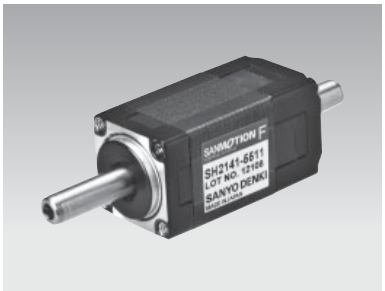
Stepping Motors

Allowable loads... ▶p. 69
Internal wiring and rotational directions... ▶p. 70
General specifications... ▶p. 71



14 mm sq.

1.8°/step **Ultra-compact** **RoHS**

Bipolar, lead type

ECO PRODUCTS

Custom options

Hollow shaft | Custom shaft

Note: Customization feasibility depends on the model number and quantity. Contact us for details.

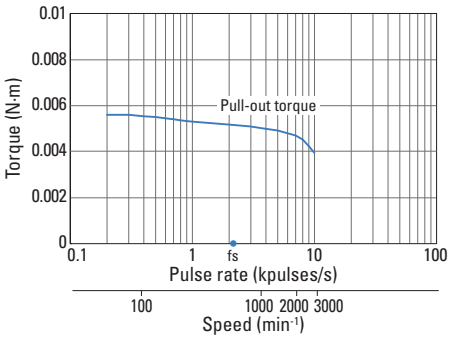
Bipolar, lead type

Model no.		Holding torque at 2-phase excitation	Rated current	Winding resistance	Winding inductance	Rotor inertia	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	Ω/phase	mH/phase	×10⁻⁴kg·m²	kg	mm
SH2141-5541	**SH2141-5511**	0.0065	0.3	21	4.2	0.00058	0.03	30
SH2145-5641	**SH2145-5611**	0.01	0.4	19	4	0.0011	0.042	43.8

Characteristics

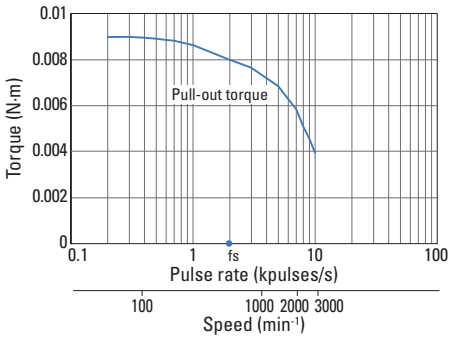
SH2141-5541
SH2141-5511

Constant current circuit
Input voltage: 24 VDC
Winding current:
0.3 A/phase
2-phase (full step)
Pull-out torque:
$J_L = 0.01 \times 10^{-4}$kg·m²
(Pulley balancer method)
fs: Maximum starting pulse rate with no load

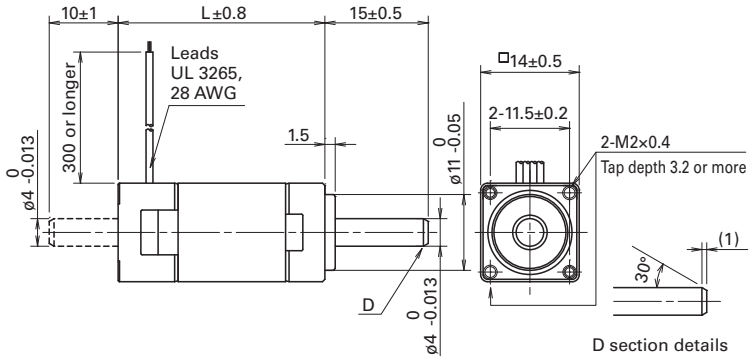


SH2145-5641
SH2145-5611

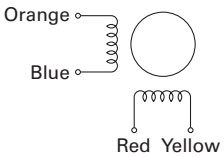
Constant current circuit
Input voltage: 24 VDC
Winding current:
0.4 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.01 \times 10^{-4}$kg·m²
(Pulley balancer method)
fs: Maximum starting pulse rate with no load



Dimensions (Unit: mm)



Internal winding

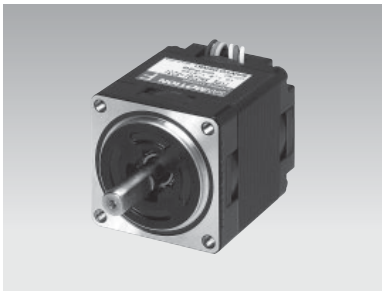


Compatible drivers

A driver is to be provided by the customer.

Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.



28 mm sq.

1.8°/step RoHS

Unipolar, lead type

Bipolar, lead type ▶p. 38

ECO PRODUCTS

Custom options

Hollow shaft | Custom shaft | Gear | Encoder

Note: Customization feasibility depends on the model number and quantity. Contact us for details.

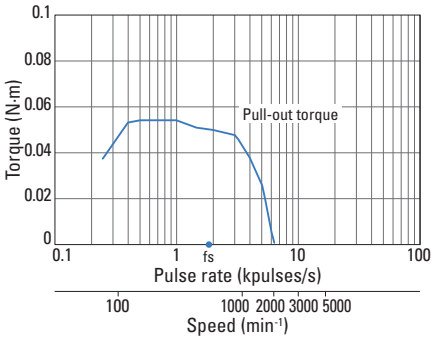
Unipolar, lead type

Model no.		Holding torque at 2-phase excitation	Rated current	Winding resistance	Winding inductance	Rotor inertia	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	Ω/phase	mH/phase	×10⁻⁴kg·m²	kg	mm
SH2281-5171	**SH2281-5131**	0.055	0.5	10.5	3.7	0.01	0.11	32
SH2281-5271	**SH2281-5231**	0.055	1	2.85	1	0.01	0.11	32
SH2285-5171	**SH2285-5131**	0.115	0.5	17	7	0.022	0.2	51.5
SH2285-5271	**SH2285-5231**	0.115	1	4.1	1.9	0.022	0.2	51.5

Characteristics

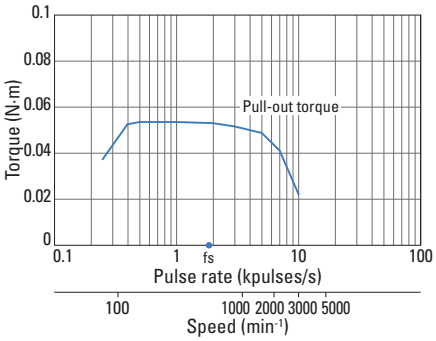
SH2281-5171 SH2281-5131

Constant current circuit
Input voltage: 24 VDC
Winding current:
0.5 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.01 \times 10^{-4}$kg·m²
(Pulley balancer method)
f_S: Maximum starting pulse rate with no load



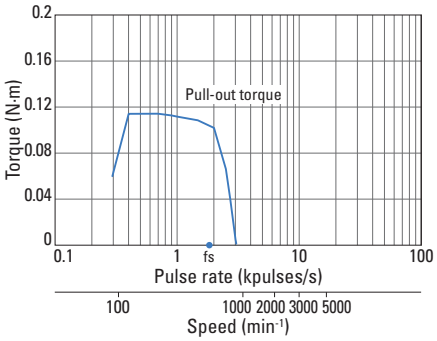
SH2281-5271 SH2281-5231

Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.01 \times 10^{-4}$kg·m²
(Pulley balancer method)
f_S: Maximum starting pulse rate with no load



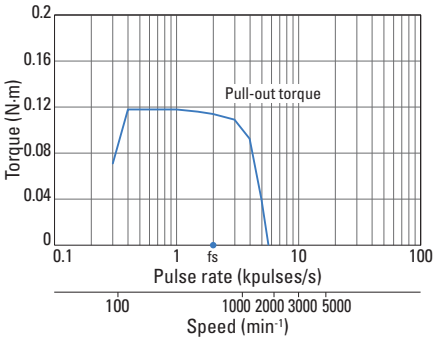
SH2285-5171 SH2285-5131

Constant current circuit
Input voltage: 24 VDC
Winding current:
0.5 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.01 \times 10^{-4}$kg·m²
(Pulley balancer method)
f_S: Maximum starting pulse rate with no load

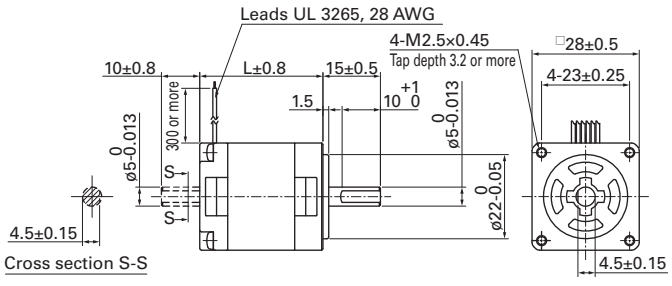


SH2285-5271 SH2285-5231

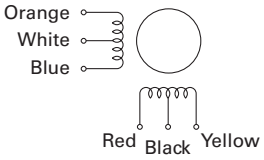
Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.01 \times 10^{-4}$kg·m²
(Pulley balancer method)
f_S: Maximum starting pulse rate with no load



Dimensions (Unit: mm)



Internal winding



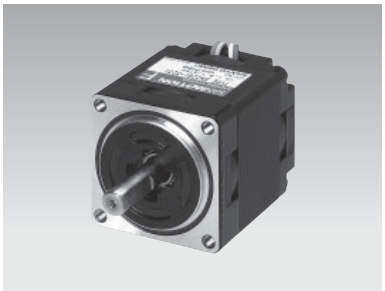
Compatible drivers

- For motors SH228 □ -52 □ 1 (1 A/phase)...
  Model no.: US1D200P10 (DC input)
  Operating current selection switch setting: A
- For motors other than above...
  A driver is to be provided by the customer.

Note: The characteristics shown above are calculated using our experimental circuit.

Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.



28 mm sq.

1.8°/step RoHS

Bipolar, lead type

Unipolar, lead type ▶p. 37

ECO PRODUCTS

Custom options

Hollow shaft | Custom shaft | Gear | Encoder

Note: Customization feasibility depends on the model number and quantity. Contact us for details.

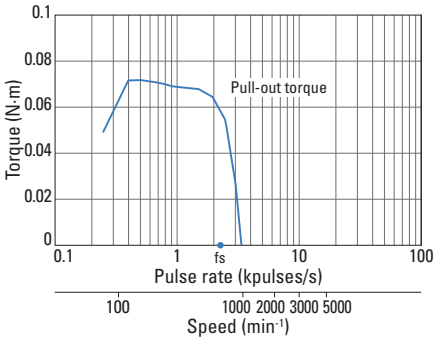
Bipolar, lead type

Model no.		Holding torque at 2-phase excitation	Rated current	Winding resistance	Winding inductance	Rotor inertia	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	Ω/phase	mH/phase	×10⁻⁴kg·m²	kg	mm
SH2281-5671	**SH2281-5631**	0.07	0.5	10.5	7.2	0.01	0.11	32
SH2281-5771	**SH2281-5731**	0.07	1	2.6	1.85	0.01	0.11	32
SH2285-5671	**SH2285-5631**	0.145	0.5	15	13.5	0.022	0.2	51.5
SH2285-5771	**SH2285-5731**	0.145	1	3.75	3.4	0.022	0.2	51.5

Characteristics

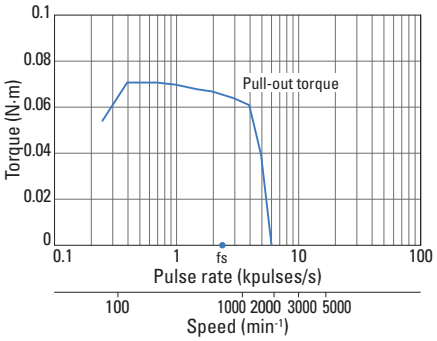
SH2281-5671
SH2281-5631

Constant current circuit
Input voltage: 24 VDC
Winding current:
0.5 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.01 \times 10^{-4}$kg·m²
(Pulley balancer method)
f_S: Maximum starting pulse rate with no load



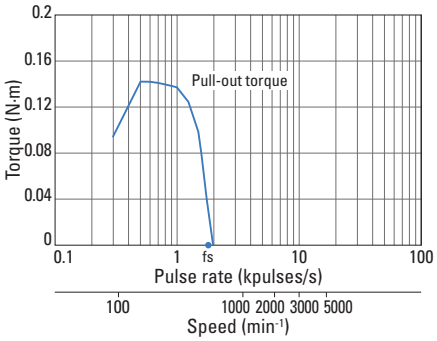
SH2281-5771
SH2281-5731

Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.01 \times 10^{-4}$kg·m²
(Pulley balancer method)
f_S: Maximum starting pulse rate with no load



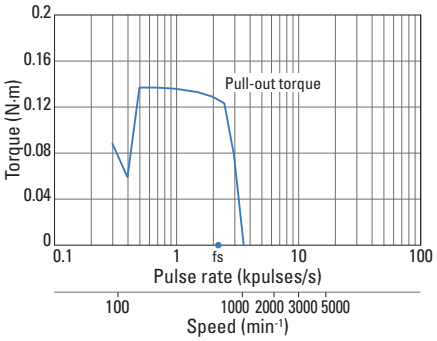
SH2285-5671
SH2285-5631

Constant current circuit
Input voltage: 24 VDC
Winding current:
0.5 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.01 \times 10^{-4}$kg·m²
(Pulley balancer method)
f_S: Maximum starting pulse rate with no load

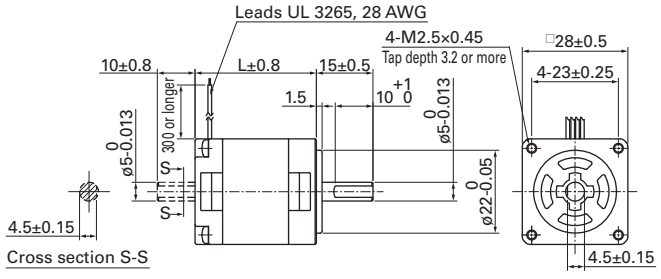


SH2285-5771
SH2285-5731

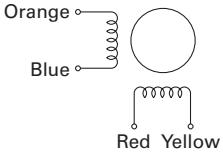
Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.01 \times 10^{-4}$kg·m²
(Pulley balancer method)
f_S: Maximum starting pulse rate with no load



Dimensions (Unit: mm)



Internal winding



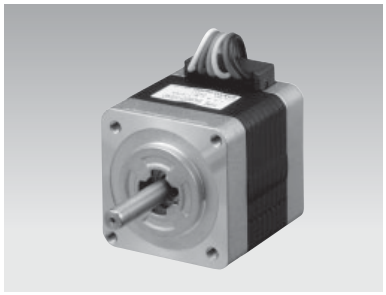
Compatible drivers

- For motors SH228 □ -57 □ 1 (1 A/phase)...
  Model no.: BS1D200P10 (DC input)
  Operating current selection switch setting: A
- For motors other than above...
  A driver is to be provided by the customer.

Note: The characteristics shown above are calculated using our experimental circuit.

Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.



35 mm sq.

1.8°/step RoHS

Unipolar, lead type

Custom options

Hollow shaft | Custom shaft

Note: Customization feasibility depends on the model number and quantity. Contact us for details.

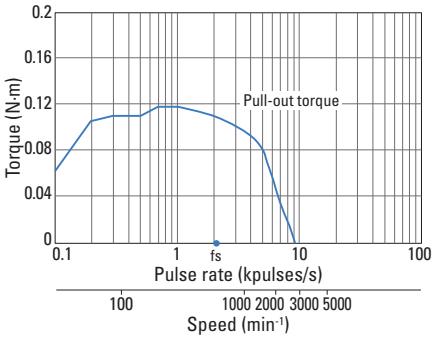
Unipolar, lead type

Model no.		Holding torque at 2-phase excitation	Rated current	Winding resistance	Winding inductance	Rotor inertia	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	Ω/phase	mH/phase	×10⁻⁴kg·m²	kg	mm
SH3533-12U40	**SH3533-12U10**	0.12	1.2	2.4	1.3	0.02	0.17	33
SH3537-12U40	**SH3537-12U10**	0.15	1.2	2.7	2	0.025	0.2	37
SH3552-12U40	**SH3552-12U10**	0.23	1.2	3.4	2.8	0.043	0.3	52

Characteristics

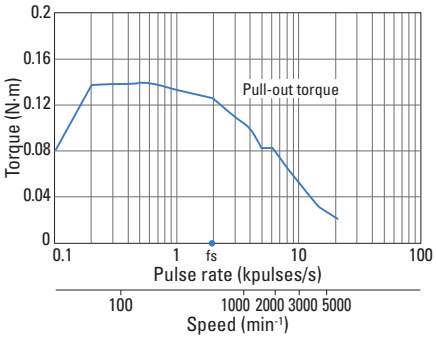
SH3533-12U40 SH3533-12U10

Constant current circuit
Input voltage: 24 VDC
Winding current:
1.2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
J_L = 0.33 × 10⁻⁴kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



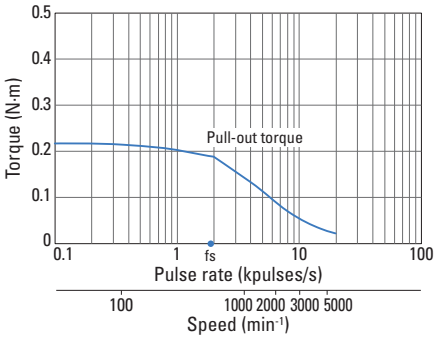
SH3537-12U40 SH3537-12U10

Constant current circuit
Input voltage: 24 VDC
Winding current:
1.2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
J_L = 0.33 × 10⁻⁴kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load

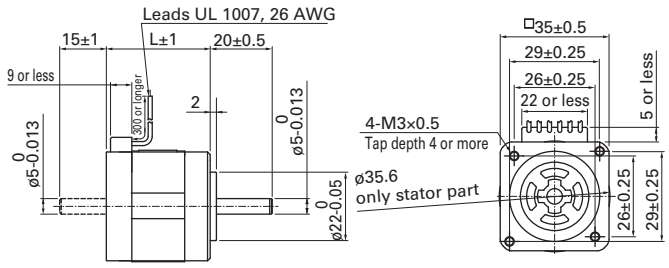


SH3552-12U40 SH3552-12U10

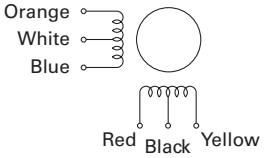
Constant current circuit
Input voltage: 24 VDC
Winding current:
1.2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
J_L = 0.94 × 10⁻⁴kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



Dimensions (Unit: mm)



Internal winding



Compatible drivers

Model no.: US1D200P10 (DC input)
Operating current selection switch setting: 8
Note: The characteristics shown above are calculated using our experimental circuit.

Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.



Note: The photo shows a unipolar motor.

35 mm sq.

1.8°/step RoHS

Bipolar, lead type

Custom options

Hollow shaft | Custom shaft

Note: Customization feasibility depends on the model number and quantity. Contact us for details.

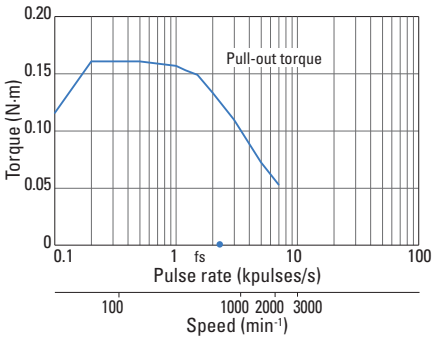
Bipolar, lead type

Model no.		Holding torque at 2-phase excitation	Rated current	Winding resistance	Winding inductance	Rotor inertia	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	Ω/phase	mH/phase	×10⁻⁴kg·m²	kg	mm
SH3533-10B40	**SH3533-10B10**	0.155	1	3.3	3.9	0.02	0.17	33
SH3537-10B40	**SH3537-10B10**	0.195	1	3.9	5.5	0.025	0.2	37
SH3552-10B40	**SH3552-10B10**	0.32	1	4.45	7	0.043	0.3	52

Characteristics

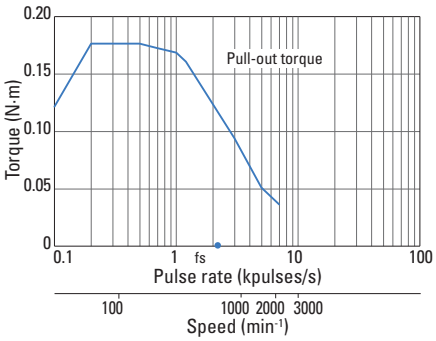
SH3533-10B40 SH3533-10B10

Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.33 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



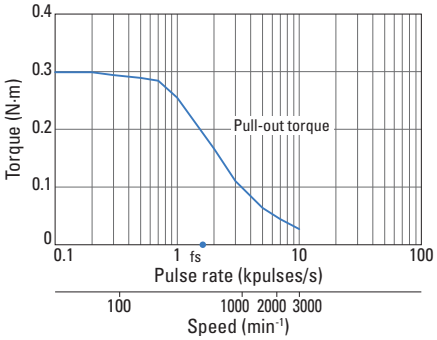
SH3537-10B40 SH3537-10B10

Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.33 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load

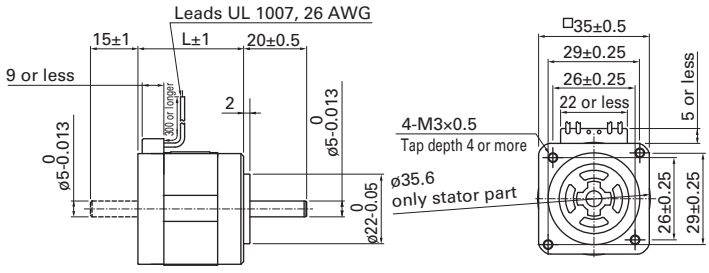


SH3552-10B40 SH3552-10B10

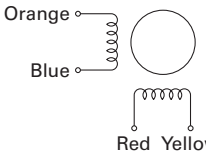
Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



Dimensions (Unit: mm)



Internal winding

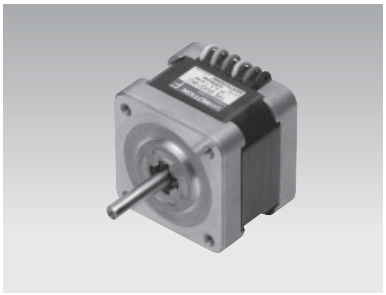


Compatible drivers

Model no.: BS1D200P10 (DC input)
Operating current selection switch setting: A
Note: The characteristics shown above are calculated using our experimental circuit.

Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.



42 mm sq.

0.9°/step RoHS

Unipolar, lead type

ECO PRODUCTS

Custom options

Hollow shaft | Custom shaft | Gear | Encoder

Note: Customization feasibility depends on the model number and quantity. Contact us for details.

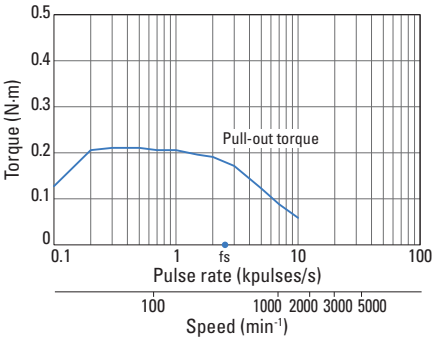
Unipolar, lead type

Model no.		Holding torque at 2-phase excitation	Rated current	Winding resistance	Winding inductance	Rotor inertia	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	Ω/phase	mH/phase	×10⁻⁴kg·m²	kg	mm
SH1421-0441	**SH1421-0411**	0.2	1.2	2.7	3.2	0.044	0.24	33
SH1422-0441	**SH1422-0411**	0.29	1.2	3.1	5.3	0.066	0.29	39
SH1424-0441	**SH1424-0411**	0.39	1.2	3.5	5.3	0.089	0.38	48

Characteristics

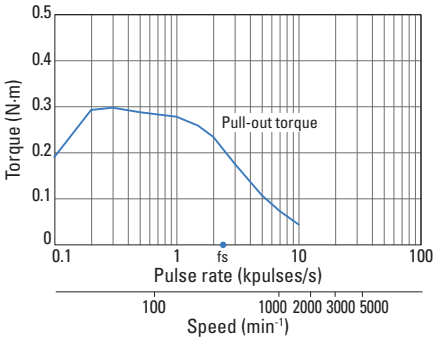
SH1421-0441 SH1421-0411

Constant current circuit
Input voltage: 24 VDC
Winding current:
1.2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



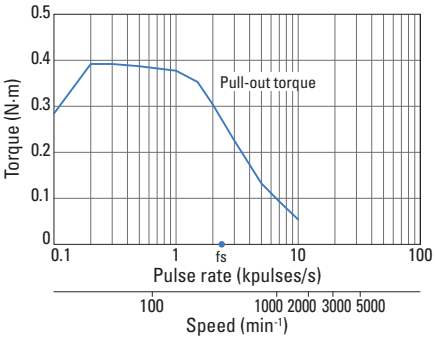
SH1422-0441 SH1422-0411

Constant current circuit
Input voltage: 24 VDC
Winding current:
1.2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load

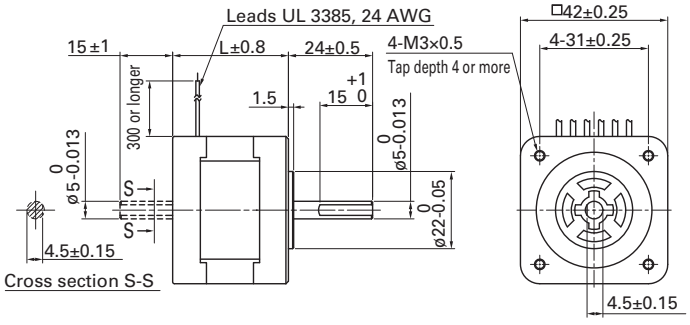


SH1424-0441 SH1424-0411

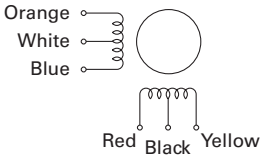
Constant current circuit
Input voltage: 24 VDC
Winding current:
1.2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



Dimensions (Unit: mm)



Internal winding

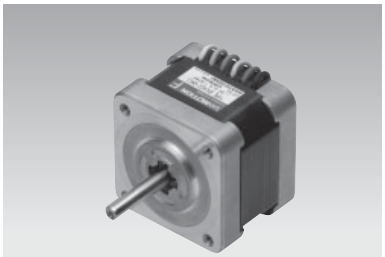


Compatible drivers

Model no.: US1D200P10 (DC input)
Operating current selection switch setting: 8
Note: The characteristics shown above are calculated using our experimental circuit.

Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.



Note: The photo shows a unipolar motor.

42 mm sq.

0.9°/step RoHS

Bipolar, lead type

ECO PRODUCTS

Custom options

Hollow shaft | Custom shaft | Gear | Encoder

Note: Customization feasibility depends on the model number and quantity. Contact us for details.

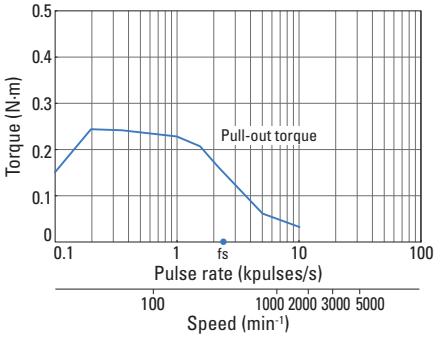
Bipolar, lead type

Model no.		Holding torque at 2-phase excitation	Rated current	Winding resistance	Winding inductance	Rotor inertia	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	Ω/phase	mH/phase	×10⁻⁴kg·m²	kg	mm
SH1421-5041	SH1421-5011	0.23	1	3.3	8.0	0.044	0.24	33
SH1421-5241	SH1421-5211	0.23	2	0.85	2.1	0.044	0.24	33
SH1422-5041	SH1422-5011	0.34	1	4.0	14.0	0.066	0.29	39
SH1422-5241	SH1422-5211	0.34	2	1.05	3.6	0.066	0.29	39
SH1424-5041	SH1424-5011	0.48	1	4.7	15.0	0.089	0.38	48
SH1424-5241	SH1424-5211	0.48	2	1.25	3.75	0.089	0.38	48

Characteristics

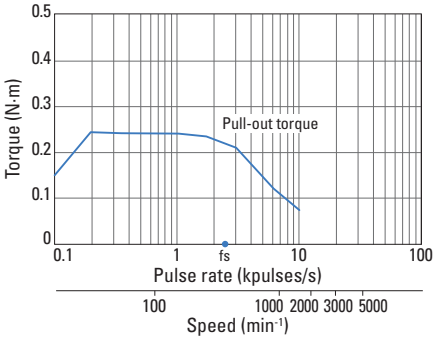
SH1421-5041 SH1421-5011

Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



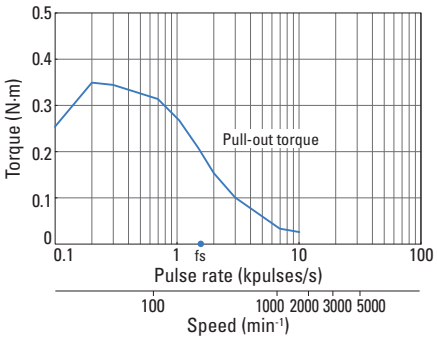
SH1421-5241 SH1421-5211

Constant current circuit
Input voltage: 24 VDC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



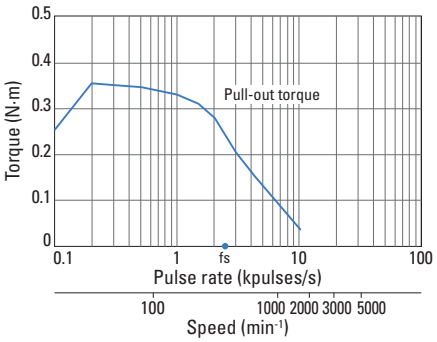
SH1422-5041 SH1422-5011

Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



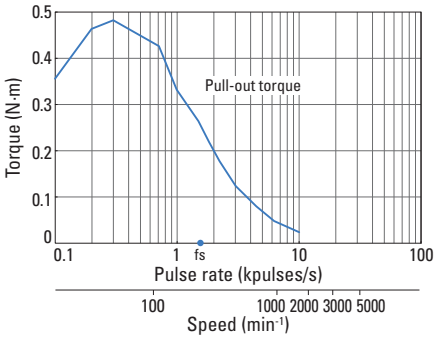
SH1422-5241 SH1422-5211

Constant current circuit
Input voltage: 24 VDC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



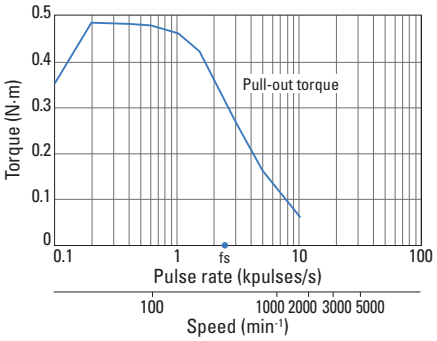
SH1424-5041 SH1424-5011

Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load

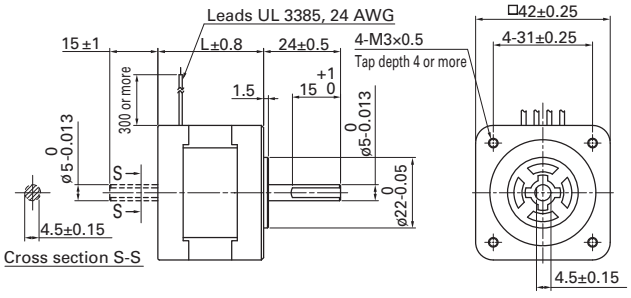


SH1424-5241 SH1424-5211

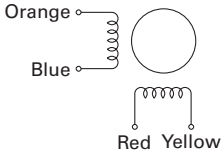
Constant current circuit
Input voltage: 24 VDC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



Dimensions (Unit: mm)



Internal winding



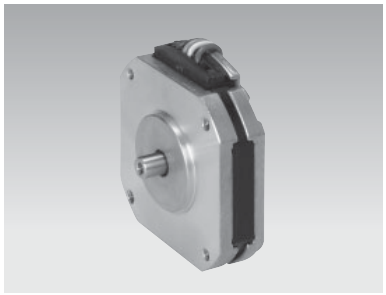
Compatible drivers

- For motors SH142□-52□1 (2 A/phase)...
  Model no.: BS1D200P10 (DC input)
  Operating current selection switch setting: 0
- For motors SH142□-50□1 (1 A/phase)...
  Model no.: BS1D200P10 (DC input)
  Operating current selection switch setting: A

Note: The characteristics shown above are calculated using our experimental circuit.

Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70
General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.



42 mm sq.

1.8°/step **Thin-profile** **RoHS**

Bipolar, lead type

ECO PRODUCTS

Custom options

Hollow shaft | Custom shaft | Encoder

Note: Customization feasibility depends on the model number and quantity. Contact us for details.

Bipolar, lead type Radial load: 10 N

Model no.		Holding torque at 2-phase excitation	Rated current	Winding resistance	Winding inductance	Rotor inertia	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	Ω/phase	mH/phase	×10⁻⁴kg·m²	kg	mm
SS2421-5041	**SS2421-5011**	0.083	1	3.5	1.2	0.015	0.07	11.6
SS2422-5041	**SS2422-5011**	0.186	1	5.4	2.9	0.028	0.14	18.6

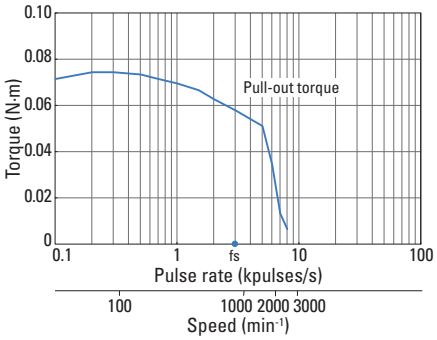
Bipolar, lead type Heavy duty Radial load: 25 N

Model no.		Holding torque at 2-phase excitation	Rated current	Winding resistance	Winding inductance	Rotor inertia	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	Ω/phase	mH/phase	×10⁻⁴kg·m²	kg	mm
SS2421-50400	**SS2421-50100**	0.083	1	3.5	1.2	0.015	0.09	14.5
SS2422-50400	**SS2422-50100**	0.186	1	5.4	2.9	0.028	0.16	21.5

Characteristics

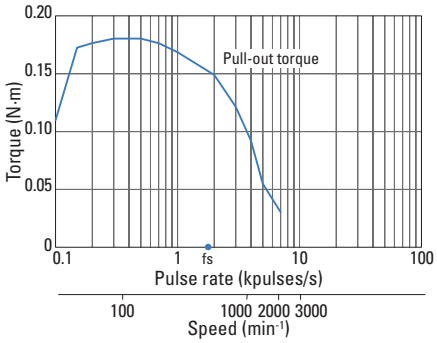
SS2421-5041
SS2421-5011
SS2421-50400
SS2421-50100

Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.33 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



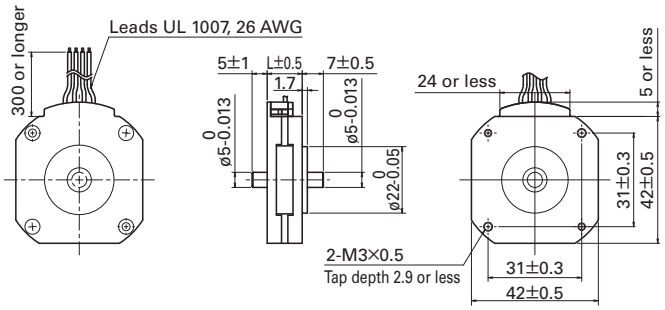
SS2422-5041
SS2422-5011
SS2422-50400
SS2422-50100

Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.33 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load

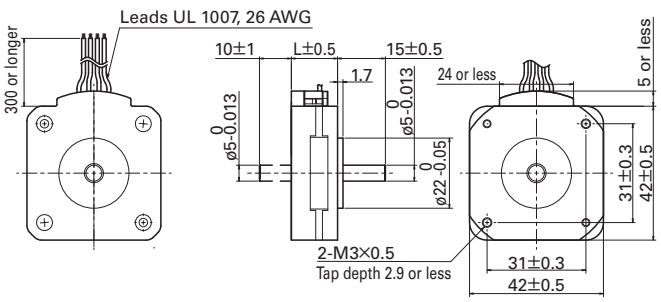


Dimensions (Unit: mm)

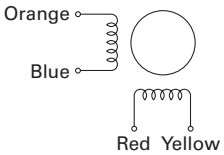
Model no.: SS242□-50□□



Model no.: SS242□-50□00



Internal winding

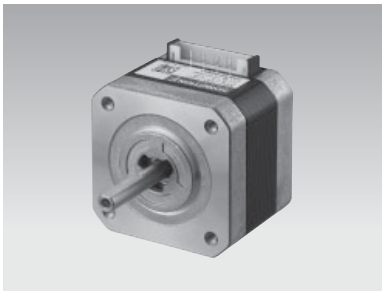


Compatible drivers

Model no.: BS1D200P10 (DC input)
Operating current selection switch setting: A
Note: The characteristics shown above are calculated using our experimental circuit.

Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.



42 mm sq.

1.8°/step RoHS

Unipolar, connector type

Bipolar, connector type ▶p. 45

ECO PRODUCTS

Custom options

Custom shaft | Gear | Encoder | Brake

Note: Customization feasibility depends on the model number and quantity. Contact us for details.

Unipolar, connector type

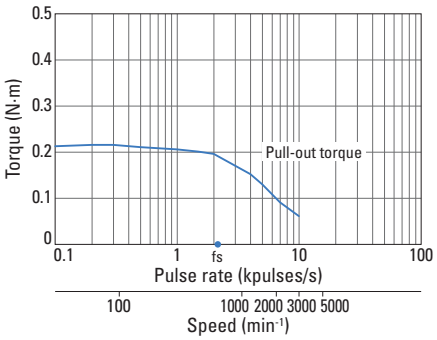
Model no.		Holding torque at 2-phase excitation	Rated current	Winding resistance	Winding inductance	Rotor inertia	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	Ω/phase	mH/phase	$\times 10^{-4}$kg·m^2	kg	mm
SF2421-12U41	SF2421-12U11	0.22	1.2	2.4	2.4	0.031	0.23	33 ± 0.5
SF2422-12U41	SF2422-12U11	0.33	1.2	3	3.3	0.046	0.3	39 ± 0.5
SF2423-12U41	SF2423-12U11	0.4	1.2	3.4	3.9	0.063	0.38	48 ± 0.5
SF2424-12U41	SF2424-12U11	0.58	1.2	4.4	5.4	0.094	0.51	59.5 ± 1

Motor cable model no.: 4835774-1

Characteristics

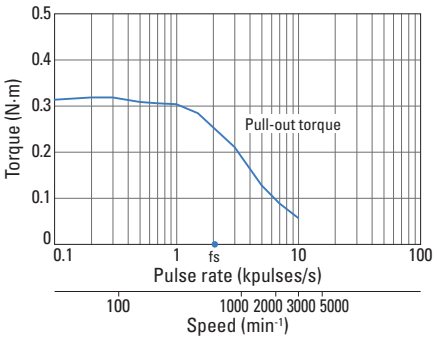
SF2421-12U41 SF2421-12U11

Constant current circuit
Input voltage: 24 VDC
Winding current:
1.2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m^2
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



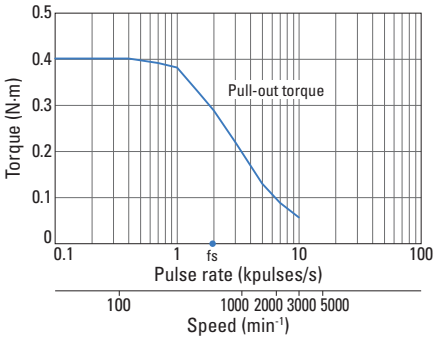
SF2422-12U41 SF2422-12U11

Constant current circuit
Input voltage: 24 VDC
Winding current:
1.2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m^2
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



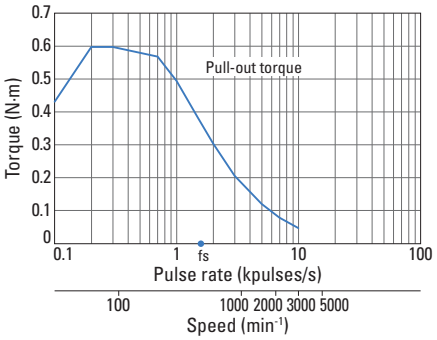
SF2423-12U41 SF2423-12U11

Constant current circuit
Input voltage: 24 VDC
Winding current:
1.2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m^2
(with rubber coupling used)
fs: Maximum starting pulse rate with no load

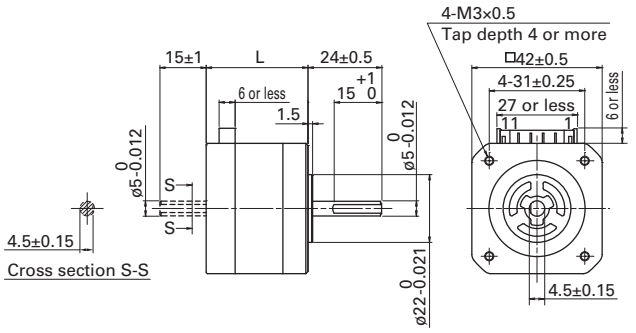


SF2424-12U41 SF2424-12U11

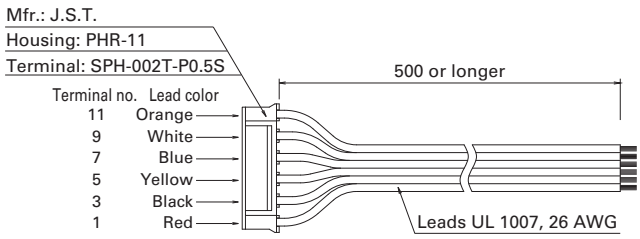
Constant current circuit
Input voltage: 24 VDC
Winding current:
1.2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m^2
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



Dimensions (Unit: mm)



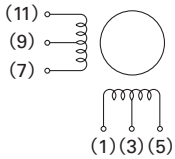
Separate option: Motor cable 4835774-1



This is a motor cable for model nos. SF242□-12U□1

Internal wiring

In parentheses are connector pin nos.



Compatible drivers

Model no.: US1D200P10 (DC input)

Operating current selection switch setting: 8

Note: The characteristics shown above are calculated using our experimental circuit.

Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.

Bipolar, connector type

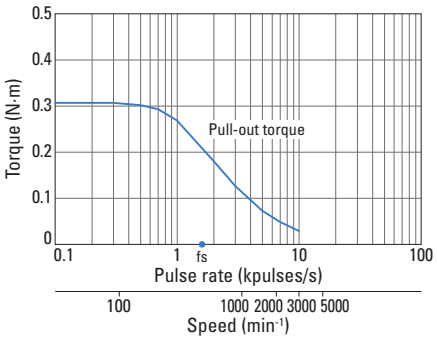
Model no.		Holding torque at 2-phase excitation	Rated current	Winding resistance	Winding inductance	Rotor inertia	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	Ω/phase	mH/phase	×10⁻⁴kg·m²	kg	mm
SF2421-10B41	**SF2421-10B11**	0.29	1	3.6	7	0.031	0.23	33 ± 0.5
SF2422-10B41	**SF2422-10B11**	0.43	1	4.6	9.6	0.046	0.3	39 ± 0.5
SF2423-10B41	**SF2423-10B11**	0.56	1	5.3	12.5	0.063	0.38	48 ± 0.5
SF2424-10B41	**SF2424-10B11**	0.8	1	6.5	16	0.094	0.51	59.5 ± 1

Motor cable model no.: 4835775-1

Characteristics

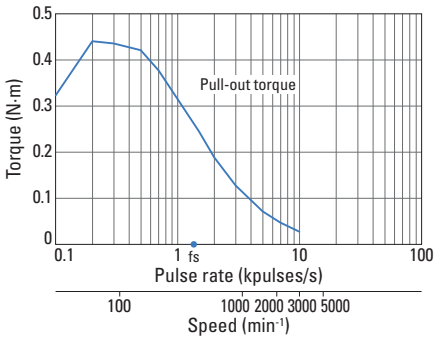
SF2421-10B41 SF2421-10B11

Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



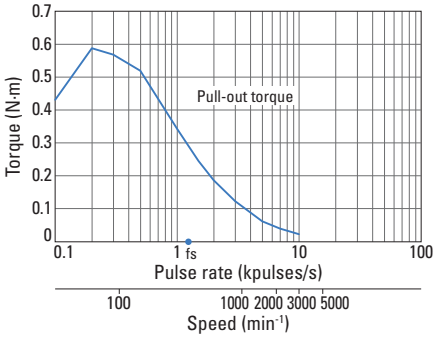
SF2422-10B41 SF2422-10B11

Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



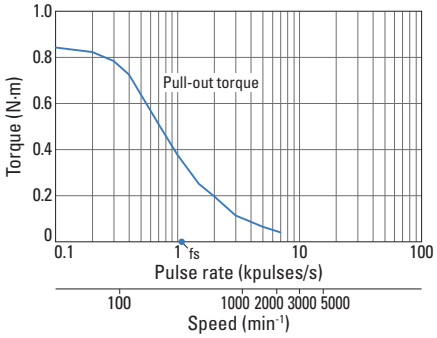
SF2423-10B41 SF2423-10B11

Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
fs: Maximum starting pulse rate with no load

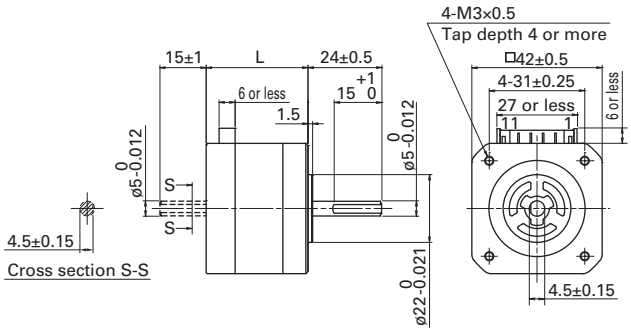


SF2424-10B41 SF2424-10B11

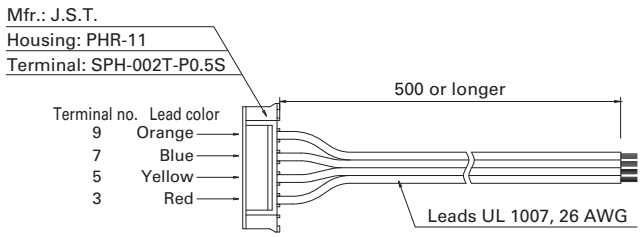
Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 2.6 \times 10^{-4}$kg·m²
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



Dimensions (Unit: mm)



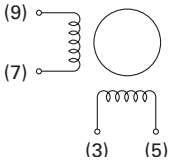
Separate option: Motor cable 4835775-1



This is a motor cable for model nos. SF242□-10B□1

Internal wiring

In parentheses are connector pin nos.

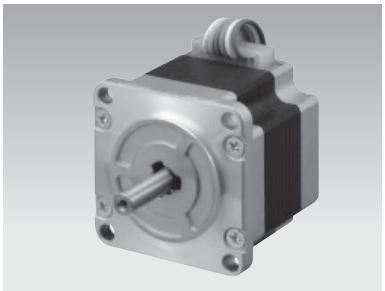


Compatible drivers

Model no.: BS1D200P10 (DC input)
Operating current selection switch setting: A
Note: The characteristics shown above are calculated using our experimental circuit.

Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.



50 mm sq.

1.8°/step RoHS

Unipolar, lead type

Bipolar, lead type ▶p. 48

Custom options

Hollow shaft | Custom shaft | Encoder

Note: Customization feasibility depends on the model number and quantity. Contact us for details.

