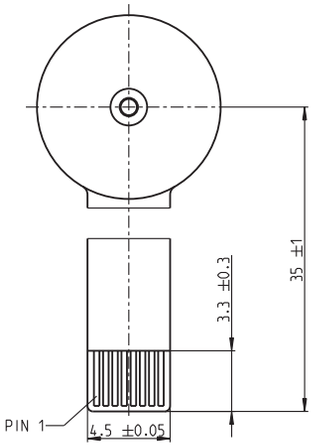
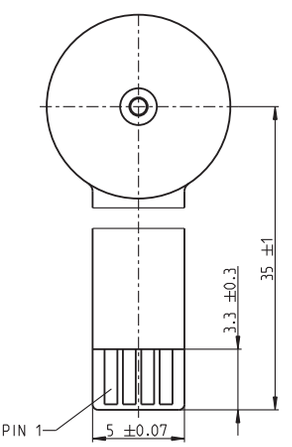
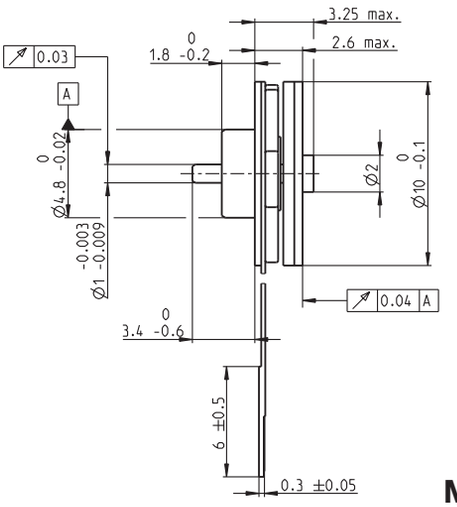
EC 10 flat ∅10 mm, brushless, 0.2 Watt

A with Hall sensors



B sensorless





M 5:2

Stock program
Standard program
Special program (on request)

	Part Numbers
A with Hall sensors	302000
B sensorless	301999

Motor Data (provisional)									
	Values at nominal voltage								
1	Nominal voltage	V	4						
2	No load speed	rpm	16600						
3	No load current	mA	14.8						
4	Nominal speed	rpm	–						
5	Nominal torque	mNm	0.25						
6	Nominal current	A	0.122						
7	Stall torque	mNm	0.202						
8	Stall current	A	0.103						
9	Max. efficiency	%	41						
	Characteristics								
10	Terminal resistance phase to phase	Ω	38.8						
11	Terminal inductance phase to phase	mH	0.277						
12	Torque constant	mNm/A	1.96						
13	Speed constant	rpm/V	4870						
14	Speed/torque gradient	rpm/mNm	96500						
15	Mechanical time constant	ms	80.8						
16	Rotor inertia	gcm²	0.08						

Specifications

	Thermal data		
17	Thermal resistance housing-ambient		50 K/W
18	Thermal resistance winding-housing		50 K/W
19	Thermal time constant winding		2.22 s
20	Thermal time constant motor		20.5 s
21	Ambient temperature		-40…+85°C
22	Max. winding temperature		+100°C
	Mechanical data (preloaded ball bearings)		
23	Max. speed		22000 rpm
24	Axial play at axial load	< 0.15 N	0 mm
		> 0.15 N	0.06 mm
25	Radial play		preloaded
26	Max. axial load (dynamic)		1 N
27	Max. force for press fits (static)		6 N
	(static, shaft supported)		20 N
28	Max. radial load, 1 mm from flange		1 N
	Other specifications		
29	Number of pole pairs		4
30	Number of phases		3
31	Weight of motor		0.82 g

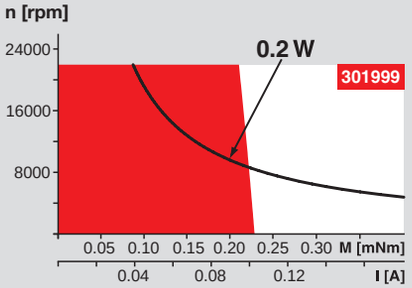
Values listed in the table are nominal.

Connection	**with Hall sensors**	**sensorless**
Pin 1	Motor winding 3	Motor winding 1
Pin 2	Motor winding 2	Motor winding 2
Pin 3	Hall sensor 3	Motor winding 3
Pin 4	V_{Hall} 3.8...24 VDC	N.C.
Pin 5	GND	
Pin 6	Hall sensor 1	
Pin 7	Hall sensor 2	
Pin 8	Motor winding 1	

Connector	**Part number**	**Part number**
Molex	52745-0897	52207-0433
Molex		52089-0419
Tyco		84953-4

Pin for design with Hall sensors:
FPC, 8-pol, Pitch 0.5 mm, top contact style
Wiring diagram for Hall sensors see p. 37

Operating Range



Comments

Continuous operation
In observation of above listed thermal resistance (lines 17 and 18) the maximum permissible winding temperature will be reached during continuous operation at 25°C ambient.
= Thermal limit.

Short term operation
The motor may be briefly overloaded (recurring).

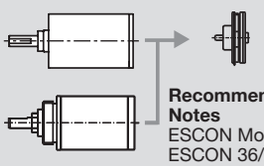
Assigned power rating

maxon Modular System

Overview on page 20–27

Planetary Gearhead
∅10 mm
0.005 - 0.1 Nm
Page 313

Planetary Gearhead
∅10 mm
0.01 - 0.15 Nm
Page 314



Recommended Electronics:

Notes	Page **26**
ESCON Module 24/2	416
ESCON 36/3 EC	417
ESCON Mod. 50/4 EC-S	417
DEC Module 24/2	420
EPOS2 24/2	424
EPOS2 Module 36/2	424