



Φ38-20121-24 Brushless DC Motor Product Datasheet

Φ38-20121-24 BLDC Overview

- Three Phase, Six Step, Full Wave, Y-Circuit
- Sintered Nd-Fe-B Permanent Magnet Rotor
- Hall Sensor / Sensorless
- Stepless (Very Low Cogging)
- Slot

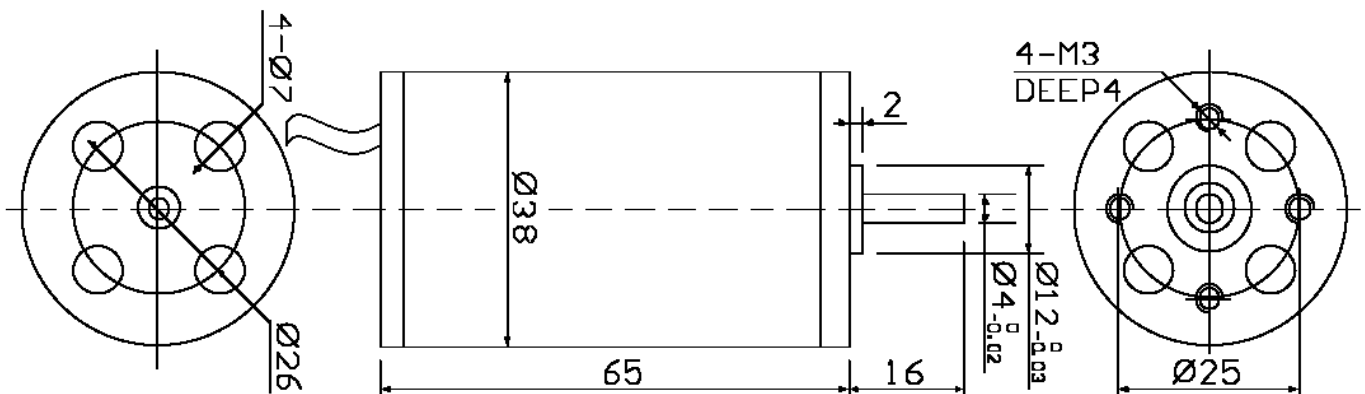


Parameters	Φ38-20121-24 BLDC Absolute Maximum Ratings	Unit
Continuous Current	8.7	A
Speed	20000	rpm
Winding and Rotor Temperature	-20 to +150	°C
Ambient Temperature	-20 to +85	°C

Notice: The Absolute Maximum Ratings are those values beyond which the safety of the device cannot be guaranteed

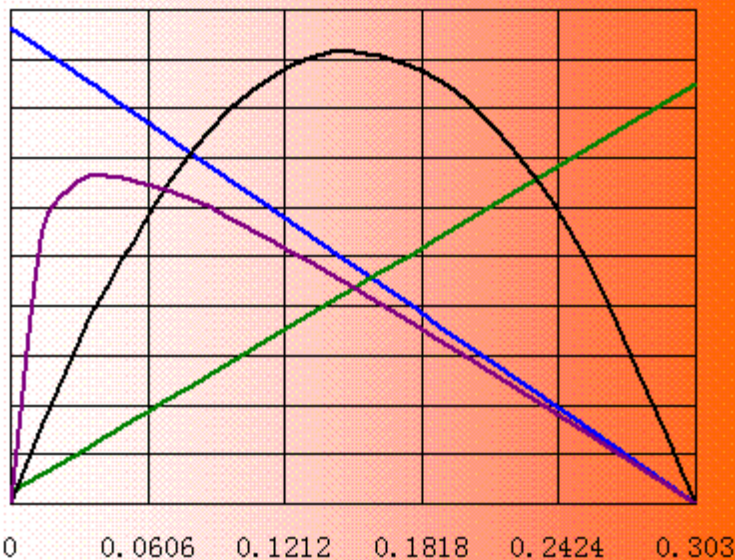
Parameters	Φ38-20121-24 BLDC Intrinsic Characteristics (20°C)	Unit
Resistance (Including 0.5m Line)	0.67	Ohm
Speed-Torque Gradient	38100	rpm/Nm
Torque Constant	0.0183	Nm/A
Speed Constant	481	rpm/V
Back-EMF Constant	2.05	mV/rpm
Rotor Magnetic Poles	2	Poles
Ball Bearing No Load Continuous Life (At Nominal Voltage)	15000	(Please order if have special requirement) Hours
Weight (Including 0.5m Line)	Approximate	240 g