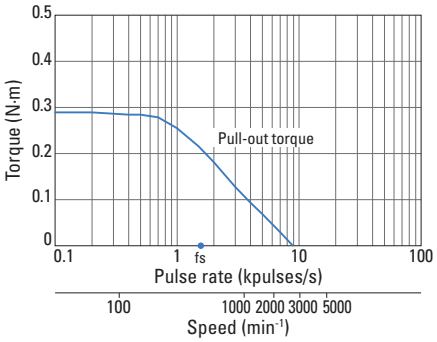
Unipolar, lead type

Model no.		Holding torque at 2-phase excitation	Rated current	Winding resistance	Winding inductance	Rotor inertia	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	Ω/phase	mH/phase	×10⁻⁴kg·m²	kg	mm
103H6701-0140	103H6701-0110	0.28	1	4.3	6.8	0.057	0.35	39.8
103H6701-0440	103H6701-0410	0.28	2	1.1	1.6	0.057	0.35	39.8
103H6701-0740	103H6701-0710	0.28	3	0.6	0.7	0.057	0.35	39.8
103H6703-0140	103H6703-0110	0.49	1	6	13	0.118	0.5	51.3
103H6703-0440	103H6703-0410	0.49	2	1.6	3.2	0.118	0.5	51.3
103H6703-0740	103H6703-0710	0.49	3	0.83	1.4	0.118	0.5	51.3
103H6704-0140	103H6704-0110	0.52	1	6.5	16.5	0.14	0.55	55.8
103H6704-0440	103H6704-0410	0.52	2	1.7	3.8	0.14	0.55	55.8
103H6704-0740	103H6704-0710	0.53	3	0.9	1.7	0.14	0.55	55.8

Characteristics

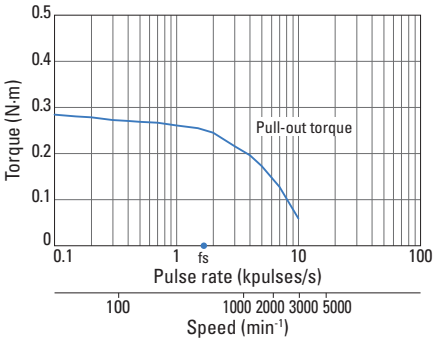
103H6701-0140 103H6701-0110

Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



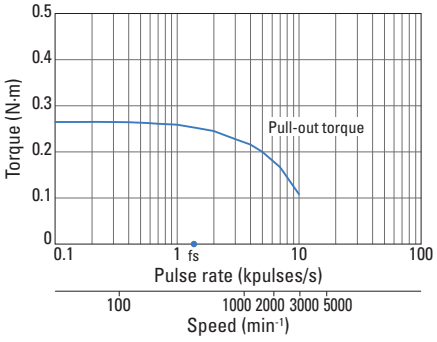
103H6701-0440 103H6701-0410

Constant current circuit
Input voltage: 24 VDC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



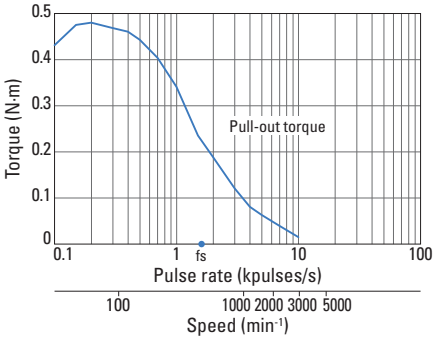
103H6701-0740 103H6701-0710

Constant current circuit
Input voltage: 24 VDC
Winding current:
3 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



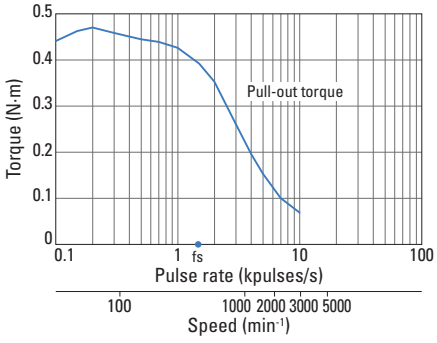
103H6703-0140 103H6703-0110

Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



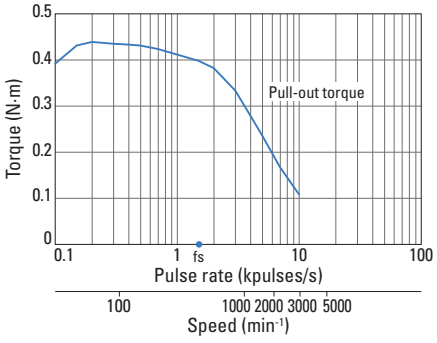
103H6703-0440 103H6703-0410

Constant current circuit
Input voltage: 24 VDC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



103H6703-0740 103H6703-0710

Constant current circuit
Input voltage: 24 VDC
Winding current:
3 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



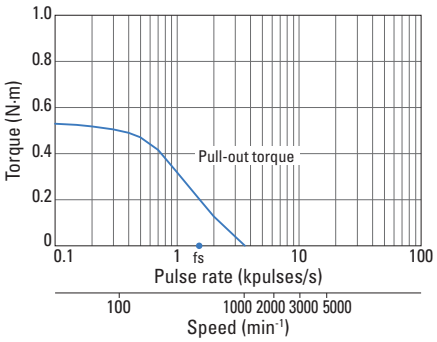
Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.

Characteristics

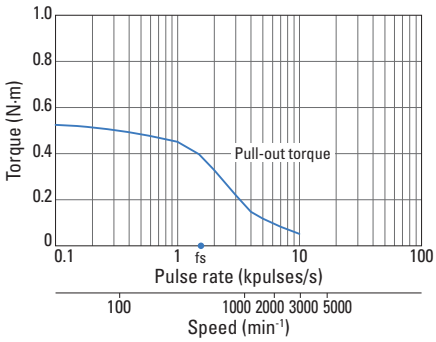
103H6704-0140
103H6704-0110

Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$ kg·m²
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



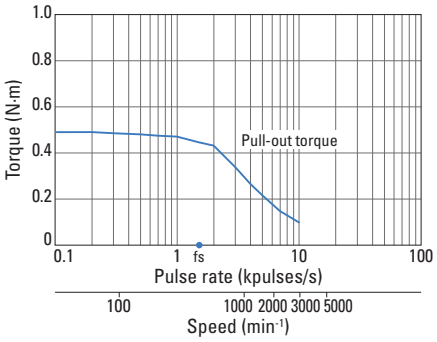
103H6704-0440
103H6704-0410

Constant current circuit
Input voltage: 24 VDC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$ kg·m²
(with rubber coupling used)
fs: Maximum starting pulse rate with no load

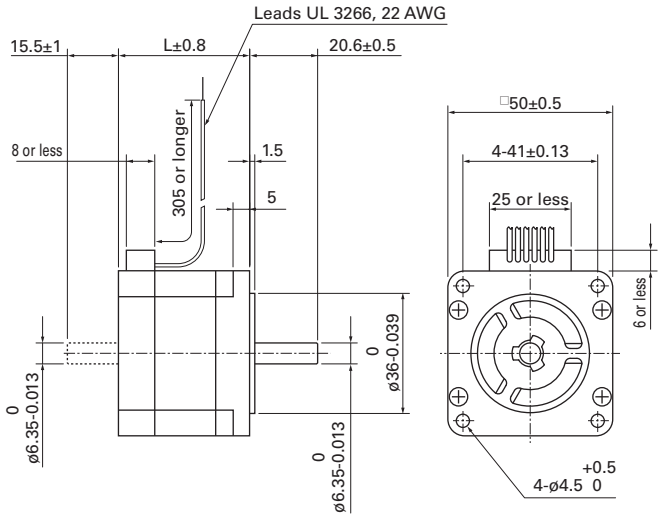


103H6704-0740
103H6704-0710

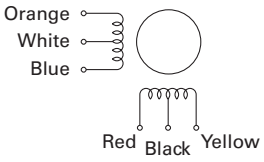
Constant current circuit
Input voltage: 24 VDC
Winding current:
3 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$ kg·m²
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



Dimensions (Unit: mm)



Internal winding



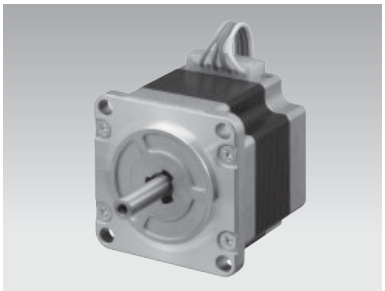
Compatible drivers

- For motors 103H670 □ -04 □ 0 (2 A/phase)...
  Model no.: US1D200P10 (DC input)
  Operating current selection switch setting: 0
- For motors other than above...
  A driver is to be provided by the customer.

Note: The characteristics shown above are calculated using our experimental circuit.

Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.



50 mm sq.

1.8°/step RoHS

Bipolar, lead type

Unipolar, lead type ▶p. 46

Custom options

Hollow shaft | Custom shaft | Encoder

Note: Customization feasibility depends on the model number and quantity. Contact us for details.

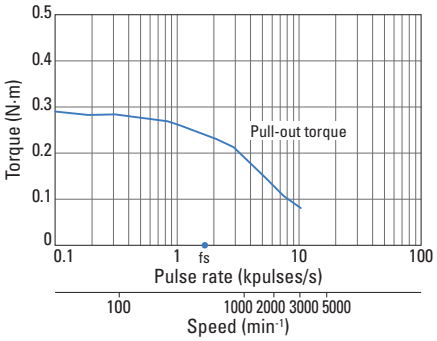
Bipolar, lead type

Model no.		Holding torque at 2-phase excitation	Rated current	Winding resistance	Winding inductance	Rotor inertia	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	Ω/phase	mH/phase	×10⁻⁴kg·m²	kg	mm
103H6701-5040	**103H6701-5010**	0.28	2	0.6	1.6	0.057	0.35	39.8
103H6703-5040	**103H6703-5010**	0.49	2	0.8	3.2	0.118	0.5	51.3
103H6704-5040	**103H6704-5010**	0.52	2	0.9	3.8	0.14	0.55	55.8

Characteristics

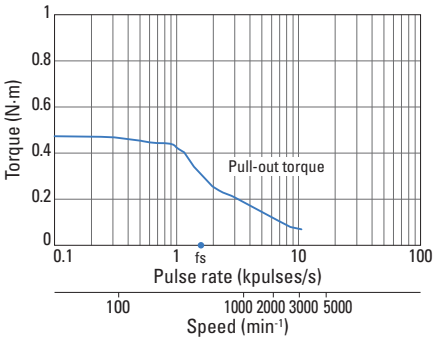
103H6701-5040 103H6701-5010

Constant current circuit
Input voltage: 24 VDC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



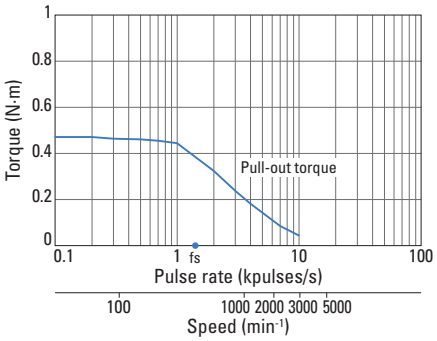
103H6703-5040 103H6703-5010

Constant current circuit
Input voltage: 24 VDC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load

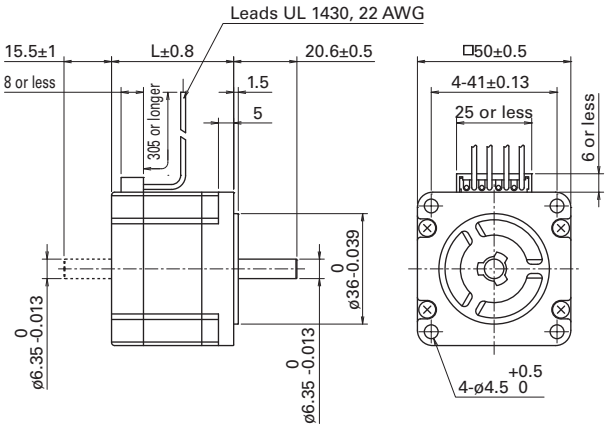


103H6704-5040 103H6704-5010

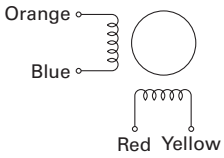
Constant current circuit
Input voltage: 24 VDC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



Dimensions (Unit: mm)



Internal winding



Compatible drivers

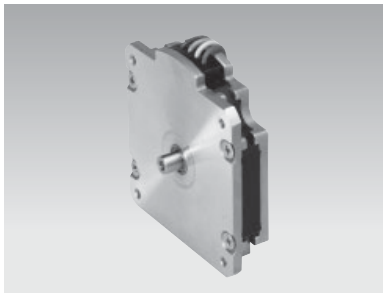
Model no.: BS1D200P10 (DC input)

Operating current selection switch setting: 0

Note: The characteristics shown above are calculated using our experimental circuit.

Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.



50 mm sq.

1.8°/step **Thin-profile** **RoHS**

Bipolar, lead type

Custom options

Hollow shaft | Custom shaft

Note: Customization feasibility depends on the model number and quantity. Contact us for details.

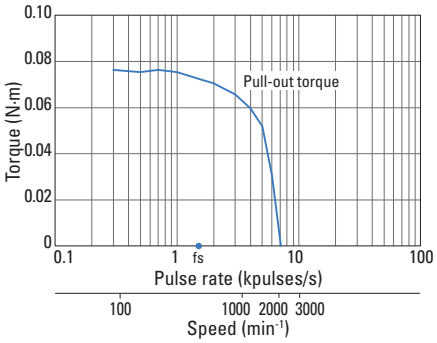
Bipolar, lead type

Model no.		Holding torque at 2-phase excitation	Rated current	Winding resistance	Winding inductance	Rotor inertia	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	Ω/phase	mH/phase	$\times 10^{-4}$kg·m^2	kg	mm
SS2501-8040	**SS2501-8010**	0.1	1	4.5	2	0.026	0.09	11.4
SS2502-8040	**SS2502-8010**	0.215	1	5.9	3.2	0.049	0.15	16.4

Characteristics

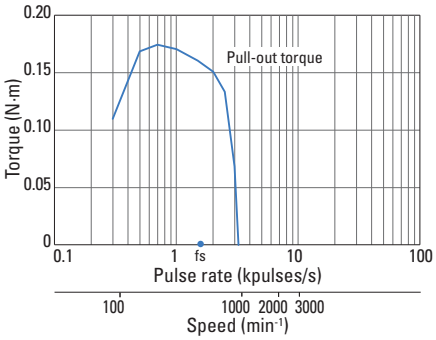
SS2501-8040
SS2501-8010

Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.01 \times 10^{-4}$kg·m^2
(Pulley balancer method)
f_S: Maximum starting pulse rate with no load

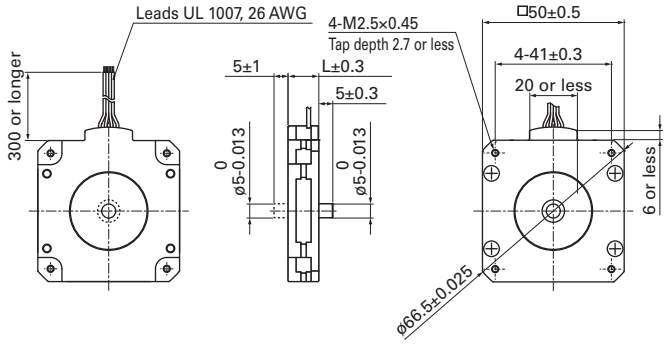


SS2502-8040
SS2502-8010

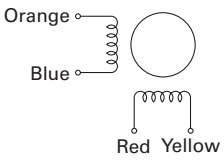
Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.01 \times 10^{-4}$kg·m^2
(Pulley balancer method)
f_S: Maximum starting pulse rate with no load



Dimensions (Unit: mm)



Internal winding



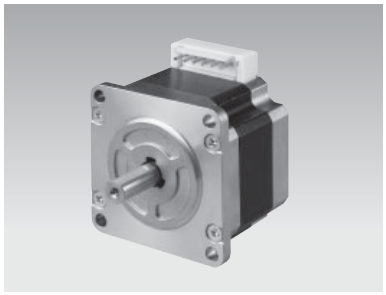
Compatible drivers

Model no.: BS1D200P10 (DC input)

Operating current selection switch setting: A

Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.



56 mm sq.

1.8°/step RoHS

Unipolar, connector type

ECO PRODUCTS

Custom options

Hollow shaft | Custom shaft | Gear | Encoder | Brake

Note: Customization feasibility depends on the model number and quantity. Contact us for details.

Unipolar, connector type

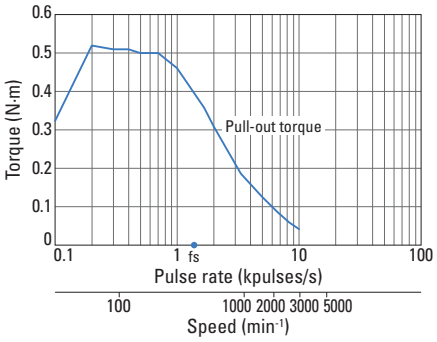
Model no.		Holding torque at 2-phase excitation	Rated current	Winding resistance	Winding inductance	Rotor inertia	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	Ω/phase	mH/phase	×10⁻⁴kg·m²	kg	mm
SM2561C10U41	**SM2561C10U11**	0.53	1	4.3	6.8	0.14	0.49	41.8
SM2561C20U41	**SM2561C20U11**	0.53	2	1.15	1.8	0.14	0.49	41.8
SM2561C30U41	**SM2561C30U11**	0.53	3	0.52	0.77	0.14	0.49	41.8
SM2562C10U41	**SM2562C10U11**	1.1	1	5.85	12.6	0.28	0.69	53.8
SM2562C20U41	**SM2562C20U11**	1.1	2	1.55	3.3	0.28	0.69	53.8
SM2562C30U41	**SM2562C30U11**	1.1	3	0.69	1.37	0.28	0.69	53.8
SM2563C10U41	**SM2563C10U11**	1.7	1	7.8	17	0.5	1.1	75.8
SM2563C20U41	**SM2563C20U11**	1.7	2	1.87	4.2	0.5	1.1	75.8
SM2563C30U41	**SM2563C30U11**	1.7	3	0.74	1.75	0.5	1.1	75.8
SM2564C10U41	**SM2564C10U11**	1.75	1	9	22	0.6	1.27	85.8
SM2564C20U41	**SM2564C20U11**	1.75	2	2.1	5.4	0.6	1.27	85.8
SM2564C30U41	**SM2564C30U11**	1.75	3	0.84	2.2	0.6	1.27	85.8

Motor cable model no.: 4837798-1

Characteristics

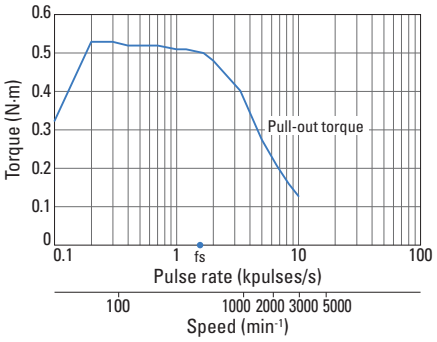
SM2561C10U41 SM2561C10U11

Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



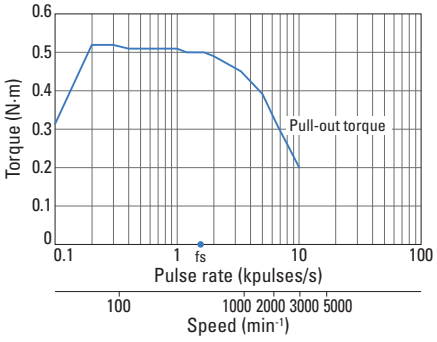
SM2561C20U41 SM2561C20U11

Constant current circuit
Input voltage: 24 VDC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



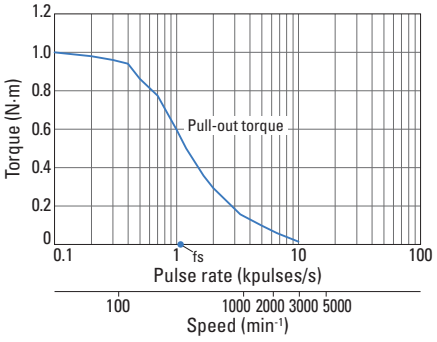
SM2561C30U41 SM2561C30U11

Constant current circuit
Input voltage: 24 VDC
Winding current:
3 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



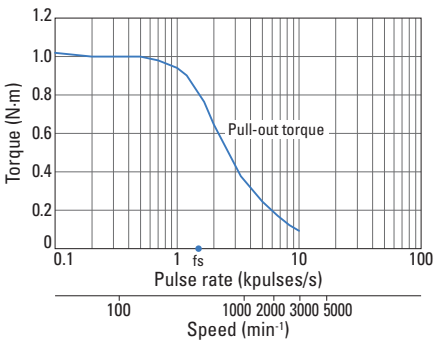
SM2562C10U41 SM2562C10U11

Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 2.6 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



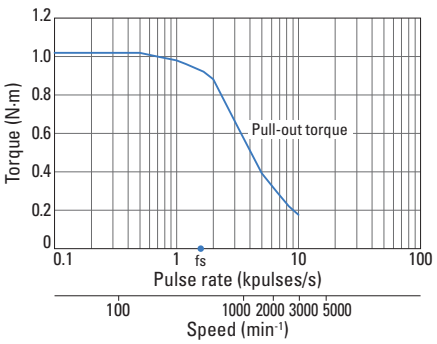
SM2562C20U41 SM2562C20U11

Constant current circuit
Input voltage: 24 VDC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 2.6 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



SM2562C30U41 SM2562C30U11

Constant current circuit
Input voltage: 24 VDC
Winding current:
3 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 2.6 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



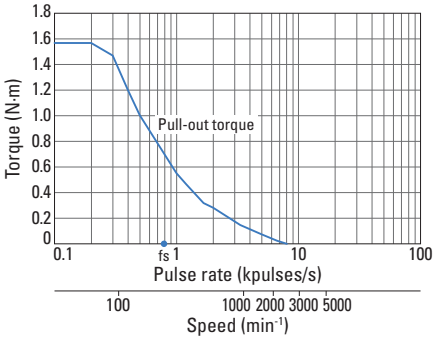
Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.

Characteristics

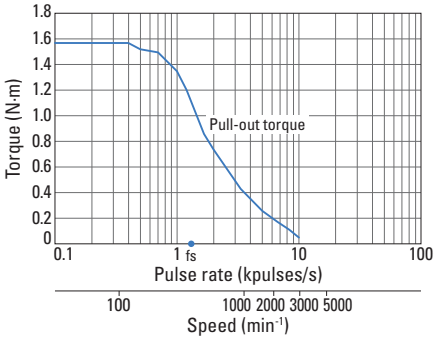
SM2563C10U41 SM2563C10U11

Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
J_L = 7.4 × 10^{-4}kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



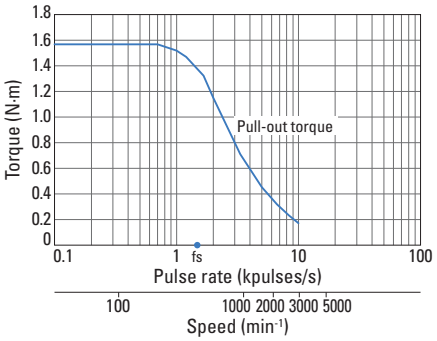
SM2563C20U41 SM2563C20U11

Constant current circuit
Input voltage: 24 VDC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
J_L = 7.4 × 10^{-4}kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



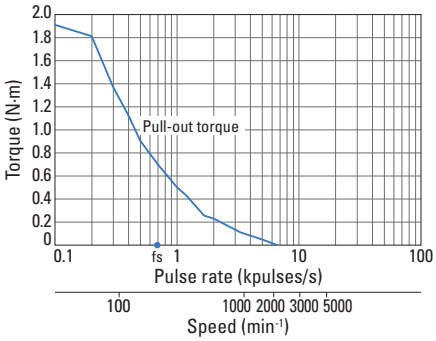
SM2563C30U41 SM2563C30U11

Constant current circuit
Input voltage: 24 VDC
Winding current:
3 A/phase
At 2-phase excitation (full step)
Pull-out torque:
J_L = 7.4 × 10^{-4}kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



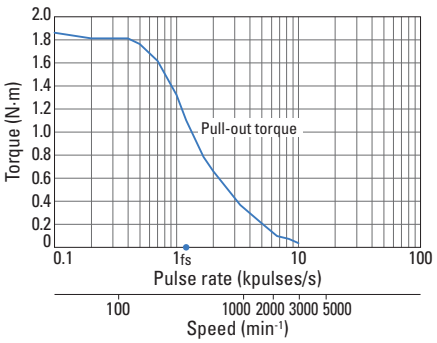
SM2564C10U41 SM2564C10U11

Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
J_L = 7.4 × 10^{-4}kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



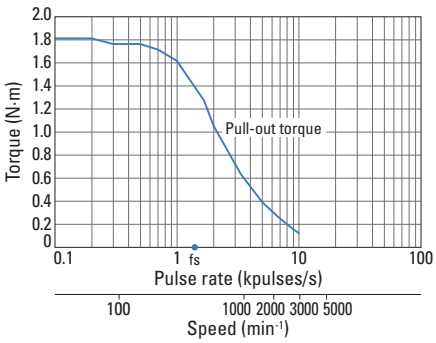
SM2564C20U41 SM2564C20U11

Constant current circuit
Input voltage: 24 VDC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
J_L = 7.4 × 10^{-4}kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load

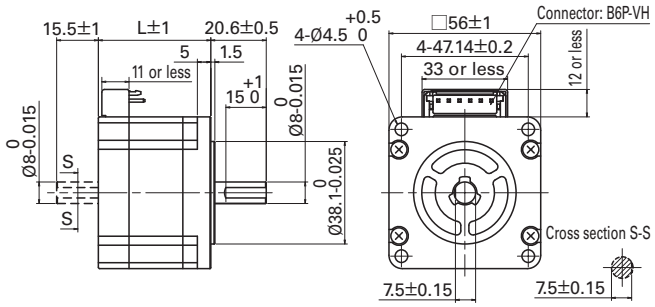


SM2564C30U41 SM2564C30U11

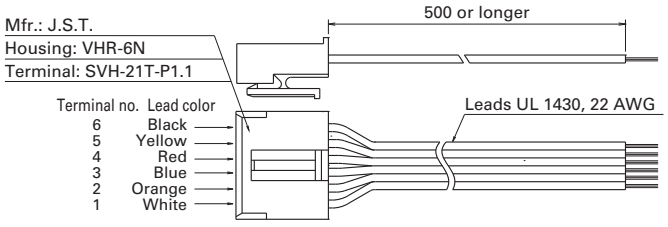
Constant current circuit
Input voltage: 24 VDC
Winding current:
3 A/phase
At 2-phase excitation (full step)
Pull-out torque:
J_L = 7.4 × 10^{-4}kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



Dimensions (Unit: mm)

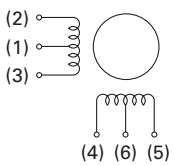


Separate option: Motor cable 4837798-1



Internal wiring

In parentheses are connector pin nos.



