



Φ45-20110-24 Brushless DC Motor Product Datasheet

Φ45-20110-24 BLDC Overview

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

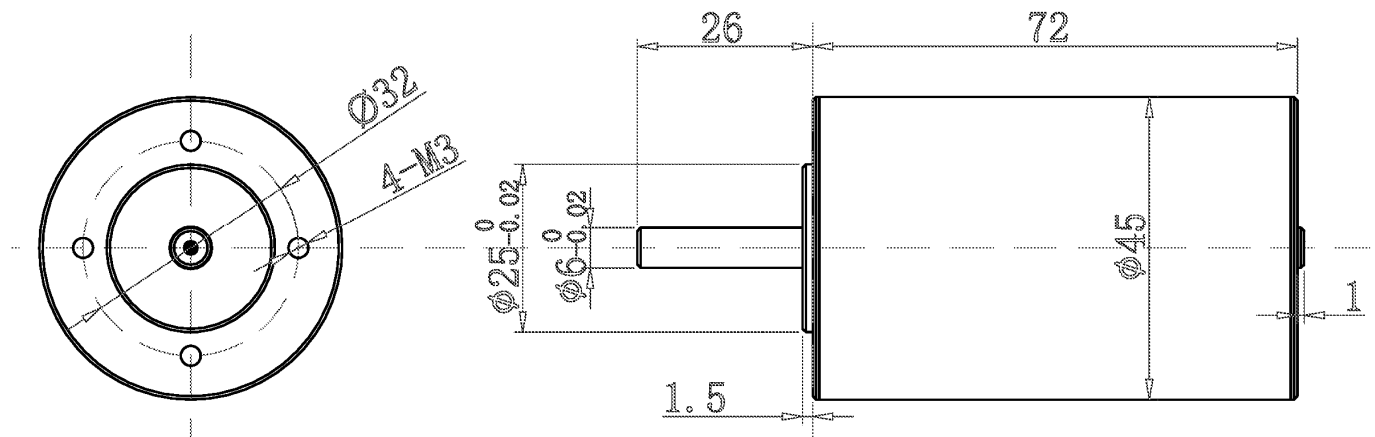


Parameters	Φ45-20110-24 BLDC Absolute Maximum Ratings	Unit
Peak Current	12.1	A
Speed	25000	rpm
Winding and Rotor Temperature	-20 to +130	°C
Ambient Temperature	-20 to +85	°C

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

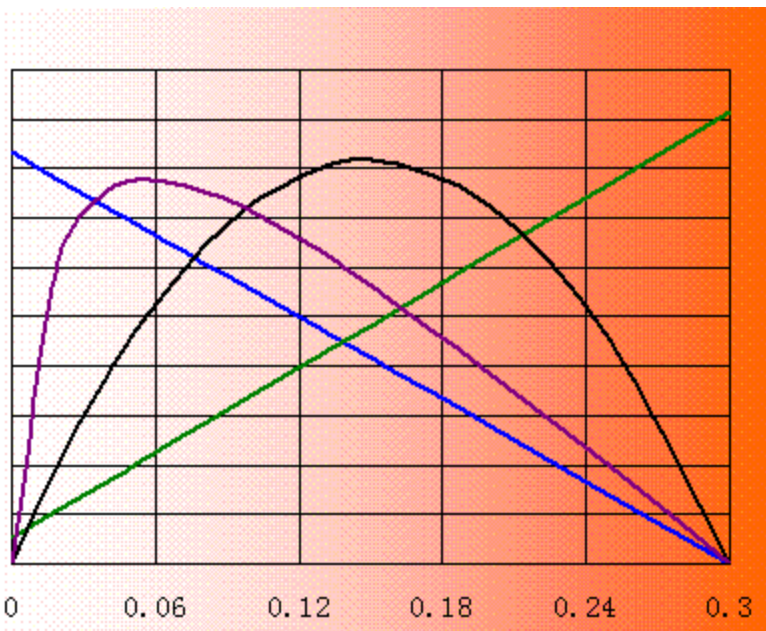
Parameters	Φ45-20110-24 BLDC Intrinsic Characteristics (20°C)	Unit
Resistance (Including 0.5m Line)	0.50	Ohm
Speed-Torque Gradient	69300	rpm/Nm
Torque Constant	0.0139	Nm/A
Speed Constant	867	rpm/V
Back-EMF Constant	1.12	mV/rpm
Rotor Magnetic Poles	2	Poles
Ball Bearing No Load Continuous Life (At Nominal Voltage)	10000	Hours
Weight (Including 0.5m Line)	Approximate 430	g

