



Φ45-20130-36 Brushless DC Motor Product Datasheet

Φ45-20130-36 BLDC Overview

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

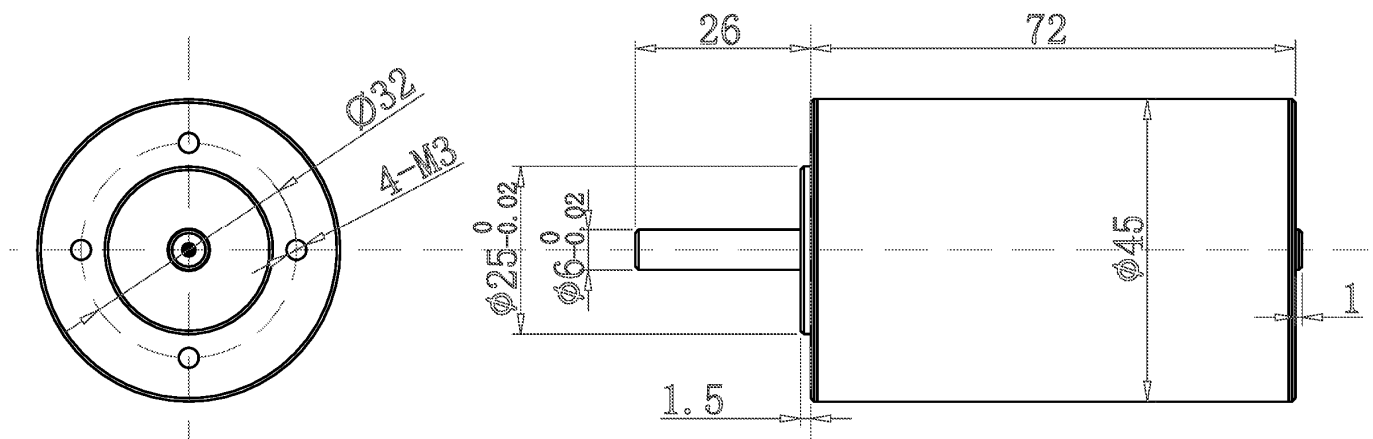


Parameters	Φ45-20130-36 BLDC Absolute Maximum Ratings	Unit
Peak Current	4.7	A
Speed	20000	rpm
Winding and Rotor Temperature	-20 to +130	°C
Ambient Temperature	-20 to +85	°C

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

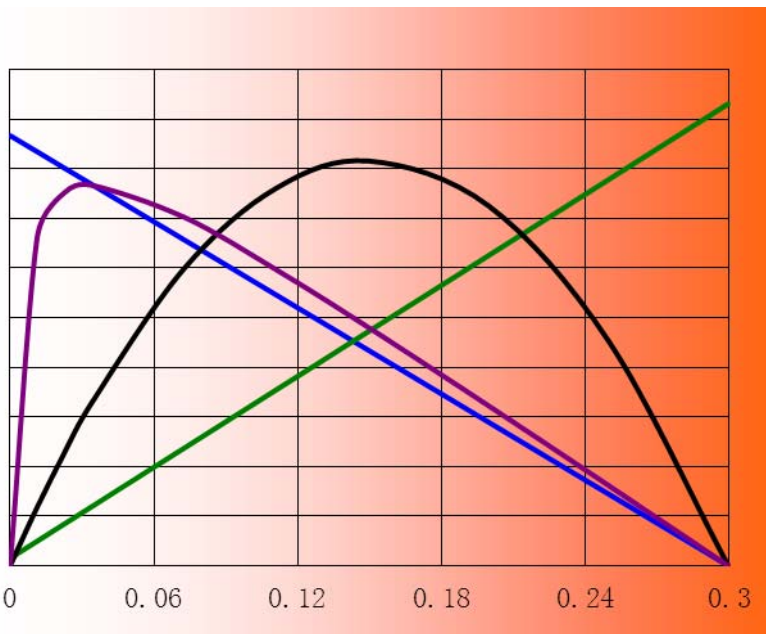
Parameters	Φ45-20130-36 BLDC Intrinsic Characteristics (20°C)	Unit
Resistance (Including Line)	3.5	Ohm
Speed-Torque Gradient	34700	rpm/Nm
Torque Constant	0.033	Nm/A
Speed Constant	289	rpm/V
Back-EMF Constant	3.41	mV/rpm
Rotor Magnetic Poles	2	Poles
Ball Bearing No Load Continuous Life (At Nominal Voltage)	15000	(Please order if have special requirement) Hours
Weight (Including Line)	Approximate 430	g