Compatible drivers

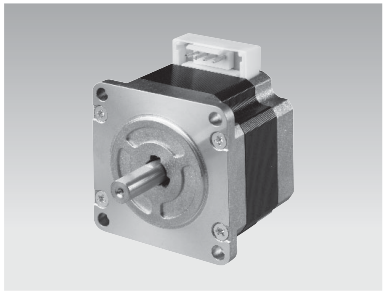
- For motors SM256□C20U□1 (2 A/phase)...
  Model no.: US1D200P10 (DC input)
  Operating current selection switch setting: 0
- For motors other than above...
  A driver is to be provided by the customer.

Note: The characteristics shown above are calculated using our experimental circuit.

If considering replacing our conventional 56 mm sq. motors (103H712□),
→ See Models No Longer Listed and Their Replacement Models in p. 78 to 79

Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.



56 mm sq.

1.8°/step RoHS

Bipolar, connector type

ECO PRODUCTS

Custom options

Hollow shaft | Custom shaft | Gear | Encoder | Brake

Note: Customization feasibility depends on the model number and quantity. Contact us for details.

Bipolar, connector type

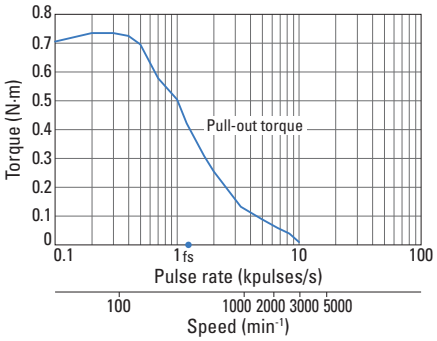
Model no.		Holding torque at 2-phase excitation	Rated current	Winding resistance	Winding inductance	Rotor inertia	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	Ω/phase	mH/phase	$\times 10^{-4}$kg·m^2	kg	mm
SM2561C10B41	**SM2561C10B11**	0.75	1	4.6	13.5	0.14	0.49	41.8
SM2561C20B41	**SM2561C20B11**	0.75	2	1.1	3.5	0.14	0.49	41.8
SM2561C30B41	**SM2561C30B11**	0.75	3	0.51	1.5	0.14	0.49	41.8
SM2561C40B41	**SM2561C40B11**	0.75	4	0.28	0.85	0.14	0.49	41.8
SM2561C60B41	**SM2561C60B11**	0.75	6	0.14	0.38	0.14	0.49	41.8
SM2562C10B41	**SM2562C10B11**	1.4	1	6.3	25.5	0.28	0.69	53.8
SM2562C20B41	**SM2562C20B11**	1.4	2	1.5	6.5	0.28	0.69	53.8
SM2562C30B41	**SM2562C30B11**	1.4	3	0.68	2.9	0.28	0.69	53.8
SM2562C40B41	**SM2562C40B11**	1.4	4	0.37	1.5	0.28	0.69	53.8
SM2562C60B41	**SM2562C60B11**	1.4	6	0.18	0.72	0.28	0.69	53.8
SM2563C10B41	**SM2563C10B11**	2.35	1	8.6	36	0.5	1.1	75.8
SM2563C20B41	**SM2563C20B11**	2.35	2	2.1	9.5	0.5	1.1	75.8
SM2563C30B41	**SM2563C30B11**	2.35	3	0.95	4.2	0.5	1.1	75.8
SM2563C40B41	**SM2563C40B11**	2.35	4	0.52	2.4	0.5	1.1	75.8
SM2563C60B41	**SM2563C60B11**	2.35	6	0.25	1.05	0.5	1.1	75.8
SM2564C10B41	**SM2564C10B11**	2.5	1	9.4	41	0.6	1.27	85.8
SM2564C20B41	**SM2564C20B11**	2.5	2	2.1	11	0.6	1.27	85.8
SM2564C30B41	**SM2564C30B11**	2.5	3	0.95	4.9	0.6	1.27	85.8
SM2564C40B41	**SM2564C40B11**	2.5	4	0.59	2.8	0.6	1.27	85.8
SM2564C60B41	**SM2564C60B11**	2.5	6	0.27	1.15	0.6	1.27	85.8

Motor cable model no.: 4837961-1

Characteristics

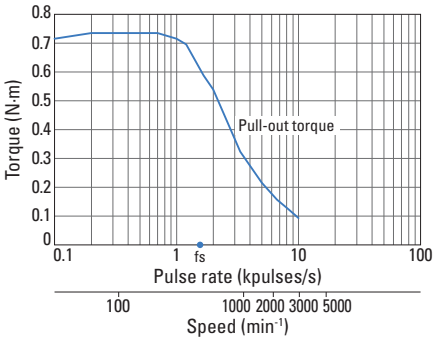
SM2561C10B41 SM2561C10B11

Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m^2
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



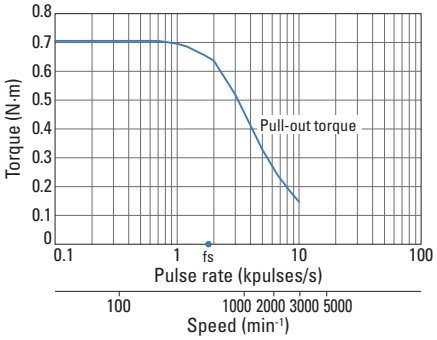
SM2561C20B41 SM2561C20B11

Constant current circuit
Input voltage: 24 VDC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m^2
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



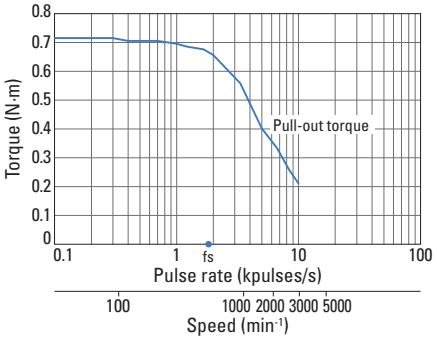
SM2561C30B41 SM2561C30B11

Constant current circuit
Input voltage: 24 VDC
Winding current:
3 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m^2
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



SM2561C40B41 SM2561C40B11

Constant current circuit
Input voltage: 24 VDC
Winding current:
4 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m^2
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



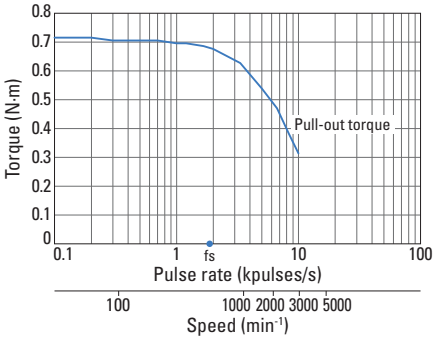
Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.

Characteristics

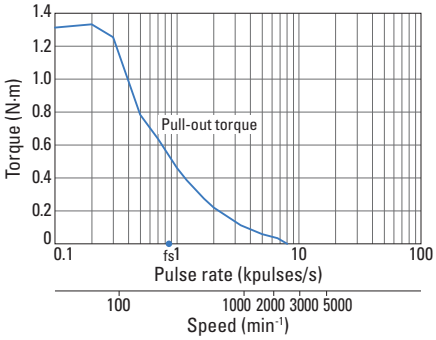
SM2561C60B41 SM2561C60B11

Constant current circuit
Input voltage: 24 VDC
Winding current:
6 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



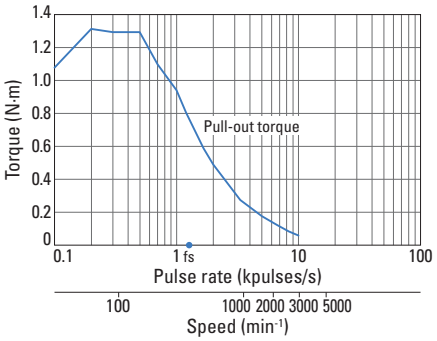
SM2562C10B41 SM2562C10B11

Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 2.6 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



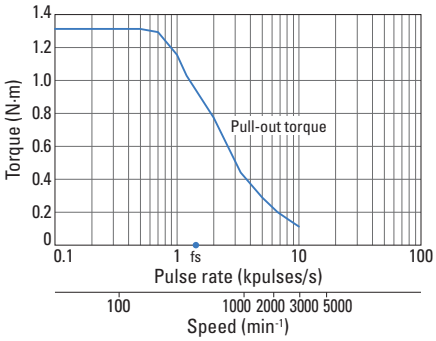
SM2562C20B41 SM2562C20B11

Constant current circuit
Input voltage: 24 VDC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 2.6 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



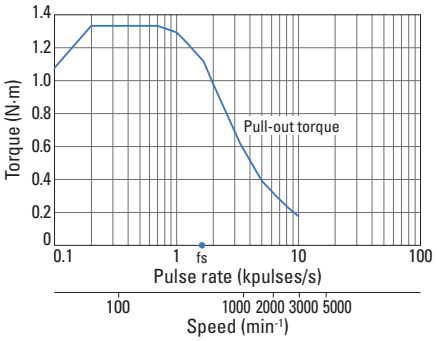
SM2562C30B41 SM2562C30B11

Constant current circuit
Input voltage: 24 VDC
Winding current:
3 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 2.6 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



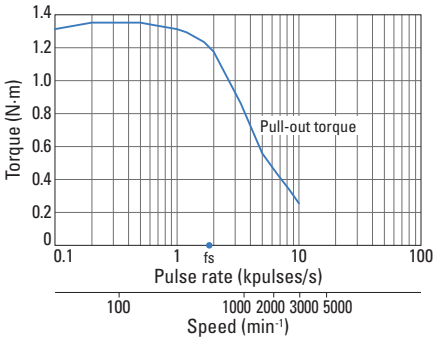
SM2562C40B41 SM2562C40B11

Constant current circuit
Input voltage: 24 VDC
Winding current:
4 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 2.6 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



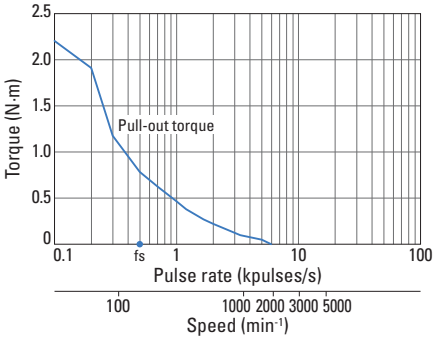
SM2562C60B41 SM2562C60B11

Constant current circuit
Input voltage: 24 VDC
Winding current:
6 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 2.6 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



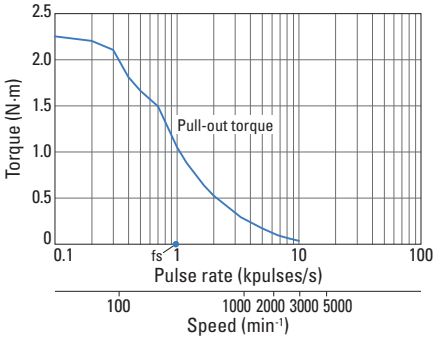
SM2563C10B41 SM2563C10B11

Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 7.4 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



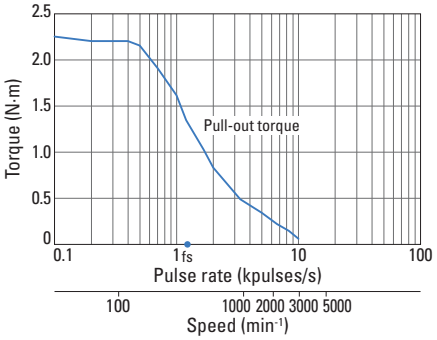
SM2563C20B41 SM2563C20B11

Constant current circuit
Input voltage: 24 VDC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 7.4 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



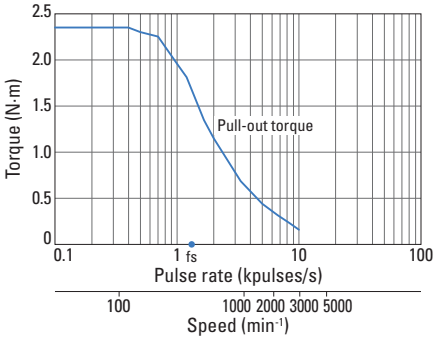
SM2563C30B41 SM2563C30B11

Constant current circuit
Input voltage: 24 VDC
Winding current:
3 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 7.4 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



SM2563C40B41 SM2563C40B11

Constant current circuit
Input voltage: 24 VDC
Winding current:
4 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 7.4 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



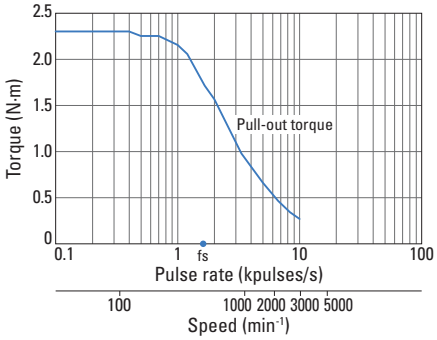
Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.

Characteristics

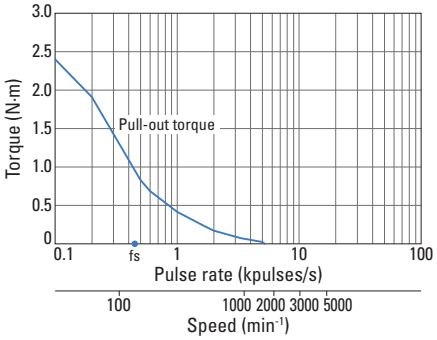
SM2563C60B41 SM2563C60B11

Constant current circuit
Input voltage: 24 VDC
Winding current:
6 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 7.4 \times 10^{-4}$ kg·m²
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



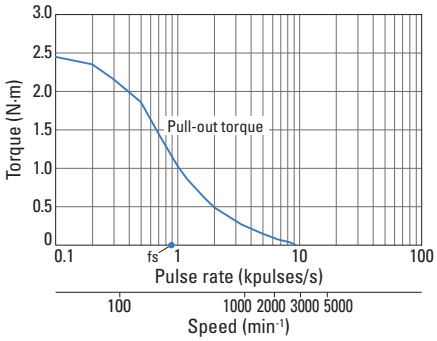
SM2564C10B41 SM2564C10B11

Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 7.4 \times 10^{-4}$ kg·m²
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



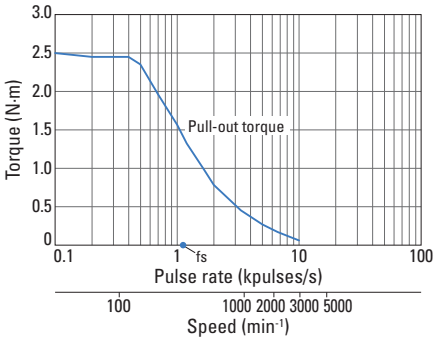
SM2564C20B41 SM2564C20B11

Constant current circuit
Input voltage: 24 VDC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 7.4 \times 10^{-4}$ kg·m²
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



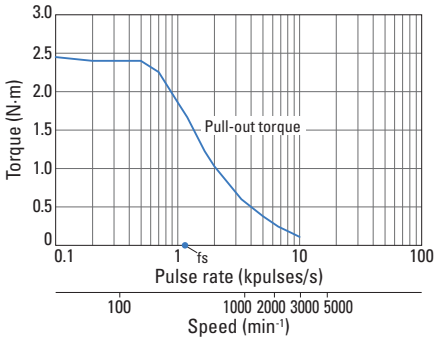
SM2564C30B41 SM2564C30B11

Constant current circuit
Input voltage: 24 VDC
Winding current:
3 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 7.4 \times 10^{-4}$ kg·m²
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



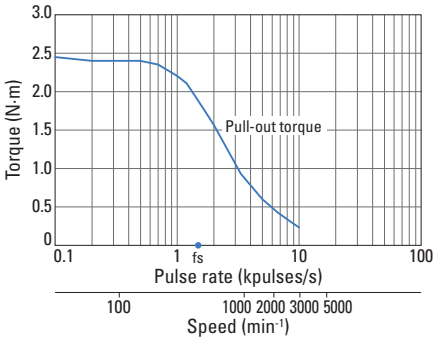
SM2564C40B41 SM2564C40B11

Constant current circuit
Input voltage: 24 VDC
Winding current:
4 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 7.4 \times 10^{-4}$ kg·m²
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



SM2564C60B41 SM2564C60B11

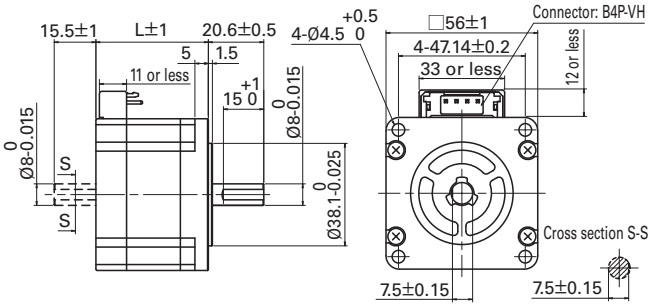
Constant current circuit
Input voltage: 24 VDC
Winding current:
6 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 7.4 \times 10^{-4}$ kg·m²
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



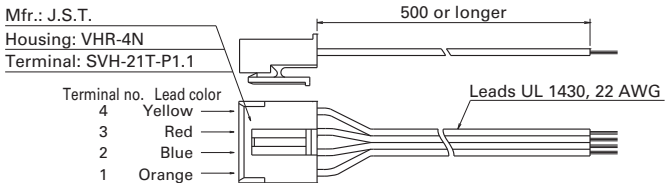
Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.

Dimensions (Unit: mm)

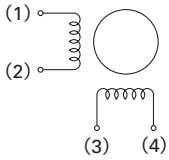


Separate option: Motor cable 4837961-1



Internal wiring

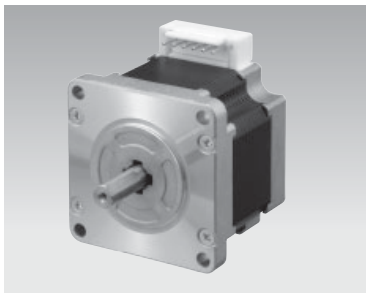
In parentheses are connector pin nos.



Compatible drivers

- For motors SM256□C20B□1 (2 A/phase)...
  Model no.: BS1D200P10 (DC input)
  Operating current selection switch setting: 0
- For motors other than above...
  A driver is to be provided by the customer.

Note: The characteristics shown above are calculated using our experimental circuit.



60 mm sq.

Our conventional 60 mm sq. motors (103H782□)

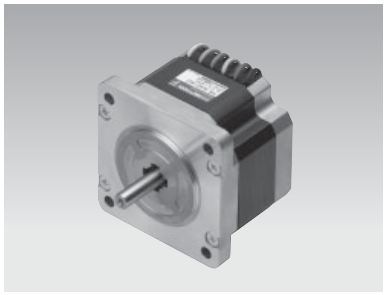
1.8-phase step RoHS

It is recommended you use a 56 mm sq. motor (SM256□C□0□□1) that has equivalent torque in a smaller size. See Models No Longer Listed and Their Replacement Models in pages 78 to 79.
We also offer customization that makes the flange compatible with 60 mm sq. motors for easy replacement.

If considering replacing our conventional 56 mm sq. motors (103H712□),
→ See Models No Longer Listed and Their Replacement Models in p. 78 to 79

Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.



60 mm sq.

0.9°/step RoHS

Unipolar, lead type

Bipolar, lead type

ECO PRODUCTS

Custom options

Hollow shaft | Custom shaft | Gear | Encoder

Note: Customization feasibility depends on the model number and quantity. Contact us for details.

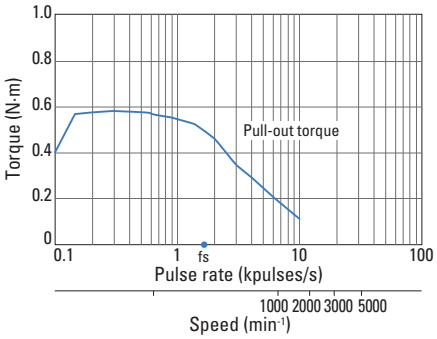
Unipolar, lead type

Model no.		Holding torque at 2-phase excitation	Rated current	Winding resistance	Winding inductance	Rotor inertia	Mass	Motor length (L)	Shaft diameter (D)
Single shaft	Dual shaft	N·m or more	A/phase	Ω/phase	mH/phase	×10⁻⁴kg·m²	kg	mm	mm
SH1601-0440	**SH1601-0410**	0.57	2	1.35	2	0.24	0.55	42	0 ø6.35-0.013
SH1602-0440	**SH1602-0410**	1.1	2	1.8	3.5	0.4	0.8	54	0 ø6.35-0.013
SH1603-0440	**SH1603-0410**	1.7	2	2.3	4.5	0.75	1.2	76	0 ø8-0.015

Characteristics

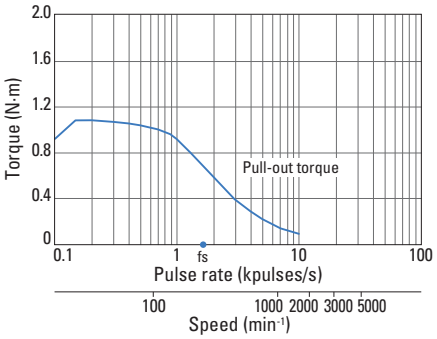
SH1601-0440 SH1601-0410

Constant current circuit
Input voltage: 24 VDC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



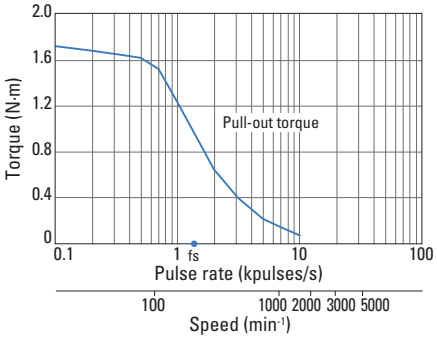
SH1602-0440 SH1602-0410

Constant current circuit
Input voltage: 24 VDC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 2.6 \times 10^{-4}$kg·m²
(with rubber coupling used)
fs: Maximum starting pulse rate with no load

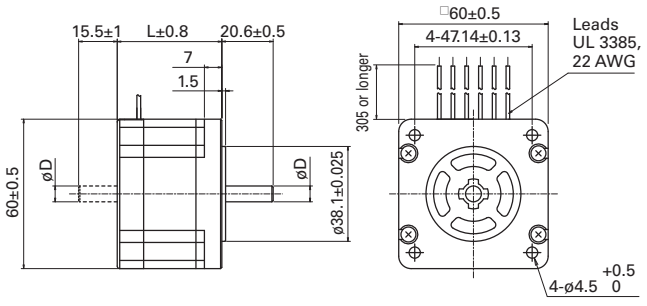


SH1603-0440 SH1603-0410

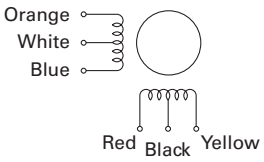
Constant current circuit
Input voltage: 24 VDC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 7.4 \times 10^{-4}$kg·m²
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



Dimensions (Unit: mm)



Internal winding



Compatible drivers

A driver is to be provided by the customer.

Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.

