



Dimensions in mm.

Electrical Data	Symbol	22ECS45-10B-xxx.01				Unit
		38	30	24	13	
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 <sup>3</sup> 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 <sup>1/2</sup> (oz-in/W <sup>1/2</sup> )
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	$\tau_m$	1.9	1.9	1.9	1.9	ms
16 Electrical Time Constant	$\tau_e$	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	$\tau_w$		1,000			s
25 Weight	-		100 (3.52)			g (oz)
26 Rotor Inertia	$J$		2.30			g-cm <sup>2</sup>
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

