200 x 2 division)**

● Applicable motor

ø86 ø106

Standard combined stepping motors

PMM-UA-4303-1

Dimensions of stepping motor	Stepping motor model number		Rated current [A/phase]	Holding torque [N-m(oz-in)]	Rotor inertia [x 10^{-4}kg·m^2(oz·in^2)]	Mass(Weight) [kg(lbs)]	Page
	Single shaft	Double shaft					
□42mm (1.65inch)	103H5205-0440 103H5208-0440 103H5209-0440 103H5210-0440	103H5205-0410 103H5208-0410 103H5209-0410 103H5210-0410	1.2 1.2 1.2 1.2	0.2(28.32) 0.3(42.48) 0.32(45.31) 0.37(52.39)	0.036(0.20) 0.056(0.31) 0.062(0.34) 0.074(0.40)	0.23(0.51) 0.29(0.64) 0.31(0.68) 0.37(0.82)	69 Page
□50mm (1.97inch)	103H6701-0440 103H6703-0440 103H6704-0440	103H6701-0410 103H6703-0410 103H6704-0410	2 2 2	0.28(39.6) 0.49(69.4) 0.52(73.6)	0.057(0.31) 0.118(0.65) 0.14(0.77)	0.35(0.77) 0.5(1.10) 0.55(1.21)	75 Page
□56mm (2.20inch)	103H7121-0440 103H7123-0440 103H7124-0440 103H7126-0440	103H7121-0410 103H7123-0410 103H7124-0410 103H7126-0410	2 2 2 2	0.39(55.2) 0.83(117.5) 0.98(138.8) 1.27(179.8)	0.1(0.55) 0.21(1.15) 0.245(1.34) 0.36(1.97)	0.47(1.04) 0.65(1.43) 0.8(1.76) 0.98(2.16)	79 Page
□60mm (2.36inch)	103H7821-0440 103H7822-0440 103H7823-0440	103H7821-0410 103H7822-0410 103H7823-0410	2 2 2	0.78(110.5) 1.17(165.7) 2.1(297.4)	0.275(1.50) 0.4(2.19) 0.84(4.59)	0.6(1.32) 0.77(1.70) 1.34(2.95)	87 Page
ø86mm (3.39inch)	103H8221-0441 103H8222-0441 103H8223-0441	103H8221-0411 103H8222-0411 103H8223-0411	2 2 2	2.15(304.5) 4.13(584.8) 6.27(887.9)	1.45(7.93) 2.9(15.86) 4.4(24.06)	1.5(3.31) 2.5(5.51) 3.5(7.72)	91 Page

- For information about the general specifications and dimensions of each stepping motor, refer to its page.

PMM-UA-4304-1

Dimensions of stepping motor	Stepping motor model number		Rated current [A/phase]	Holding torque [N-m(oz-in)]	Rotor inertia [x 10^{-4}kg·m^2(oz·in^2)]	Mass(Weight) [kg(lbs)]	Page
	Single shaft	Double shaft					
ø86mm (3.39inch)	103H8221-0941 103H8222-0941 103H8223-0941	103H8221-0911 103H8222-0911 103H8223-0911	4 4 4	2.15(304.5) 4.13(584.8) 6.27(887.9)	1.45(7.93) 2.9(15.86) 4.4(24.06)	1.5(3.31) 2.5(5.51) 3.5(7.72)	91 Page
ø106mm (4.17inch)	103H89222-0941 103H89223-0941	103H89222-0911 103H89223-0911	4 4	10.8(1529.4) 15.5(2194.9)	14.6(79.83) 22(120.28)	7.5(16.53) 10.5(23.15)	97 Page

- For information about the general specifications and dimensions of each stepping motor, refer to its page.