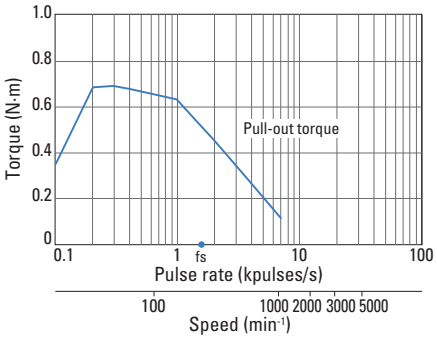
Bipolar, lead type

Model no.		Holding torque at 2-phase excitation	Rated current	Winding resistance	Winding inductance	Rotor inertia	Mass	Motor length (L)	Shaft diameter (D)
Single shaft	Dual shaft	N·m or more	A/phase	Ω/phase	mH/phase	×10⁻⁴kg·m²	kg	mm	mm
SH1601-5240	**SH1601-5210**	0.69	2	1.2	3.5	0.24	0.55	42	0 ø6.35-0.013
SH1602-5240	**SH1602-5210**	1.28	2	1.65	6.1	0.4	0.8	54	0 ø6.35-0.013
SH1603-5240	**SH1603-5210**	2.15	2	2.3	8.8	0.75	1.2	76	0 ø8-0.015

Characteristics

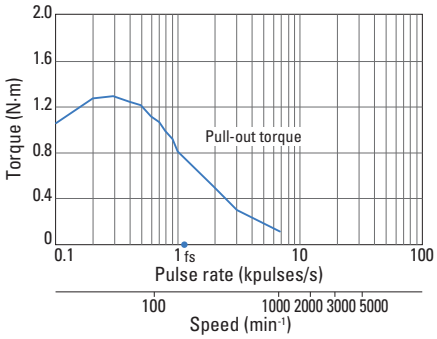
SH1601-5240 SH1601-5210

Constant current circuit
Input voltage: 24 VDC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



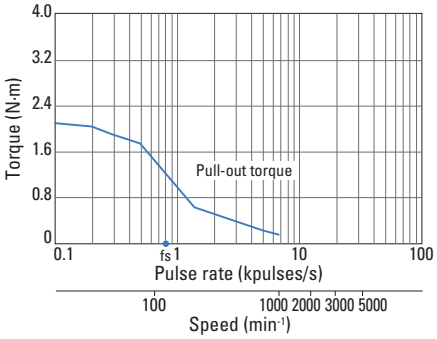
SH1602-5240 SH1602-5210

Constant current circuit
Input voltage: 24 VDC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 2.6 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load

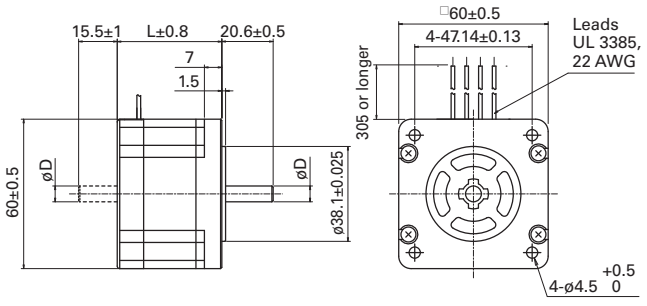


SH1603-5240 SH1603-5210

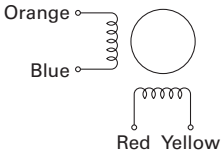
Constant current circuit
Input voltage: 24 VDC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 7.4 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



Dimensions (Unit: mm)



Internal winding

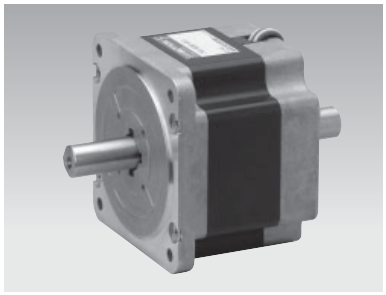


Compatible drivers

Model no.: BS1D200P10 (DC input)
Operating current selection switch setting: 0
Note: The characteristics shown above are calculated using our experimental circuit.

Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.



86 mm sq.

1.8°/step RoHS

Unipolar, lead type

Bipolar, lead type ▶p. 60

ECO PRODUCTS

Custom options

Hollow shaft | Custom shaft | Encoder | Brake

Note: Customization feasibility depends on the model number and quantity. Contact us for details.

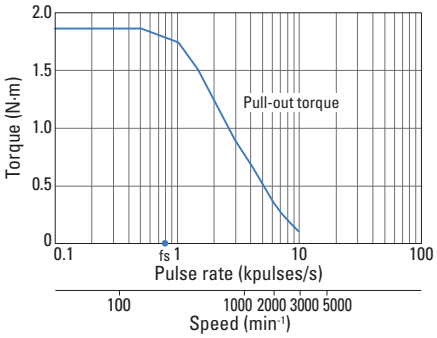
Unipolar, lead type

Model no.		Holding torque at 2-phase excitation	Rated current	Winding resistance	Winding inductance	Rotor inertia	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	Ω/phase	mH/phase	×10⁻⁴kg·m²	kg	mm
SH2861-0441	**SH2861-0411**	2.5	2	2.3	8.0	1.48	1.75	66
SH2861-0941	**SH2861-0911**	2.5	4	0.6	2.0	1.48	1.75	66
SH2862-0441	**SH2862-0411**	4.7	2	3.2	13.0	3.0	2.9	96.5
SH2862-0941	**SH2862-0911**	4.7	4	0.85	3.4	3.0	2.9	96.5
SH2863-0441	**SH2863-0411**	6.7	2	4.0	17.0	4.5	4.0	127
SH2863-0941	**SH2863-0911**	6.7	4	0.9	4.2	4.5	4.0	127

Characteristics

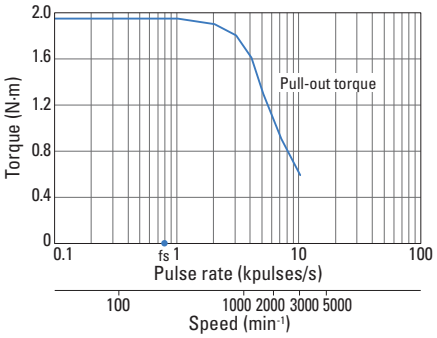
SH2861-0441 SH2861-0411

Constant current circuit
Input voltage: 100 VAC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 7.4 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



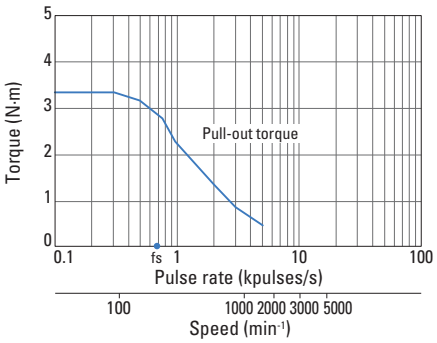
SH2861-0941 SH2861-0911

Constant current circuit
Input voltage: 100 VAC
Winding current:
4 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 7.4 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



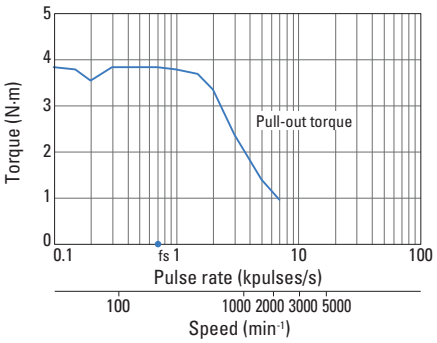
SH2862-0441 SH2862-0411

Constant current circuit
Input voltage: 100 VAC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 15.3 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



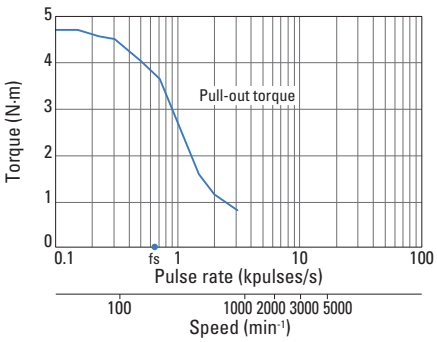
SH2862-0941 SH2862-0911

Constant current circuit
Input voltage: 100 VAC
Winding current:
4 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 15.3 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



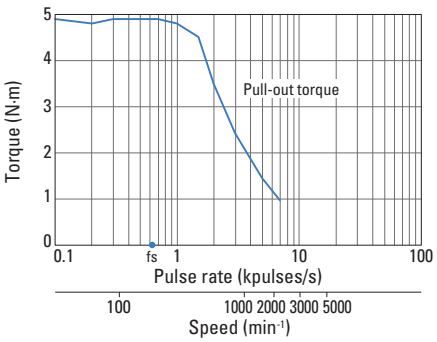
SH2863-0441 SH2863-0411

Constant current circuit
Input voltage: 100 VAC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 15.3 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



SH2863-0941 SH2863-0911

Constant current circuit
Input voltage: 100 VAC
Winding current:
4 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 15.3 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load

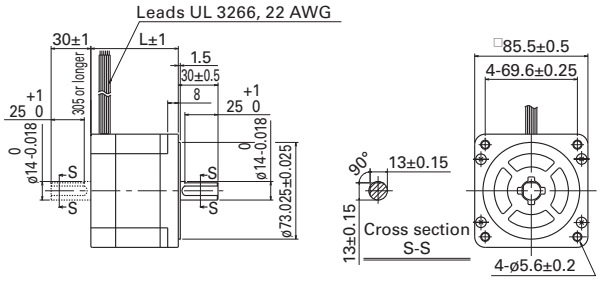


Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

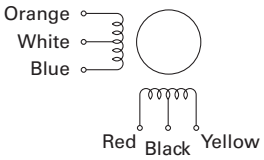
Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.

Dimensions (Unit: mm)

Lead type



Internal winding

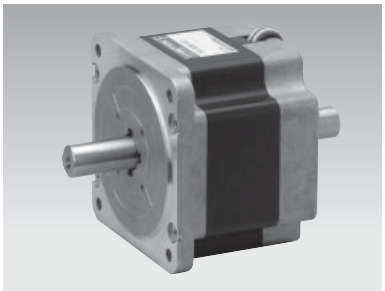


Compatible drivers

A driver is to be provided by the customer.

Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.



86 mm sq.

1.8°/step RoHS

Bipolar, lead type

Unipolar, lead type ▶p. 58

ECO PRODUCTS

Custom options

Hollow shaft | Custom shaft | Encoder | Brake

Note: Customization feasibility depends on the model number and quantity. Contact us for details.

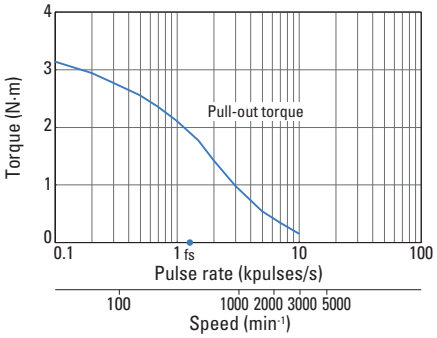
Bipolar, lead type

Model no.		Holding torque at 2-phase excitation	Rated current	Winding resistance	Winding inductance	Rotor inertia	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	Ω/phase	mH/phase	×10⁻⁴kg·m²	kg	mm
SH2861-5041	SH2861-5011	3.3	2	2.2	15	1.48	1.75	66
SH2861-5141	SH2861-5111	3.3	4	0.56	3.7	1.48	1.75	66
SH2861-5241	SH2861-5211	3.3	6	0.29	1.7	1.48	1.75	66
SH2862-5041	SH2862-5011	6.4	2	3.2	25	3.0	2.9	96.5
SH2862-5141	SH2862-5111	6.4	4	0.83	6.4	3.0	2.9	96.5
SH2862-5241	SH2862-5211	6.4	6	0.36	2.8	3.0	2.9	96.5
SH2863-5041	SH2863-5011	9	2	4.0	32	4.5	4.0	127
SH2863-5141	SH2863-5111	9	4	1.0	7.9	4.5	4.0	127
SH2863-5241	SH2863-5211	9	6	0.46	3.8	4.5	4.0	127

Characteristics

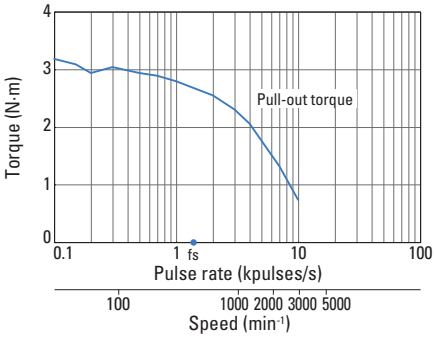
SH2861-5041 SH2861-5011

Constant current circuit
Input voltage: 100 VAC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
J_L = 15.3 × 10⁻⁴kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



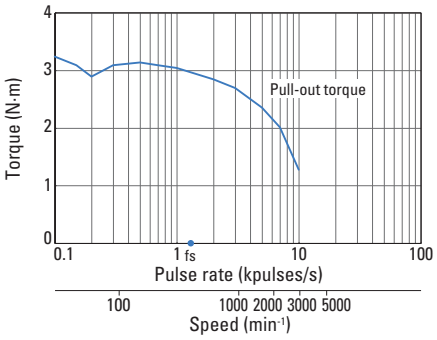
SH2861-5141 SH2861-5111

Constant current circuit
Input voltage: 100 VAC
Winding current:
4 A/phase
At 2-phase excitation (full step)
Pull-out torque:
J_L = 15.3 × 10⁻⁴kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



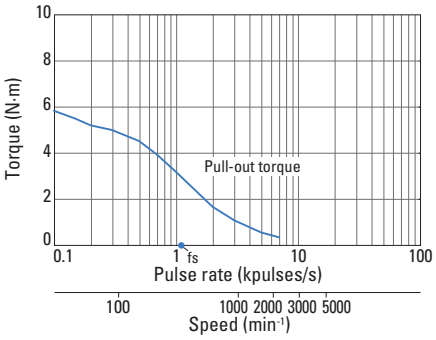
SH2861-5241 SH2861-5211

Constant current circuit
Input voltage: 100 VAC
Winding current:
6 A/phase
At 2-phase excitation (full step)
Pull-out torque:
J_L = 15.3 × 10⁻⁴kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



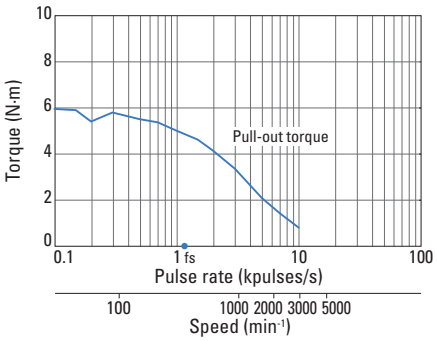
SH2862-5041 SH2862-5011

Constant current circuit
Input voltage: 100 VAC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
J_L = 15.3 × 10⁻⁴kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



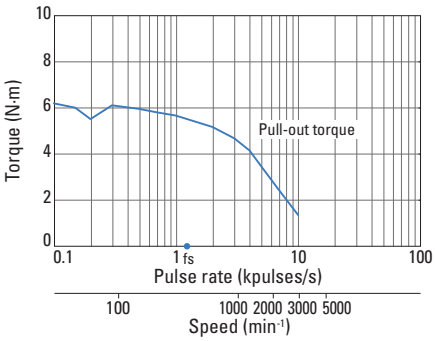
SH2862-5141 SH2862-5111

Constant current circuit
Input voltage: 100 VAC
Winding current:
4 A/phase
At 2-phase excitation (full step)
Pull-out torque:
J_L = 15.3 × 10⁻⁴kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



SH2862-5241 SH2862-5211

Constant current circuit
Input voltage: 100 VAC
Winding current:
6 A/phase
At 2-phase excitation (full step)
Pull-out torque:
J_L = 15.3 × 10⁻⁴kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



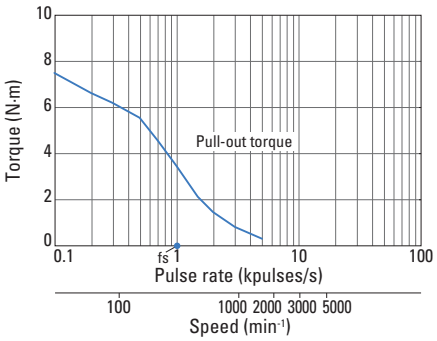
Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.

Characteristics

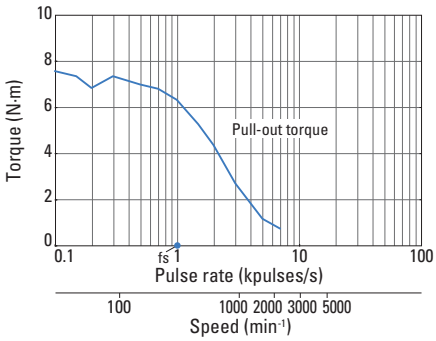
SH2863-5041
SH2863-5011

Constant current circuit
Input voltage: 100 VAC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 44 \times 10^{-4}$ kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



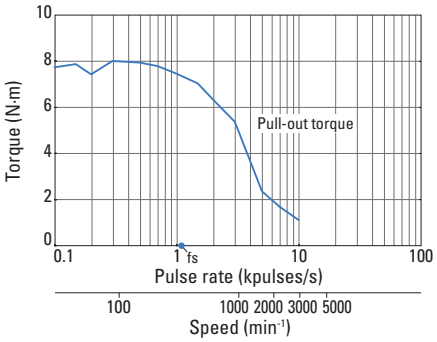
SH2863-5141
SH2863-5111

Constant current circuit
Input voltage: 100 VAC
Winding current:
4 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 44 \times 10^{-4}$ kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load

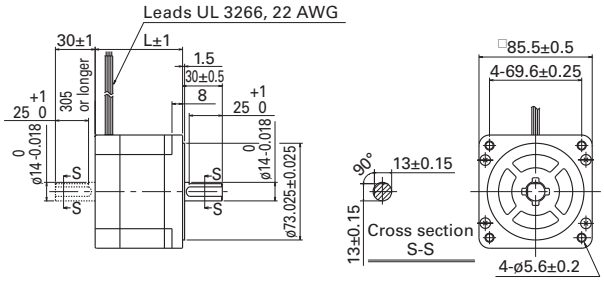


SH2863-5241
SH2863-5211

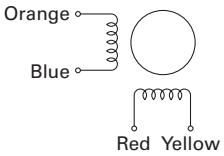
Constant current circuit
Input voltage: 100 VAC
Winding current:
6 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 44 \times 10^{-4}$ kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



Dimensions (Unit: mm)



Internal winding



Compatible drivers

A driver is to be provided by the customer.

Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.



ø106 mm

1.8°/step RoHS

Unipolar, lead type

Bipolar, lead type

Custom options

Hollow shaft | Custom shaft | Brake

Note: Customization feasibility depends on the model number and quantity. Contact us for details.

Unipolar, lead type

Model no.		Holding torque at 2-phase excitation	Rated current	Winding resistance	Winding inductance	Rotor inertia	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	Ω/phase	mH/phase	×10⁻⁴kg·m²	kg	mm
103H89222-0941	**103H89222-0911**	10.8	4	0.98	6.3	14.6	7.5	163.3
103H89223-0941	**103H89223-0911**	15.5	4	1.4	9.7	22	10.5	221.3

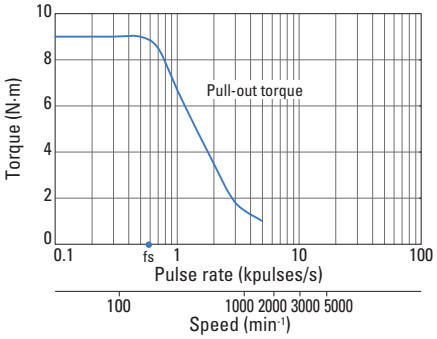
Bipolar, lead type

Model no.		Holding torque at 2-phase excitation	Rated current	Winding resistance	Winding inductance	Rotor inertia	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	Ω/phase	mH/phase	×10⁻⁴kg·m²	kg	mm
103H89222-5241	**103H89222-5211**	13.2	6	0.45	5.4	14.6	7.5	163.3
103H89223-5241	**103H89223-5211**	19	6	0.63	8	22	10.5	221.3

Characteristics

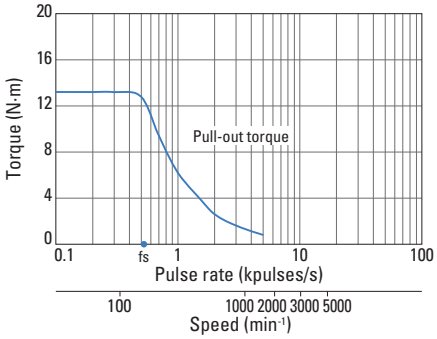
103H89222-0941 / 103H89222-0911

Constant current circuit
Input voltage: 100 VAC
Winding current:
4 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 44 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



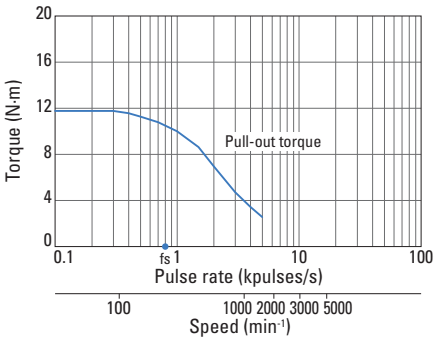
103H89223-0941 / 103H89223-0911

Constant current circuit
Input voltage: 100 VAC
Winding current:
4 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 44 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



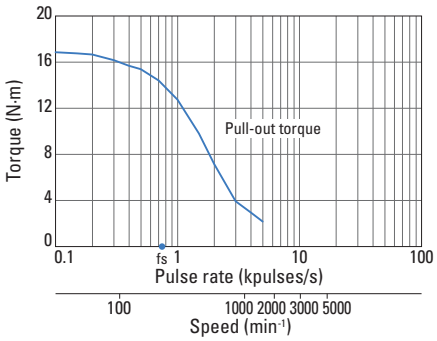
103H89222-5241 / 103H89222-5211

Constant current circuit
Input voltage: 100 VAC
Winding current:
6 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 44 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load

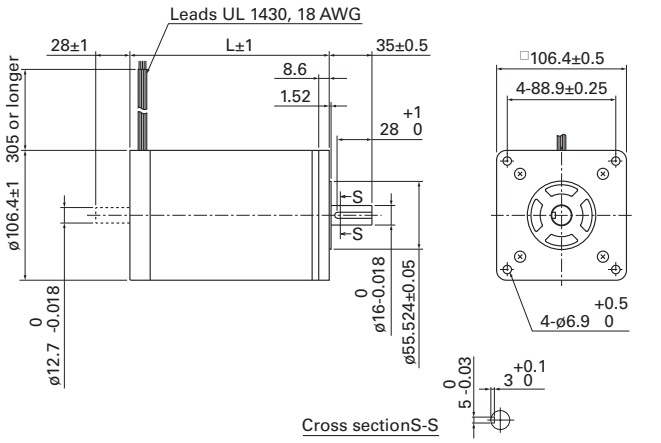


103H89223-5241 / 103H89223-5211

Constant current circuit
Input voltage: 100 VAC
Winding current:
6 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 44 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load

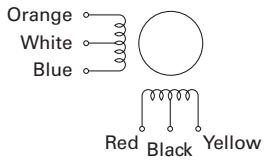


Dimensions (Unit: mm)

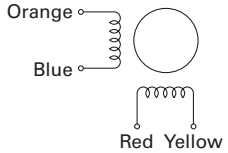


Internal winding

Unipolar



Bipolar

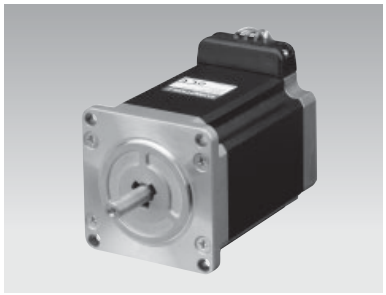


Compatible drivers

A driver is to be provided by the customer.

Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.



56 mm sq.

1.8°/step RoHS

Unipolar, lead-type, CE/UKCA models

Custom options

Hollow shaft | Custom shaft

Note: Customization feasibility depends on the model number and quantity. Contact us for details.