Φ45-20130-36 BLDC Physical Size (Unit: mm)





Parameters	Φ45-20130-36 BLDC Performance Characteristics (20°C)					Unit
Nominal Voltage	36					V
Maximum Output Power (P2)	82					W
(See Curves Below)	No Load Point	Some Loaded Points Performance				
Output Torque (T)	0	0.02	0.03	0.05	0.07	Nm
Output Speed (N)	10400	9710	9360	8670	7970	rpm
Input Current (I)	0.15	0.76	1.07	1.68	2.29	A
Output Power (P2)	0	20	29	45	58	W
Efficiency (η)	0	74	77	75	71	%
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>					



η (%) P2(W) I(A) N(rpm)
100 **100** **10** **12000**

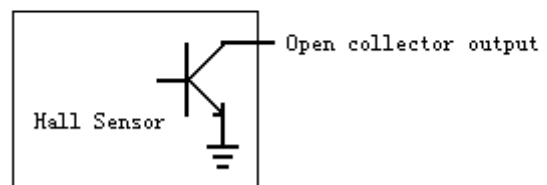
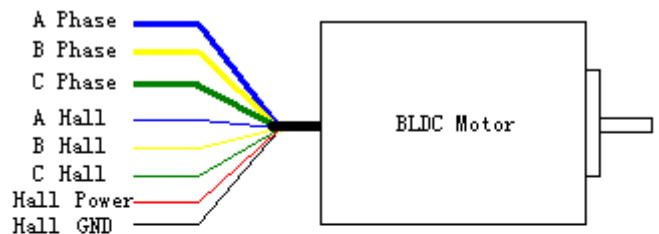
Efficiency vs. Torque: η -----
 Output Power vs. Torque: P2 -----
 Current vs. Torque: I -----
 Speed vs. Torque: N -----

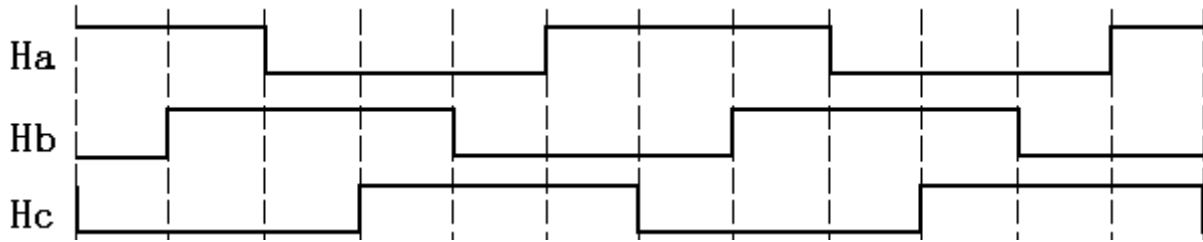
Short Term Operation Range:

Torque (Nm)

Φ45-20130-36 BLDC Connection Diagram and Hall Output Waveforms

- Three Phases: AWG18, Blue thick--A phase, Yellow thick--B phase, Green thick--C phase
- Halls: AWG24, 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 20mA
- Hall Output: Open collector. Require external pull-up resistors. Maximum output voltage is 16V
- Electrical Hall Sensor Phasing: 120°
- Line Length: 0.5m, (Please order if have special requirement)

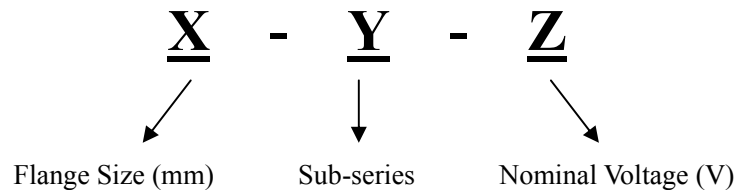




Hall Sensor Output Commutation Waveforms

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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