Φ45-20110-24 BLDC Physical Size (Unit: mm)





Parameters	Φ45-20110-24 BLDC Performance Characteristics (20°C)					Unit
Nominal Voltage	24					V
Maximum Output Power	163					W
(See Curves Below)	No Load Point	Some Loaded Points Performance				
Output Torque (T)	0	0.02	0.04	0.06	0.08	Nm
Output Speed (N)	20800	19410	18030	16640	15260	rpm
Input Current (I)	1.30	2.74	4.17	5.61	7.04	A
Output Power (P2)	0	41	76	105	128	W
Efficiency (η)	0	62	75	78	76	%
Free-convection Cooling	<u>If the shell temperature of the motor is higher than 85°C, fan or other cooling equipments must be installed. Otherwise the motor may be damaged by hotness.</u>					



$\eta(\%)$ P2(W) I(A) N(rpm)
100 **200** **25** **25000**

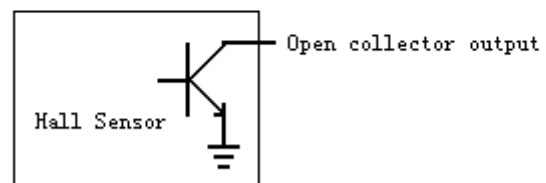
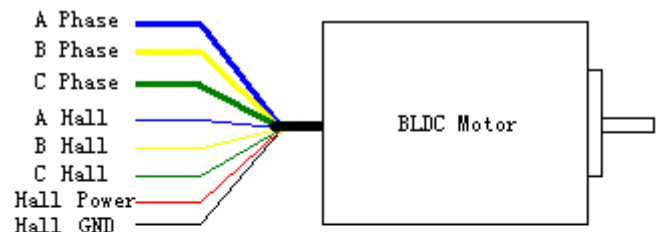
Efficiency vs. Torque: η -----
 Output Power vs. Torque: P2 -----
 Current vs. Torque: I -----
 Speed vs. Torque: N -----

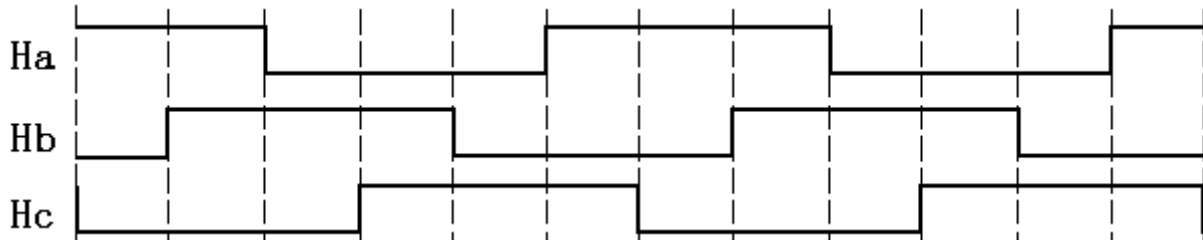
Short Term
 Operation Range:

Torque(Nm)

Φ45-20110-24 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)

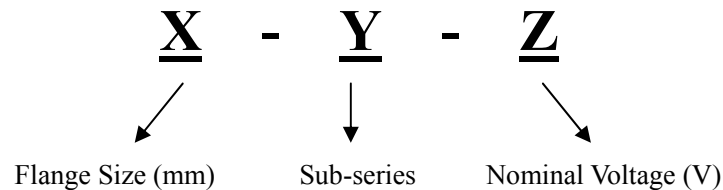




Hall Sensor Output Commutation Waveforms

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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How to reach us:

Address:

Chang Ping Qu, Er Bo Zi Gong Ye Yuan, Bei Qu Zhong Lu No.7

Beijing, 102208

P. R. China

Tel: 0086-10-68422061

Fax: 0086-10-68422061

EMAIL: SALES@ELETECHNIC.COM

[HTTP://WWW.ELETECHNIC.COM](http://WWW.ELETECHNIC.COM)

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