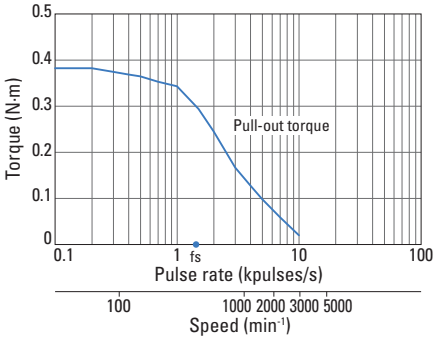
Unipolar, lead-type, CE/UKCA models

Model no.		Holding torque at 2-phase excitation	Rated current	Winding resistance	Winding inductance	Rotor inertia	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	Ω/phase	mH/phase	×10⁻⁴kg·m²	kg	mm
103H7121-6140	**103H7121-6110**	0.39	1	4.8	8	0.1	0.47	41.8
103H7121-6740	**103H7121-6710**	0.39	3	0.6	0.8	0.1	0.47	41.8
103H7123-6140	**103H7123-6110**	0.83	1	6.7	15	0.21	0.65	53.8
103H7123-6740	**103H7123-6710**	0.78	3	0.77	1.58	0.21	0.65	53.8
103H7126-6140	**103H7126-6110**	1.27	1	8.6	19	0.36	0.98	75.8
103H7126-6740	**103H7126-6710**	1.27	3	0.9	2.2	0.36	0.98	75.8

Characteristics

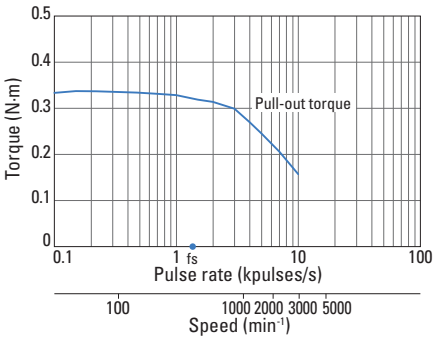
103H7121-6140 / 103H7121-6110

Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



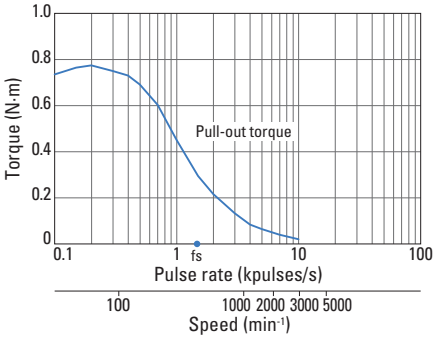
103H7121-6740 / 103H7121-6710

Constant current circuit
Input voltage: 24 VDC
Winding current:
3 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



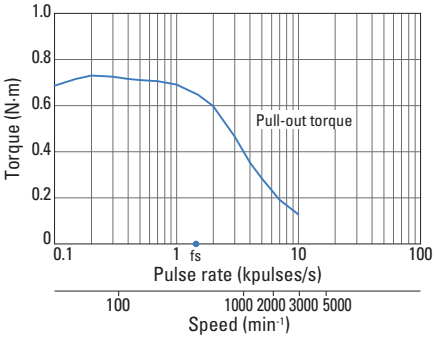
103H7123-6140 / 103H7123-6110

Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



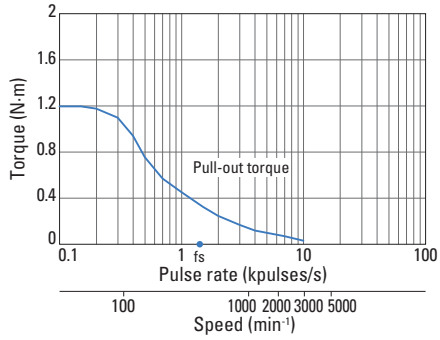
103H7123-6740 / 103H7123-6710

Constant current circuit
Input voltage: 24 VDC
Winding current:
3 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 0.94 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



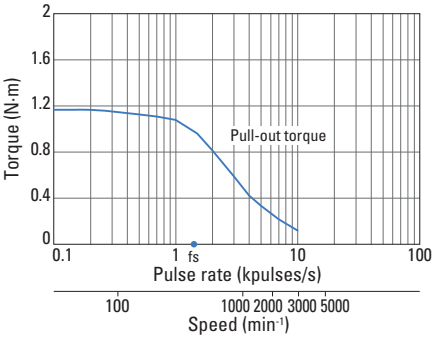
103H7126-6140 / 103H7126-6110

Constant current circuit
Input voltage: 24 VDC
Winding current:
1 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 2.6 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load

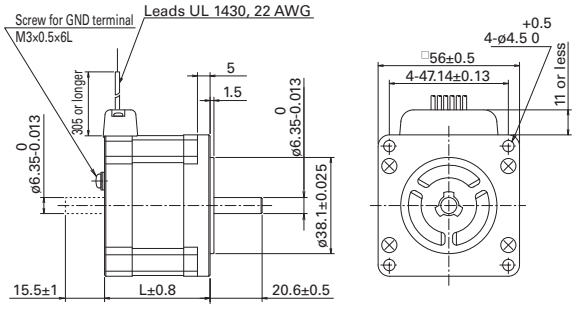


103H7126-6740 / 103H7126-6710

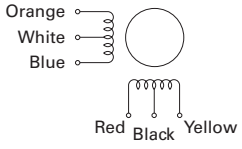
Constant current circuit
Input voltage: 24 VDC
Winding current:
3 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 2.6 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



Dimensions (Unit: mm)



Internal winding



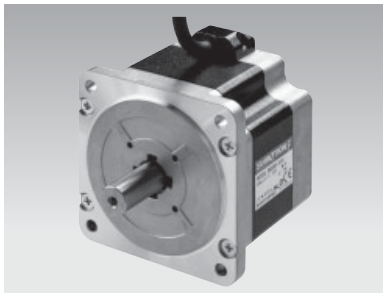
Compatible drivers

- For motors 103H712□-61□0 (1 A/phase)...
  Model no.: US1D200P10 (DC input)
  Operating current selection switch setting: A
- For motors other than above...
  A driver is to be provided by the customer.

Note: The characteristics shown above are calculated using our experimental circuit.

Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70
General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.



86 mm sq.

1.8°/step RoHS

Unipolar, lead-type, CE/UKCA/UL models

Bipolar, lead-type, CE/UKCA/UL models ▶p. 66
Bipolar, terminal block-type, CE/UKCA/UL models ▶p. 66

ECO PRODUCTS

Custom options

Hollow shaft | Custom shaft

Note: Customization feasibility depends on the model number and quantity. Contact us for details.

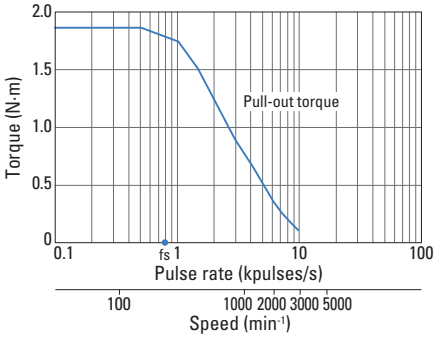
Unipolar, lead-type, CE/UKCA/UL models

Model no.		Holding torque at 2-phase excitation	Rated current	Winding resistance	Winding inductance	Rotor inertia	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	Ω/phase	mH/phase	×10⁻⁴kg·m²	kg	mm
SM2861-0451	**SM2861-0421**	2.5	2	2.3	8.0	1.48	1.75	66
SM2861-0951	**SM2861-0921**	2.5	4	0.6	2.0	1.48	1.75	66
SM2862-0451	**SM2862-0421**	4.7	2	3.2	13.0	3.0	2.9	96.5
SM2862-0951	**SM2862-0921**	4.7	4	0.85	3.4	3.0	2.9	96.5
SM2863-0451	**SM2863-0421**	6.7	2	4.0	17.0	4.5	4.0	127
SM2863-0951	**SM2863-0921**	6.7	4	0.9	4.2	4.5	4.0	127

Characteristics

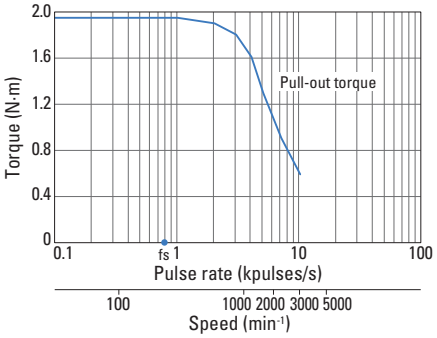
SM2861-0451 SM2861-0421

Constant current circuit
Input voltage: 100 VAC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 7.4 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



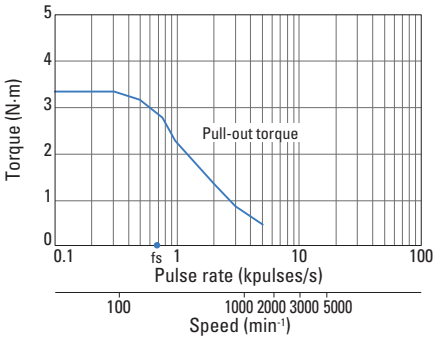
SM2861-0951 SM2861-0921

Constant current circuit
Input voltage: 100 VAC
Winding current:
4 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 7.4 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



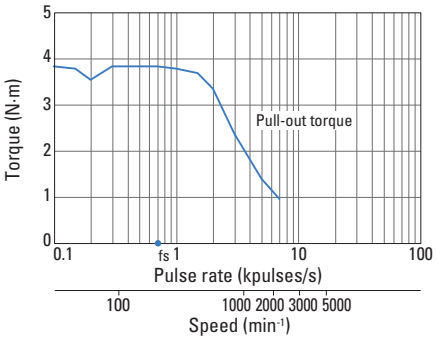
SM2862-0451 SM2862-0421

Constant current circuit
Input voltage: 100 VAC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 15.3 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



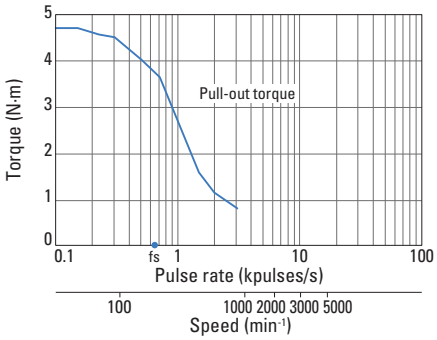
SM2862-0951 SM2862-0921

Constant current circuit
Input voltage: 100 VAC
Winding current:
4 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 15.3 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



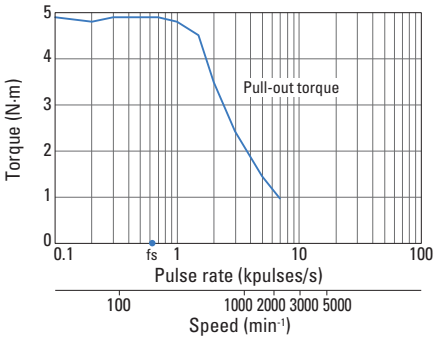
SM2863-0451 SM2863-0421

Constant current circuit
Input voltage: 100 VAC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 15.3 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



SM2863-0951 SM2863-0921

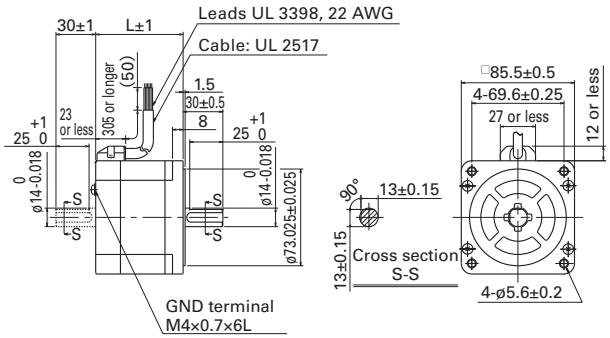
Constant current circuit
Input voltage: 100 VAC
Winding current:
4 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 15.3 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



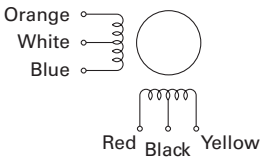
Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.

Dimensions (Unit: mm)



Internal winding

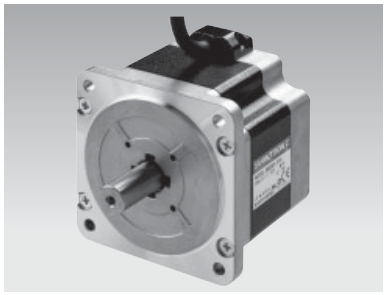


Compatible drivers

A driver is to be provided by the customer.

Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.



86 mm sq.

1.8°/step RoHS

Bipolar, lead-type, CE/UKCA/UL models

Bipolar, terminal block-type, CE/UKCA/UL models

Unipolar, lead-type, CE/UKCA/UL models ▶p. 64

ECO PRODUCTS

Custom options

Hollow shaft | Custom shaft | Encoder

Note: Customization feasibility depends on the model number and quantity. Contact us for details.

Bipolar, lead-type, CE/UKCA/UL models

Model no.		Holding torque at 2-phase excitation	Rated current	Winding resistance	Winding inductance	Rotor inertia	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	Ω/phase	mH/phase	×10⁻⁴kg·m²	kg	mm
SM2861-5051	**SM2861-5021**	3.3	2	2.2	15	1.48	1.75	66
SM2861-5151	**SM2861-5121**	3.3	4	0.56	3.7	1.48	1.75	66
SM2861-5251	**SM2861-5221**	3.3	6	0.29	1.7	1.48	1.75	66
SM2862-5051	**SM2862-5021**	6.4	2	3.2	25	3.0	2.9	96.5
SM2862-5151	**SM2862-5121**	6.4	4	0.83	6.4	3.0	2.9	96.5
SM2862-5251	**SM2862-5221**	6.4	6	0.36	2.8	3.0	2.9	96.5
SM2863-5051	**SM2863-5021**	9	2	4.0	32	4.5	4.0	127
SM2863-5151	**SM2863-5121**	9	4	1.0	7.9	4.5	4.0	127
SM2863-5251	**SM2863-5221**	9	6	0.46	3.8	4.5	4.0	127

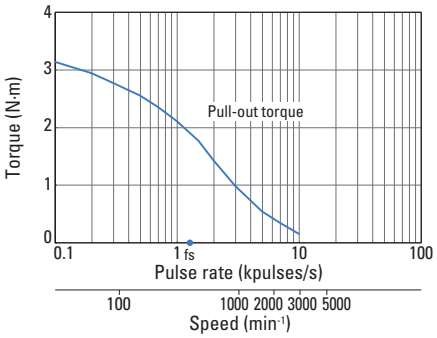
Bipolar, terminal block-type, CE/UKCA/UL models

Model no.	Holding torque at 2-phase excitation	Rated current	Winding resistance	Winding inductance	Rotor inertia	Mass	Motor length (L)
Single shaft	N·m or more	A/phase	Ω/phase	mH/phase	×10⁻⁴kg·m²	kg	mm
SM2861-5066	3.3	2	2.03	15	1.48	1.9	97.9
SM2861-5166	3.3	4	0.52	3.7	1.48	1.9	97.9
SM2861-5266	3.3	6	0.27	1.7	1.48	1.9	97.9
SM2862-5066	6.4	2	3.08	25	3.0	3.05	128.4
SM2862-5166	6.4	4	0.79	6.4	3.0	3.05	128.4
SM2862-5266	6.4	6	0.33	2.8	3.0	3.05	128.4
SM2863-5066	9	2	3.83	32	4.5	4.15	158.8
SM2863-5166	9	4	0.96	7.9	4.5	4.15	158.8
SM2863-5266	9	6	0.48	3.8	4.5	4.15	158.8

Characteristics

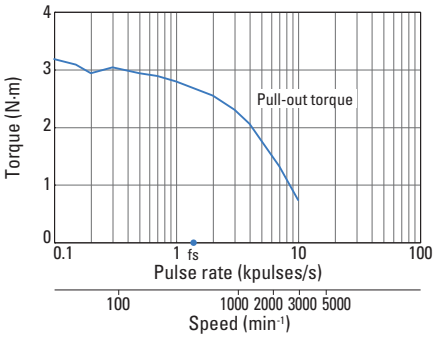
SM2861-5051
SM2861-5021
SM2861-5066

Constant current circuit
Input voltage: 100 VAC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 15.3 \times 10^{-4}$kg·m²
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



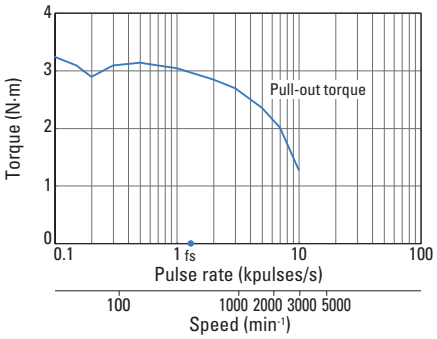
SM2861-5151
SM2861-5121
SM2861-5166

Constant current circuit
Input voltage: 100 VAC
Winding current:
4 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 15.3 \times 10^{-4}$kg·m²
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



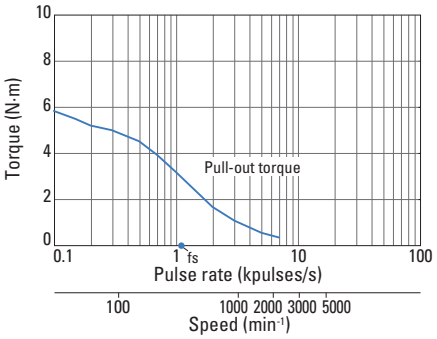
SM2861-5251
SM2861-5221
SM2861-5266

Constant current circuit
Input voltage: 100 VAC
Winding current:
6 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 15.3 \times 10^{-4}$kg·m²
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



SM2862-5051
SM2862-5021
SM2862-5066

Constant current circuit
Input voltage: 100 VAC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 15.3 \times 10^{-4}$kg·m²
(with rubber coupling used)
fs: Maximum starting pulse rate with no load



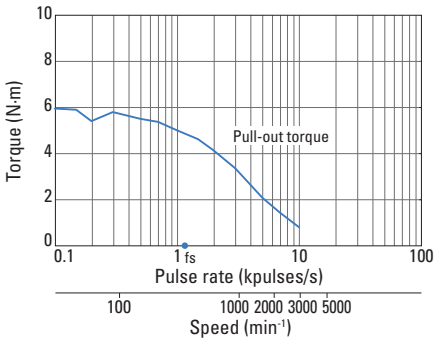
Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.

Characteristics

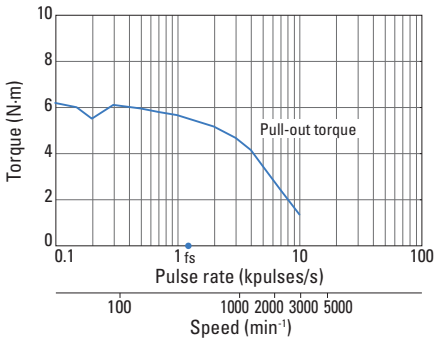
SM2862-5151 SM2862-5121
SM2862-5166

Constant current circuit
Input voltage: 100 VAC
Winding current:
4 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 15.3 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



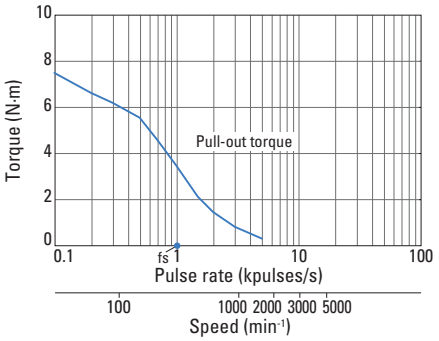
SM2862-5251 SM2862-5221
SM2862-5066

Constant current circuit
Input voltage: 100 VAC
Winding current:
6 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 15.3 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



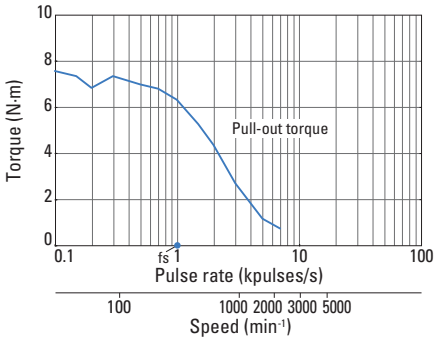
SM2863-5051 SM2863-5021
SM2863-5066

Constant current circuit
Input voltage: 100 VAC
Winding current:
2 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 44 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



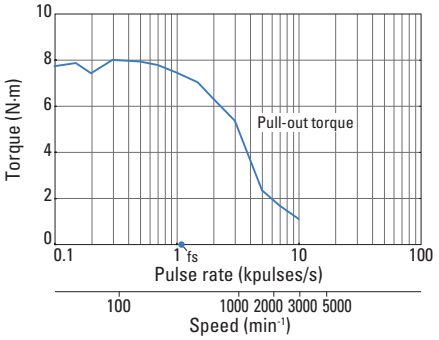
SM2863-5151 SM2863-5121
SM2863-5166

Constant current circuit
Input voltage: 100 VAC
Winding current:
4 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 44 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



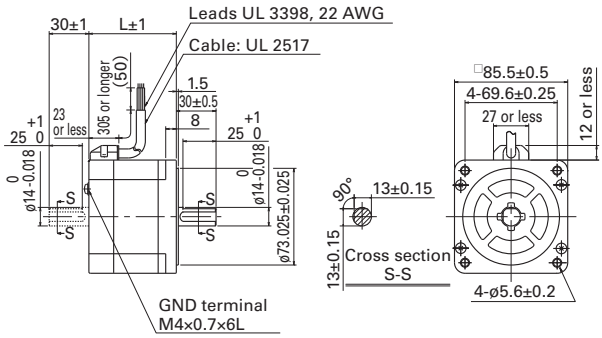
SM2863-5251 SM2863-5221
SM2863-5266

Constant current circuit
Input voltage: 100 VAC
Winding current:
6 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 44 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load

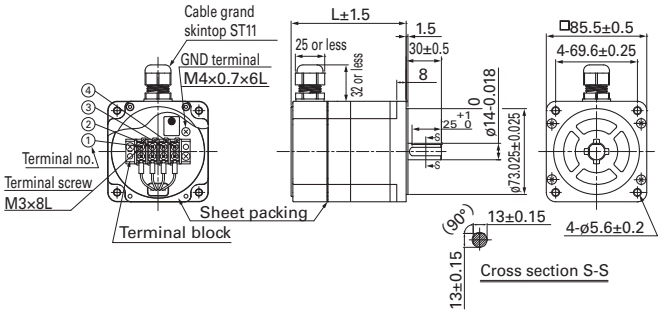


Dimensions (Unit: mm)

Lead type

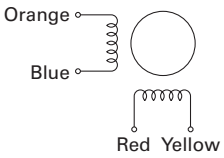


Terminal block type



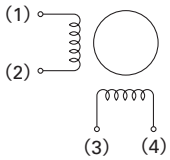
Internal winding

Lead type



Terminal block type

Inside parentheses are terminal numbers

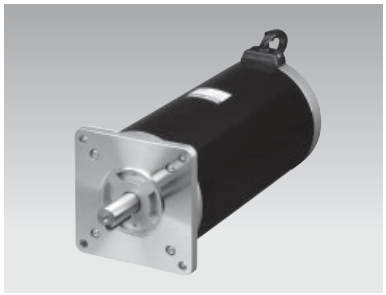


Compatible drivers

A driver is to be provided by the customer.

Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.



ø106 mm

1.8°/step RoHS

Bipolar, lead type, CE/UKCA models

Custom options

Hollow shaft | Custom shaft

Note: Customization feasibility depends on the model number and quantity. Contact us for details.

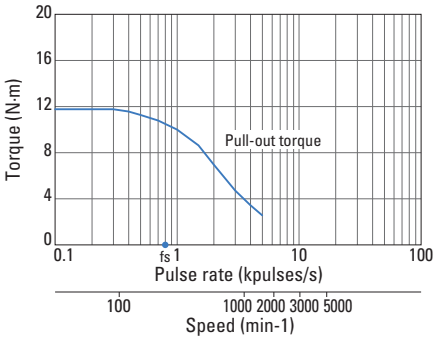
Bipolar, lead type, CE/UKCA models

Model no.		Holding torque at 2-phase excitation	Rated current	Winding resistance	Winding inductance	Rotor inertia	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	Ω/phase	mH/phase	×10⁻⁴kg·m²	kg	mm
103H89222-6341	**103H89222-6311**	13.2	6	0.45	5.4	14.6	7.5	163.3
103H89223-6341	**103H89223-6311**	19	6	0.63	8	22	10.5	221.3

Characteristics

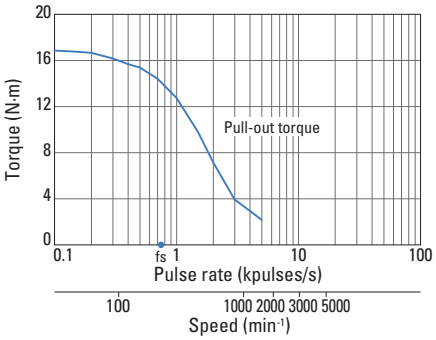
103H89222-6341
103H89222-6311

Constant current circuit
Input voltage: 100 VAC
Winding current:
6 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 44 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load

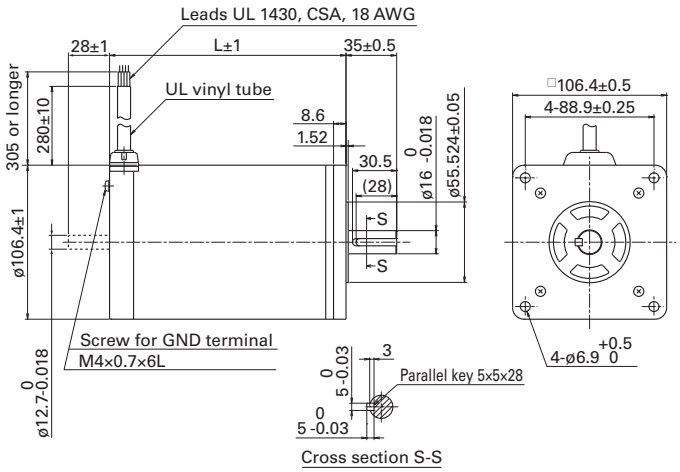


103H89223-6341
103H89223-6311

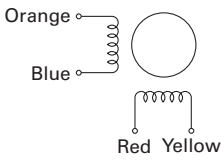
Constant current circuit
Input voltage: 100 VAC
Winding current:
6 A/phase
At 2-phase excitation (full step)
Pull-out torque:
$J_L = 44 \times 10^{-4}$kg·m²
(with rubber coupling used)
f_S: Maximum starting pulse rate with no load



Dimensions (Unit: mm)



Internal winding



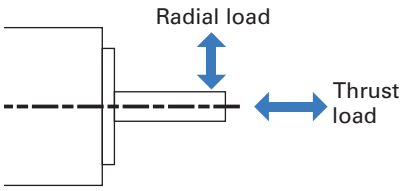
Compatible drivers

A driver is to be provided by the customer.

