

MLX90412-L

SINGLE-COIL FAN & PUMP DRIVER

The hummingbird's beating wings flap at extremely high frequencies, typically around 50 times per second. This allows it to fly at speeds exceeding 15 m/s, to fly backwards or to seemingly be suspended in the air in perfect balance. What better animal to reflect the motor/control driver and actuator capacities?

LOW NOISE FAN & PUMP DRIVER FOR AUTOMOTIVE APPLICATIONS

MLX90412-L

The **L-grade version** of the MLX90412 operates over a supply voltage range from 3.5 V to 32 V, and is robust up to 40 V. With an operating temperature up to 150°C, it is a perfect fit for any automotive fan, blower or pump application directly on the 12 V boardnet, or even the 24 V boardnet for trucks. With current limit options from 1.5 A up to 2.2 A, the MLX90412 drives automotive applications up to 20 W in a safe and cost effective way, without risk for overheating the device or the motor coil, in complement to the MLX90411 which covers applications up to 7W. The closed-loop speed control limits the speed variation to less than +/-5% regardless of the load condition, battery voltage variation, or fan production tolerances over the full temperature range. Together with the adaptive low noise commutation it enables industry standard efficiency and acoustic performance. Multiple commutation options are available, including a sinewave option offering unprecedented low levels of vibration.

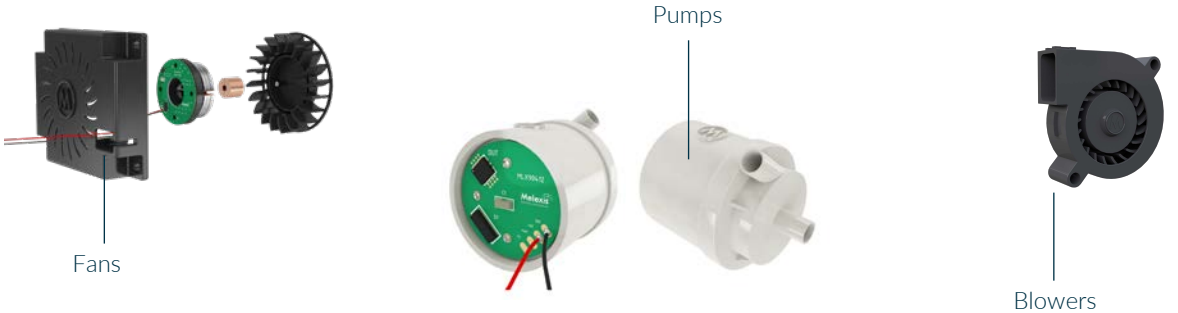


KEY FEATURES

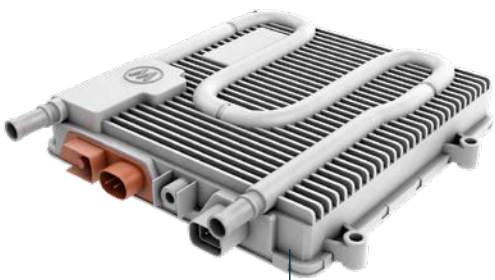
- ✓ All-in-one fan driver, including high-sensitivity Hall-effect sensor
- ✓ Up to 2.2 A motor current
- ✓ Adaptive commutation for best in class efficiency over the full speed range for any fan design
- ✓ Commutation options
 - Maximum torque
 - Very low acoustic noise
- ✓ PWM control input
 - Standby mode
 - Open loop / closed loop speed control (+/-1%)
- ✓ Operating supply range from 3.5 V to 32 V
- ✓ Operating junction temperature from -40 to 150°C
 - Locked Rotor Protection (LRP) (Programmable)
 - Temperature Shutdown (TSD)
- ✓ Protections and diagnostics
 - Over Voltage protection (OVP) (Programmable)
 - 22 V for car 12 V board net
 - 35 V for truck 24 V board net
 - Short circuit protection (OCP)
 - Current limit (CL)
 - FG/RD open drain diagnostics output (Programmable)
- ✓ Certifications MLX90412-L
 - AEC-Q100-Rev-H qualified packages
 - Automotive PPAP (PSW)
- ✓ I2C programming
 - Fast prototyping
 - End-of-line programming
- ✓ Package
 - Exposed pad DFN10 3x3 with wettable flanks
 - small (9mm2) footprint, for minimal PCB size
 - <1mm height

APPLICATION VISUALS

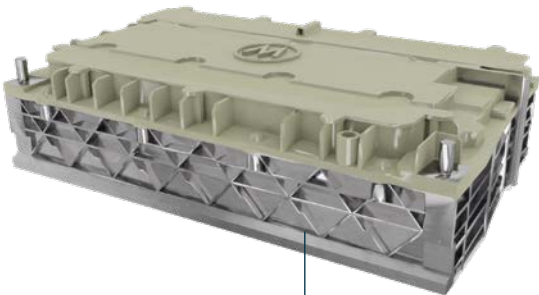
Air pump, water pump, axial fans, radial blower and cross blower



Seat blowers



DC/DC converter cooling fan or pump



Battery cooling fan

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