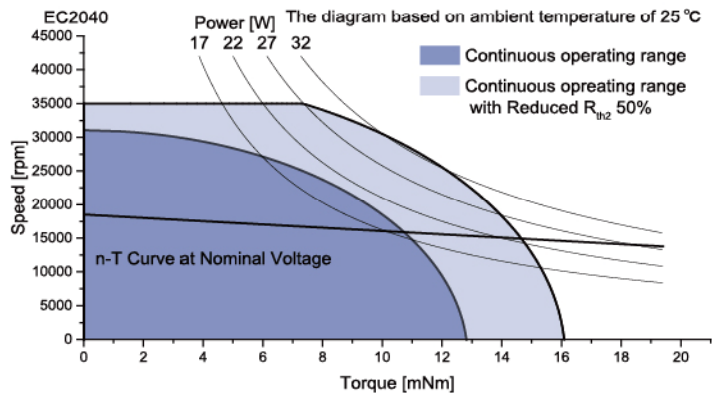


M 1:1

|                                  | Sensorless               | EC2040L-...      | 1218  | 1818  | 2418  | 3618  |  |  |  |
|----------------------------------|--------------------------|------------------|-------|-------|-------|-------|--|--|--|
|                                  | With hall sensor         | EC2040S-...      |       |       |       |       |  |  |  |
| <b>Motor data</b>                |                          |                  |       |       |       |       |  |  |  |
| <b>Values at nominal voltage</b> |                          |                  |       |       |       |       |  |  |  |
| 1                                | Nominal voltage          | V                | 12    | 18    | 24    | 36    |  |  |  |
| 2                                | No load speed            | rpm              | 17780 | 18360 | 18500 | 18880 |  |  |  |
| 3                                | No load current          | mA               | 149   | 137   | 105   | 83    |  |  |  |
| 4                                | Nominal speed            | rpm              | 15083 | 16171 | 16042 | 16164 |  |  |  |
| 5                                | Nominal torque           | mNm              | 10    | 10    | 10    | 10    |  |  |  |
| 6                                | Nominal current          | A                | 1.72  | 1.22  | 0.93  | 0.64  |  |  |  |
| 7                                | Stall torque             | mNm              | 65.9  | 83.9  | 75.3  | 69.5  |  |  |  |
| 8                                | Stall current            | A                | 10.5  | 9.23  | 6.28  | 3.98  |  |  |  |
| 9                                | Max. efficiency          | %                | 77.6  | 77.1  | 75.8  | 73.2  |  |  |  |
| 10                               | Terminal resistance      | $\Omega$         | 1.14  | 1.95  | 3.82  | 9.04  |  |  |  |
| 11                               | Terminal inductance      | mH               | 0.08  | 0.17  | 0.30  | 0.62  |  |  |  |
| 12                               | Torque constant          | mNm/A            | 6.35  | 9.22  | 12.2  | 17.8  |  |  |  |
| 13                               | Speed constant           | rpm/V            | 1503  | 1035  | 784   | 536   |  |  |  |
| 14                               | Speed/torque gradient    | rpm/mNm          | 270   | 219   | 246   | 272   |  |  |  |
| 15                               | Mechanical time constant | ms               | 6.4   | 5.2   | 5.8   | 6.4   |  |  |  |
| 16                               | Rotor inertia            | gcm <sup>2</sup> | 2.3   | 2.3   | 2.3   | 2.3   |  |  |  |

|    |                                      |              |
|----|--------------------------------------|--------------|
| 17 | Thermal resistance housing-ambient   | 13.8 K/W     |
| 18 | Thermal resistance winding-housing   | 4.3 K/W      |
| 19 | Thermal time constant winding        | 8 s          |
| 20 | Thermal time constant motor          | 366 s        |
| 21 | Ambient temperature                  | -40...+100°C |
| 22 | Max. permissible winding temperature | +150°C       |
| 23 | Max. permissible speed               | 35000 rpm    |
| 24 | Axial play at axial load <4 N        | 0 mm         |
|    | >4 N                                 | max. 0.3 mm  |
| 25 | Radial play                          | preloaded    |
| 26 | Max. axial load (dynamic)            | 3.5 N        |
| 27 | Max. force for press fits (static)   | 44 N         |
|    | (static, shaft supported)            | 1200 N       |
| 28 | Max. radial loading, 5mm from flange | 15 N         |
| 29 | Number of pole pairs                 | 1            |
| 30 | Number of phases                     | 3            |
| 31 | Weight of motor                      | 56 g         |

**Operating Range**



**Connection**

|                              |                  |       |       |
|------------------------------|------------------|-------|-------|
| <b>Connection A (Sensor)</b> |                  | PVC   |       |
| Pin 1                        | Vhall 3-18 VDC   | AWG26 | black |
| Pin 2                        | Hall sensor HA   | AWG26 | black |
| Pin 3                        | Hall sensor HB   | AWG26 | black |
| Pin 4                        | Hall sensor HC   | AWG26 | black |
| Pin 5                        | GND              | AWG26 | black |
| Pin 6                        | Motor winding MA | AWG26 | black |
| Pin 7                        | Motor winding MB | AWG26 | black |
| Pin 8                        | Motor winding MC | AWG26 | black |
| Connector                    |                  |       |       |
| JST PH2.0-8P                 |                  |       |       |

|                                  |                  |       |        |
|----------------------------------|------------------|-------|--------|
| <b>Connection B (Sensorless)</b> |                  | PTFE  |        |
| Pin 1                            | Motor winding MA | AWG26 | yellow |
| Pin 2                            | Motor winding MB | AWG26 | green  |
| Pin 3                            | Motor winding MC | AWG26 | blue   |

**Configuration**

Performance: Customized within the continuous operating range  
Ball bearing: Preload  
Flange: Standard frange front&back/customize the frange  
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft  
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length  
Connector: JST/MOLEX/TE