Allowable loads... ▶p. 69 Internal wiring and rotational directions... ▶p. 70 General specifications... ▶p. 71

Data is measured under the drive conditions of SANYO DENKI. Drive torque may vary depending on the actual machine precision.

Allowable Radial and Thrust Loads



Motor size	Model no.	Distance from shaft end (mm)				Thrust load (N)
		0	5	10	15	
		Radial load (N)				
14 mm sq.	SH214 ☐	10	10	10	–	0.7
28 mm sq.	SH2281	42	42	42	–	3
	SH2285	49	49	49	–	
35 mm sq.	SH35 ☐☐	40	51	67	90	10
42 mm sq.	SF242 ☐	20	29	47	64	10
	SH142 ☐	20	25	32	37	
	SS242 ☐ -50 ☐ 1	10	–	–	–	4.9
	SS242 ☐ -50 ☐ 00	25	25	–	–	
50 mm sq.	103H670 ☐	74	91	120	174	15
	SS250 ☐	8.5	–	–	–	4.9
56 mm sq.	SM256 ☐	70	87	114	166	20
60 mm sq.	SH160 ☐	65	86	129	210	15
	SH1603	83	103	135	197	
86 mm sq.	SM286 ☐ SH286 ☐	200	200	200	200	60
ø106 mm	103H8922 ☐	321	356	400	457	100

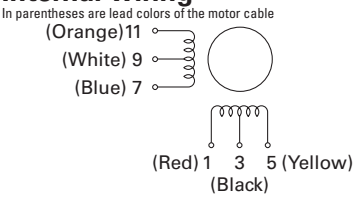
Internal Wiring and Rotational Directions

Unipolar winding

Connector type, model no.: SF242 □

Internal wiring

In parentheses are lead colors of the motor cable



Direction of motor rotation

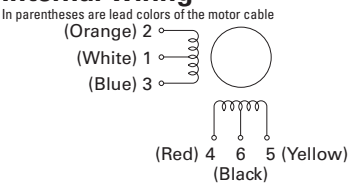
When excited by a direct current in the order shown below, the direction of rotation is clockwise as viewed from the output shaft side.

		Connector pin no.				
		3, 9	1	7	5	11
Excitation sequence	1	+	−	−		
	2	+		−	−	
	3	+			−	−
	4	+	−			−

Connector type, model no.: SM256 □ (and 103H782 □)

Internal wiring

In parentheses are lead colors of the motor cable



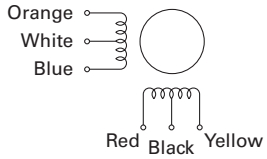
Direction of motor rotation

When excited by a direct current in the order shown below, the direction of rotation is clockwise as viewed from the output shaft side.

		Connector pin no.				
		1, 6	4	3	5	2
Excitation sequence	1	+	−	−		
	2	+		−	−	
	3	+			−	−
	4	+	−			−

Lead type

Internal wiring



Direction of motor rotation

When excited by a direct current in the order shown below, the direction of rotation is clockwise as viewed from the output shaft side.

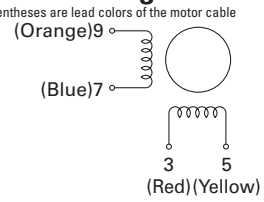
		Lead color				
		White, Black	Red	Blue	Yellow	Orange
Excitation sequence	1	+	−	−		
	2	+		−	−	
	3	+			−	−
	4	+	−			−

Bipolar winding

Connector type, model no.: SF242 □

Internal wiring

In parentheses are lead colors of the motor cable



Direction of motor rotation

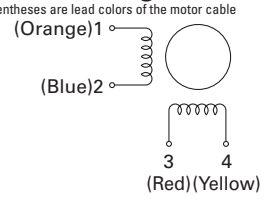
When excited by a direct current in the order shown below, the direction of rotation is clockwise as viewed from the output shaft side.

		Connector pin no.			
		3	7	5	9
Excitation sequence	1	−	−	+	+
	2	+	−	−	+
	3	+	+	−	−
	4	−	+	+	−

Connector type, model no.: SM256 □ (and 103H782 □)

Internal wiring

In parentheses are lead colors of the motor cable



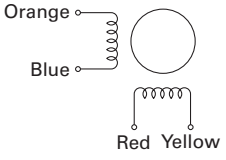
Direction of motor rotation

When excited by a direct current in the order shown below, the direction of rotation is clockwise as viewed from the output shaft side.

		Connector pin no.			
		3	2	4	1
Excitation sequence	1	−	−	+	+
	2	+	−	−	+
	3	+	+	−	−
	4	−	+	+	−

Lead type

Internal wiring



Direction of motor rotation

When excited by a direct current in the order shown below, the direction of rotation is clockwise as viewed from the output shaft side.

		Lead color			
		Red	Blue	Yellow	Orange
Excitation sequence	1	−	−	+	+
	2	+	−	−	+
	3	+	+	−	−
	4	−	+	+	−

General Specifications

Motor model no.	SH214□	SH228□	SH353□	SS242□	SH142□	SF242□	SS250□	103H670□
Operation type	–							
Operating ambient temperature	-10 to +50°C							
Storage temperature	-20 to +65°C							
Operating ambient humidity	20 to 90% RH (non-condensing)							
Storage humidity	5 to 95 % RH (non-condensing)							
Operating altitude	Up to 1000 m above sea level							
Vibration resistance	Frequency 10 to 500 Hz, amplitude 1.52 mm (10 to 70 Hz), vibration acceleration 150 m/s² (70 to 500 Hz), sweep time 15 min/cycle, a total of 12 tests in both opposite directions for each of X, Y, and Z axes.							
Shock resistance	Acceleration 500 m/s², duration 11 ms, half sine wave, tested 3 times in both directions for each X, Y, and Z axis for a total of 18 times							
Thermal class	B (+130°C)							
Dielectric strength	500 VAC for one minute (between motor winding and frame)							1000 VAC for one minute (between motor winding and frame)
Insulation resistance	100 MΩ or more at 500 VDC (between motor winding and frame)							
Protection rating	–							
Winding temperature rise	80 K or less (based on our own standard)							
Positional accuracy	±0.09°				±0.054°	±0.09°		
Thrust play [1]	0.075 mm or less (With a 0.35 N load)	0.075 mm or less (With a 1.5 N load)	0.075 mm or less (With a 5 N load)	0.075 mm or less (With a 4 N load)	0.075 mm or less (With a 5 N load)	0.075 mm (With a 5 N load)	0.075 mm or less (With a 4 N load)	0.075 mm (With a 10 N load)
Radial play [2]	0.025 mm (With a 5 N load)							
Shaft runout	0.025 mm							
Concentricity of motor shaft and fitting part	ø0.05 mm	ø0.05 mm	ø0.075 mm	ø0.075 mm	ø0.05 mm	ø0.05 mm	ø0.075 mm	ø0.075 mm
Perpendicularity of mounting surface and motor shaft	0.1 mm	0.1 mm	0.1 mm	0.1 mm	0.1 mm	0.1 mm	0.1 mm	0.1 mm
Motor mounting orientation	Can be installed vertically or horizontally.							

Motor model no.	SM256□ UL	SH160□	SH286□	103H8922□	SM286□ CE/UKCA/UL	103H712□-6□□0 CE/UKCA	103H8922□-63□1 CE/UKCA
Operation type	–				Continuous operation (S1)		
Operating ambient temperature	-10 to +50°C				-10 to +40°C		
Storage temperature	-20 to +65°C				-20 to +60°C		
Operating ambient humidity	20 to 90% RH (non-condensing)				95% RH or less: Below 40°C (non-condensing)		
Storage humidity	5 to 95 % RH (non-condensing)				95% RH or less: Below 40°C, 57% RH or less: Below 50°C, 35% RH or less: Below 60°C, (non-condensing)		
Operating altitude	Up to 1000 m above sea level						
Vibration resistance	Frequency 10 to 500 Hz, amplitude 1.52 mm (10 to 70 Hz), vibration acceleration 150 m/s² (70 to 500 Hz), sweep time 15 min/cycle, a total of 12 tests in both opposite directions for each of X, Y, and Z axes.						
Shock resistance	Acceleration 500 m/s², duration 11 ms, half sine wave, tested 3 times in both directions for each X, Y, and Z axis for a total of 18 times						
Thermal class	B (+130°C) (A for UL models)	B (+130°C)			F (+155°C)	B (+130°C)	
Dielectric strength	1120 VAC for one minute (between motor winding and frame)	1000 VAC for one minute (between motor winding and frame)	1500 VAC for one minute (between motor winding and frame)				
Insulation resistance	100 MΩ or more at 500 VDC (between motor winding and frame)						
Protection rating	–				IP43		
Winding temperature rise	80 K or less (based on our own standard)						
Positional accuracy tolerance	±0.054°		±0.09°			±0.054°	±0.09°
Thrust play [1]	0.075 mm (With a 10 N load)						
Radial play [2]	0.025 mm (With a 5 N load)	0.025 mm (With a 5 N load)	0.025 mm (With a 5 N load)	0.025 mm (With a 10 N load)	0.025 mm (With a 5 N load)	0.025 mm (With a 5 N load)	0.025 mm (With a 10 N load)
Shaft runout	0.025 mm						
Concentricity of motor shaft and fitting part	ø0.075 mm						
Perpendicularity of mounting surface and motor shaft	0.1 mm	0.1 mm	0.15 mm	0.1 mm	0.15 mm	0.1 mm	0.1 mm
Motor mounting orientation	Can be installed vertically or horizontally.						

(1) Thrust play: Maximum shaft position displacement when a load is exerted in a direction parallel to the motor shaft.
(2) Radial play: Maximum shaft position displacement when a load is exerted in a direction perpendicular to the motor shaft.

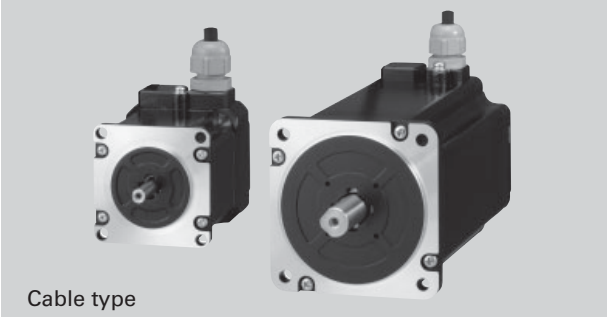
Safety standards

	Directive	Standards
CE (TÜV)	Low Voltage Directive 2014/35/EU	IEC 60034-1, IEC60034-5
	RoHS Directive 2011/65/EU	EN IEC 63000：2018
UKCA	Electrical Equipment (Safety) Regulations 2016	IEC 60034-1, IEC60034-5
	RoHS Regulations 2012	EN IEC 63000：2018

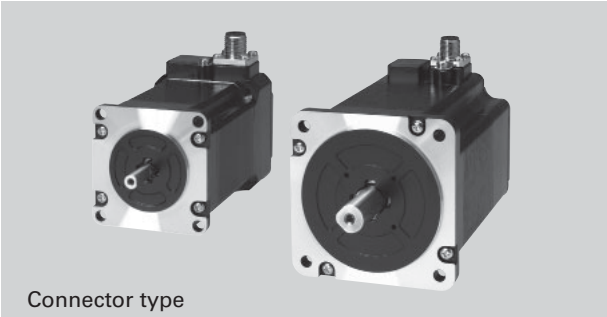
	Classification	Standards	File no.
UL	UL	UL 1004-1, UL 1004-6	E179832
	UL for Canada (cUL)	CSA C22.2 No. 100	

IP65-Rated Stepping Motors

Water and dust protection



Cable type



Connector type

Features

- These IP65-rated motors* have superior water and dust resistance, and can be safely used in water-exposed environments such as in food processing machines.
  * Except for the shaft and cable ends.
- Options such as a brake, encoder, and oil seal can be combined.

Safety standards

- In compliant with CE, UKCA, and UL safety standards.

Specifications

	56 mm sq.	86 mm sq.
Motor model no.	SP256□-5□□0	SP286□-5□□0
Operation type	Continuous operation (S1)	
Operating ambient temperature	-10 to +40°C	
Storage temperature	-20 to +60°C	
Operating ambient humidity	95% RH or less: Below 40°C (non-condensing)	
Storage humidity	95% RH or less: Below 40°C, 57% RH or less: Below 50°C, 35% RH or less: Below 60°C, (non-condensing)	
Operating altitude	Up to 1000 m above sea level	
Vibration resistance	Frequency 10 to 500 Hz, amplitude 1.52 mm (10 to 70 Hz), vibration acceleration 150 m/s² (70 to 500 Hz), sweep time 15 min/cycle, a total of 12 tests in both opposite directions for each of X, Y, and Z axes.	
Shock resistance	Acceleration 500 m/s², duration 11 ms, half sine wave, tested 3 times in both directions for each X, Y, and Z axis for a total of 18 times	
Thermal class	F (+155°C)	
Dielectric strength	1500 VAC for one minute (between motor winding and frame)	
Insulation resistance	100 MΩ or more at 500 VDC (between motor winding and frame)	
Protection rating	IP65 (excluding the hollow shaft part and cable ends)	
Winding temperature rise	100 K or less (based on our own standard)	
Positional accuracy tolerance	± 0.054°	± 0.09°
Thrust play	0.075 mm or less (With a 10 N load)	
Radial play	0.025 mm or less (With a 5 N load)	
Shaft runout	0.025 mm	
Concentricity of motor shaft and fitting part	ø0.075 mm	
Perpendicularity of mounting surface and motor shaft	0.1 mm	0.15 mm
Motor mounting orientation	Can be installed vertically or horizontally.	

Safety standards

CE (TÜV)	Directive		Standards
	Low Voltage Directive 2014/35/EU		IEC 60034-1, IEC60034-5
	RoHS Directive 2011/65/EU		EN IEC 63000：2018
UKCA	Electrical Equipment (Safety) Regulations 2016		IEC 60034-1, IEC60034-5
	RoHS Regulations 2012		EN IEC 63000：2018
UL	Classification	Standards	File no.
	UL	UL 1004-1, UL 1004-6	E179832
	UL for Canada (cUL)	CSA C22.2 No. 100	

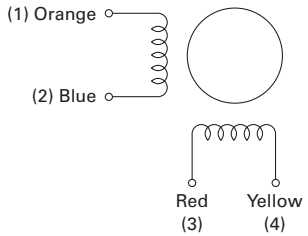
Models with brake or oil seal have different model nos.
Models with an encoder have different model nos. and vibration resistance.

Internal Wiring and Rotational Directions

Bipolar winding

Internal wiring

In parentheses are connector pin nos.



Rotating direction

When excited by a direct current in the order shown below, the direction of rotation is clockwise as viewed from the output shaft side.

Lead color		Red	Blue	Yellow	Orange
Connector pin no.		3	2	4	1
Excitation sequence	1	–	–	+	+
	2	+	–	–	+
	3	+	+	–	–
	4	–	+	+	–

56 mm sq.

1.8°/step RoHS

Bipolar

ECO PRODUCTS

Custom options

Custom shaft

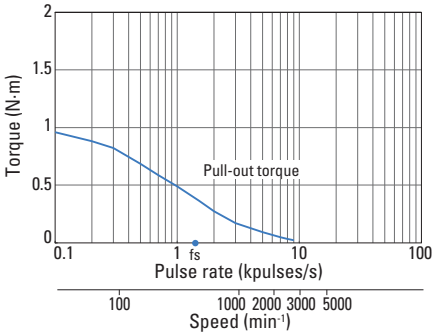
Note: Customization feasibility depends on the model number and quantity. Contact us for details.

Model no.		Holding torque at 2-phase excitation	Rated current	Winding resistance	Winding inductance	Rotor inertia	Mass	Allowable thrust load	Allowable radial load
Cable type	Connector type	N·m or more	A/phase	Ω/phase	mH/phase	×10⁻⁴kg·m²	kg	N	N
SP2563-5060	**SP2563-5000**	1	1	5.8	29	0.21	0.9	15	52
SP2563-5160	**SP2563-5100**	1	2	1.5	7.3	0.21	0.9	15	52
SP2563-5260	**SP2563-5200**	1	3	0.75	3.4	0.21	0.9	15	52
SP2566-5060	**SP2566-5000**	1.7	1	7.8	35.4	0.36	1.2	15	23
SP2566-5160	**SP2566-5100**	1.7	2	2	9.2	0.36	1.2	15	23
SP2566-5260	**SP2566-5200**	1.7	3	1	4.4	0.36	1.2	15	23

・ Models with a brake, encoder, or oil seal have different model nos., rotor inertia, and mass.

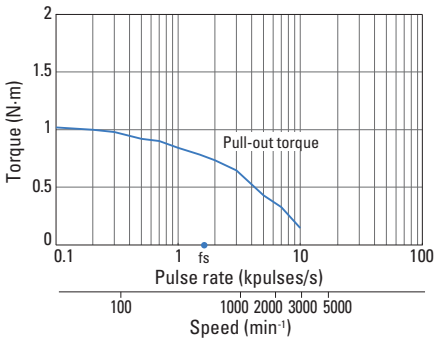
Characteristics

SP2563-5000
SP2563-5060



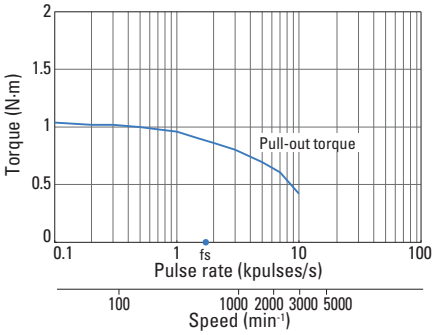
Constant current circuit
Input voltage: 100 VAC
Winding current: 1 A/phase, At 2-phase excitation (full step)
Pull-out torque: J_L=2.6×10⁻⁴kg·m² (with rubber coupling used)
f_S: Maximum starting pulse rate with no load

SP2563-5100
SP2563-5160



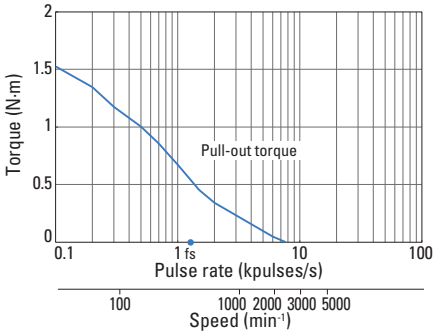
Constant current circuit
Input voltage: 100 VAC
Winding current: 2 A/phase, At 2-phase excitation (full step)
Pull-out torque: J_L=2.6×10⁻⁴kg·m² (with rubber coupling used)
f_S: Maximum starting pulse rate with no load

SP2563-5200
SP2563-5260



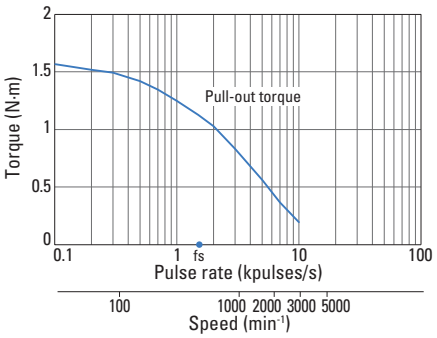
Constant current circuit
Input voltage: 100 VAC
Winding current: 3 A/phase, At 2-phase excitation (full step)
Pull-out torque: J_L=2.6×10⁻⁴kg·m² (with rubber coupling used)
f_S: Maximum starting pulse rate with no load

SP2566-5000
SP2566-5060



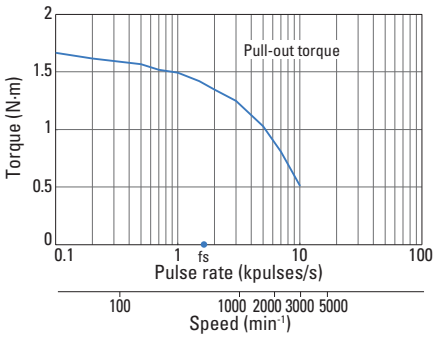
Constant current circuit
Input voltage: 100 VAC
Winding current: 1 A/phase, At 2-phase excitation (full step)
Pull-out torque: J_L=7.4×10⁻⁴kg·m² (with rubber coupling used)
f_S: Maximum starting pulse rate with no load

SP2566-5100
SP2566-5160



Constant current circuit
Input voltage: 100 VAC
Winding current: 2 A/phase, At 2-phase excitation (full step)
Pull-out torque: J_L=7.4×10⁻⁴kg·m² (with rubber coupling used)
f_S: Maximum starting pulse rate with no load

SP2566-5200
SP2566-5260

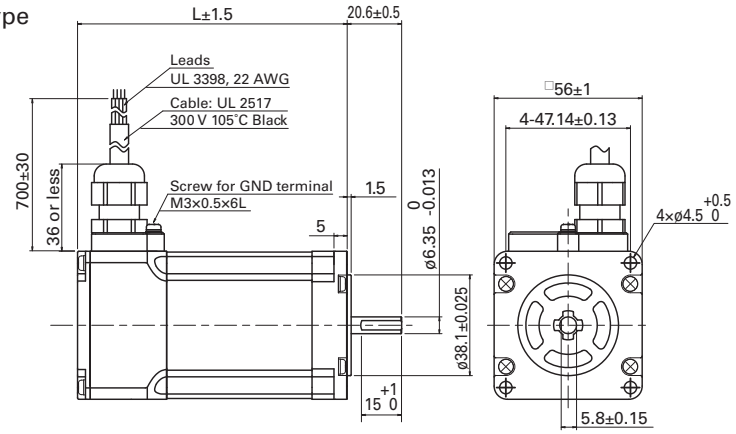


Constant current circuit
Input voltage: 100 VAC
Winding current: 3 A/phase, At 2-phase excitation (full step)
Pull-out torque: J_L=7.4×10⁻⁴kg·m² (with rubber coupling used)
f_S: Maximum starting pulse rate with no load

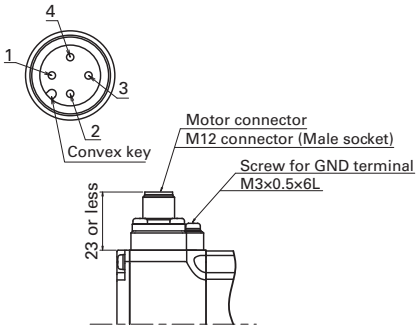
Dimensions Unit: mm

56 mm sq.

Cable type



Connector type



Model no.		Motor length (L)
Cable type	Connector type	
SP2563-5 □ 60	SP2563-5 □ 00	80
SP2566-5 □ 60	SP2566-5 □ 00	102

Compatible drivers

- For motors SP256 □ -52 □ 0 (3 A/phase) or SP256 □ -50 □ 0 (1 A/phase)...
  A driver is to be provided by the customer.
- For motors SP256 □ -51 □ 0 (2 A/phase)...
  Model no.: BS1D200P10 (DC input)
  Operating current selection switch setting: 0

Note: The characteristics shown above are calculated using our experimental circuit.

86 mm sq.

1.8°/step RoHS

Bipolar

ECO PRODUCTS

Custom options

Custom shaft

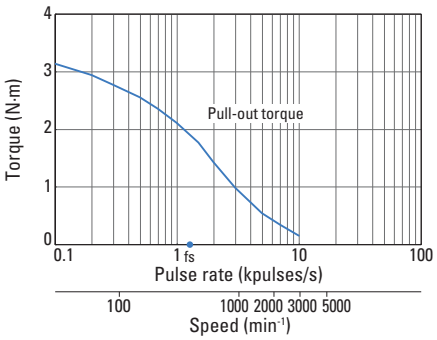
Note: Customization feasibility depends on the model number and quantity. Contact us for details.

