



P010 104

Electrical Data	P010 104 020 02	P010 104 003 02	
1 Resistance per Phase, typ	19.0	3.0	Ohms
2 Inductance per Phase, typ	13.7	1.8	mH
3 Nominal Phase Current (2 ph. On)	0.15	0.37	A
4 Nominal Phase Current (1 ph. On)	0.21	0.52	A
5 Back EMF amplitude	1.10	0.46	V/kstep/s
Coil independent parameters			
6 Holding Torque, nominal current	1.5 (0.21)	1.5 (0.21)	mNm (oz-in)
7 Holding Torque, 1.5x nominal current (1)	2.1 (0.3)	2.1 (0.3)	mNm (oz-in)
8 Detent Torque	0.04 (0.06)	0.04 (0.06)	mNm (oz-in)
9 Rotor Inertia	0.070	0.070	kgm ² x 10 ⁻⁷
10 Step Angle	9	9	Degree
11 Absolute accuracy 2 ph. On, Full step mode	+/- 5%	+/- 5%	% Full Step
12 Steps Per Revolution	40	40	
13 Ambient Temperature Range (operating)	-20 to 50 (-4 to 122)	-20 to 50 (-4 to 122)	°C (°F)
14 Maximum Coil Temperature	130 (266)	130 (266)	°C (°F)
15 Thermal Resistance Coil-ambient (2)	100	100	°C/W
16 Natural Resonance Frequency (nominal current)	230	230	Hz
17 Electrical Time Constant	0.60	0.60	ms
18 Angular Acceleration (nominal current)	210,000	210,000	rad/s ²
19 Bearing Type	Ball	Ball	
20 Dielectric Withstanding Voltage	500 VRMS for 5 seconds (30 @ 2N)		VAC
21 Radial Shaft Play	30 @ 2N		µm
22 Axial Shaft Play	40 @ 2N		µm
23 Maximum Radial Shaft Load	2.5 (9)		N (oz)
24 Maximum Axial Shaft Load (3)	2.5 (9)		N (oz)
25 Weight	9 (0.32)		g (oz)
26 Power Rate (nominal current)	0.5		kW/s

(1) Measured with 1 phase ON. The max coil temperature must be respected

(2) Motor unmounted

(3) Shaft must be supported when press-fitting a pulley or



Kapton Circuit Reinforcement for connector ZIF ZMP step 1 mm