



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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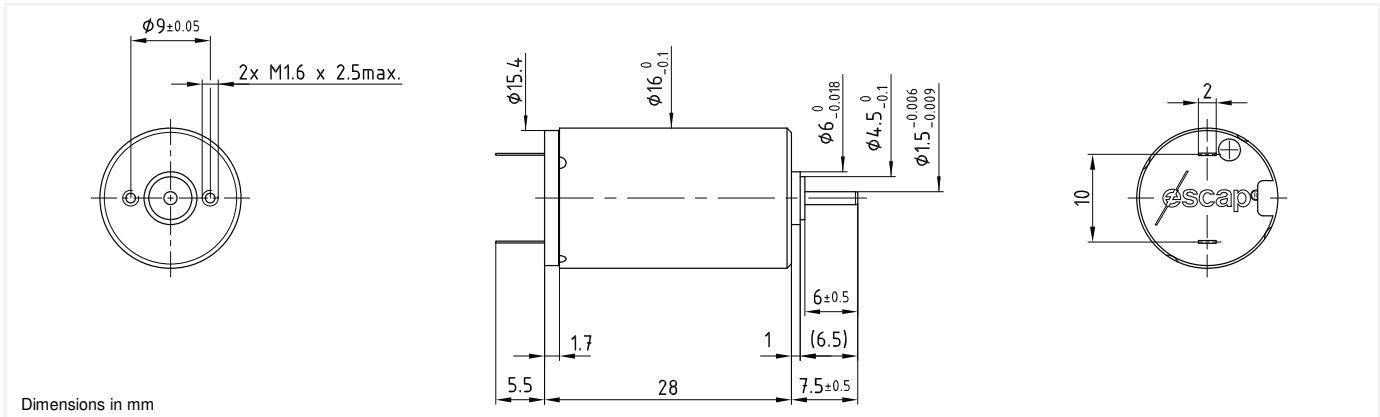


16N78 Athlonix™

Precious metal commutation

Ø16mm

6.9 mNm



16N78 **** .1001

| Electrical Data | **** | 135 | 212P | 214E | 212E | 210E | 208E | |
|---|---------------------|-------------|-------------|-------------|--------------------------------|-------------|-------------|-------------------|
| 1 Nominal Voltage | V | 1.5 | 6 | 9 | 12 | 18 | 24 | Volt |
| 2 No-Load Speed | n_0 | 9,475 | 8,350 | 8,275 | 8,380 | 9,270 | 8,200 | rpm |
| 3 No-Load Current | I_0 | 60.0 | 18.0 | 10.0 | 5.0 | 5.0 | 4.0 | mA |
| 4 Terminal Resistance | R | 0.2 | 3.0 | 7.5 | 13.2 | 27.5 | 60.5 | Ω |
| 5 Output Power | $P_{2max.}$ | 4.7 | 5.4 | 5.2 | 5.2 | 4.9 | 4.9 | W |
| 6 Stall Torque | mNm | 11.5 (1.63) | 13.6 (1.93) | 12.4 (1.76) | 12.4 (1.76) | 12 (1.7) | 11 (1.56) | mNm (oz-in) |
| 7 Efficiency | $\eta_{max.}$ | 83 | 82 | 83 | 86 | 83 | 81 | % |
| 8 Max Continuous Speed | $n_{e max.}$ | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | rpm |
| 9 Max Continuous Torque | $M_{e max.}$ | 6 (0.98) | 6.9 (0.98) | 6.6 (0.94) | 6.6 (0.94) | 6.2 (0.88) | 6.3 (0.9) | mNm (oz-in) |
| 10 Max Continuous Current | $I_{e max.}$ | 4.00 | 1.03 | 0.65 | 0.49 | 0.34 | 0.23 | A |
| 11 Back-EMF Constant | k_E | 0.16 | 0.71 | 1.08 | 1.42 | 1.93 | 2.90 | mV/rpm |
| 12 Torque Constant | k_M | 1.50 | 6.80 | 10.30 | 13.60 | 18.40 | 27.70 | mNm/A |
| 13 Motor Regulation | R/k^2 | 88.9 | 64.9 | 70.7 | 71.37 | 81.23 | 78.85 | $10^3/Nms$ |
| 14 Friction Torque | T_F | 0.09 (0.02) | 0.12 (0.02) | 0.1 (0.02) | 0.07 (0.01) | 0.09 (0.02) | 0.08 (0.02) | mNm (oz-in) |
| 15 Rotor Inductance | L | 0.01 | 0.10 | 0.30 | 0.50 | 1.00 | 2.40 | mH |
| 16 Mechanical Time Constant | t_m | 9.8 | 6.8 | 8.8 | 8.6 | 9.7 | 9.3 | ms |
| 17 Rotor Inertia | J | 1.10 | 1.05 | 1.25 | 1.20 | 1.20 | 1.18 | g.cm ² |
| General Data | | | | | | | | |
| 18 Thermal Resistance (rotor/body) | R_{th1} / R_{th2} | | | | 6 / 25 | | | °C/W |
| 19 Thermal Time Constant (rotor/stator) | t_{w1}/t_{w2} | | | | 12/250 | | | S |
| 20 Operating Temperature Range: | motor | | | | -30°C to 85°C (-22°F to 185°F) | | | °C (°F) |
| | rotor | | | | 100°C (212°F) | | | °C (°F) |
| 21 Shaft Load Max.: | | | | | With sleeve bearings | | | |
| (5mm from bearing) | -radial | | | | 1.5 (5.4) | | | N (oz) |
| | -axial | | | | 100 (359.6) | | | N (oz) |
| 22 Shaft Play: | -radial | | | | <0.03 (0.0012) | | | mm (inch) |
| | -axial | | | | 0.15 (0.0059) | | | mm (inch) |
| 23 Weight | g | | | | 24 (0.85) | | | g (oz) |

| Execution Table | | |
|-----------------|--------------|------|
| Gearbox | Single Shaft | MR2 |
| B16 | 1005 | 1008 |
| BA16 | 1005 | 1008 |
| R16 | 1001 | 1007 |