Model no.		Holding torque at 2-phase excitation	Rated current	Winding resistance		Winding inductance	Rotor inertia	Mass	Allowable thrust load	Allowable radial load
				Cable type	Connector type					
Cable type	Connector type	N·m or more	A/phase	Ω/phase	Ω/phase	mH/phase	×10⁻⁴kg·m²	kg	N	N
SP2861-5060	**SP2861-5000**	3.3	2	2.1	2.05	15	1.48	1.95	60	200
SP2861-5160	**SP2861-5100**	3.3	4	0.61	0.56	3.7	1.48	1.95	60	200
SP2861-5260	–	3.3	6	0.36	–	1.7	1.48	1.95	60	200
SP2862-5060	**SP2862-5000**	6.4	2	3.2	3.2	25	3	3.1	60	200
SP2862-5160	**SP2862-5100**	6.4	4	0.85	0.83	6.4	3	3.1	60	200
SP2862-5260	–	6.4	6	0.41	–	2.8	3	3.1	60	200
SP2863-5060	**SP2863-5000**	9	2	4	4	32	4.5	4.2	60	200
SP2863-5160	**SP2863-5100**	9	4	1.05	1	7.9	4.5	4.2	60	200
SP2863-5260	–	9	6	0.53	–	3.8	4.5	4.2	60	200

- Models with a brake, encoder, or oil seal have different model nos., rotor inertia, and mass.
- Connector-type models are available for 4 A or lower rated voltages.

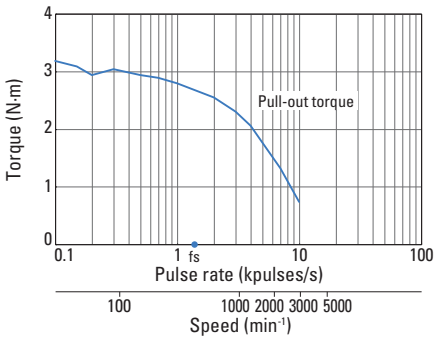
Characteristics

SP2861-5000
SP2861-5060



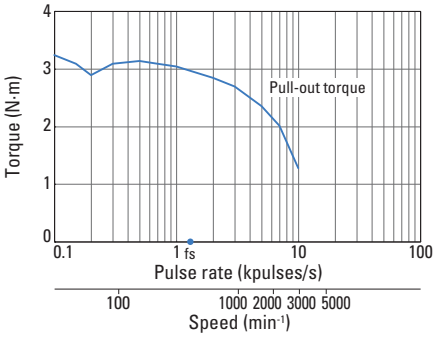
Constant current circuit
Input voltage: 100 VAC,
Winding current: 2 A/phase, At 2-phase excitation (full step)
Pull-out torque: J_L=15.3×10⁻⁴kg·m² (with rubber coupling used)
f_S: Maximum starting pulse rate with no load

SP2861-5100
SP2861-5160



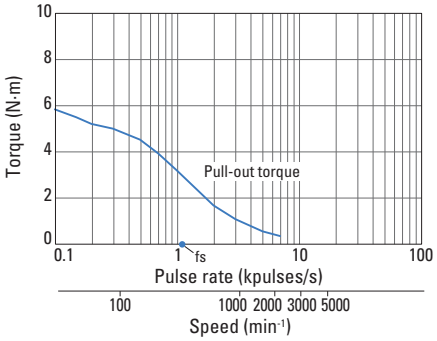
Constant current circuit
Input voltage: 100 VAC,
Winding current: 4 A/phase, At 2-phase excitation (full step)
Pull-out torque: J_L=15.3×10⁻⁴kg·m² (with rubber coupling used)
f_S: Maximum starting pulse rate with no load

SP2861-5260



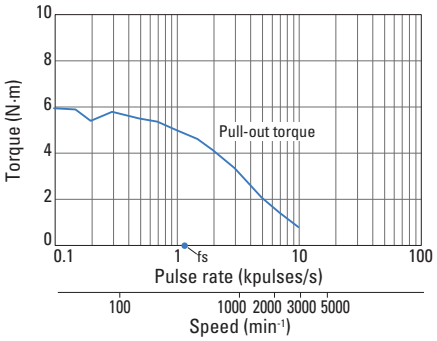
Constant current circuit
Input voltage: 100 VAC
Winding current: 6 A/phasem, At 2-phase excitation (full step)
Pull-out torque: J_L=15.3×10⁻⁴kg·m² (with rubber coupling used)
f_S: Maximum starting pulse rate with no load

SP2862-5000
SP2862-5060



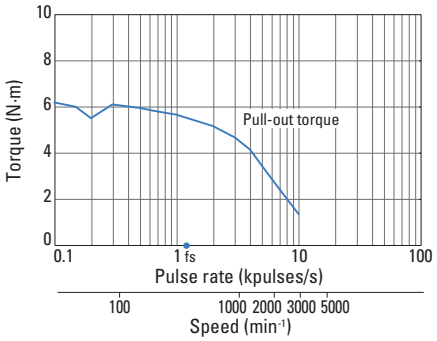
Constant current circuit
Input voltage: 100 VAC
Winding current: 2 A/phase, At 2-phase excitation (full step)
Pull-out torque: J_L=15.3×10⁻⁴kg·m² (with rubber coupling used)
f_S: Maximum starting pulse rate with no load

SP2862-5100
SP2862-5160



Constant current circuit
Input voltage: 100 VAC,
Winding current: 4 A/phase,At 2-phase excitation (full step)
Pull-out torque: J_L=15.3×10⁻⁴kg·m² (with rubber coupling used)
f_S: Maximum starting pulse rate with no load

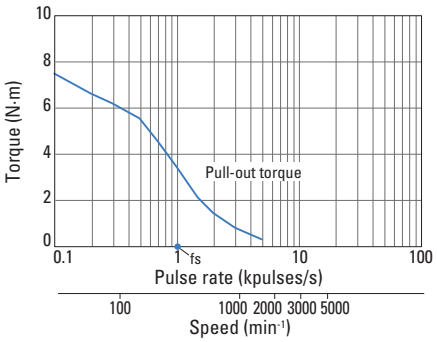
SP2862-5260



Constant current circuit
Input voltage: 100 VAC
Winding current: 6 A/phase, At 2-phase excitation (full step)
Pull-out torque: J_L=15.3×10⁻⁴kg·m² (with rubber coupling used)
f_S: Maximum starting pulse rate with no load

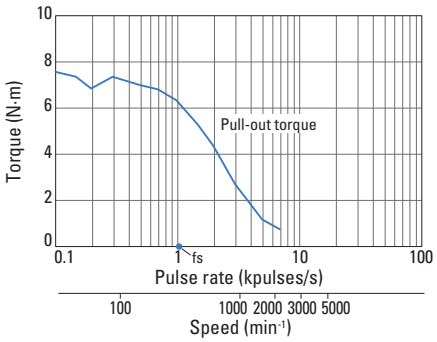
Characteristics

SP2863-5000
SP2863-5060



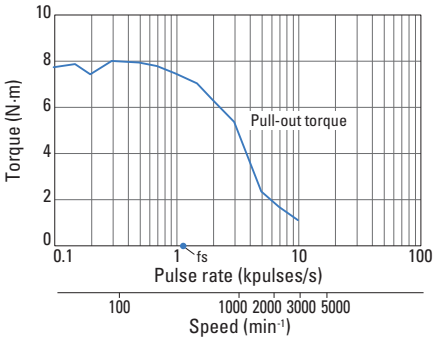
Constant current circuit
Input voltage: 100 VAC
Winding current: 2 A/phase, At 2-phase excitation (full step)
Pull-out torque: J_L=44×10^{-4}kg·m^2 (with rubber coupling used)
f_S: Maximum starting pulse rate with no load

SP2863-5100
SP2863-5160



Constant current circuit
Input voltage: 100 VAC
Winding current: 4 A/phase, At 2-phase excitation (full step)
Pull-out torque: J_L=44×10^{-4}kg·m^2 (with rubber coupling used)
f_S: Maximum starting pulse rate with no load

SP2863-5260

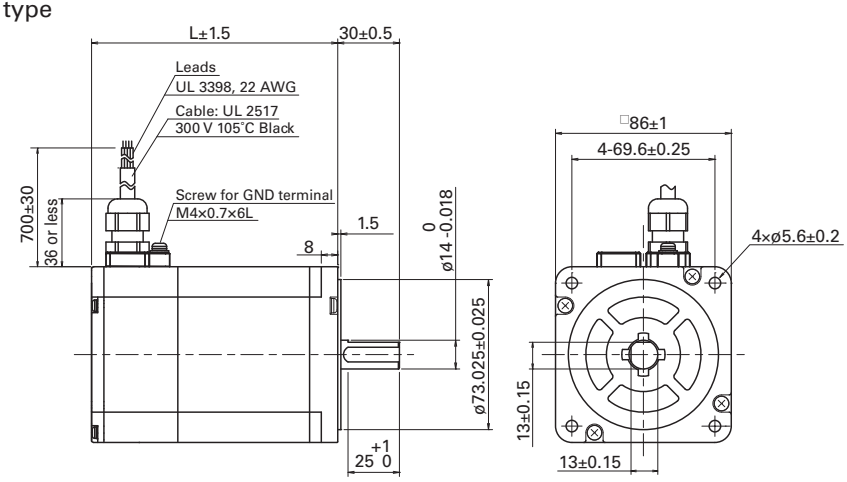


Constant current circuit
Input voltage: 100 VAC
Winding current: 6 A/phase, At 2-phase excitation (full step)
Pull-out torque: J_L=44×10^{-4}kg·m^2 (with rubber coupling used)
f_S: Maximum starting pulse rate with no load

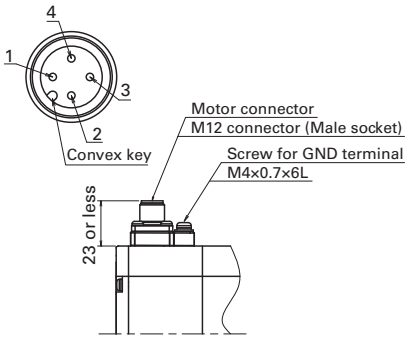
Dimensions Unit: mm

86 mm sq.

Cable type



Connector type



Model no.		Motor length (L)
Cable type	Connector type	
SP2861-5 □ 60	SP2861-5 □ 00	89.5
SP2862-5 □ 60	SP2862-5 □ 00	120
SP2863-5 □ 60	SP2863-5 □ 00	150

Compatible drivers

A driver is to be provided by the customer.

Note: The characteristics shown above are calculated using our experimental circuit.

Models No Longer Listed and Their Replacement Models

Models no longer listed

56 mm sq. unipolar, lead type

Model no.		Holding torque at 2-phase excitation	Rated current	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	kg	mm
103H7121-0140	**103H7121-0110**	0.39	1	0.47	41.8
103H7121-0440	**103H7121-0410**	0.39	2	0.47	41.8
103H7121-0740	**103H7121-0710**	0.39	3	0.47	41.8
103H7123-0140	**103H7123-0110**	0.83	1	0.65	53.8
103H7123-0440	**103H7123-0410**	0.83	2	0.65	53.8
103H7123-0740	**103H7123-0710**	0.78	3	0.65	53.8
103H7124-0140	**103H7124-0110**	0.98	1	0.8	63.8
103H7124-0440	**103H7124-0410**	0.98	2	0.8	63.8
103H7124-0740	**103H7124-0710**	0.98	3	0.8	63.8
103H7126-0140	**103H7126-0110**	1.27	1	0.98	75.8
103H7126-0440	**103H7126-0410**	1.27	2	0.98	75.8
103H7126-0740	**103H7126-0710**	1.27	3	0.98	75.8

56 mm sq. bipolar, lead type

Model no.		Holding torque at 2-phase excitation	Rated current	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	kg	mm
103H7121-5640	**103H7121-5610**	0.55	1	0.47	41.8
103H7121-5740	**103H7121-5710**	0.55	2	0.47	41.8
103H7121-5840	**103H7121-5810**	0.55	3	0.47	41.8
103H7123-5640	**103H7123-5610**	1.0	1	0.65	53.8
103H7123-5740	**103H7123-5710**	1.0	2	0.65	53.8
103H7123-5840	**103H7123-5810**	1.0	3	0.65	53.8
103H7126-5640	**103H7126-5610**	1.6	1	0.98	75.8
103H7126-5740	**103H7126-5710**	1.6	2	0.98	75.8
103H7126-5840	**103H7126-5810**	1.6	3	0.98	75.8
103H7128-5640	**103H7128-5610**	2.0	1	1.3	94.8
103H7128-5740	**103H7128-5710**	2.0	2	1.3	94.8
103H7128-5840	**103H7128-5810**	2.0	3	1.3	94.8

Replacement models

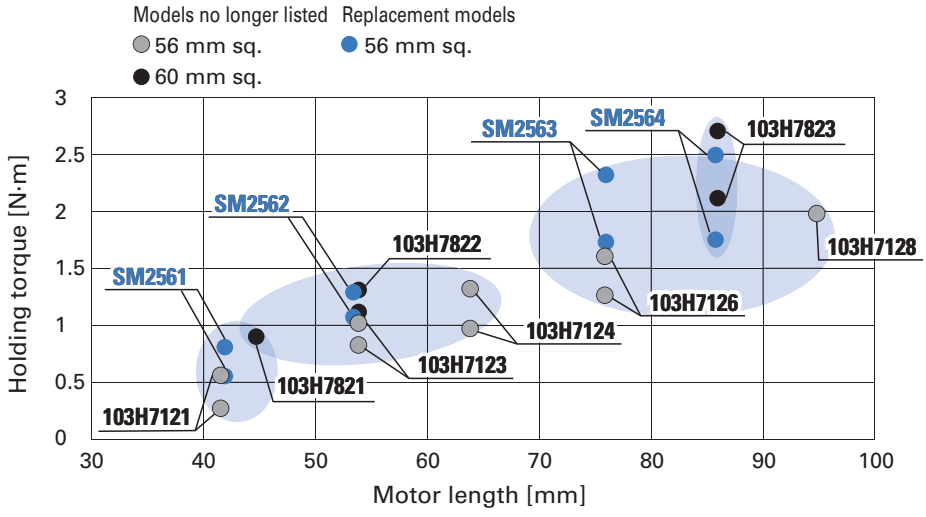
56 mm sq. unipolar, connector type Contact us for lead-type motors.

Model no.		Holding torque at 2-phase excitation	Rated current	Mass	Motor length (L)	Page
Single shaft	Dual shaft	N·m or more	A/phase	kg	mm	
SM2561C10U41	**SM2561C10U11**	0.53	1	0.49	41.8	p. 50
SM2561C20U41	**SM2561C20U11**	0.53	2	0.49	41.8	p. 50
SM2561C30U41	**SM2561C30U11**	0.53	3	0.49	41.8	p. 50
SM2562C10U41	**SM2562C10U11**	1.1	1	0.69	53.8	p. 50
SM2562C20U41	**SM2562C20U11**	1.1	2	0.69	53.8	p. 50
SM2562C30U41	**SM2562C30U11**	1.1	3	0.69	53.8	p. 50
SM2562C10U41	**SM2562C10U11**	1.1	1	0.69	53.8	p. 50
SM2562C20U41	**SM2562C20U11**	1.1	2	0.69	53.8	p. 50
SM2562C30U41	**SM2562C30U11**	1.1	3	0.69	53.8	p. 50
SM2563C10U41	**SM2563C10U11**	1.7	1	1.1	75.8	p. 50
SM2563C20U41	**SM2563C20U11**	1.7	2	1.1	75.8	p. 50
SM2563C30U41	**SM2563C30U11**	1.7	3	1.1	75.8	p. 50

56 mm sq. bipolar, connector type Contact us for lead-type motors.

Model no.		Holding torque at 2-phase excitation	Rated current	Mass	Motor length (L)	Page
Single shaft	Dual shaft	N·m or more	A/phase	kg	mm	
SM2561C10B41	**SM2561C10B11**	0.75	1	0.49	41.8	p. 52
SM2561C20B41	**SM2561C20B11**	0.75	2	0.49	41.8	p. 52
SM2561C30B41	**SM2561C30B11**	0.75	3	0.49	41.8	p. 52
SM2562C10B41	**SM2562C10B11**	1.4	1	0.69	53.8	p. 52
SM2562C20B41	**SM2562C20B11**	1.4	2	0.69	53.8	p. 52
SM2562C30B41	**SM2562C30B11**	1.4	3	0.69	53.8	p. 52
SM2563C10B41	**SM2563C10B11**	2.35	1	1.1	75.8	p. 52
SM2563C20B41	**SM2563C20B11**	2.35	2	1.1	75.8	p. 52
SM2563C30B41	**SM2563C30B11**	2.35	3	1.1	75.8	p. 52
SM2563C10B41	**SM2563C10B11**	2.35	1	1.1	75.8	p. 52
SM2563C20B41	**SM2563C20B11**	2.35	2	1.1	75.8	p. 52
SM2563C30B41	**SM2563C30B11**	2.35	3	1.1	75.8	p. 52

Replacement of 56 and 60 mm sq. motors



Models no longer listed

60 mm sq. unipolar, connector type

Model no.		Holding torque at 2-phase excitation	Rated current	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	kg	mm
103H7821-0140	**103H7821-0110**	0.78	1	0.6	44.8
103H7821-0440	**103H7821-0410**	0.78	2	0.6	44.8
103H7821-0740	**103H7821-0710**	0.78	3	0.6	44.8
103H7822-0140	**103H7822-0110**	1.17	1	0.77	53.8
103H7822-0440	**103H7822-0410**	1.17	2	0.77	53.8
103H7822-0740	**103H7822-0710**	1.17	3	0.77	53.8
103H7823-0140	**103H7823-0110**	2.1	1	1.34	85.8
103H7823-0440	**103H7823-0410**	2.1	2	1.34	85.8
103H7823-0740	**103H7823-0710**	2.1	3	1.34	85.8

60 mm sq. unipolar, lead type
NEMA 23 mounting compatible (47.14 mm)

Model no.		Holding torque at 2-phase excitation	Rated current	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	kg	mm
103H7821-0160	**103H7821-0130**	0.78	1	0.6	43.5
103H7821-0460	**103H7821-0430**	0.78	2	0.6	43.5
103H7821-0760	**103H7821-0730**	0.78	3	0.6	43.5
103H7822-0160	**103H7822-0130**	1.17	1	0.77	52.5
103H7822-0460	**103H7822-0430**	1.17	2	0.77	52.5
103H7822-0760	**103H7822-0730**	1.17	3	0.77	52.5
103H7823-0160	**103H7823-0130**	2.1	1	1.34	84.5
103H7823-0460	**103H7823-0430**	2.1	2	1.34	84.5
103H7823-0760	**103H7823-0730**	2.1	3	1.34	84.5

60 mm sq. bipolar, connector type

Model no.		Holding torque at 2-phase excitation	Rated current	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	kg	mm
103H7821-5740	**103H7821-5710**	0.88	2	0.6	44.8
103H7821-1740	**103H7821-1710**	0.88	4	0.6	44.8
103H7822-5740	**103H7822-5710**	1.37	2	0.77	53.8
103H7822-1740	**103H7822-1710**	1.37	4	0.77	53.8
103H7823-5740	**103H7823-5710**	2.7	2	1.34	85.8
103H7823-1740	**103H7823-1710**	2.7	4	1.34	85.8

60 mm sq. bipolar, lead type
NEMA 23 mounting compatible (47.14 mm)

Model no.		Holding torque at 2-phase excitation	Rated current	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	kg	mm
103H7821-5760	**103H7821-5730**	0.88	2	0.6	43.5
103H7821-1760	**103H7821-1730**	0.88	4	0.6	43.5
103H7822-5760	**103H7822-5730**	1.37	2	0.77	52.5
103H7822-1760	**103H7822-1730**	1.37	4	0.77	52.5
103H7823-5760	**103H7823-5730**	2.7	2	1.34	84.5
103H7823-1760	**103H7823-1730**	2.7	4	1.34	84.5

ø86 mm bipolar, lead type

Model no.		Holding torque at 2-phase excitation	Rated current	Mass	Motor length (L)
Single shaft	Dual shaft	N·m or more	A/phase	kg	mm
103H8221-6240	**103H8221-6210**	2.74	6	1.5	62
103H8222-6340	**103H8222-6310**	5.09	6	2.5	92.2
103H8223-6340	**103H8223-6310**	7.44	6	3.5	125.9

Replacement models

56 mm sq. unipolar, connector type

Model no.		Holding torque at 2-phase excitation	Rated current	Mass	Motor length (L)	Page
Single shaft	Dual shaft	N·m or more	A/phase	kg	mm	
SM2561C10U41	**SM2561C10U11**	0.53	1	0.49	41.8	p. 50
SM2561C20U41	**SM2561C20U11**	0.53	2	0.49	41.8	p. 50
SM2561C30U41	**SM2561C30U11**	0.53	3	0.49	41.8	p. 50
SM2562C10U41	**SM2562C10U11**	1.1	1	0.69	53.8	p. 50
SM2562C20U41	**SM2562C20U11**	1.1	2	0.69	53.8	p. 50
SM2562C30U41	**SM2562C30U11**	1.1	3	0.69	53.8	p. 50
SM2564C10U41	**SM2564C10U11**	1.75	1	1.27	85.8	p. 50
SM2564C20U41	**SM2564C20U11**	1.75	2	1.27	85.8	p. 50
SM2564C30U41	**SM2564C30U11**	1.75	3	1.27	85.8	p. 50

56 mm sq. unipolar, connector type
Contact us for lead-type motors.

Model no.		Holding torque at 2-phase excitation	Rated current	Mass	Motor length (L)	Page
Single shaft	Dual shaft	N·m or more	A/phase	kg	mm	
SM2561C10U41	**SM2561C10U11**	0.53	1	0.49	41.8	p. 50
SM2561C20U41	**SM2561C20U11**	0.53	2	0.49	41.8	p. 50
SM2561C30U41	**SM2561C30U11**	0.53	3	0.49	41.8	p. 50
SM2562C10U41	**SM2562C10U11**	1.1	1	0.69	53.8	p. 50
SM2562C20U41	**SM2562C20U11**	1.1	2	0.69	53.8	p. 50
SM2562C30U41	**SM2562C30U11**	1.1	3	0.69	53.8	p. 50
SM2564C10U41	**SM2564C10U11**	1.75	1	1.27	85.8	p. 50
SM2564C20U41	**SM2564C20U11**	1.75	2	1.27	85.8	p. 50
SM2564C30U41	**SM2564C30U11**	1.75	3	1.27	85.8	p. 50

56 mm sq. bipolar, connector type

Model no.		Holding torque at 2-phase excitation	Rated current	Mass	Motor length (L)	Page
Single shaft	Dual shaft	N·m or more	A/phase	kg	mm	
SM2561C20B41	**SM2561C20B11**	0.75	2	0.49	41.8	p. 52
SM2561C40B41	**SM2561C40B11**	0.75	4	0.49	41.8	p. 52
SM2562C20B41	**SM2562C20B11**	1.4	2	0.69	53.8	p. 52
SM2562C40B41	**SM2562C40B11**	1.4	4	0.69	53.8	p. 52
SM2564C20B41	**SM2564C20B11**	2.5	2	1.27	85.8	p. 52
SM2564C40B41	**SM2564C40B11**	2.5	4	1.27	85.8	p. 52

56 mm sq. bipolar, connector type
Contact us for lead-type motors.

Model no.		Holding torque at 2-phase excitation	Rated current	Mass	Motor length (L)	Page
Single shaft	Dual shaft	N·m or more	A/phase	kg	mm	
SM2561C20B41	**SM2561C20B11**	0.75	2	0.49	41.8	p. 52
SM2561C40B41	**SM2561C40B11**	0.75	4	0.49	41.8	p. 52
SM2562C20B41	**SM2562C20B11**	1.4	2	0.69	53.8	p. 52
SM2562C40B41	**SM2562C40B11**	1.4	4	0.69	53.8	p. 52
SM2564C20B41	**SM2564C20B11**	2.5	2	1.27	85.8	p. 52
SM2564C40B41	**SM2564C40B11**	2.5	4	1.27	85.8	p. 52

86 mm sq. bipolar, lead type

Model no.		Holding torque at 2-phase excitation	Rated current	Mass	Motor length (L)	Page
Single shaft	Dual shaft	N·m or more	A/phase	kg	mm	
SM2861-5251	**SM2861-5221**	3.3	6	1.75	66	p. 66
SM2862-5251	**SM2862-5221**	6.4	6	2.9	96.5	p. 66
SM2863-5251	**SM2863-5221**	9	6	4.0	127	p. 66