Φ38-20121-24 BLDC Physical Size (Unit: mm)





Parameters	Φ38-20121-24 BLDC Performance Characteristics (20°C)					Unit
Nominal Voltage	24					V
Maximum Output Power	92					W
(See Curves Below)	No Load Point	Some Loaded Points Performance				
Output Torque	0	0.06	0.07	0.08	0.09	Nm
Output Speed	11550	9260	8880	8500	8120	rpm
Input Current	0.45	3.72	4.27	4.81	5.36	A
Output Power	0	58	65	71	77	W
Efficiency	0	65	64	62	59	%
External Forced Ventilation Cooling	<u>If the shell temperature of the motor is higher than 85°C, more effective cooling equipments must be installed. Otherwise the motor may be damaged by hotness.</u>					



$\eta(\%)$ P(W) I(A) N(rpm)
 100 100 20 12000

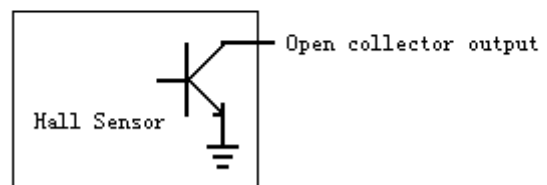
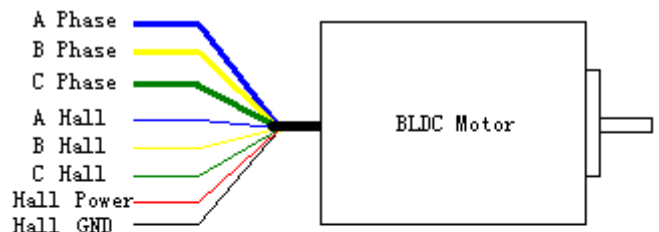
Speed vs. Torque : N -----
 Current vs. Torque : I -----
 Output Power vs. Torque : P -----
 Efficiency vs. Torque : η -----

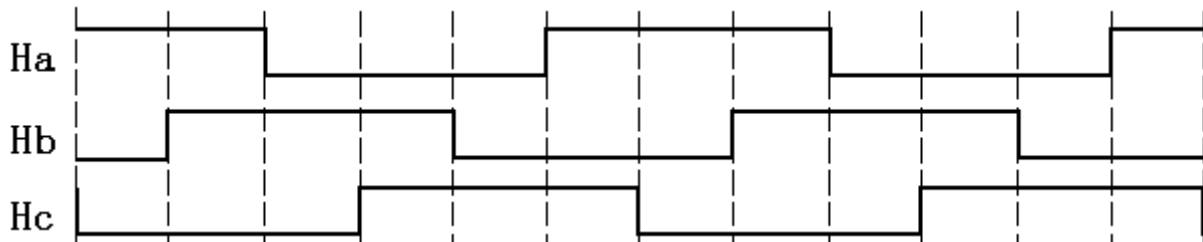
Short Term
 Operation Range:

Torque(Nm)

Φ38-20121-24 BLDC Connection Diagram and Hall Output Waveforms

- Connection: Blue thick--A phase, Yellow thick--B phase, Green thick--C phase, Blue thin--A hall, Yellow thin--B hall, Green thin--C hall, Red thin--Hall power supply, Black thin--Hall GND
- Hall Supply Voltage: 4.5 to 16VDC Regulated Supply
- Hall Power Supply Current: Less than 30mA
- Hall Output: Open collector. Require external pull-up resistors for proper logical operation. Maximum output voltage is 16V
- Electrical Hall Sensor Phasing: 120°
- Line Length: 0.5m, (Please order if have special requirement)

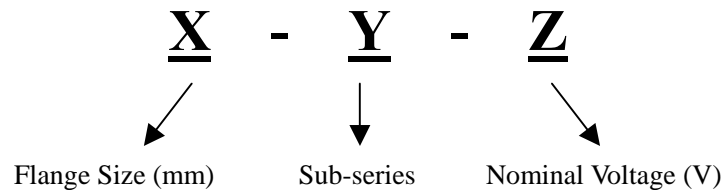




Hall Sensor Output Commutation Waveforms

Notice: The A, B, C three windings and Ha, Hb, Hc three hall sensors must be connected correctly, otherwise the controller and motor may be damaged.

Eletechnic BLDC Motor Product Code Regulation



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