



### Φ38-20118-24 Brushless DC Motor Product Datasheet

#### Φ38-20118-24 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

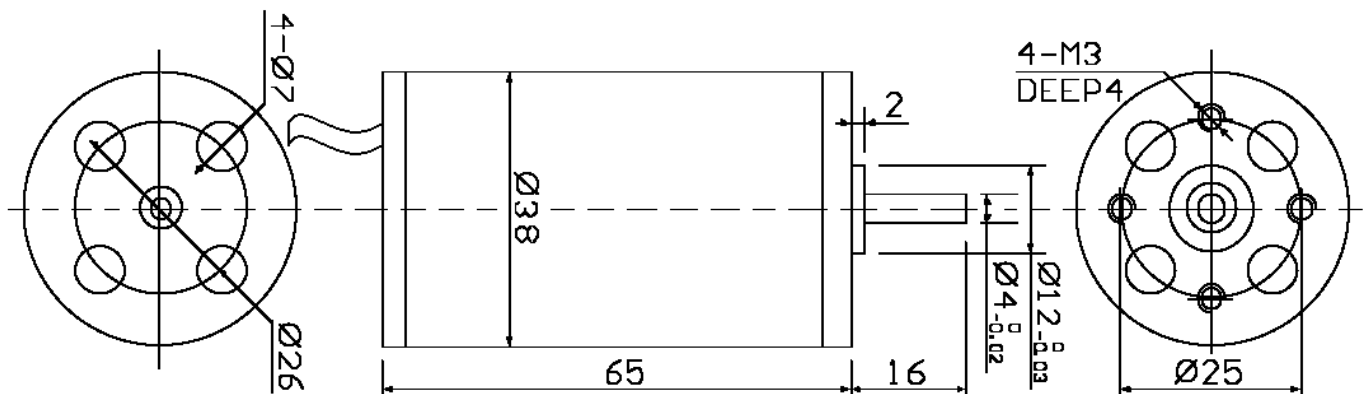


Parameters	Φ38-20118-24 BLDC Absolute Maximum Ratings	Unit
Continuous Current	7.8	A
Speed	20000	rpm
Winding and Rotor Temperature	-20 to +150	°C
Ambient Temperature	-20 to +85	°C

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

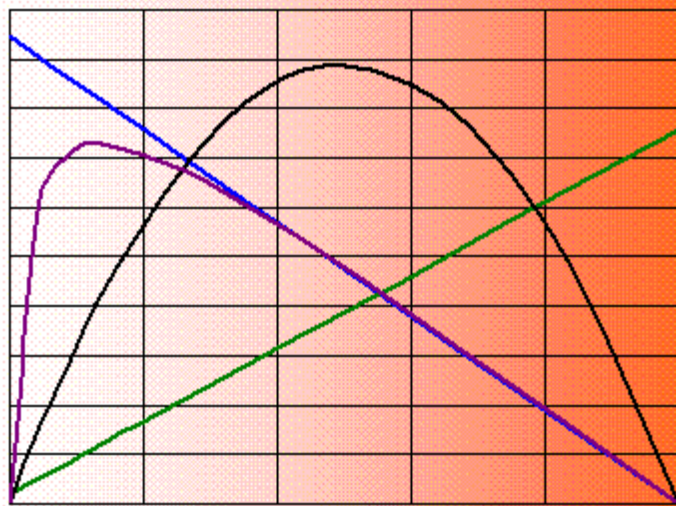
Parameters	Φ38-20118-24 BLDC Intrinsic Characteristics (20°C)	Unit
Resistance (Including 0.5m Line)	0.67	Ohm
Speed-Torque Gradient	59500	rpm/Nm
Torque Constant	0.0162	Nm/A
Speed Constant	592	rpm/V
Back-EMF Constant	1.67	mV/rpm
Rotor Magnetic Poles	2	Poles
Ball Bearing No Load Continuous Life (At Nominal Voltage)	15000	<a href="#">(Please order if have special requirement)</a> Hours
Weight (Including 0.5m Line)	Approximate	260 g

#### Φ38-20118-24 BLDC Physical Size (Unit: mm)





Parameters	Φ38-20118-24 BLDC Performance Characteristics (20°C)					Unit
Nominal Voltage	24					V
Maximum Output Power	89					W
(See Curves Below)	<b>No Load Point</b>	<b>Some Loaded Points Performance</b>				
Output Torque	0	0.04	0.05	0.06	0.07	Nm
Output Speed	14210	11830	11240	10640	10050	rpm
Input Current	0.38	2.85	3.47	4.09	4.71	A
Output Power	0	50	59	67	74	W
Efficiency	0	72	71	68	65	%
External Forced Ventilation Cooling	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.					



0 0.04776 0.09552 0.14328 0.19104 0.2388

**η(%)**    **P(W)**    **I(A)**    **N(rpm)**  
**100**    **100**    **20**    **15000**

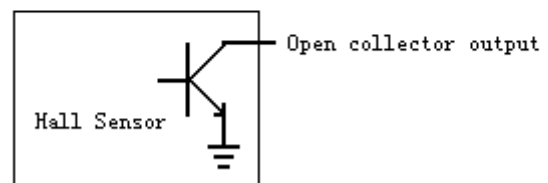
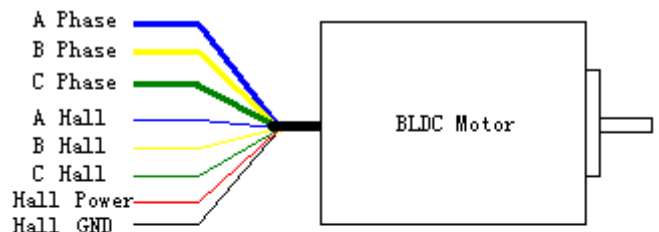
Speed vs. Torque : N -----  
 Current vs. Torque : I -----  
 Output Power vs. Torque : P -----  
 Efficiency vs. Torque : η -----

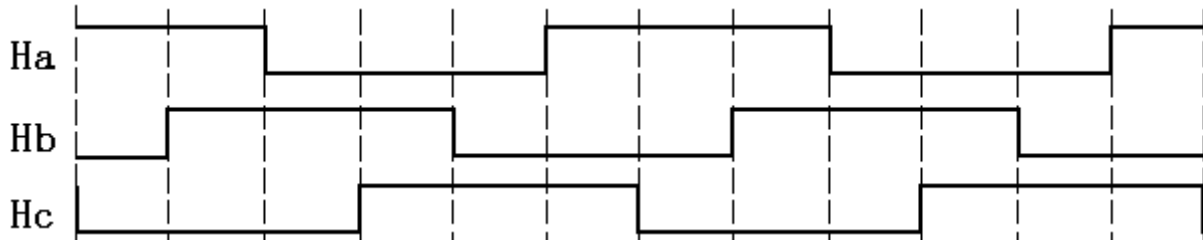
Short Term  
 Operation Range:                     

Torque(Nm)

### Φ38-20118-24 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)

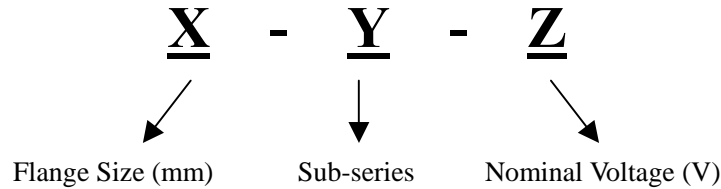




Hall Sensor Output Commutation Waveforms

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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