



Dimensions in mm.

Electrical Data	Symbol	22ECS45-10B-xxx.01				Unit
		38	30	24	18	
1 Nominal Voltage	U_N	24	24	24	24	Volt
2 Optimization Direction	-	CCW	CCW	CCW	CCW	-
3 No-Load Speed	n_0	34,500	43,500	51,600	68,500	rpm
4 Typical No-Load Current	I_0	160	195	240	300	mA
5 Max Continuous Mechanical Power (@25°C)	P_{max}	120	120	120	120	W
6 Max Continuous Current	$I_{e,max}$	4.0	5.2	6.4	8.2	A
7 Max Continuous Torque	$M_{e,max}$	26.6 (3.77)	26.8 (3.8)	26.7 (3.79)	26.8 (3.8)	mNm (oz-in)
8 Back EMF Constant	k_E	0.69	0.54	0.44	0.34	V/1000 rpm
9 Torque Constant	k_M	6.6	5.2	4.2	3.3	mNm/A
10 Motor Regulation	R/k^2	8.6	8.5	8.5	8.5	10 ³ Nms
11 Motor Regulation	$k/R^{1/2}$	10.8 (1.53)	10.8 (1.53)	10.8 (1.53)	10.8 (1.53)	mNm/W ^{1/2} (oz-in/W ^{1/2})
12 Internal Resistance - phase to phase	R_i	0.38	0.23	0.15	0.09	ohms
13 Line to Line Resistance at Connectors	R_L	0.42	0.25	0.18	0.11	ohms
14 Inductance Phase to Phase	L	0.057	0.035	0.022	0.013	mH
15 Mechanical Time Constant	τ_m	1.9	1.9	1.9	1.9	ms
16 Electrical Time Constant	τ_e	0.15	0.15	0.15	0.14	ms

General Data				
17 Maximum Motor Speed	n_{max}	73,000		rpm
18 Ambient Working Temperature Range	-	-30 to + 100 (-22 to + 212)		°C (°F)
19 Ambient Storage Temperature Range	-	-40 to + 100 (-40 to + 212)		°C (°F)
20 Ball Bearings Preload	-	5.5		N
21 Axial Static Force w/o Shaft Support (max)	-	34		N
22 Maximum Winding Temperature	-	125 (257)		°C (°F)
23 Thermal Resistance	R_{th}	2 / 9.7		°C/W
24 Thermal Time Constant	τ_w	1,000		s
25 Weight	-	100 (3.52)		g (oz)
26 Rotor Inertia	J	2.30		g-cm ²
27 Hall Sensor Electrical Phasing*	-	120		Electrical °

*Available without hall sensor

Wire	Description
Gray	Phase 1
Violet	Phase 2
Blue	Phase 3
Green	3.5 to 24V DC
Yellow	GND
Orange	Sensor 1
Red	Sensor 2
Brown	Sensor 3
Black	NTC 10 kohm
White	NTC 10 kohm

with hall effect sensor

